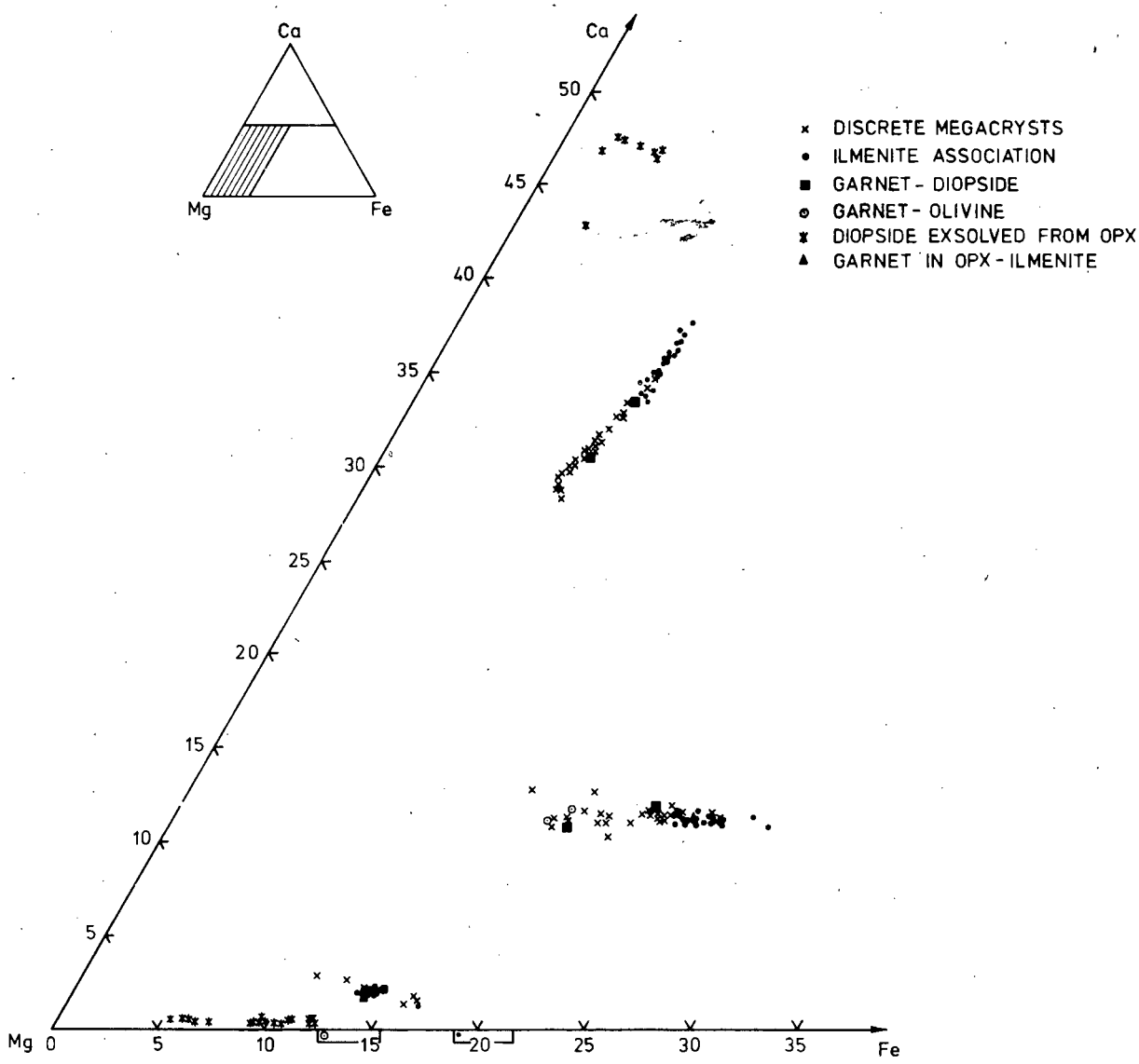

Fig. 1

Ternary diagram for diopsides (top), garnets (centre) and enstatites (bottom) from Monastery. The olivine compositions are indicated by two brackets on the Mg-Fe join

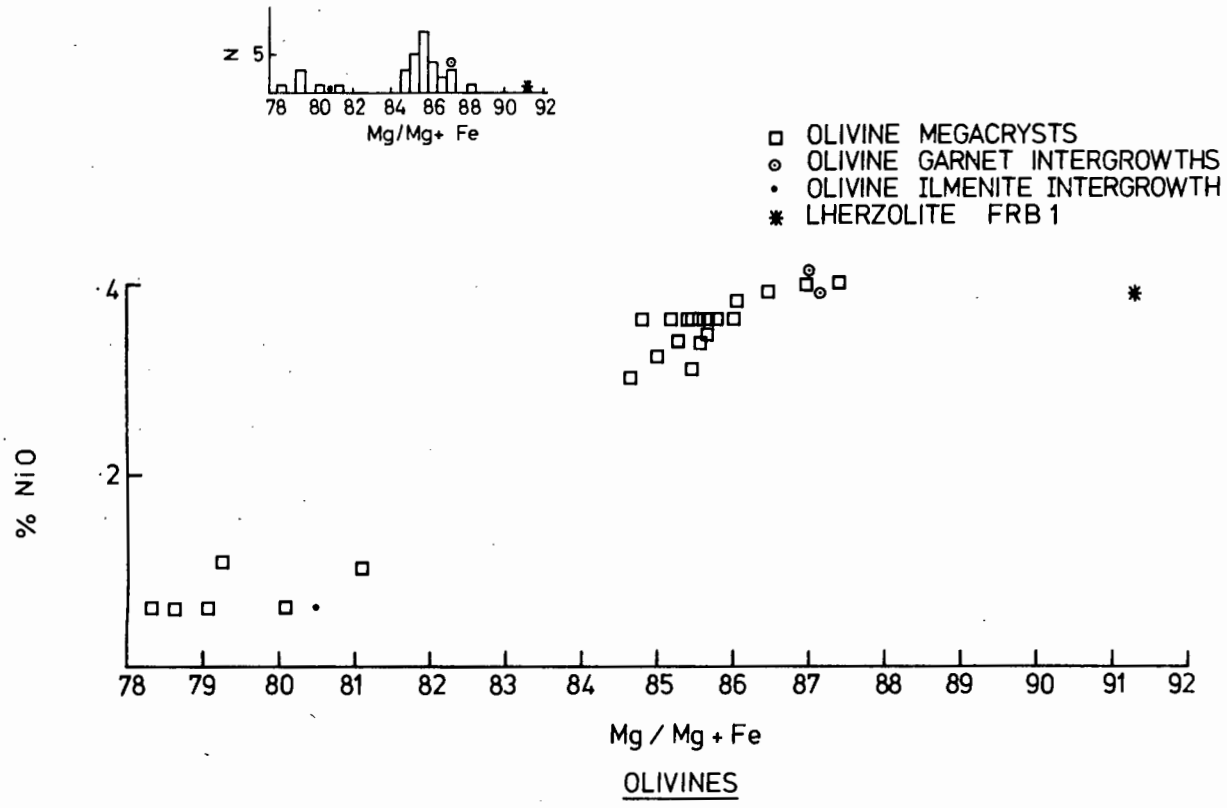

Fig. 2
Nickel oxide plotted against Mg/Mg+Fe at.% for the Monastery olivine megacrysts, and histogram (top)

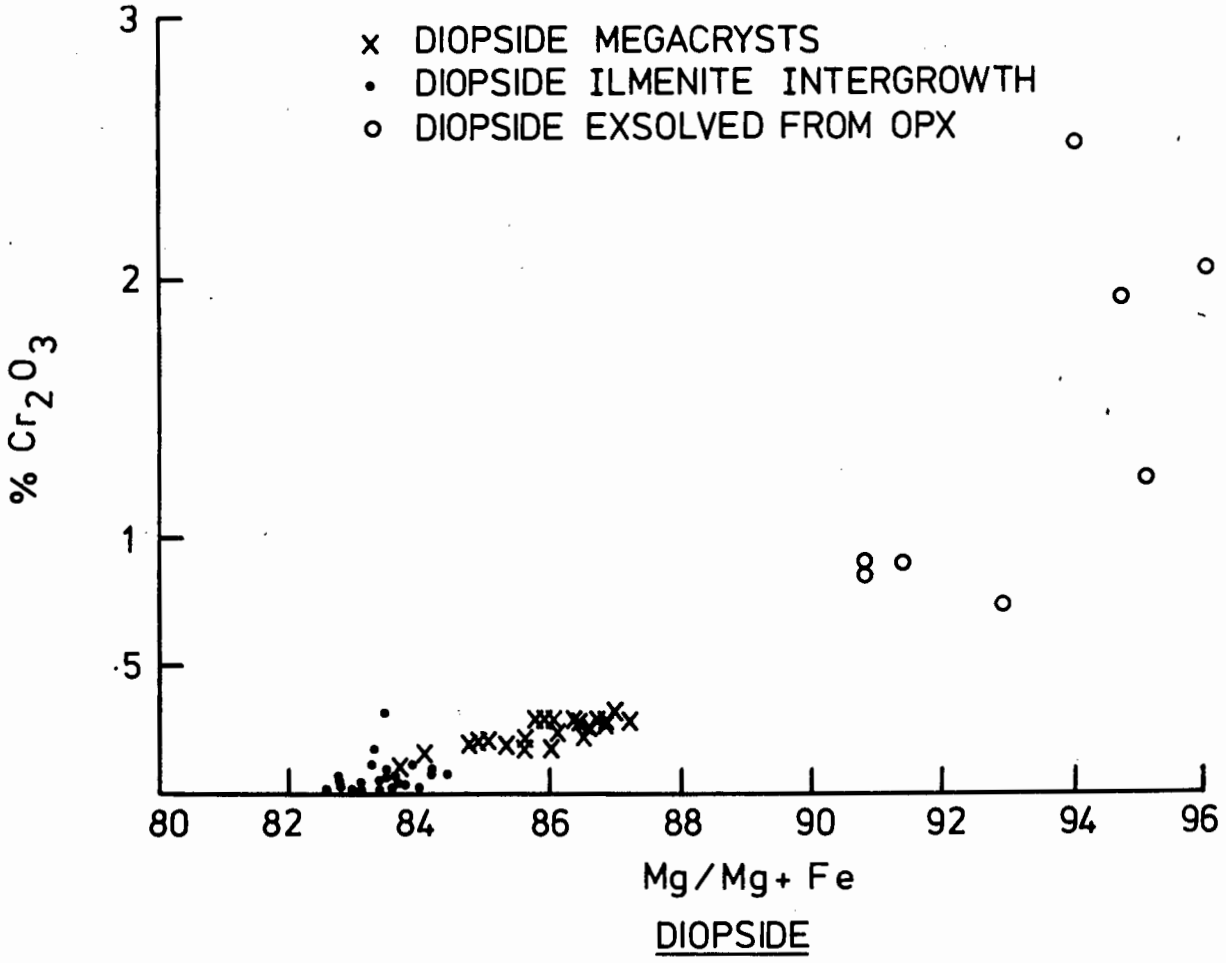

Fig. 3
Per cent Cr_2O_3 plotted against Mg/Mg+Fe at.% for the Monastery diopsides

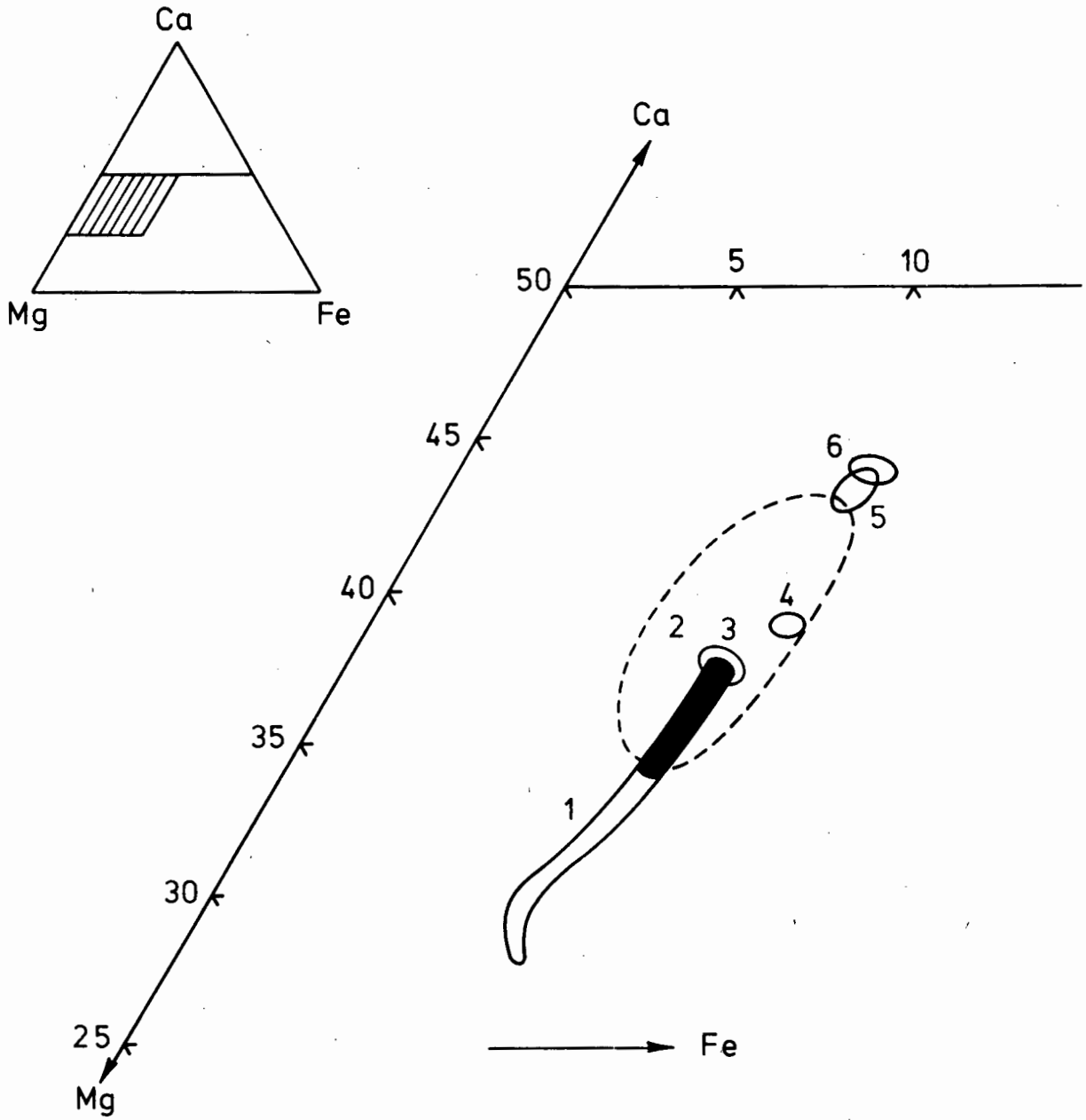

Fig. 6

Diopside megacrysts plotted in part of the Ca-Mg-Fe ternary diagram.

1: Monastery discrete diopsides (open area) and diopside-ilmenite lamellar intergrowths (black area). Diopside megacrysts found in basalts;

2: Mt. Noorat; 3,4,6: Elie Ness; 5: Mt. Franklin; 2 and 5: from Irvine (1974); 3,4 and 6: from Chapman (1976)

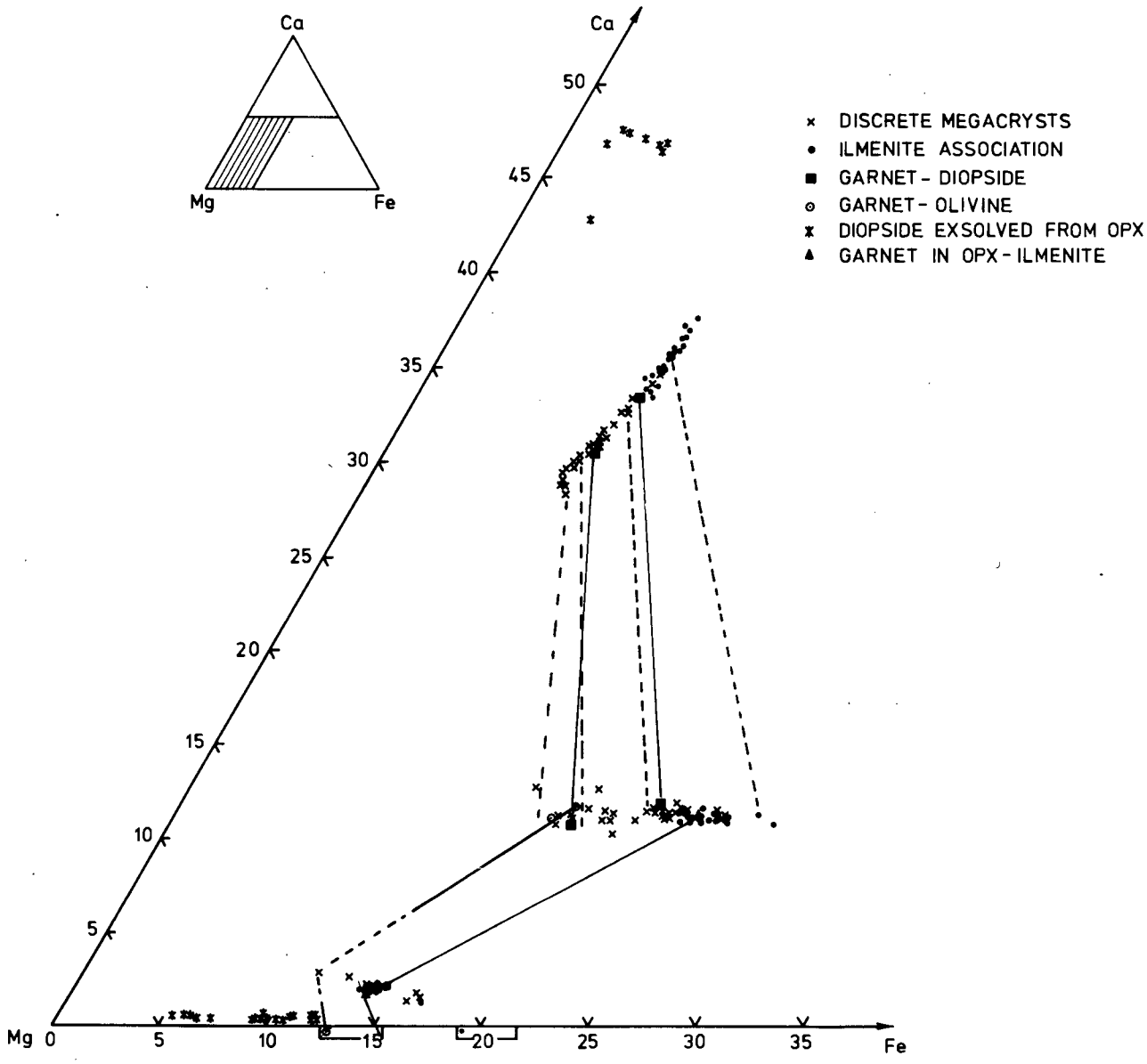

Fig. 7

Ternary Ca-Mg-Fe diagram for diopsides (top), garnets (centre) and enstatites (bottom) from Monastery. Olivine compositions are shown by the two brackets on the Mg-Fe join. Natural (solid lines) and calculated (dashed lines) equilibrium assemblages are also shown

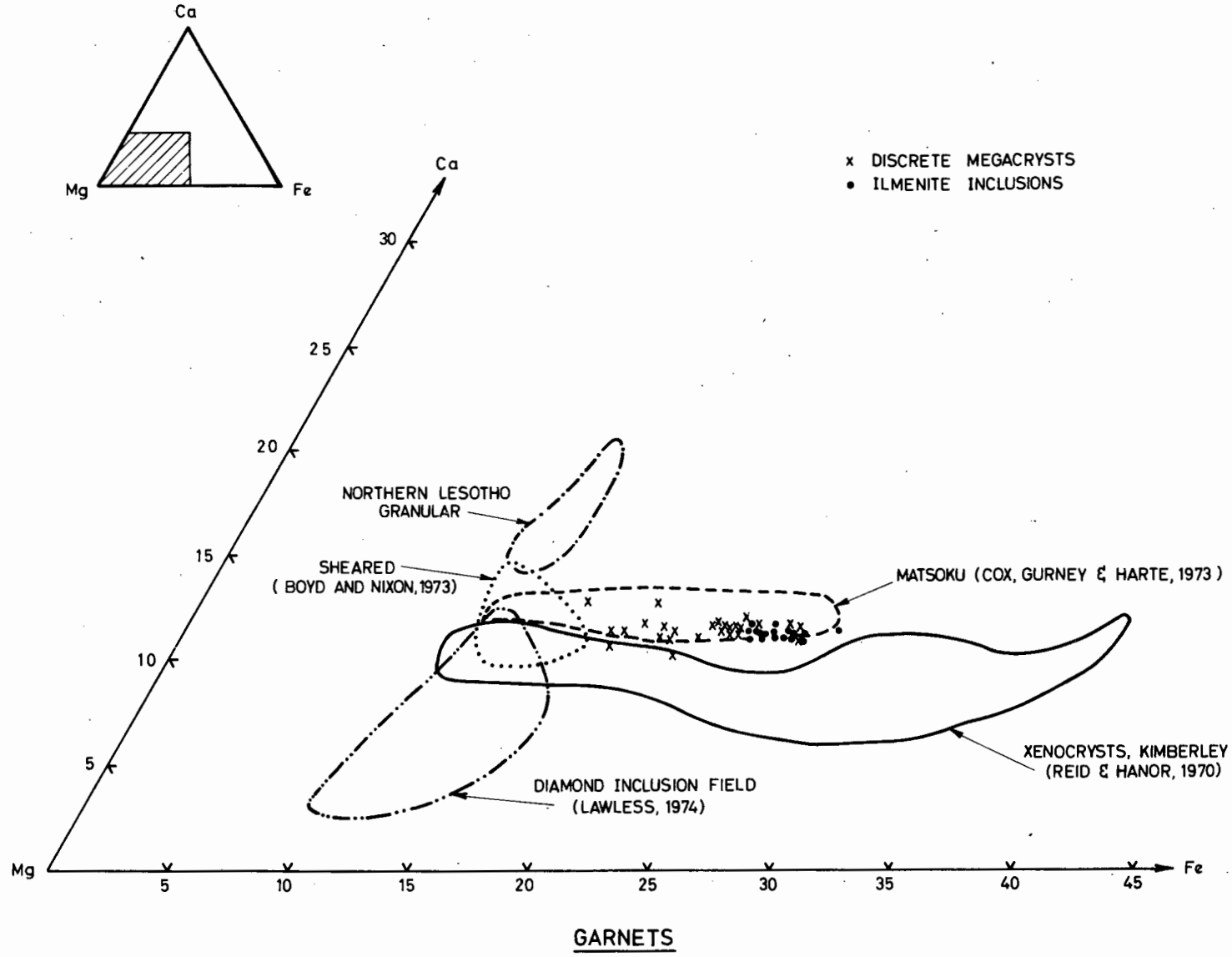

Fig. 8

Ternary Ca-Mg-Fe diagram for garnet megacrysts and garnet inclusions in ilmenite from Monastery. Also plotted are the fields for Northern Lesotho lherzolites (Boyd and Nixon, 1973; Cox, Gurney and Harte, 1973), xenocrysts from the Kimberley area, and inclusions in diamonds

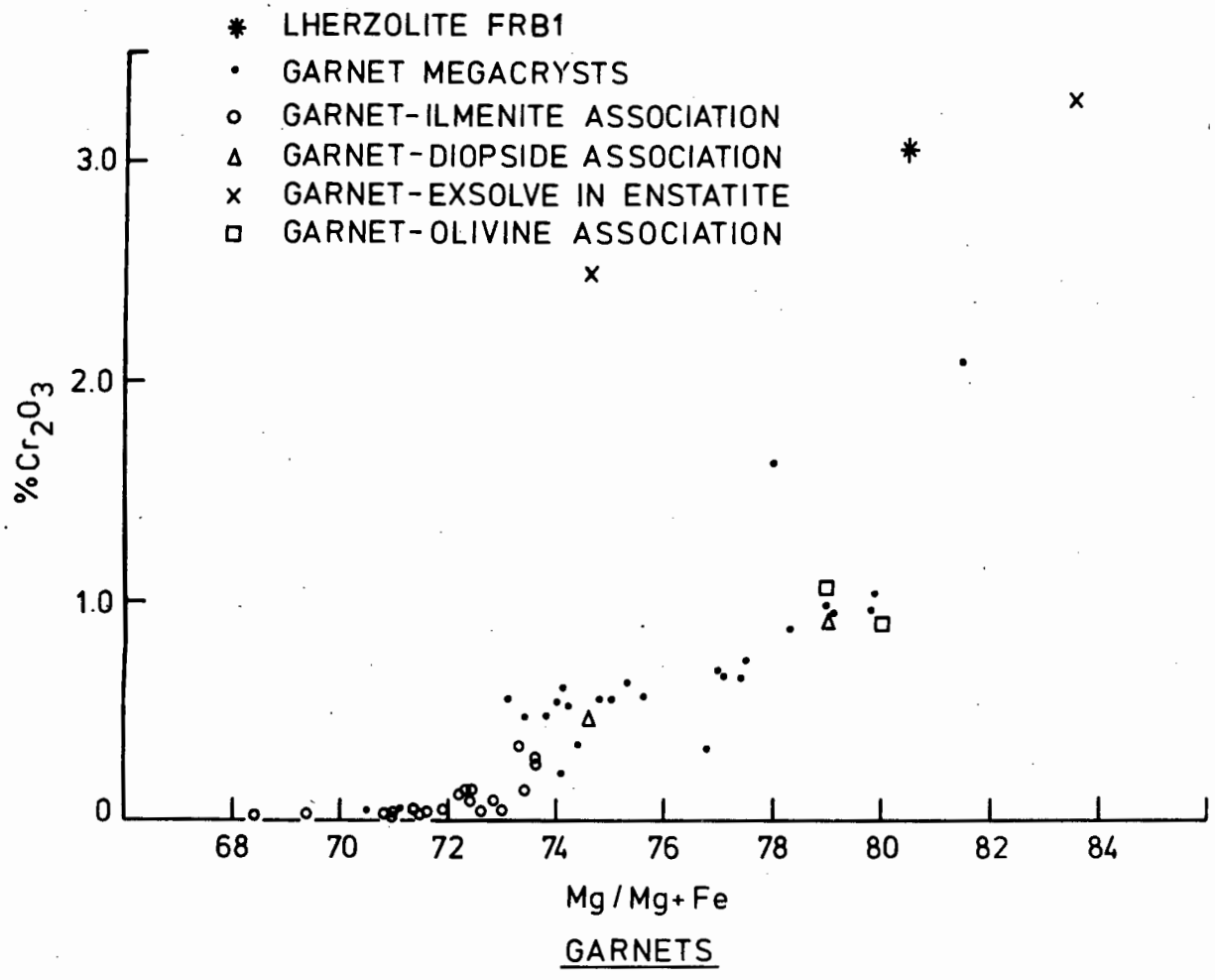

Fig. 9

Chrome plotted against Mg/Mg+Fe at.% for the Monastery garnets

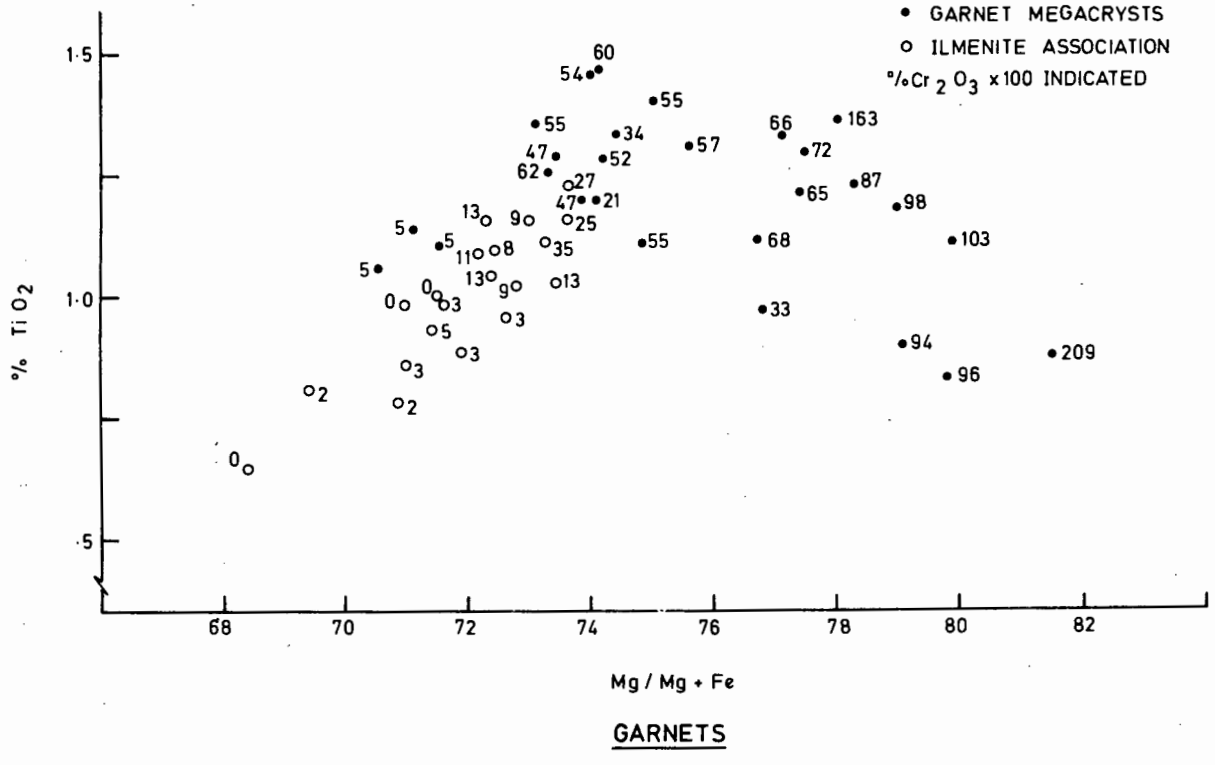

Fig. 10

Titanium plotted against Mg/Mg+Fe at.% for the Monastery garnet megacrysts and garnet inclusions in ilmenite hosts. Per cent Cr_2O_3 is also indicated

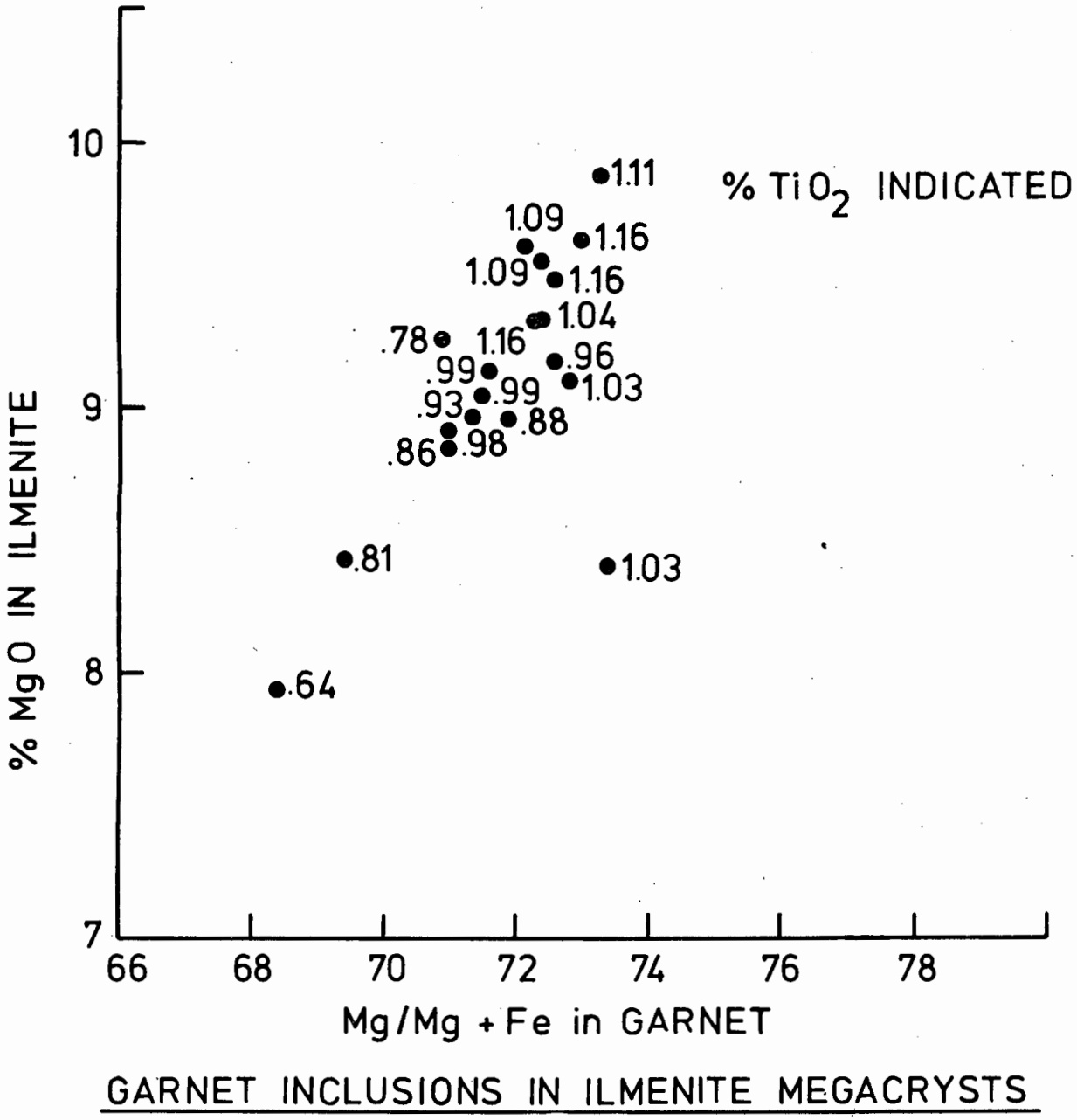

Fig. 11

The titanium content of garnet inclusions in ilmenite megacrysts increases with increasing Mg/Mg+Fe at.% of the garnet and increasing magnesium content of the coexisting ilmenite host

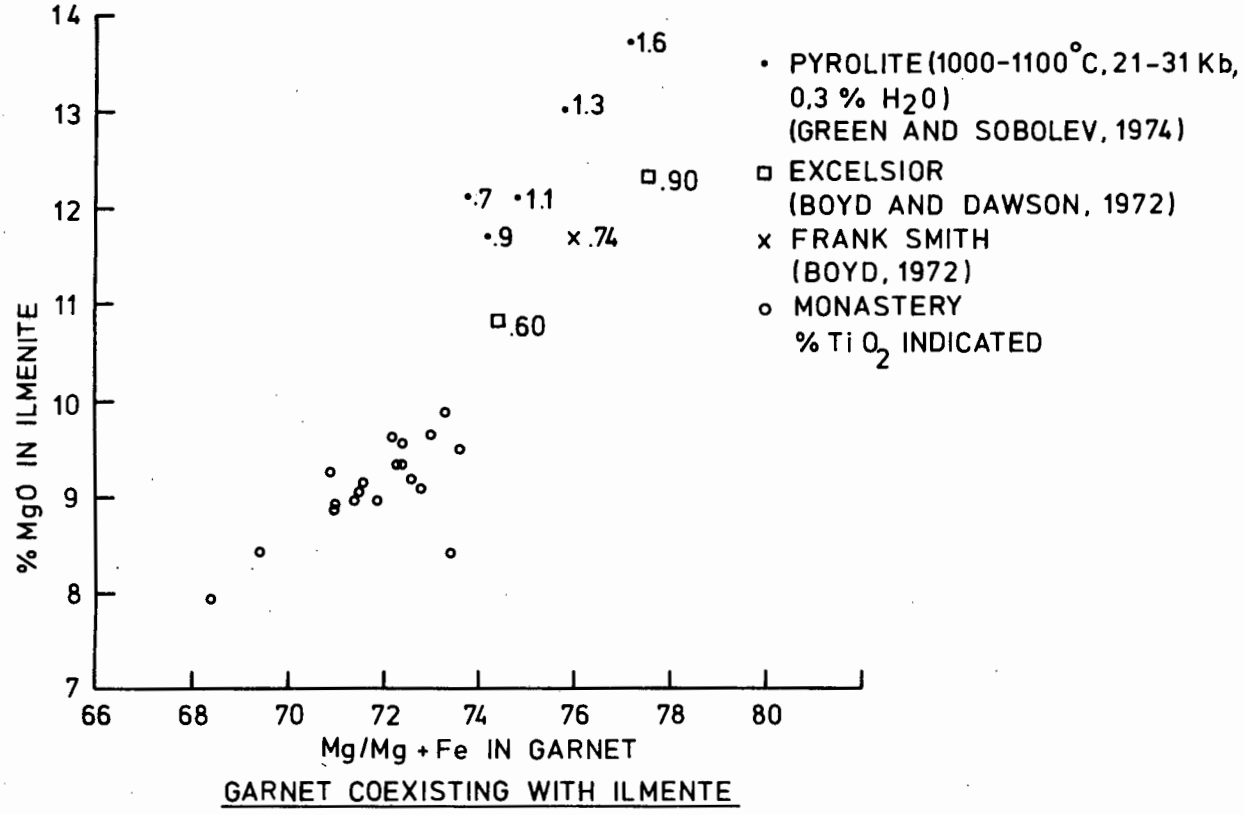

Fig. 12

The titanium content of garnet inclusions in ilmenite megacrysts increases for increasing magnesium in the ilmenite and for increasing Mg/Mg+Fe at.% of the garnet. This is consistent for both experimental work and natural intergrowths from Northern Lesotho. The titanium content for the Monastery garnet intergrowths is shown in Fig. 11

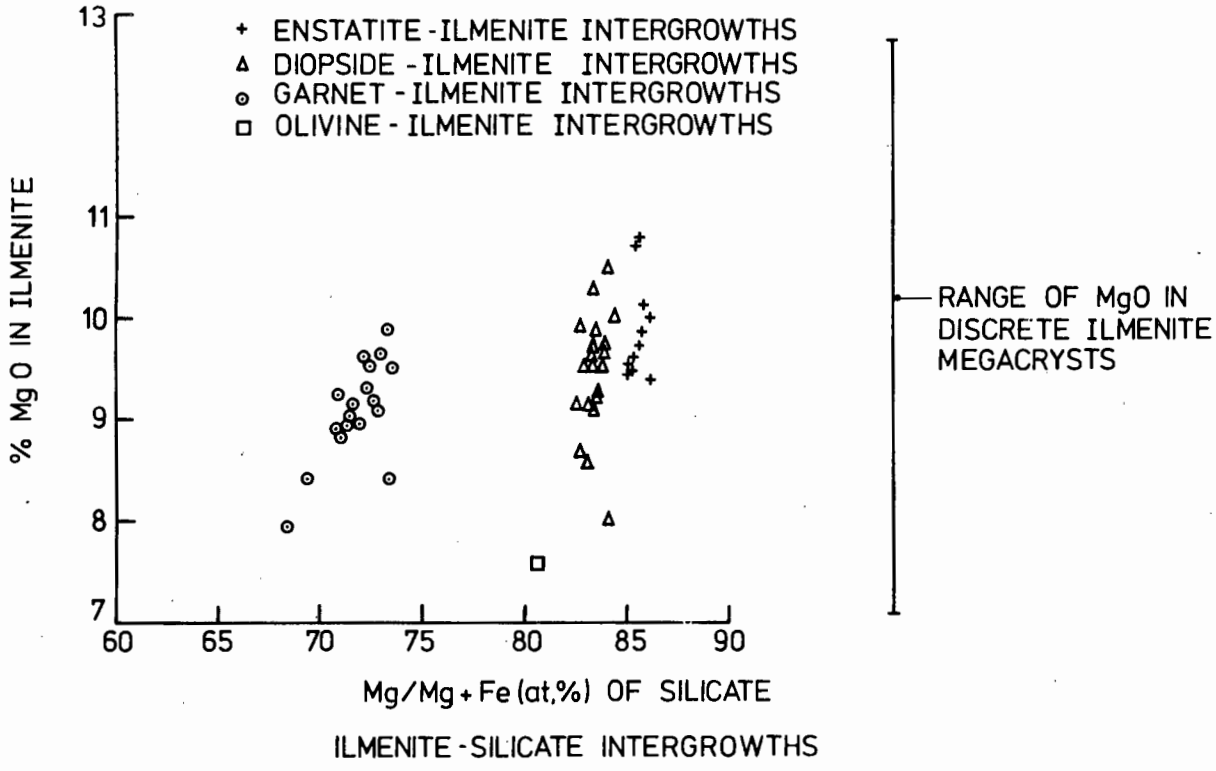

Fig. 13

Per cent MgO in ilmenite plotted against the Mg/Mg+Fe at.% of the coexisting silicate. Note the large range of MgO in the discrete ilmenite megacrysts.

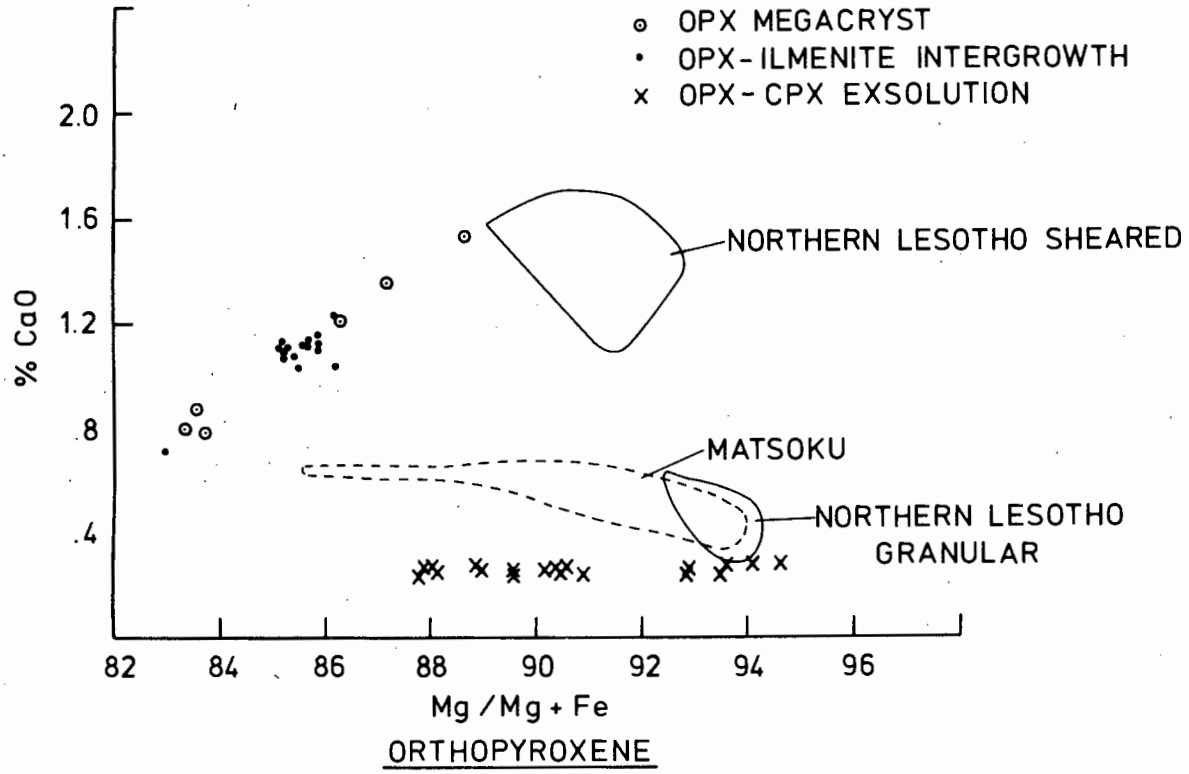

Fig. 14

The Monastery enstatite megacrysts are compared to Northern Lesotho sheared and granular lherzolites (Nixon and Boyd, 1973) and to enstatites from Matsoku lherzolites (Cox, Gurney and Harte, 1973). Since the calcium content of enstatites is temperature-dependent, the large range of equilibration temperatures of the Group I enstatites is evident. The lamellar Group II enstatites exsolved diopside ± garnet during a later re-equilibration process

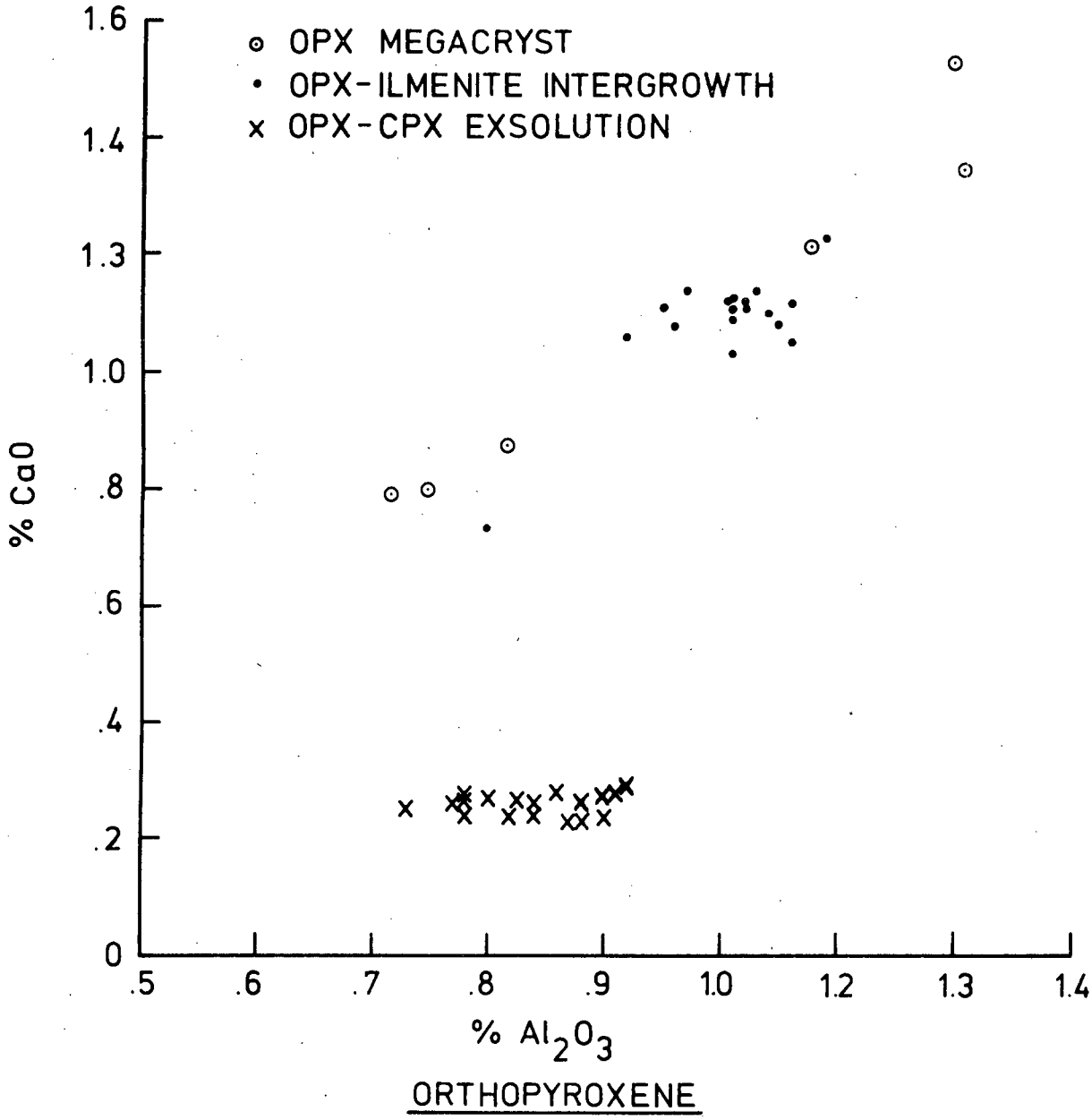

Fig. 15
The composition of enstatites can be used to estimate equilibrium conditions. Calcium in the enstatite is temperature-dependent, while aluminium is both temperature- and pressure-dependent

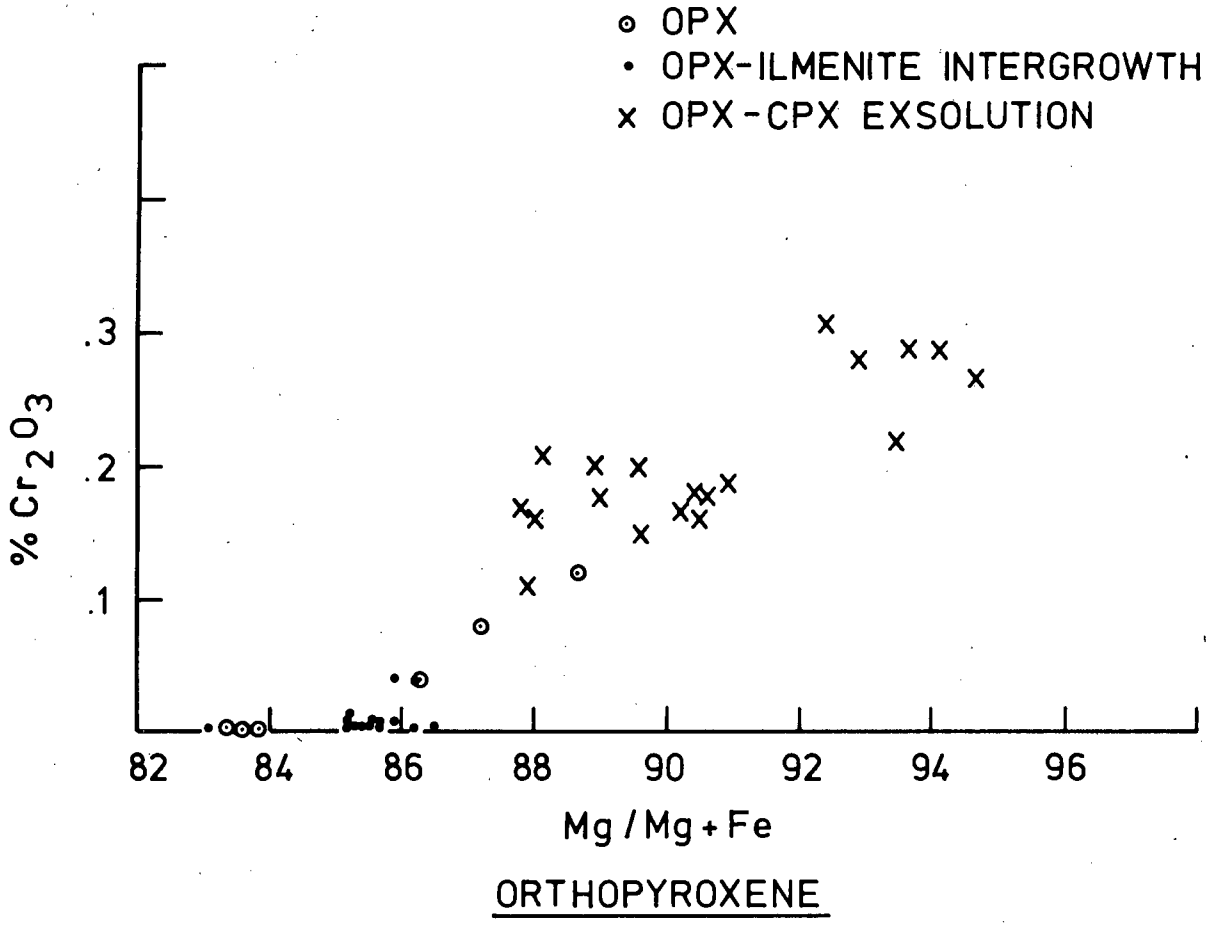

Fig. 16
Chromium oxide plotted against Mg/Mg+Fe at.% for the Monastery enstatites

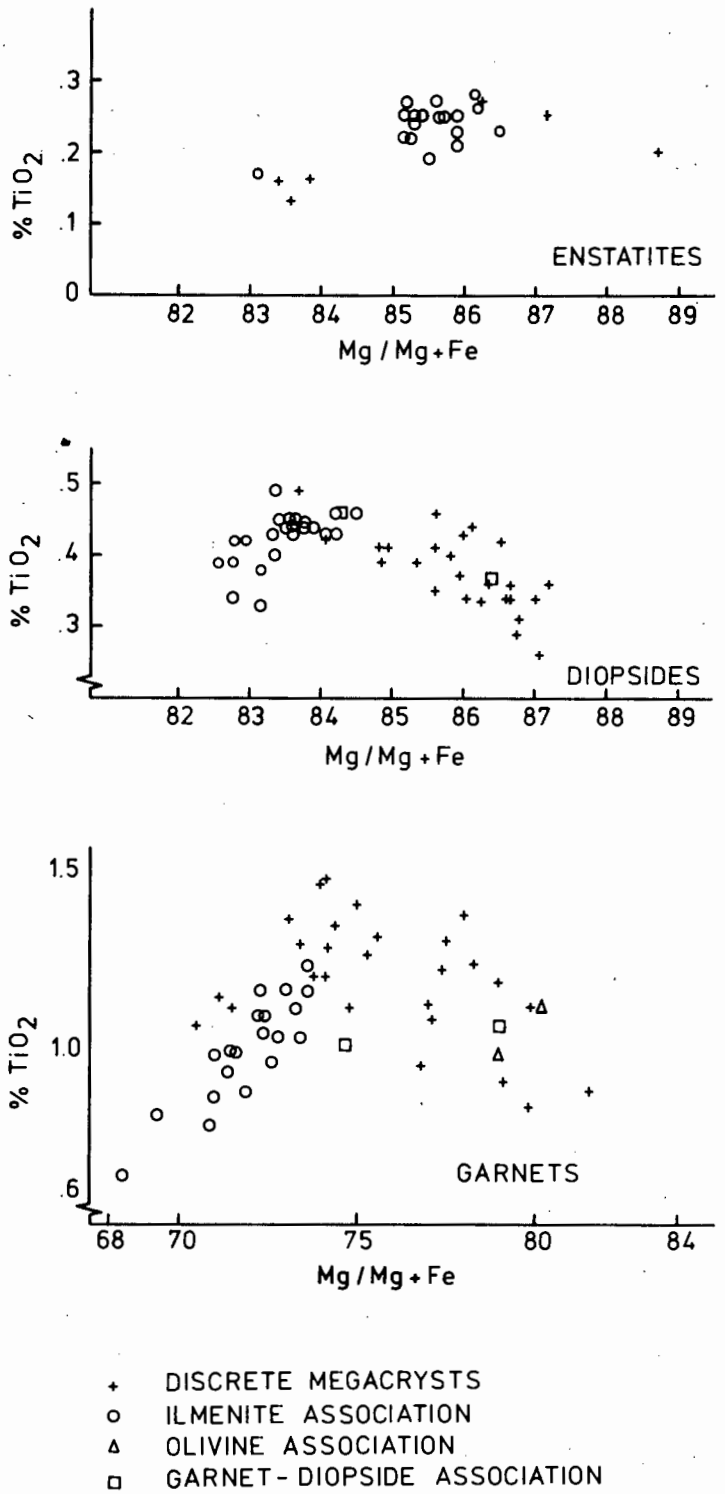

Fig. 17

Titanium plotted against Mg/Mg+Fe at.% for the Monastery megacrysts and intergrowths. The Mg/Mg+Fe ratio is considered to be a good differentiation indicator for the megacrysts. Titanium in the silicate phases increases during differentiation until ilmenite starts to precipitate, when the titanium content of the melt decreases rapidly

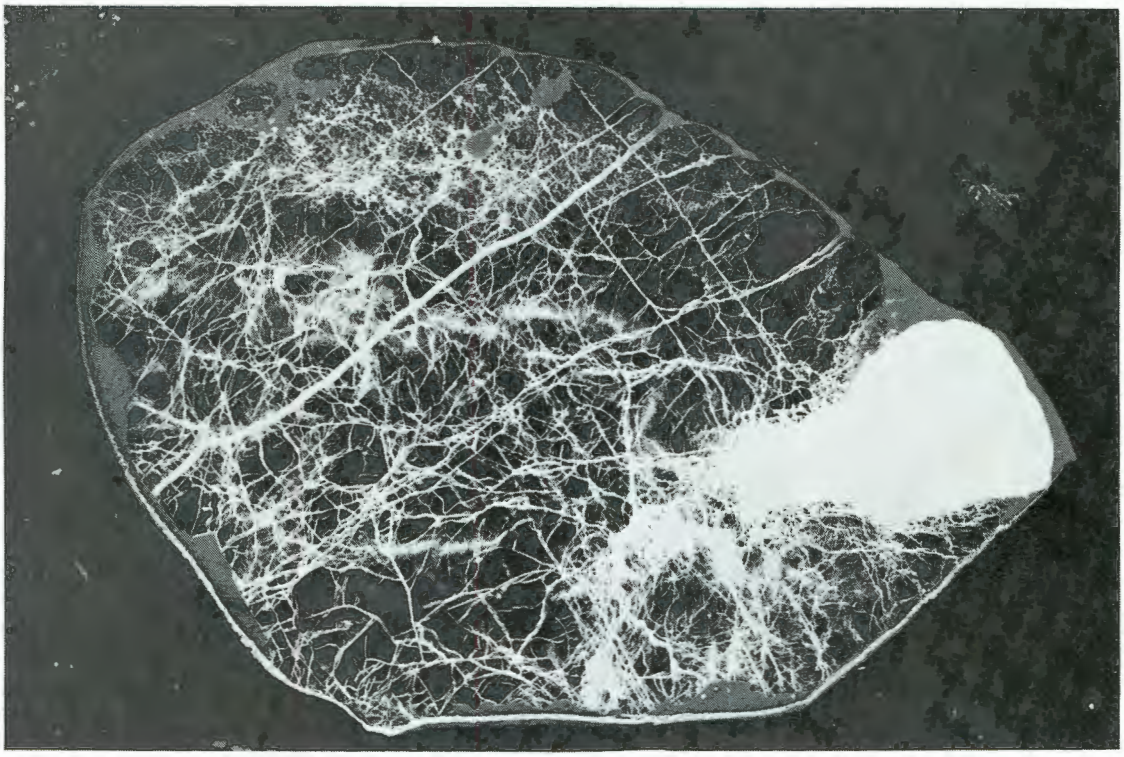

Plate 1.

Coarse olivine and ilmenite (white) intergrowth from Monastery. Scale: X5. Analyses in Table 20.

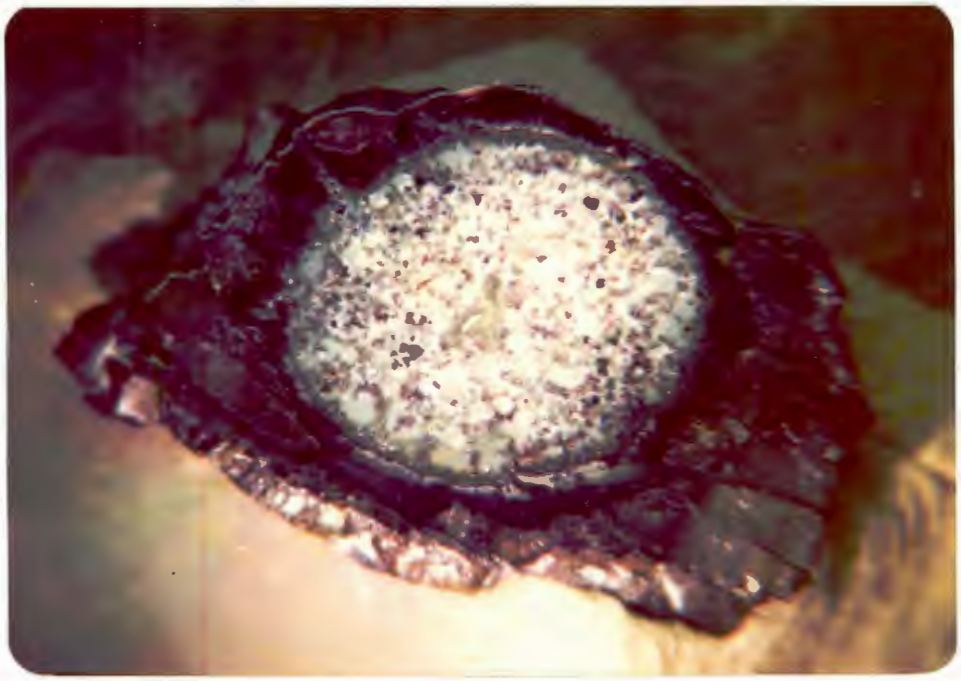

Plate 2.

Kimberlite inclusion in olivine megacryst RJ 469, analysis Table 26. Scale X10. Note reaction rim and veinlet at upper left.

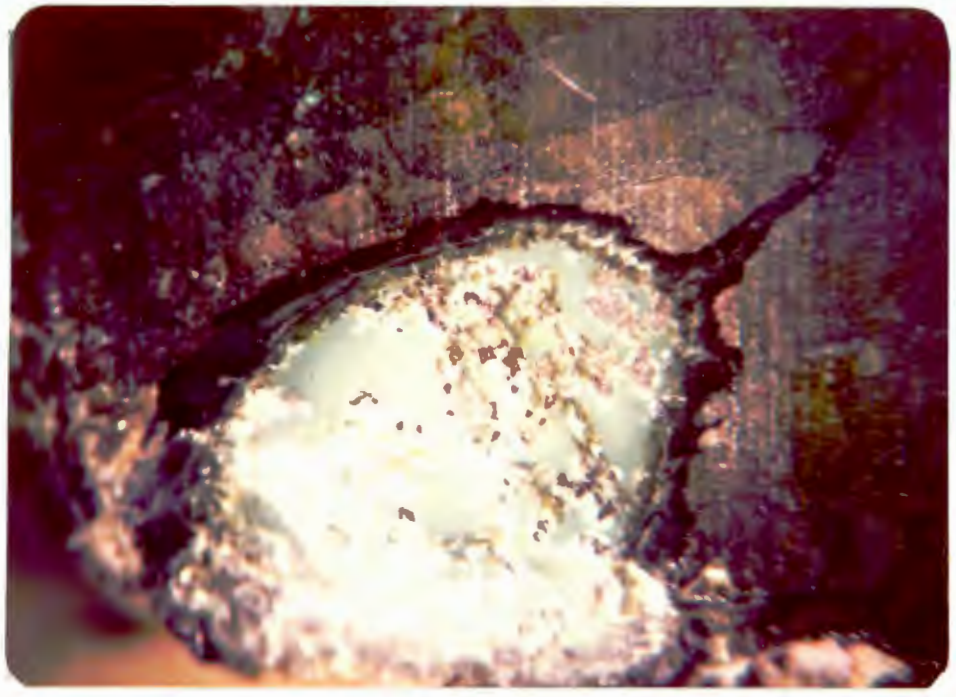

Plate 3.

Kimberlite inclusion in olivine megacryst from Monastery. Note translucent carbonate-rich matric containing small crystals, reaction rim and veinlet. Scale X6.

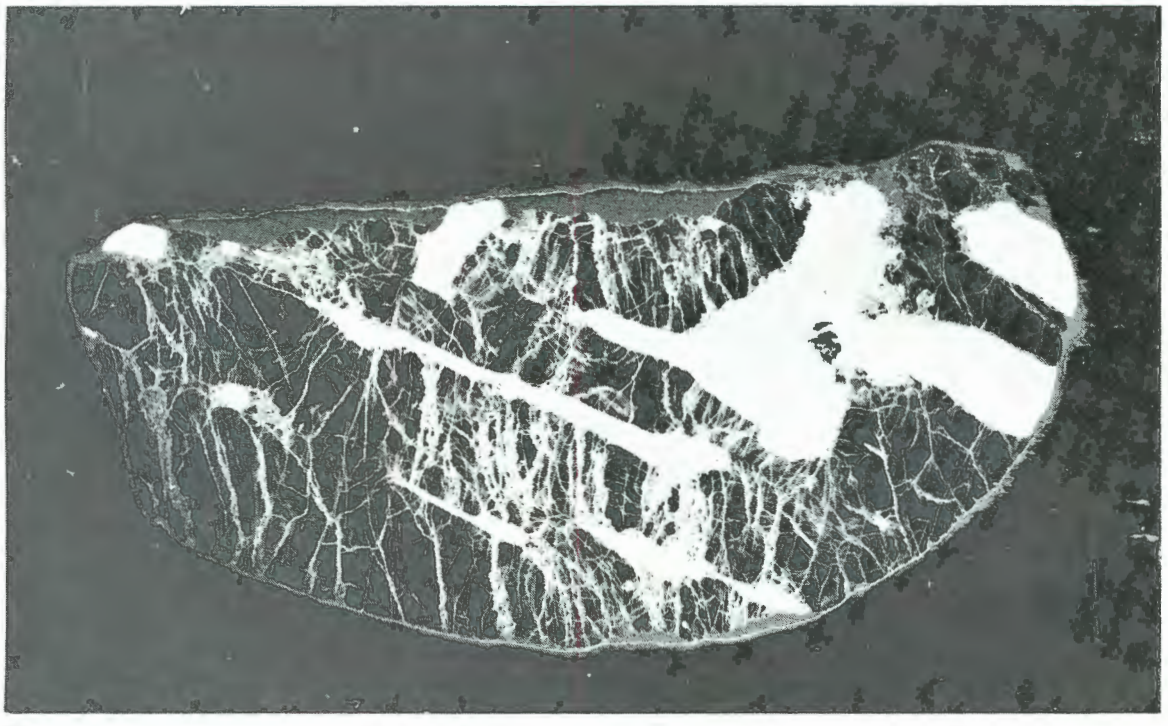

Plate 4.

Irregular and regular enstatite and ilmenite (white) intergrowth. Scale X3.

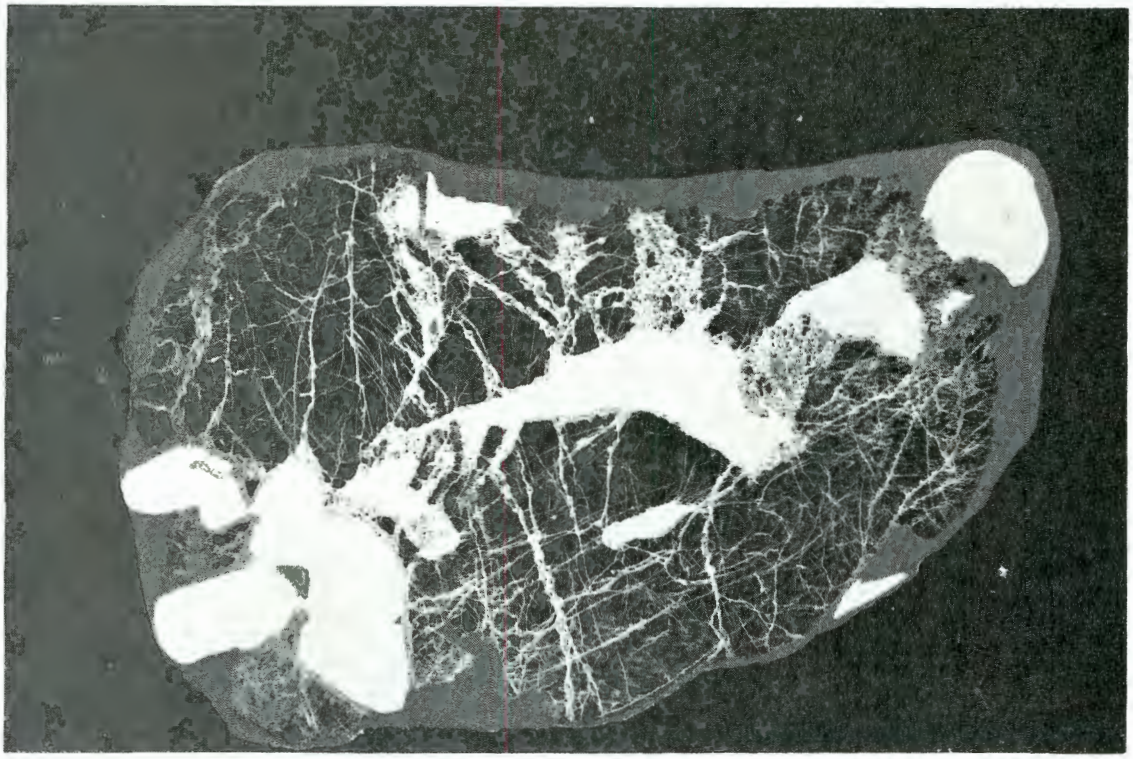

Plate 5.

Irregular enstatite and ilmenite (white) intergrowth from Monastery. Scale X3.

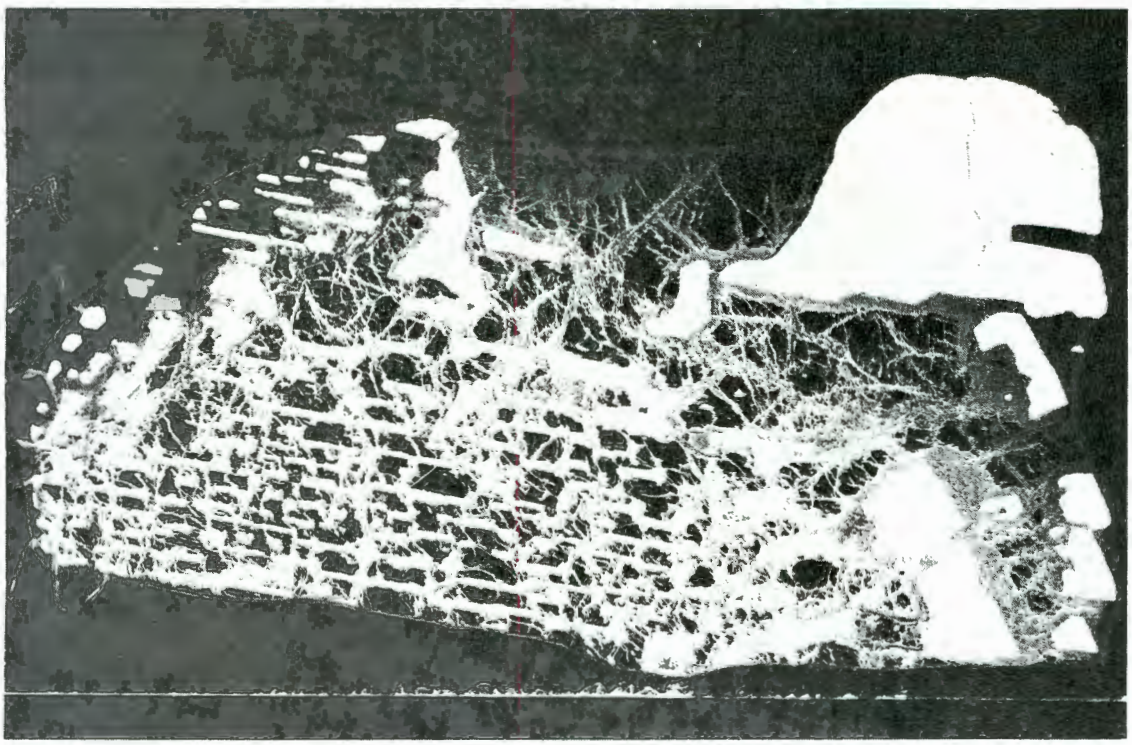

Plate 6.

Regular and irregular diopside and ilmenite (white) intergrowth. Scale X2.

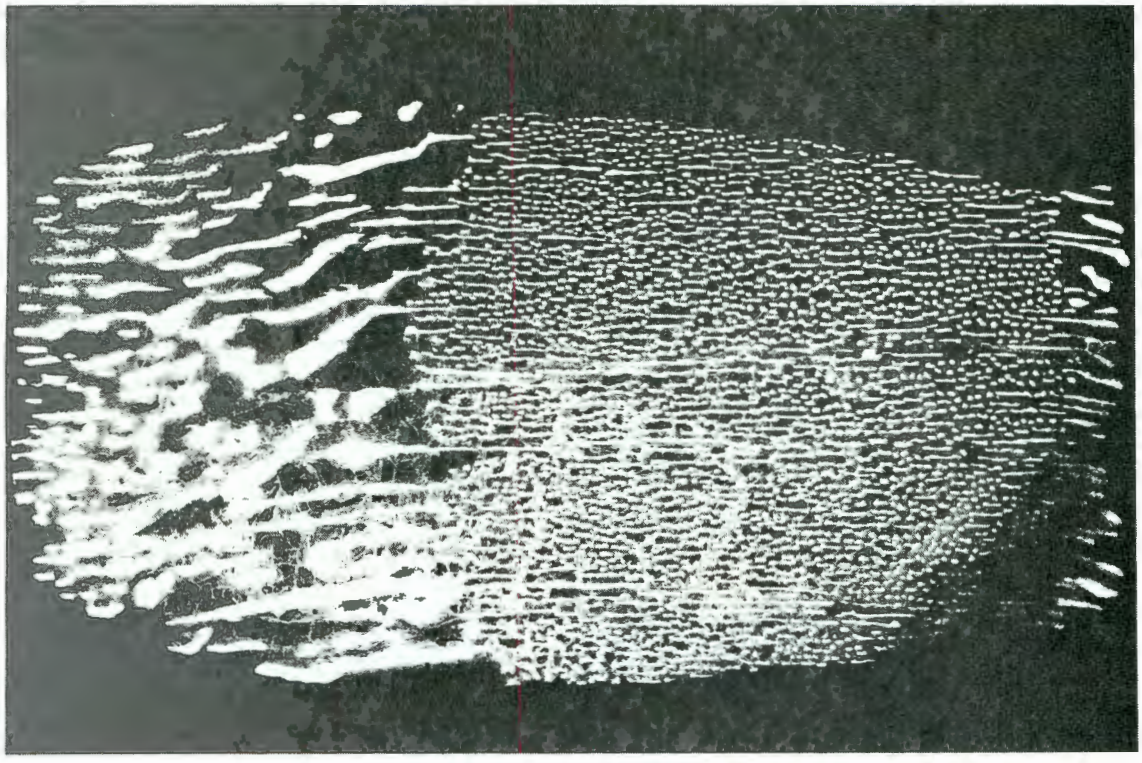

Plate 7.

Regular diopside and ilmenite (white) lamellar intergrowth. Note central fine-grained intergrowth. Scale X3,5.

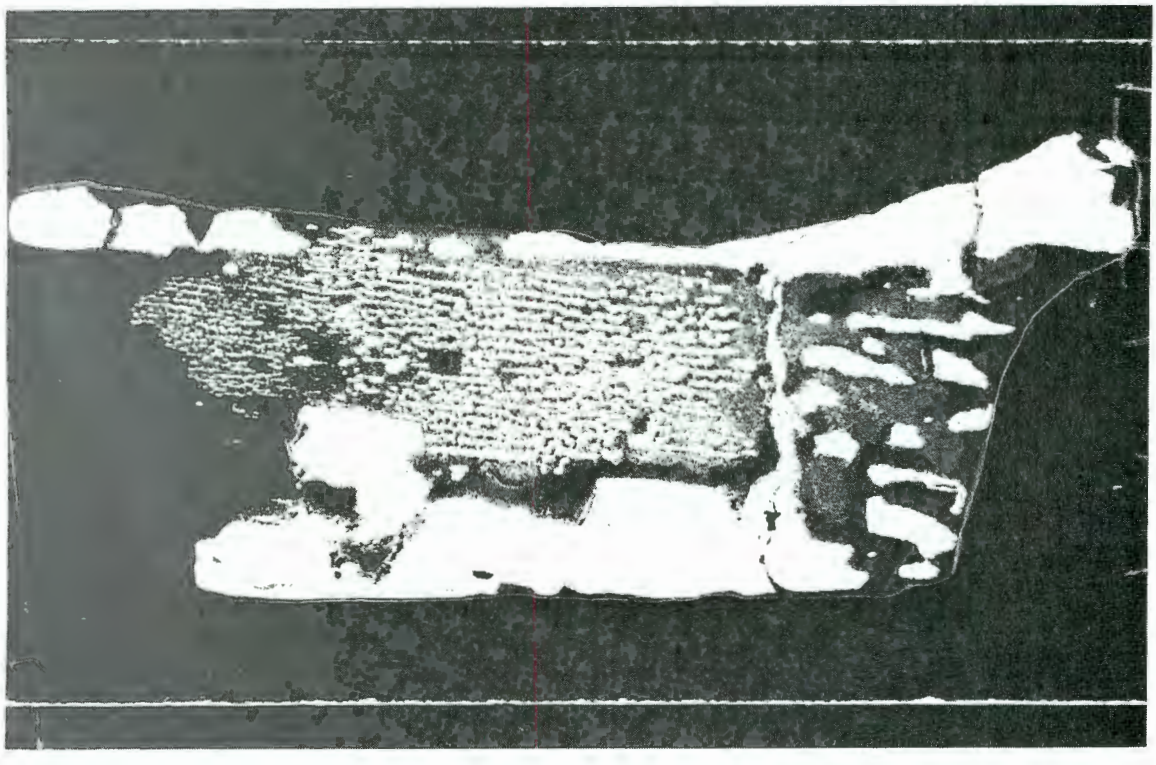

Plate 8.

Regular diopside and ilmenite (white) intergrowth. Note outside coarse intergrowth. Scale X3. The diopside is completely altered to calcite.

TABLE 11
ANALYSES OF IRON-POOR OLIVINES

WT %	RJ 9	RJ 13	RJ 17	RJ 19	RJ 21	RJ 23	RJ 29	RJ 31	RJ 33	RJ 35	RJ 38	RJ 44	RJ 46
SIO2	39.56	39.51	39.69	39.61	39.89	39.77	39.58	39.09	39.27	39.39	39.84	39.70	40.43
TIO2	0.05	0.03	0.05	0.04	0.04	0.02	0.05	0.06	0.04	0.05	0.07	0.00	0.03
AL2O3	0.09	0.09	0.06	0.04	0.12	0.10	0.09	0.05	0.07	0.06	0.06	0.06	0.06
CR2O3	0.02	0.00	0.02	0.02	0.02	0.01	0.02	0.00	0.01	0.00	0.03	0.00	0.00
FEO *	14.26	13.30	13.19	13.84	14.17	14.19	12.99	14.49	13.11	13.84	14.01	13.20	13.60
MNO	0.09	0.14	0.13	0.14	0.13	0.11	0.06	0.14	0.12	0.10	0.12	0.10	0.15
MGO	45.23	46.00	45.14	46.31	45.95	45.78	46.56	44.81	46.85	46.35	46.56	45.47	45.96
CAO	0.08	0.11	0.08	0.06	0.10	0.08	0.12	0.07	0.11	0.14	0.08	0.10	0.08
NIO		0.38	0.36	0.35	0.36		0.39	0.30		0.36	0.36	0.36	0.36
TOTAL	99.38	99.56	98.72	100.41	100.78	100.06	99.89	99.01	99.58	100.29	101.13	98.99	100.67
NUMBER OF CATIONS FOR 4 OXYGENS													
SI	0.996	0.993	1.003	0.989	0.993	0.993	0.990	0.993	0.982	0.985	0.988	1.001	1.003
TI	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.001
AL	0.003	0.003	0.002	0.001	0.004	0.003	0.003	0.001	0.002	0.002	0.002	0.002	0.002
CR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
FE	0.300	0.279	0.279	0.289	0.295	0.296	0.272	0.308	0.274	0.289	0.291	0.278	0.282
MN	0.002	0.003	0.003	0.003	0.003	0.002	0.001	0.003	0.003	0.002	0.003	0.002	0.003
MG	1.697	1.722	1.701	1.723	1.705	1.705	1.736	1.696	1.747	1.727	1.721	1.705	1.700
CA	0.002	0.003	0.002	0.001	0.003	0.002	0.003	0.002	0.003	0.004	0.002	0.003	0.002
NI		0.008	0.007	0.007	0.007		0.008	0.006		0.007	0.007	0.007	0.007
MG/MG+FE	85.0	86.0	85.9	85.6	85.2	85.2	86.4	84.6	86.4	85.7	85.6	84.0	85.8

* TOTAL IRON AS FEO

TABLE 11 CONT.
ANALYSES OF IRON-POOR OLIVINES

WT %	RJ 47	RJ 51	RJ 55	RJ 57	RJ 60	RJ 65	RJ 469	RJ 470	RJ 473	RJ 475	FRB 183	FRB 220	EO
SIO2	40.36	39.72	39.86	40.42	39.53	39.89	39.47	39.80	39.62	39.82	39.5	40.3	39.6
TIO2	0.04	0.04	0.06	0.05	0.03	0.03	0.06	0.00	0.05	0.00	0.04	0.03	0.05
AL2O3	0.10	0.13	0.05	0.08	0.06	0.04	0.00	0.00	0.04	0.00	0.08	0.08	0.06
CR2O3	0.00	0.03	0.01	0.01	0.02	0.03	0.02	0.01	0.02	0.02	0.03	0.03	0.03
FEO *	14.28	13.61	13.94	12.27	13.91	12.27	14.22	13.18	14.38	12.48	12.3	11.7	12.8
MNO	0.14	0.12	0.12	0.09	0.10	0.13	0.06	0.08	0.12	0.10	0.13	0.13	0.13
MGO	45.47	45.84	45.99	47.68	46.48	46.01	45.62	47.17	45.19	48.03	46.8	48.8	46.2
CAO	0.10	0.24	0.11	0.09	0.08	0.13	0.10	0.08	0.07	0.08	0.10	0.09	0.11
NIO	0.32	0.36	0.31	0.40	0.35	0.40	0.34		0.36		0.36	0.37	0.33
TOTAL	100.81	100.09	100.45	101.09	100.56	98.93	99.89	100.32	99.85	100.53	99.3	101.53	99.3
NUMBER OF CATIONS FOR 4 OXYGENS													
SI	1.002	0.993	0.993	0.994	0.986	1.003	0.991	0.988	0.995	0.985	0.989	0.984	0.993
TI	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.000	0.001	0.001	0.001
AL	0.003	0.004	0.001	0.002	0.002	0.001	0.000	0.000	0.001	0.000	0.002	0.002	0.002
CR	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.001
FE	0.297	0.285	0.291	0.253	0.290	0.258	0.299	0.275	0.303	0.258	0.257	0.239	0.270
MN	0.003	0.003	0.003	0.002	0.002	0.003	0.001	0.002	0.003	0.002	0.003	0.003	0.003
MG	1.684	1.709	1.708	1.749	1.728	1.725	1.706	1.745	1.692	1.769	1.747	1.775	1.727
CA	0.003	0.007	0.003	0.002	0.002	0.004	0.003	0.002	0.002	0.002	0.003	0.002	0.003
NI	0.006	0.007	0.006	0.008	0.007	0.008	0.007		0.007		0.007	0.007	0.007
MG/MG+FE	85.0	85.7	85.5	87.4	85.6	87.0	85.1	86.4	84.8	87.3	87.2	88.1	86.5

* TOTAL IRON AS FEO

TABLE 11 CONT.
ANALYSES OF IRON-RICH OLIVINES

WT %	RJ 25	RJ 27	RJ 41	RJ 49	RJ 54	RJ 63	RJ 66	FRB 188
SIO2	38.92	38.87	38.27	38.55	38.45	38.16	38.61	38.6
TIO2	0.02	0.02	0.03	0.04	0.03	0.02	0.03	0.03
AL2O3	0.17	0.00	0.08	0.05	0.06	0.04	0.03	0.04
CR2O3	0.00	0.02	0.00	0.03	0.00	0.00	0.02	0.03
FEO *	17.78	19.78	19.42	19.37	18.77	20.40	19.81	19.0
MNO	0.16	0.19	0.18	0.17	0.18	0.20	0.21	0.24
MGO	42.81	41.89	41.11	41.49	42.32	41.30	40.83	42.9
CAO	0.04	0.04	0.06	0.04	0.06	0.03	0.06	0.03
NIO	0.10	0.06		0.11	0.06	0.06	0.06	0.06
TOTAL	100.00	100.87	99.15	99.85	99.93	100.21	99.66	100.93
NUMBER OF CATIONS FOR 4 OXYGENS								
SI	0.991	0.990	0.990	0.991	0.985	0.983	0.996	0.982
TI	0.001	0.000	0.001	0.001	0.001	0.000	0.001	0.001
AL	0.005	0.000	0.003	0.002	0.0002	0.001	0.001	0.001
CR	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
FE	0.378	0.421	0.420	0.416	0.402	0.439	0.427	0.403
MN	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005
MG	1.624	1.591	1.586	1.590	1.616	1.586	1.570	1.623
CA	0.001	0.001	0.002	0.001	0.002	0.001	0.002	0.001
NI	0.002	0.001		0.002	0.001	0.001	0.001	0.001
MG/MG+FE	81.1	79.1	79.1	79.2	80.1	78.3	78.6	80.1

* TOTAL IRON AS FEO

TABLE 12
ANALYSES OF CLINOPYROXENES

WT %	RJ 205	RJ 206	RJ 208	RJ 210	RJ 212	RJ 214	RJ 216	RJ 218	RJ 220	RJ 223	RJ 224	RJ 226	RJ 228	RJ 230	RJ 232	RJ 234
SIO2	54.97	55.05	55.75	54.97	54.78	54.89	55.10	53.89	54.71	55.21	54.88	55.30	55.39	54.54	55.55	55.84
TIO2	0.37	0.39	0.34	0.39	0.41	0.40	0.36	0.44	0.34	0.34	0.26	0.29	0.35	0.31	0.30	0.33
AL2O3	2.52	2.60	2.54	2.54	2.60	2.58	2.54	2.58	2.43	2.57	2.61	2.59	2.66	2.58	2.59	2.55
CR2O3	0.28	0.22	0.29	0.21	0.21	0.28	0.29	0.24	0.29	0.32	0.32	0.30	0.22	0.30	0.30	0.30
FEO *	5.66	5.94	5.71	5.83	6.03	5.75	5.47	5.65	5.53	5.53	5.56	5.53	5.87	5.57	5.59	5.67
MNO	0.10	0.09	0.12	0.12	0.11	0.10	0.09	0.09	0.09	0.12	0.13	0.11	0.13	0.12	0.11	0.10
MGO	19.41	18.69	19.77	19.05	18.87	19.55	20.89	19.64	20.18	20.11	20.94	20.29	19.56	20.51	20.52	19.97
CAO	14.31	15.04	14.32	15.16	15.22	14.82	13.73	14.64	14.04	14.35	13.60	14.12	15.07	14.45	14.02	14.15
NA2O	1.63	1.68	1.60	1.71	1.77	1.71	1.64	1.33	1.61	1.62	1.47	1.66	1.83	1.64	1.63	1.51
K2O	0.05	0.03	0.04	0.04	0.05	0.04	0.02	0.02	0.03	0.02	0.05	0.03	0.01	0.03	0.04	0.03
TOTAL	99.30	99.75	100.48	100.02	100.05	100.12	100.13	98.52	99.25	100.19	99.82	100.23	101.09	100.06	100.65	100.46
NUMBER OF CATIONS FOR 6 OXYGENS																
SI	1.987	1.987	1.990	1.980	1.976	1.974	1.971	1.967	1.976	1.977	1.970	1.979	1.974	1.961	1.978	1.991
TI	0.010	0.011	0.009	0.011	0.011	0.011	0.010	0.012	0.009	0.009	0.007	0.008	0.009	0.009	0.008	0.009
AL	0.107	0.111	0.107	0.108	0.111	0.109	0.107	0.111	0.106	0.108	0.110	0.109	0.112	0.109	0.109	0.107
CR	0.008	0.006	0.008	0.006	0.006	0.008	0.008	0.007	0.008	0.009	0.009	0.009	0.006	0.009	0.008	0.008
FE	0.171	0.179	0.170	0.176	0.182	0.173	0.164	0.172	0.167	0.166	0.167	0.166	0.175	0.168	0.166	0.169
MN	0.003	0.003	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.003	0.004	0.004	0.003	0.003
MG	1.046	1.006	1.052	1.023	1.015	1.048	1.115	1.069	1.087	1.074	1.121	1.082	1.039	1.099	1.090	1.062
CA	0.554	0.582	0.548	0.585	0.588	0.571	0.526	0.573	0.543	0.551	0.523	0.541	0.575	0.557	0.535	0.541
NA	0.114	0.118	0.111	0.119	0.123	0.119	0.116	0.094	0.113	0.113	0.102	0.115	0.127	0.114	0.113	0.104
K	0.002	0.002	0.002	0.002	0.003	0.002	0.001	0.001	0.002	0.001	0.002	0.001	0.000	0.001	0.002	0.001
CA	31.3	32.9	31.0	32.8	32.9	31.9	29.1	31.6	30.2	30.8	28.9	30.2	32.1	30.5	29.9	30.5
MG	59.1	56.9	59.4	57.3	56.9	58.5	61.8	58.9	60.5	60.0	61.9	60.5	58.5	60.2	60.9	59.9
FE	9.6	10.1	9.6	9.9	10.2	9.6	9.1	9.5	9.3	9.2	9.2	9.3	9.8	9.2	9.2	9.5
MG/MG+FE	85.9	84.9	86.1	85.3	84.8	85.8	87.2	86.1	86.7	86.6	87.0	86.7	85.6	86.8	86.7	86.3
CA/CA+MG	34.6	36.6	34.2	36.4	36.7	35.3	32.1	34.9	33.3	33.9	31.8	33.3	35.6	32.9	32.9	33.7

* TOTAL IRON AS FEO

TABLE 13
ANALYSES OF DIOPSIDES EXSOLVED FROM LAMELLAR ENSTATITES

WT %	RJ 126	RJ 319	RJ 320	RJ 322	RJ 330	RJ 332	RJ 335	RJ 337
SIO2	53.62	54.08	54.22	54.74	53.94	54.38	54.68	55.12
TIO2	0.11	0.13	0.10	0.01	0.05	0.01	0.09	0.02
AL2O3	1.68	1.72	1.76	2.37	1.67	2.52	1.60	2.98
CR2O3	0.90	0.86	0.90	2.04	1.22	1.92	0.74	2.51
FEO *	2.74	2.97	2.97	1.20	1.55	1.61	2.32	1.91
MNO	0.08	0.06	0.06	0.07	0.05	0.02	0.05	0.08
MGO	16.43	16.41	16.51	16.24	17.00	16.00	16.93	16.73
CAO	21.88	21.69	22.19	20.83	22.52	21.24	22.62	18.50
NA2O	1.39	1.37	1.37	1.86	1.17	1.87	1.12	2.37
K2O	0.00	0.01	0.02	0.02	0.00	0.00	0.01	0.00
TOTAL	98.83	99.30	100.10	99.38	99.17	99.57	100.16	100.22
NUMBER OF CATIONS FOR 6 OXYGENS								
SI	1.972	1.978	1.972	1.984	1.970	1.974	1.979	1.978
TI	0.003	0.004	0.003	0.000	0.001	0.000	0.002	0.001
AL	0.073	0.074	0.076	0.101	0.072	0.108	0.068	0.126
CR	0.026	0.025	0.026	0.059	0.035	0.055	0.021	0.017
FE	0.084	0.091	0.090	0.037	0.047	0.049	0.070	0.057
MN	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.002
MG	0.899	0.894	0.893	0.878	0.926	0.866	0.914	0.895
CA	0.865	0.852	0.864	0.809	0.881	0.826	0.877	0.711
NA	0.099	0.097	0.097	0.131	0.083	0.132	0.079	0.165
K	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
CA	46.8	46.4	46.8	46.9	47.5	47.3	47.1	42.7
MG	48.6	48.7	48.3	50.9	49.9	49.6	49.1	53.8
FE	4.6	4.9	4.9	2.1	2.5	2.8	3.8	3.4
MG/MG+FE	91.4	90.8	90.8	96.0	95.1	94.6	92.9	94.0
CA/CA+MG	49.0	48.8	49.2	48.0	48.8	48.8	49.0	44.3

* TOTAL IRON AS FEO

TABLE 14
ANALYSES OF DIOPSIDES COEXISTING WITH ILMENITE

WT %	RJ 371	RJ 373	RJ 377	RJ 379	RJ 381	RJ 385	RJ 389	RJ 391	RJ 393	RJ 395	RJ 397	RJ 401
SIO2	54.50	53.89	54.53	54.87	54.24	54.47	54.35	54.66	54.06	54.66	53.55	54.15
TIO2	0.45	0.49	0.42	0.43	0.45	0.44	0.44	0.44	0.45	0.34	0.44	0.38
AL2O3	2.57	2.47	2.57	2.48	2.44	2.54	2.56	2.49	2.48	2.43	2.51	2.40
CR2O3	0.08	0.12	0.02	0.03	0.07	0.03	0.04	0.10	0.06	0.02	0.11	0.01
FEO *	6.46	6.49	6.42	6.20	6.34	6.23	6.28	6.43	6.27	6.33	6.43	6.24
MNO	0.07	0.10	0.12	0.13	0.11	0.13	0.14	0.12	0.38	0.14	0.09	0.11
MGO	18.46	18.22	17.55	18.32	18.05	17.73	18.17	18.31	17.66	17.05	18.79	17.26
CAO	16.54	15.28	16.62	16.43	16.19	16.31	16.21	15.80	16.38	16.99	15.81	16.73
NA2O	1.86	1.77	1.97	1.97	1.71	2.03	2.08	1.96	1.91	2.08	1.85	2.01
K2O	0.04	0.03	0.02	0.02	0.03	0.03	0.02	0.05	0.03	0.01	0.05	0.04
TOTAL	101.03	98.86	100.24	100.88	99.63	99.94	100.29	100.36	99.68	100.05	99.63	99.33
NUMBER OF CATIONS FOR 6 OXYGENS												
SI	1.960	1.974	1.976	1.972	1.974	1.977	1.967	1.974	1.971	1.985	1.953	1.980
TI	0.012	0.013	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.009	0.012	0.010
AL	0.109	0.107	0.110	0.105	0.105	0.109	0.109	0.106	0.107	0.104	0.108	0.103
CR	0.002	0.003	0.000	0.001	0.002	0.001	0.001	0.003	0.002	0.000	0.003	0.000
FE	0.194	0.199	0.194	0.186	0.193	0.189	0.190	0.194	0.191	0.192	0.196	0.191
MN	0.002	0.003	0.004	0.004	0.003	0.004	0.004	0.004	0.012	0.004	0.003	0.003
MG	0.989	0.995	0.948	0.981	0.979	0.959	0.980	0.986	0.960	0.923	1.021	0.941
CA	0.637	0.600	0.645	0.633	0.631	0.634	0.628	0.611	0.640	0.661	0.618	0.656
NA	0.130	0.126	0.138	0.138	0.120	0.143	0.146	0.137	0.134	0.146	0.131	0.143
K	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.000	0.002	0.002
CA	35.0	33.5	36.1	35.1	35.0	35.6	34.9	34.2	35.7	37.2	33.7	36.7
MG	54.3	55.4	53.0	54.5	54.3	53.8	54.5	55.0	53.6	52.0	55.6	52.6
FE	10.7	11.1	10.9	10.4	10.7	10.6	10.6	10.8	10.7	10.8	10.7	10.7
MG/MG+FE	83.6	83.3	83.0	84.0	83.5	83.5	83.8	83.5	83.4	82.8	83.9	83.1
CA/CA+MG	39.2	37.6	40.5	39.2	39.2	39.8	39.1	38.3	40.0	41.7	37.7	41.1

* TOTAL IRON AS FEO

TABLE 14 CONT.
ANALYSES OF DIOPSIDES COEXISTING WITH ILMENITE

WT %	RJ 403	RJ 405	RJ 407	RJ 409	RJ 412	RJ 414	RJ 416	RJ 418	RJ 420	RJ 448	RJ 449
SIO2	54.12	54.64	54.60	54.64	54.92	54.45	54.81	55.01	54.84	54.97	55.31
TIO2	0.43	0.43	0.33	0.46	0.43	0.39	0.46	0.44	0.40	0.42	0.39
AL2O3	2.45	2.45	2.48	2.51	2.46	2.54	2.52	2.50	2.54	2.57	2.53
CR2O3	0.01	0.10	0.00	0.08	0.01	0.00	0.09	0.04	0.02	0.06	0.02
FEO *	6.29	6.18	6.23	6.04	6.34	6.42	6.17	6.26	6.33	6.35	6.36
MNO	0.14	0.14	0.12	0.09	0.13	0.16	0.12	0.11	0.12	0.18	0.13
MGO	17.99	18.48	17.27	18.51	17.77	17.29	18.48	18.08	17.80	17.13	16.91
CAO	16.70	15.74	17.28	16.15	16.65	16.87	16.12	16.18	16.83	16.42	17.29
NA2O	1.94	1.97	2.13	1.83	2.00	2.10	1.99	2.10	2.08	1.83	1.84
K2O	0.02	0.03	0.01	0.04	0.03	0.04	0.02	0.03	0.01	0.02	0.02
TOTAL	100.09	100.16	100.45	100.35	100.74	100.26	100.78	100.75	100.97	99.95	100.80
NUMBER OF CATIONS FOR 6 OXYGENS											
SI	1.978	1.975	1.977	1.971	1.979	1.975	1.970	1.979	1.973	1.992	1.991
TI	0.012	0.012	0.009	0.012	0.012	0.011	0.012	0.012	0.011	0.012	0.011
AL	0.104	0.104	0.106	0.107	0.104	0.109	0.107	0.106	0.108	0.110	0.107
CR	0.000	0.003	0.000	0.002	0.000	0.000	0.002	0.001	0.000	0.002	0.000
FE	0.189	0.187	0.189	0.182	0.191	0.195	0.185	0.188	0.190	0.192	0.192
MN	0.004	0.004	0.003	0.003	0.004	0.005	0.004	0.003	0.004	0.006	0.004
MG	0.962	0.935	0.932	0.995	0.954	0.935	0.990	0.969	0.954	0.925	0.907
CA	0.642	0.610	0.670	0.624	0.643	0.656	0.621	0.624	0.649	0.637	0.667
NA	0.135	0.138	0.150	0.128	0.140	0.148	0.139	0.146	0.145	0.129	0.129
K	0.001	0.001	0.000	0.002	0.001	0.002	0.001	0.001	0.000	0.001	0.001
CA	35.8	34.0	37.4	34.7	36.0	36.7	34.7	35.0	36.2	36.3	37.8
MG	53.7	55.6	52.0	55.2	53.4	52.4	55.0	54.4	53.2	52.7	51.3
FE	10.5	10.4	10.5	10.1	10.6	10.9	10.3	10.6	10.6	10.9	10.9
MG/MG+FE	83.6	84.2	83.2	84.5	83.3	82.8	84.2	83.7	83.4	82.8	82.5
CA/CA+MG	40.0	38.0	41.8	38.6	40.2	41.2	38.7	39.2	40.5	40.8	42.4

* TOTAL IRON AS FEO

TABLE 15
ANALYSES OF GARNETS

WT %	RJ 10	RJ 68	RJ 70	RJ 72	RJ 74	RJ 76	RJ 78	RJ 80	RJ 82
SIO2	41.32	41.11	41.39	42.18	41.30	41.55	41.62	41.31	41.61
TIO2	1.46	1.47	1.11	0.83	1.34	1.20	1.30	1.36	1.26
AL203	21.42	21.43	21.61	22.07	21.66	22.12	21.73	21.30	21.65
CR203	0.54	0.60	1.03	0.96	0.34	0.21	0.72	0.55	0.62
FEO *	11.82	11.65	9.11	9.25	11.51	11.75	10.20	12.13	11.28
MNO	0.27	0.25	0.20	0.23	0.26	0.29	0.23	0.26	0.24
MGO	18.88	18.73	20.36	20.56	18.78	18.81	19.77	18.50	19.32
CAO	4.70	4.66	4.58	4.33	4.65	4.61	4.66	4.72	4.70
TOTAL	100.32	99.91	99.39	100.42	99.86	100.53	100.25	100.13	100.69
NUMBER OF CATIONS FOR 12 OXYGENS									
SI	2.972	2.973	2.976	2.995	2.983	2.980	2.979	2.986	2.978
TI	0.079	0.080	0.060	0.044	0.073	0.065	0.070	0.074	0.068
AL	1.820	1.827	1.831	1.847	1.844	1.870	1.833	1.815	1.827
CR	0.031	0.034	0.059	0.054	0.020	0.012	0.041	0.031	0.035
FE	0.713	0.705	0.548	0.549	0.695	0.704	0.611	0.734	0.676
MN	0.016	0.015	0.012	0.014	0.016	0.018	0.014	0.016	0.015
MG	2.029	2.020	2.181	2.176	2.022	2.011	2.109	1.996	2.063
CA	0.363	0.361	0.353	0.329	0.360	0.354	0.358	0.366	0.361
CA	11.7	11.7	11.4	10.8	11.7	11.5	11.6	11.8	11.6
MG	65.3	65.5	70.8	71.2	65.7	65.5	68.5	64.5	66.6
FE	23.0	22.8	17.8	18.0	22.6	22.9	19.9	23.7	21.8
MG/MG+FE	74.0	74.1	79.9	79.8	74.4	74.1	77.5	73.1	75.3
CA/CA+MG	15.2	15.2	13.9	13.1	15.1	15.0	14.5	15.5	14.9

* TOTAL IRON AS FEO

TABLE 15 CONT.
ANALYSES OF GARNETS

WT %	RJ 84	RJ 86	RJ 88	RJ 90	RJ 92	RJ 94	RJ 96	RJ 98	RJ 100
SIO2	42.02	41.32	41.26	40.67	41.13	41.41	41.25	40.06	42.18
TIO2	1.23	1.14	1.06	1.11	1.29	1.20	1.11	1.18	0.90
AL203	21.46	22.08	21.94	21.96	21.38	20.63	21.53	21.69	21.13
CR203	0.87	0.05	0.05	0.05	0.47	0.47	0.55	0.98	0.94
FEO *	9.87	13.09	13.35	12.79	11.98	11.69	11.40	9.56	9.55
MNO	0.23	0.32	0.33	0.26	0.27	0.24	0.24	0.25	0.21
MGO	19.97	18.04	17.87	18.04	18.56	18.46	18.94	20.21	20.29
CAO	4.74	4.58	4.55	4.71	4.72	4.79	4.62	4.53	4.59
TOTAL	100.40	100.62	100.41	99.58	99.80	98.90	99.64	98.46	99.78
NUMBER OF CATIONS FOR 12 OXYGENS									
SI	2.998	2.977	2.984	2.962	2.981	3.024	2.984	2.921	3.021
TI	0.066	0.062	0.058	0.061	0.071	0.066	0.061	0.065	0.049
AL	1.805	1.876	1.870	1.885	1.825	1.776	1.836	1.864	1.785
CR	0.049	0.003	0.003	0.003	0.027	0.027	0.032	0.056	0.053
FE	0.589	0.789	0.808	0.779	0.726	0.714	0.690	0.583	0.572
MN	0.014	0.020	0.020	0.016	0.017	0.015	0.015	0.015	0.013
MG	2.124	1.940	1.926	1.961	2.007	2.011	2.045	2.197	2.166
CA	0.362	0.354	0.353	0.368	0.367	0.375	0.358	0.344	0.352
CA	11.8	11.5	11.4	11.8	11.8	12.1	11.6	11.3	11.4
MG	69.1	62.9	62.9	63.1	64.7	64.9	66.1	70.1	70.1
FE	19.1	25.6	25.6	25.1	23.4	23.0	22.3	18.6	18.5
MG/MG+FE	78.3	71.1	70.5	71.5	73.4	73.8	74.8	79.0	79.1
CA/CA+MG	14.6	15.4	15.5	15.8	15.5	15.7	14.9	13.9	14.0

* TOTAL IRON AS FEO

TABLE 15 CONT.
ANALYSES OF GARNETS

WT %	RJ 102	RJ 104	RJ 108	RJ 110	RJ 112	RJ 114	RJ 116	RJ 118	RJ 454
SIO2	41.38	41.37	41.35	41.24	41.66	42.11	41.58	41.95	41.38
TIO2	1.40	1.22	1.31	1.08	0.88	0.95	1.12	1.28	1.37
AL203	21.30	21.52	21.57	21.45	20.66	22.02	21.66	20.51	20.52
CR203	0.55	0.65	0.57	0.66	2.09	0.33	0.68	0.52	1.63
FEO *	11.41	10.27	11.05	10.35	8.11	10.69	10.45	11.79	9.80
MNO	0.28	0.26	0.28	0.26	0.31	0.22	0.23	0.22	0.29
MGO	19.21	19.78	19.22	19.53	20.02	19.86	19.65	19.02	19.52
CAO	4.75	4.44	4.48	4.57	5.06	4.17	4.50	4.64	5.13
TOTAL	100.28	99.51	99.84	99.14	98.80	100.35	99.86	99.93	99.65
NUMBER OF CATIONS FOR 12 OXYGENS									
SI	2.978	2.982	2.981	2.986	3.012	3.004	2.987	3.030	2.990
TI	0.076	0.066	0.071	0.059	0.048	0.051	0.060	0.070	0.075
AL	1.807	1.829	1.833	1.831	1.761	1.852	1.835	1.747	1.747
CR	0.031	0.037	0.032	0.038	0.120	0.019	0.039	0.030	0.093
FE	0.687	0.619	0.667	0.627	0.491	0.638	0.628	0.713	0.592
MN	0.017	0.016	0.017	0.016	0.019	0.013	0.014	0.013	0.018
MG	2.063	2.126	2.068	2.109	2.157	2.113	2.105	2.050	2.103
CA	0.367	0.343	0.346	0.355	0.392	0.319	0.347	0.360	0.397
CA	11.8	11.1	11.2	11.5	12.9	10.4	11.2	11.5	12.8
MG	66.2	68.8	67.1	68.2	71.0	68.8	68.4	65.7	68.0
FE	22.1	20.0	21.6	20.3	16.1	20.8	20.4	22.8	19.1
MG/MG+FE	75.0	77.4	75.6	77.1	81.5	76.8	77.0	74.2	78.0
CA/CA+MG	15.1	13.9	14.3	14.4	15.4	13.1	14.1	14.9	15.9

* TOTAL IRON AS FEO

TABLE 16
ANALYSES OF GARNETS CO-EXISTING WITH ILMENITE

WT %	RJ 257	RJ 260	RJ 262	RJ 265	RJ 268	RJ 271	RJ 274A	RJ 274B	RJ 282
SIO2	41.50	40.86	41.13	40.94	41.26	41.46	41.57	41.23	41.46
TIO2	0.98	0.81	0.64	0.86	1.16	0.99	1.16	1.04	1.09
AL203	22.29	21.90	21.99	21.72	21.51	22.01	21.87	21.92	22.10
CR203	0.00	0.02	0.00	0.03	0.09	0.03	0.13	0.13	0.11
FEO *	13.20	13.61	14.19	12.99	12.23	12.88	12.50	12.64	12.82
MNO	0.30	0.31	0.32	0.31	0.27	0.31	0.28	0.31	0.27
MGO	18.13	17.32	17.22	17.81	18.51	18.18	18.29	18.55	18.72
CAO	4.51	4.50	4.34	4.42	4.56	4.63	4.71	4.54	4.53
TOTAL	100.91	99.32	99.83	99.09	99.59	100.49	100.50	100.36	101.10
NUMBER OF CATIONS FOR 12 OXYGENS									
SI	2.980	2.990	2.999	2.995	2.993	2.988	2.991	2.974	2.969
TI	0.053	0.045	0.035	0.047	0.063	0.054	0.063	0.057	0.059
AL	1.887	1.890	1.890	1.873	1.840	1.870	1.855	1.864	1.866
CR	0.000	0.001	0.000	0.002	0.005	0.002	0.007	0.007	0.006
FE	0.794	0.833	0.865	0.795	0.743	0.777	0.753	0.763	0.769
MN	0.018	0.019	0.020	0.019	0.017	0.019	0.017	0.019	0.016
MG	1.943	1.890	1.872	1.942	2.004	1.956	1.965	1.998	2.002
CA	0.347	0.352	0.339	0.346	0.355	0.357	0.363	0.351	0.348
CA	11.3	11.5	11.0	11.2	11.4	11.6	11.8	11.3	11.2
MG	63.0	61.4	60.9	63.0	64.6	63.3	63.8	64.2	64.2
FE	25.7	27.1	28.1	25.8	23.9	25.1	24.4	24.5	24.6
MG/MG+FE	71.0	69.4	68.4	71.0	73.0	71.6	72.3	72.4	72.2
CA/CA+MG	15.2	15.7	15.3	15.1	15.0	15.5	15.6	14.9	14.8

* TOTAL IRON AS FEO

TABLE 16 CONT.
ANALYSES OF GARNETS CO-EXISTING WITH ILMENITE

WT %	RJ 285	RJ 287	RJ 290A	RJ 290B	RJ 294	RJ 298	RJ 304A	RJ 304B	RJ 308	RJ 311	RJ 314
SIO2	40.62	41.34	41.10	41.50	41.31	41.31	41.17	41.16	41.55	41.49	41.54
TIO2	1.03	1.09	1.16	1.23	1.03	1.11	0.93	0.88	0.78	0.96	0.99
AL203	22.47	22.02	21.43	21.62	22.01	21.78	22.19	21.86	22.34	22.45	22.25
CR203	0.09	0.08	0.25	0.27	0.13	0.33	0.05	0.03	0.02	0.03	0.00
FEO *	12.14	12.56	11.76	12.00	11.93	11.99	12.89	12.66	13.04	12.40	12.78
MNO	0.30	0.31	0.27	0.26	0.28	0.28	0.28	0.30	0.32	0.32	0.31
MGO	18.21	18.49	18.42	18.74	18.42	18.50	18.07	18.17	17.86	18.41	18.02
CAO	4.35	4.52	4.63	4.73	4.44	4.61	4.51	4.43	4.42	4.50	4.43
TOTAL	99.21	100.41	99.04	100.38	99.55	99.91	100.09	99.49	100.32	100.56	100.32
NUMBER OF CATIONS FOR 12 OXYGENS											
SI	2.956	2.978	2.995	2.989	2.992	2.986	2.978	2.992	2.997	2.980	2.993
TI	0.056	0.059	0.064	0.067	0.056	0.060	0.051	0.048	0.042	0.052	0.054
AL	1.927	1.870	1.841	1.834	1.879	1.855	1.893	1.873	1.900	1.900	1.890
CR	0.005	0.004	0.015	0.015	0.007	0.019	0.003	0.002	0.001	0.002	0.000
FE	0.740	0.747	0.717	0.723	0.723	0.725	0.780	0.771	0.787	0.745	0.771
MN	0.018	0.019	0.017	0.016	0.017	0.017	0.017	0.018	0.020	0.020	0.019
MG	1.978	1.989	2.003	2.012	1.990	1.995	1.952	1.972	1.923	1.973	1.938
CA	0.339	0.349	0.362	0.365	0.344	0.358	0.350	0.346	0.342	0.347	0.343
CA	11.1	11.3	11.7	11.8	11.2	11.6	11.4	11.2	11.2	11.3	11.2
MG	64.7	64.2	65.0	64.9	65.1	64.8	63.3	63.8	63.0	64.4	63.5
FE	24.2	24.5	23.3	23.3	23.6	23.6	25.3	25.0	25.8	24.3	25.3
MG/MG+FE	72.8	72.4	73.6	73.6	73.4	73.3	71.4	71.9	70.9	72.6	71.5
CA/CA+MG	14.7	14.9	15.3	15.4	14.8	15.2	15.2	14.9	15.1	14.9	15.0

* TOTAL IRON AS FEO

TABLE 17
ANALYSES OF GLASSY DISCRETE ENSTATITES

WR %	RJ 122	RJ 124	RJ 130	RJ 138	RJ 150	RJ 328	FRB 4
SIO2	55.49	56.39	57.31	55.51	56.19	56.01	55.3
TIO2	0.16	0.13	0.20	0.27	0.16	0.25	0.15
AL2O3	0.75	0.82	1.30	1.16	0.74	1.31	0.70
CR2O3	0.02	0.00	0.12	0.04	0.00	0.08	0.03
FEO *	10.94	10.57	7.30	9.02	10.88	8.37	10.7
MNO	0.13	0.13	0.10	0.13	0.19	0.13	0.20
MGO	30.89	30.32	32.12	31.80	31.71	31.89	32.3
CAO	0.80	0.88	1.53	1.22	0.79	1.35	0.68
NA2O	0.26	0.26	0.27	0.31	0.20	0.28	0.15
K2O	0.07	0.02	0.00	0.00	0.00	0.00	0.00
TOTAL	99.51	99.42	100.25	99.46	100.86	99.67	100.2
NUMBER OF CATIONS FOR 6 OXYGENS							
SI	1.970	1.992	1.984	1.957	1.966	1.963	1.948
TI	0.004	0.003	0.005	0.007	0.004	0.006	0.004
AL	0.031	0.034	0.053	0.048	0.031	0.054	0.029
CR	0.000	0.000	0.003	0.001	0.000	0.002	0.001
FE	0.325	0.314	0.211	0.266	0.318	0.245	0.316
MN	0.004	0.004	0.003	0.004	0.006	0.004	0.006
MG	1.634	1.597	1.656	1.671	1.653	1.666	1.698
CA	0.030	0.033	0.057	0.046	0.029	0.051	0.026
NA	0.018	0.018	0.018	0.021	0.014	0.019	0.010
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CA	1.5	1.7	2.9	2.3	1.4	2.5	1.3
MG	82.1	82.1	86.1	84.2	82.6	84.9	83.2
FE	16.3	16.2	11.0	13.4	15.9	12.5	15.5
MG/MG+FE	83.4	83.6	88.7	86.2	83.8	87.1	84.3
CA/CA+MG	1.8	2.0	3.3	2.7	1.7	3.0	1.5

* TOTAL IRON AS FEO

TABLE 18
ANALYSES OF LAMELLAR ENSTATITES

WT %	RJ 126	RJ 128	RJ 132	RJ 137	RJ 140	RJ 142	RJ 144	RJ 146	RJ 148	RJ 317	RJ 318	RJ 319	RJ 320	RJ 322	RJ 330	RJ 332	RJ 235	RJ 337	RJ 369
SIO2	58.07	57.05	57.61	59.01	58.82	58.44	57.49	57.58	57.85	56.76	58.60	57.73	58.17	58.85	57.22	59.49	57.44	58.36	57.10
TIO2	0.06	0.08	0.06	0.00	0.00	0.05	0.04	0.07	0.02	0.07	0.07	0.05	0.05	0.01	0.01	0.01	0.07	0.00	0.04
AL2O3	0.86	0.78	0.80	0.88	0.90	0.90	0.84	0.77	0.84	0.82	0.83	0.78	0.73	0.92	0.87	0.91	0.88	0.90	0.78
CR2O3	0.20	0.17	0.11	0.28	0.31	0.18	0.20	0.21	0.15	0.16	0.18	0.16	0.18	0.27	0.22	0.29	0.19	0.29	0.17
FEO *	7.48	8.28	8.02	4.84	4.80	7.42	7.05	8.01	6.97	6.37	6.22	8.15	6.14	3.63	4.49	3.94	6.25	4.29	6.67
MNO	0.09	0.13	0.08	0.09	0.12	0.10	0.09	0.11	0.13	0.12	0.12	0.10	0.10	0.09	0.09	0.08	0.08	0.09	0.09
MGO	33.68	33.44	32.68	35.55	35.44	33.82	33.98	33.38	33.83	33.89	32.90	33.66	33.29	35.63	36.24	35.43	35.03	35.47	34.58
CAO	0.28	0.24	0.27	0.26	0.25	0.27	0.23	0.26	0.24	0.24	0.27	0.27	0.25	0.29	0.23	0.28	0.23	0.28	0.27
NA2O	0.06	0.00	0.08	0.01	0.00	0.05	0.01	0.02	0.01	0.07	0.00	0.05	0.07	0.07	0.06	0.17	0.05	0.12	0.01
K2O	0.04	0.00	0.02	0.01	0.03	0.04	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.01	0.02	0.02	0.00	0.00	0.00
TOTAL	100.76	100.17	99.73	100.93	100.67	100.27	99.94	100.43	100.06	100.51	99.19	100.95	98.98	99.77	99.45	100.62	100.22	99.80	99.71
NUMBER OF CATIONS FOR 6 OXYGENS																			
SI	1.993	1.979	2.001	1.997	1.996	1.994	1.986	1.988	1.993	2.008	2.026	1.985	2.017	2.003	1.968	2.009	1.974	1.994	1.976
TI	0.002	0.002	0.002	0.000	0.000	0.001	0.001	0.002	0.001	0.002	0.002	0.001	0.001	0.000	0.000	0.000	0.002	0.000	0.001
AL	0.035	0.032	0.033	0.035	0.036	0.036	0.034	0.031	0.034	0.033	0.034	0.032	0.030	0.037	0.035	0.036	0.036	0.036	0.032
CR	0.005	0.005	0.003	0.007	0.008	0.005	0.005	0.006	0.005	0.004	0.005	0.004	0.005	0.007	0.006	0.008	0.005	0.008	0.005
FE	0.214	0.240	0.233	0.137	0.138	0.212	0.204	0.231	0.201	0.182	0.180	0.234	0.178	0.103	0.129	0.111	0.180	0.123	0.193
MN	0.003	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.003	0.003	0.003	0.003	0.002	0.003	0.002	0.002	0.003	0.003
MG	1.721	1.729	1.692	1.793	1.791	1.720	1.750	1.719	1.739	1.727	1.694	1.725	1.718	1.808	1.859	1.784	1.795	1.807	1.784
CA	0.010	0.009	0.010	0.009	0.009	0.010	0.009	0.010	0.009	0.009	0.010	0.010	0.009	0.010	0.009	0.010	0.008	0.010	0.010
NA	0.004	0.000	0.006	0.001	0.000	0.003	0.001	0.001	0.001	0.005	0.000	0.003	0.005	0.005	0.004	0.011	0.004	0.008	0.001
K	0.002	0.000	0.001	0.001	0.001	0.002	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000
CA	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.4
MG	88.4	87.4	87.4	92.5	92.4	88.6	89.1	87.7	89.2	90.0	89.9	87.6	90.2	94.1	93.1	93.6	90.6	93.1	89.7
FE	11.0	12.1	12.0	7.1	7.1	10.9	10.4	11.8	10.3	9.5	9.6	11.9	9.3	5.4	6.5	5.8	9.1	6.3	9.7
MG/MG+FE	88.9	87.8	87.9	92.9	92.9	89.0	89.6	88.1	89.6	90.5	90.4	88.0	90.6	94.6	93.5	94.1	90.9	93.6	90.2
CA/CA+MG	0.6	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.6	0.6	0.5	0.6	0.5	0.6	0.5	0.6	0.6

* TOTAL IRON AS FEO

TABLE 19
ANALYSES OF ENSTATITES COEXISTING WITH ILMENITE

WT %	RJ 338	RJ 340	RJ 343	RJ 345	RJ 348	RJ 350	RJ 351	RJ 354	RJ 356	RJ 359	RJ 360	RJ 362	RJ 364	RJ 365	RJ 368	RJ 428	RJ 460	RJ 464	FRB 352
SIO2	55.82	56.80	56.58	56.69	56.83	57.06	56.37	56.73	54.84	56.64	56.70	56.41	57.02	56.40	56.26	57.41	55.54	55.67	55.6
TIO2	0.23	0.26	0.28	0.24	0.25	0.25	0.19	0.25	0.22	0.27	0.22	0.25	0.25	0.25	0.27	0.17	0.21	0.23	0.13
ALIO3	1.06	1.06	1.09	1.04	1.05	1.02	1.01	0.95	0.97	1.03	1.01	1.01	1.01	1.02	1.01	0.80	0.92	0.96	0.75
CRIO3	0.04	0.01	0.04	0.00	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.02	0.05
FEO *	9.28	9.16	9.24	9.69	9.62	9.42	9.63	9.31	9.64	9.33	9.71	9.62	9.31	9.28	9.62	11.21	9.47	9.07	10.6
MNO	0.07	0.12	0.12	0.13	0.10	0.12	0.12	0.10	0.12	0.10	0.12	0.12	0.10	0.10	0.05	0.13	0.11	0.11	0.24
MGO	31.80	32.13	32.29	31.47	31.64	31.73	31.87	30.26	31.28	31.10	31.22	31.03	31.27	31.73	31.14	30.83	32.42	32.62	31.9
CAO	1.12	1.05	1.23	1.10	1.08	1.14	1.03	1.11	1.14	1.14	1.09	1.11	1.12	1.11	1.12	0.73	1.06	1.08	0.68
NA2O	0.20	0.24	0.28	0.22	0.28	0.28	0.23	0.27	0.23	0.28	0.28	0.27	0.28	0.02	0.29	0.02	0.22	0.27	0.17
K2O	0.01	0.03	0.01	0.01	0.00	0.01	0.02	0.06	0.03	0.03	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00
TOTAL	99.63	100.86	101.16	100.59	100.86	101.03	100.47	99.05	98.47	99.91	100.35	99.83	100.38	99.93	99.77	101.32	99.95	100.03	100.1
NUMBER OF CATIONS FOR 6 OXYGENS																			
SI	1.965	1.971	1.62	1.975	1.975	1.979	1.969	2.002	1.958	1.983	1.981	1.983	1.987	1.974	1.979	1.994	1.952	1.954	1.959
TI	0.006	0.007	0.007	0.006	0.007	0.007	0.005	0.007	0.006	0.007	1.006	0.007	0.007	0.007	0.007	0.004	0.006	0.006	0.003
AL	0.044	0.043	0.045	0.043	0.043	0.042	0.042	0.040	0.041	0.043	0.042	0.042	0.042	0.042	0.042	0.033	0.038	0.040	0.031
CR	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
FE	0.273	0.266	0.268	0.282	0.280	0.273	0.281	0.275	0.288	0.274	0.284	0.283	0.271	0.272	0.283	0.325	0.279	0.266	0.313
MN	0.002	0.004	0.004	0.004	0.003	0.004	0.004	0.003	0.004	0.003	0.004	0.004	0.003	0.003	0.001	0.004	0.003	0.003	0.007
MG	1.666	1.660	1.667	1.639	1.638	1.637	1.658	1.593	1.666	1.628	1.626	1.620	1.624	1.657	1.629	1.596	1.698	1.702	1.676
CA	0.042	0.039	0.046	0.041	0.040	0.042	0.039	0.042	0.044	0.043	0.041	0.042	0.042	0.042	0.042	0.027	0.040	0.041	0.026
NA	0.014	0.016	0.019	0.015	0.019	0.019	0.016	0.018	0.016	0.019	0.019	0.018	0.019	0.000	0.020	0.000	0.015	0.018	0.012
K	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CA	2.1	2.0	2.3	2.1	2.1	2.2	2.0	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.2	1.4	2.0	2.0	1.3
MG	84.1	84.5	84.2	83.5	83.6	83.8	83.8	83.4	83.4	33.7	83.4	83.3	83.8	84.1	83.4	81.9	84.2	84.7	83.2
FE	13.8	13.5	13.5	14.4	14.3	14.0	14.2	14.4	14.4	14.1	14.5	1455	14.0	13.8	14.5	16.7	13.8	13.2	15.5
MG/MG+FE	85.9	86.2	86.2	85.3	85.4	85.7	85.5	85.3	85.3	85.6	85.2	85.2	85.7	85.9	85.2	83.1	85.9	86.5	84.3
CA/CA+MG	2.5	2.3	2.7	2.4	2.4	2.5	2.3	2.6	2.6	2.6	2.4	2.5	2.5	2.4	2.5	1.7	2.3	2.3	1.5

* TOTAL IRON AS FEO

* TOTAL IRON AS FEO

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TABLE 20
ANALYSES OF SILICATE INTERGROWTHS

	DIOPSIDE-GARNET INTERGROWTHS					OLIVINE INTERGROWTHS										
	DIOPSIDES		GARNETS			OLIVINE		GARNETS		OLIVINE ENSTATITE		OLIVINE ILMENITE		GARNETS EXSOLVED FROM ENSTATITE		GARNET INCLUSION IN ILMENITE FROM OPX/ILM INTERGROWTH RJ460
WT %	RJ 1	RJ 466	RJ 1	RJ 4	RJ 466	RJ 474	PHN 1859M	RJ 474	PHN 1859M	RJ 473	RJ 473	RJ 422	RJ 422	RJ 145	RJ 336	RJ 460
SIO2	55.39	54.18	41.87	41.82	41.52	39.60	40.0	41.27	42.0	39.6	56.28	39.46	0.00	40.81	42.04	41.1
TIO2	0.36	0.46	1.06	0.97	1.01	0.03	0.03	0.99	1.10	0.05	0.31	0.02	51.73	0.03	0.00	0.84
AL2O3	2.67	2.49	21.73	21.71	21.47	0.03	0.05	21.31	21.4	0.04	1.17	0.04	0.55	21.93	21.96	21.8
CR2O3	0.26	0.13	0.92	0.84	0.47	0.04	0.04	1.06	0.89	ND	0.06	0.00	0.62	2.47	3.28	0.07
FEO *	5.61	6.21	9.64	9.74	11.28	12.38	12.7	9.48	9.38	14.4	8.77	18.37	33.79	11.14	7.21	12.2
MNO	0.13	0.10	0.23	0.26	0.23	0.08	0.16	0.20	0.28	0.12	0.10	0.19	0.33	0.45	0.35	0.25
MGO	19.82	18.71	20.35	20.33	18.74	46.82	48.2	20.02	21.2	45.2	32.21	43.09	12.47	18.38	20.69	18.0
CAO	14.32	15.53	4.39	4.25	4.78	0.09	0.1	4.74	4.56	0.07	1.36	0.04	0.06	4.79	4.90	4.46
NA2O	1.87	1.81									0.28					
K2O	0.04	0.03									0.00					
NIO						0.41	0.39			0.36						
TOTAL	100.47	99.65	100.19	99.92	99.50	99.07	101.7	99.52	100.9	99.8	100.54	101.21	99.55	100.00	100.43	98.8
NUMBER OF CATIONS FOR N OXYGEN																
	N=6	N=6	N=12	N=12	N=12	N=4	N=4	N=12	N=12	N=4	N=3	N=4	N=3	N=6	N=6	N=12
SI	1.980	1.970	2.988	2.992	3.006	0.990	0.981	2.999	2.978	0.995	1.960	0.994	0.000	2.957	2.980	3.002
TI	0.010	0.013	0.057	0.052	0.055	0.001	0.001	0.054	0.059	0.001	0.008	0.000	0.921	0.002	0.000	0.004
AL	0.112	0.107	1.828	1.832	1.837	0.001	0.001	1.806	1.789	0.001	0.048	0.001	0.015	0.142	0.184	0.046
CR	0.007	0.004	0.052	0.048	0.027	0.001	0.001	0.060	0.050	0.000	0.002	0.000	0.012	1.873	1.834	1.882
FE	0.168	0.189	0.575	0.583	0.684	0.260	0.260	0.570	0.556	0.303	0.255	0.387	0.669	0.675	0.428	0.746
MN	0.004	0.003	0.014	0.016	0.014	0.002	0.003	0.012	0.017	0.003	0.003	0.004	0.007	0.028	0.021	0.015
MG	1.056	1.010	2.165	2.168	2.014	1.743	1.760	2.149	2.241	1.692	1.670	1.617	0.440	1.983	2.186	1.965
CA	0.548	0.604	0.336	0.326	0.371	0.002	0.003	0.365	0.353	0.002	0.051	0.001	0.001	0.372	0.372	0.349
NA	0.130	0.127									0.010					
K	0.002	0.001									0.000					
NI						0.008	0.007			0.007						
CA	30.9	33.5	10.9	10.6	12.1			11.8	11.2		2.5			12.3	12.4	11.4
MG	59.6	56.0	70.4	70.5	65.6			69.7	71.1		84.5			65.4	73.2	84.2
FE	9.5	10.5	18.7	18.9	22.3			18.5	17.7		12.9			22.3	14.3	24.4
MG/MG+FE	86.3	84.3	79.0	78.8	74.6	87.0	87.1	79.0	80.1	84.8	86.7	80.7		74.9	83.6	72.5
CA/CA+MG	34.2	37.4									2.9					

* TOTAL IRON AS FEO
PHN 1859M BOYD 1973

TABLE 21
ANALYSES OF ILMENITES

WT %	RJ 152	RJ 154	RJ 156	RJ 158	RJ 160	RJ 163	RJ 164	RJ 167	RJ 169	RJ 170	RJ 172	RJ 174	RJ 176	RJ 178	RJ 180
SIO2	0.02	0.08	0.03	0.10	0.04	0.08	0.18	0.04	0.06	0.02	0.10	0.03	0.15	0.12	0.11
TIO2	48.90	48.57	48.87	51.91	47.67	48.84	50.84	52.96	50.15	52.82	48.00	50.68	51.82	53.87	52.71
AL203	0.23	0.70	0.86	0.43	0.76	0.74	0.51	0.43	0.55	0.59	1.44	0.66	1.13	1.08	0.84
CR203	0.87	0.04	0.25	0.13	0.03	0.03	0.20	1.16	0.04	0.00	0.06	0.06	0.03	0.36	0.23
FEO *	41.97	41.37	40.19	38.10	44.35	41.49	37.74	31.87	40.59	37.42	38.81	41.04	38.18	35.80	36.04
MNO	0.23	0.17	0.17	0.18	0.18	0.20	0.16	0.24	0.14	0.20	0.18	0.17	0.18	0.17	0.18
MGO	7.69	8.53	9.41	9.63	7.58	7.90	9.56	11.87	9.26	8.67	11.08	7.60	7.78	9.46	9.60
CAO	0.02	0.11	0.04	0.05	0.04	0.05	0.04	0.01	0.01	0.01	0.11	0.01	0.05	0.05	0.04
TOTAL	99.94	99.57	99.83	100.53	100.65	99.33	99.23	98.58	100.80	99.73	99.78	100.26	99.32	100.91	99.75
FE203+	13.27	14.58	14.68	9.68	16.87	13.14	10.07	6.24	13.43	6.15	17.30	10.18	6.13	4.80	6.51
FEO +	30.03	28.25	26.98	29.38	29.18	29.66	28.68	26.25	28.51	31.85	23.20	31.88	32.66	31.48	30.18
NUMBER OF CATIONS FOR 3 OXYGENS **															
SI	0.000	0.002	0.001	0.002	0.001	0.002	0.004	0.001	0.001	0.000	0.002	0.001	0.004	0.003	0.002
TI	0.870	0.859	0.856	0.906	0.840	0.870	0.898	0.928	0.874	0.936	0.828	0.899	0.925	0.937	0.926
AL	0.006	0.019	0.024	0.012	0.021	0.021	0.014	0.012	0.015	0.016	0.039	0.018	0.032	0.029	0.023
CR	0.016	0.001	0.005	0.002	0.001	0.001	0.004	0.021	0.001	0.000	0.001	0.001	0.000	0.006	0.004
FE3+	0.236	0.258	0.257	0.169	0.279	0.234	0.178	0.109	0.234	0.110	0.299	0.181	0.110	0.084	0.114
FE2+	0.594	0.555	0.526	0.570	0.571	0.588	0.563	0.512	0.552	0.628	0.445	0.629	0.649	0.609	0.590
MN	0.005	0.003	0.003	0.004	0.004	0.004	0.003	0.005	0.003	0.004	0.003	0.003	0.004	0.003	0.003
MG	0.271	0.299	0.327	0.333	0.265	0.279	0.335	0.412	0.320	0.305	0.379	0.267	0.275	0.326	0.334
CA	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.003	0.000	0.001	0.001	0.001
GK	24.6	26.9	29.4	31.1	23.4	25.3	31.1	39.9	28.9	29.2	33.7	24.8	26.6	32.0	32.2
IL	53.9	49.9	47.4	53.2	50.4	53.4	52.3	49.5	49.9	60.2	39.6	58.4	62.7	59.8	56.8
HM	21.5	23.2	23.2	15.7	26.2	21.3	16.6	10.6	21.2	10.6	26.6	16.8	10.6	8.2	11.0
MG/MG+FE (AT %)	31.3	35.0	38.3	36.9	31.7	32.2	37.3	44.6	36.7	32.7	46.0	29.8	29.8	34.9	36.1

* TOTAL IRON AS FEO
\+ FE203 AND FEO IS CALCULATED FROM THE TOTAL FE AND FROM THE ILMENITE STRUCTURAL FORMULA ABO3, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION

TABLE 21 CONT.
ANALYSES OF ILMENITES

WT %	RJ 183	RJ 185	RJ 187	RJ 188	RJ 190	RJ 192	RJ 194	RJ 196	RJ 199	RJ 200	RJ 202
SIO2	0.20	0.06	0.04	0.00	0.03	0.10	0.04	0.02	0.02	0.09	0.01
TIO2	47.53	48.80	47.31	50.02	49.88	47.36	55.37	50.44	49.45	49.66	47.80
AL2O3	0.70	0.35	0.51	0.27	0.79	0.58	0.61	0.87	0.68	0.78	0.74
CR2O3	0.06	0.82	0.06	0.84	0.13	0.55	0.51	0.05	0.03	0.05	0.04
FEO *	44.33	38.81	45.22	39.59	38.65	43.08	29.45	39.22	39.77	41.49	43.82
MNO	0.17	0.32	0.17	0.25	0.15	0.17	0.22	0.17	0.16	0.16	0.16
MGO	7.29	11.12	7.06	8.36	9.41	7.12	12.71	9.36	9.37	8.83	7.37
CAO	0.06	0.08	0.02	0.02	0.04	0.03	0.06	0.01	0.02	0.03	0.10
TOTAL	100.34	100.36	100.39	99.35	99.10	98.96	98.97	100.14	99.50	101.10	100.04
FE2O3+	16.22	16.79	17.13	10.88	11.93	14.70	2.86	11.90	13.52	14.08	15.84
FEO+	29.73	23.70	29.81	29.80	27.91	29.80	26.88	28.51	27.60	28.82	29.57
NUMBER OF CATIONS FOR 3 OXYGENS **											
SI	0.005	0.001	0.001	0.000	0.000	0.002	0.001	0.000	0.000	0.002	0.000
TI	0.842	0.842	0.839	0.891	0.882	0.852	0.961	0.883	0.871	0.864	0.848
AL	0.019	0.009	0.014	0.008	0.022	0.016	0.016	0.024	0.019	0.021	0.020
CR	0.001	0.015	0.001	0.016	0.002	0.010	0.009	0.001	0.001	0.001	0.001
FE3+	0.287	0.290	0.304	0.194	0.211	0.264	0.050	0.208	0.283	0.245	0.281
FE2+	0.585	0.455	0.588	0.590	0.549	0.596	0.519	0.555	0.540	0.558	0.584
MN	0.003	0.006	0.003	0.005	0.003	0.003	0.004	0.003	0.003	0.003	0.003
MG	0.256	0.380	0.248	0.295	0.330	0.254	0.437	0.325	0.327	0.305	0.259
CA	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.002
GK	22.7	33.8	21.8	27.3	30.3	22.8	43.5	29.8	29.6	27.5	23.1
IL	51.9	40.4	51.6	54.7	50.3	53.5	51.6	51.0	48.9	50.4	51.9
HM	25.4	25.8	26.6	18.0	19.4	23.7	4.9	19.2	21.5	22.1	25.0
MG/MG+FE (AT %)	30.4	45.5	29.7	33.3	37.5	29.9	45.7	36.9	37.7	35.3	30.7

* TOTAL IRON AS FEO
\+ FE2O3 AND FEO IS CALCULATED FROM THE TOTAL FE AND FROM THE ILMENITE STRUCTURAL FORMULA ABO3, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION

TABLE 22
ANALYSES OF ILMENITES CO-EXISTING WITH CLINOPYROXENE

WT %	RJ 371	RJ 373	RJ 375	RJ 377	RJ 379	RJ 381	RJ 383	RJ 385	RJ 387
SIO2	0.06	0.04	0.06	0.04	0.00	0.04	0.04	0.00	0.00
TIO2	50.63	49.61	50.16	52.17	50.57	48.70	50.50	50.66	50.11
AL2O3	0.78	0.70	0.94	0.63	1.00	1.05	0.71	0.74	0.49
CR2O3	0.25	0.48	0.22	0.06	0.07	0.27	0.03	0.12	0.46
FEO *	37.85	38.47	38.90	37.85	38.61	40.18	39.56	38.21	39.01
MNO	0.00	0.08	0.18	0.17	0.14	0.19	0.17	0.17	0.18
MGO	9.86	9.52	9.72	9.56	9.75	9.75	8.61	9.15	9.84
CAO	0.05	0.04	0.05	0.12	0.04	0.02	0.04	0.02	0.04
TOTAL	99.47	98.94	100.23	100.69	100.18	100.20	99.67	99.06	100.13
FE2O3+	10.99	12.13	12.55	9.18	11.90	15.49	10.75	10.18	13.03
FEO+	27.96	27.55	27.60	29.59	27.90	26.24	29.89	29.04	27.28
NUMBER OF CATIONS FOR 3 OXYGENS **									
SI	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.000	0.000
TI	0.889	0.879	0.874	0.910	0.881	0.847	0.894	0.898	0.875
AL	0.021	0.017	0.026	0.017	0.027	0.029	0.020	0.020	0.013
CR	0.005	0.009	0.004	0.001	0.001	0.005	0.000	0.002	0.008
FE3+	0.193	0.215	0.219	0.160	0.208	0.270	0.190	0.181	0.278
FE2+	0.546	0.542	0.535	0.574	0.541	0.508	0.588	0.573	0.530
MN	0.000	0.002	0.004	0.003	0.003	0.004	0.003	0.003	0.004
MG	0.343	0.334	0.336	0.330	0.337	0.336	0.302	0.322	0.341
CA	0.001	0.001	0.001	0.003	0.001	0.000	0.001	0.000	0.001
GK	31.7	30.6	30.8	31.0	31.0	30.2	28.0	29.9	31.0
IL	50.5	49.7	49.1	53.9	49.8	45.6	54.4	53.3	48.3
HM	17.8	19.7	20.1	15.0	19.1	24.2	17.6	16.8	20.7
MG/MG+FE (AT.%)	38.6	38.1	38.6	36.5	38.4	39.8	33.9	36.0	39.2

* TOTAL IRON AS FEO
\+ FE2O3 AND FEO IS CALCULATED FROM THE TOTAL FE AND FROM THE ILMENITE STRUCTURAL FORMULA ABO3, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION

TABLE 22 CONT.
ANALYSES OF ILMENITES CO-EXISTING WITH CLINOPYROXENE

WT %	RJ 407	RJ 409	RJ 411	RJ 416	RJ 420	RJ 448	RJ 449
SIO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TIO2	48.48	50.32	49.61	51.72	52.89	50.71	50.54
AL2O3	1.04	1.17	0.92	0.74	0.37	0.76	0.63
CR2O3	0.03	0.36	0.39	0.25	0.03	0.09	0.06
FEO *	38.42	37.23	38.68	36.74	36.95	38.33	39.29
MNO	0.17	0.14	0.16	0.18	0.19	0.18	0.19
MGO	9.13	10.03	10.40	10.50	9.48	9.91	9.13
CAO	0.05	0.04	0.05	0.05	0.04	0.04	0.05
TOTAL	98.32	99.29	100.21	100.18	99.95	100.02	99.89
FE2O3+	12.60	11.12	14.26	10.22	7.26	11.81	11.53
FEO+	27.08	27.23	25.84	27.54	30.42	27.70	28.91
NUMBER OF CATIONS FOR 3 OXYGENS **							
SI	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TI	0.872	0.883	0.860	0.899	0.931	0.886	0.889
AL	0.029	0.032	0.025	0.020	0.010	0.021	0.017
CR	0.000	0.007	0.007	0.004	0.000	0.000	0.001
FE3+	0.227	0.195	0.247	0.178	0.128	0.207	0.203
FE2+	0.542	0.531	0.498	0.532	0.595	0.538	0.566
MN	0.003	0.003	0.003	0.004	0.004	0.004	0.004
MG	0.325	0.349	0.357	0.362	0.331	0.343	0.318
CA	0.001	0.000	0.001	0.001	0.001	0.001	0.001
GK	29.8	32.4	32.4	33.8	31.4	31.5	29.3
IL	49.5	49.4	45.2	49.7	56.5	49.5	52.0
HM	20.7	18.2	22.4	16.6	12.1	18.9	18.7
MG/MG+FE (AT.%)	37.5	49.8	41.8	40.5	35.7	38.9	36.0

* TOTAL IRON AS FEO
+ FE2O3 AND FEO IS CALCULATED FROM THE TOTAL FE AND FROM THE ILMENITE STRUCTURAL FORMULA ABO3, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION

TABLE 23
ANALYSES OF ILMENITES CO-EXISTING WITH ORTHOPYROXENE

WT %	RJ 338	RJ 340	RJ 343	RJ 345	RJ 348	RJ 351	RJ 354	RJ 356	RJ 359
SIO2	0.04	0.04	0.06	0.09	0.04	0.11	0.04	0.12	0.04
TIO2	50.40	50.11	50.26	49.77	51.89	51.32	49.88	50.47	49.73
AL2O3	0.88	0.78	1.13	0.43	0.63	0.70	0.76	0.78	0.66
CR2O3	0.35	0.17	0.10	0.13	0.20	0.16	0.28	0.13	0.39
FEO *	37.49	37.27	38.39	38.41	37.01	36.89	38.25	37.75	37.66
MNO	0.17	0.22	0.16	0.17	0.18	0.14	0.17	0.18	0.17
MGO	9.86	9.38	10.01	9.18	9.59	10.71	9.52	9.48	10.47
CAO	0.02	0.06	0.04	0.09	0.02	0.05	0.02	0.04	0.04
TOTAL	99.21	98.03	100.15	98.27	99.56	100.08	98.91	98.95	99.16
FE2O3+	11.00	10.20	12.42	11.34	8.45	11.01	11.69	10.40	13.45
FEO+	27.59	28.09	27.21	28.21	29.40	26.98	27.73	28.39	25.55
NUMBER OF CATIONS FOR 3 OXYGENS **									
SI	0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.003	0.001
TI	0.887	0.895	0.874	0.889	0.914	0.891	0.882	0.893	0.868
AL	0.024	0.022	0.031	0.012	0.017	0.019	0.021	0.022	0.018
CR	0.006	0.003	0.002	0.002	0.004	0.003	0.005	0.002	0.007
FE3+	0.194	0.182	0.216	0.203	0.149	0.191	0.207	0.184	0.237
FE2+	0.540	0.558	0.526	0.560	0.576	0.521	0.546	0.559	0.500
MN	0.003	0.004	0.003	0.003	0.004	0.003	0.003	0.004	0.003
MG	0.344	0.332	0.345	0.325	0.335	0.368	0.334	0.332	0.365
CA	0.000	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001
GK	31.9	31.0	31.7	29.9	31.6	34.1	30.7	30.9	33.1
IL	50.1	52.0	48.4	51.5	54.3	48.2	50.2	52.0	45.4
HM	18.0	17.0	19.9	18.6	14.1	17.7	19.1	17.1	21.5
MG/MG+FE (AT.%)	38.9	37.3	39.6	36.7	36.8	41.4	38.0	37.3	42.2

* TOTAL IRON AS FEO
\+ FE2O3 AND FEO IS CALCULATED FROM THE ILMENITE STRUCTURAL FORMULA ABO3, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION

TABLE 23 CONT.
ANALYSES OF ILMENITES CO-EXISTING WITH ORTHOPYROXENE

WT %	RJ 362	RJ 364	RJ 365	RJ 366	RJ 367	RJ 368	1860 D	FRB 352	BD 1636
SIO2	0.00	0.04	0.02	0.10	0.02	0.02	0.14	0.11	0.05
TIO2	50.03	51.48	48.87	49.62	50.27	50.84	51.88	46.66	48.30
AL203	0.72	0.47	0.90	1.33	0.65	0.88	0.88	0.64	0.61
CR203	0.19	0.33	0.45	0.26	0.30	0.30	0.38	0.45	0.01
FEO *	38.71	37.60	38.68	38.76	37.88	37.53	37.23	42.75	40.70
MNO	0.14	0.20	0.16	0.17	0.18	0.18	0.20	0.21	0.20
MGO	9.42	9.76	10.11	9.82	9.77	9.58	10.57	7.82	8.52
CAO	0.04	0.02	0.02	0.04	0.06	0.07	0.05	0.03	0.01
TOTAL	99.25	99.90	99.21	100.10	99.13	99.40	101.33	98.67	98.4
FE203+	11.90	9.88	14.36	13.06	11.48	10.16	10.58	16.52	14.0
FEO+	28.00	28.71	25.76	27.01	27.55	28.39	27.71	27.89	28.1
NUMBER OF CATIONS FOR 3 OXYGENS **									
SI	0.000	0.000	0.000	0.002	0.000	0.000	0.003	0.003	0.001
TI	0.883	0.903	0.857	0.863	0.886	0.895	0.890	0.836	0.865
AL	0.020	0.013	0.025	0.036	0.018	0.024	0.024	0.018	0.017
CR	0.004	0.006	0.008	0.005	0.006	0.006	0.007	0.008	0.000
FE3+	0.210	0.173	0.252	0.227	0.202	0.179	0.182	0.296	0.251
FE2+	0.550	0.560	0.502	0.523	0.540	0.556	0.529	0.556	0.559
MN	0.003	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.004
MG	0.330	0.339	0.351	0.339	0.342	0.334	0.360	0.278	0.302
CA	0.001	0.000	0.000	0.001	0.001	0.002	0.001	0.001	0.000
GK	30.2	31.6	31.8	31.1	31.5	31.3	33.6	28.3	27.2
IL	50.5	52.2	45.4	48.0	49.8	52.0	49.4	56.6	50.3
HM	19.3	16.2	22.8	20.9	18.7	16.7	17.0	15.1	22.5
MG/MG+FE (AT.%)	37.5	37.7	41.1	39.3	38.8	37.5	40.5	33.3	35.1

* TOTAL IRON AS FEO
+ FE203 AND FEO IS CALCULATED FROM THE ILMENITE STRUCTURAL FORMULA AB03, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION
1860D BOYD AND NIXON 1973
FRB 352 F.R.BOYD,UNPUBLISHED
BD 1636 BOYD 1971

TABLE 24
ANALYSES OF ILMENITES CO-EXISTING WITH GARNET

WT %	RJ 257	RJ 260	RJ 262	RJ 265	RJ 268	RJ 271	RJ 274	RJ 278	RJ 282
SIO2	0.00	0.00	0.03	0.00	0.04	0.05	0.02	0.01	0.04
TIO2	51.04	51.16	49.24	50.66	51.07	51.11	50.85	51.17	52.21
AL2O3	0.73	0.00	0.73	0.77	0.71	0.65	0.53	0.97	0.45
CR2O3	0.03	0.00	0.02	0.05	0.11	0.06	0.15	0.17	0.00
FEO *	38.72	39.67	40.71	38.71	38.59	38.71	38.36	37.88	37.80
MNO	0.18	0.16	0.18	0.17	0.16	0.18	0.15	0.14	0.16
MGO	8.90	8.42	7.93	8.85	9.62	9.14	9.31	9.60	9.60
CAO	0.02	0.00	0.03	0.05	0.04	0.04	0.04	0.03	0.05
TOTAL	99.62	99.41	98.88	99.26	100.34	99.95	99.42	99.98	100.31
FE2O3+	9.89	9.82	11.95	10.19	11.09	10.24	10.46	10.17	9.05
FEO+	29.82	30.83	29.96	29.54	28.61	29.49	28.95	28.73	29.66
NUMBER OF CATIONS FOR 3 OXYGENS **									
SI	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.000	0.001
TI	0.902	0.912	0.882	0.898	0.891	0.899	0.898	0.896	0.914
AL	0.020	0.000	0.020	0.021	0.019	0.018	0.015	0.027	0.012
CR	0.001	0.000	0.000	0.001	0.002	0.001	0.003	0.003	0.000
FE3+	0.175	0.175	0.214	0.181	0.194	0.180	0.185	0.178	0.158
FE2+	0.586	0.611	0.596	0.583	0.555	0.577	0.569	0.559	0.577
MN	0.003	0.003	0.004	0.003	0.003	0.003	0.003	0.003	0.003
MG	0.312	0.298	0.282	0.311	0.333	0.319	0.326	0.333	0.333
CA	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001
GK	29.1	27.4	25.8	28.9	30.8	29.6	30.2	31.1	31.2
IL	54.6	56.4	54.6	54.2	51.3	53.6	52.7	52.2	54.0
HM	16.3	16.2	19.6	16.9	17.9	16.8	17.1	16.6	14.8
MG/MG+FE (AT.%)	34.7	32.8	32.1	34.8	37.5	35.6	36.4	37.3	36.6

* TOTAL IRON AS FEO
\+ FE2O3 AND FEO IS CALCULATED FROM THE TOTAL FE AND FROM THE ILMENITE STRUCTURAL FORMULA ABO3, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION

TABLE 24 CONT.
ANALYSES OF ILMENITES CO-EXISTING WITH GARNET

WT %	RJ 285	RJ 287	RJ 290	RJ 294	RJ 298	RJ 300	RJ 304	RJ 308	RJ 311	RJ 314
SIO2	0.00	0.06	0.09	0.00	0.00	0.02	0.00	0.04	0.06	0.02
TIO2	50.89	51.21	51.64	50.91	52.61	50.36	50.56	50.56	53.09	50.30
AL2O3	0.92	0.66	1.02	0.73	0.94	0.75	0.82	0.84	0.00	0.74
CR2O3	0.19	0.14	0.30	0.03	0.42	0.04	0.07	0.00	0.07	0.00
FEO *	38.10	38.13	37.29	38.85	35.38	38.72	38.92	38.40	36.27	38.33
MNO	0.17	0.09	0.15	0.26	0.17	0.06	0.17	0.18	0.24	0.14
MGO	9.09	9.35	9.48	8.40	9.87	9.17	8.96	9.25	9.17	9.03
CAO	0.05	0.03	0.03	0.07	0.06	0.04	0.05	0.06	0.04	0.05
TOTAL	99.41	99.88	100.00	99.25	99.45	99.16	99.55	99.32	98.94	98.61
FE2O3+	9.76	10.18	8.71	9.33	6.57	10.97	10.74	10.71	5.67	10.42
FEO+	29.82	28.97	29.45	30.45	29.46	28.85	29.26	28.76	31.17	28.95
NUMBER OF CATIONS FOR 3 OXYGENS **										
SI	0.000	0.001	0.002	0.001	0.000	0.000	0.000	0.001	0.001	0.000
TI	0.899	0.899	0.905	0.906	0.925	0.892	0.893	0.893	0.947	0.896
AL	0.025	0.018	0.028	0.020	0.026	0.021	0.023	0.023	0.000	0.021
CR	0.003	0.002	0.006	0.000	0.008	0.001	0.001	0.000	0.001	0.000
FE3+	0.172	0.179	0.153	0.166	0.116	0.194	0.190	0.189	0.101	0.186
FE2+	0.576	0.565	0.574	0.603	0.576	0.568	0.575	0.565	0.618	0.574
MN	0.003	0.002	0.003	0.005	0.003	0.001	0.003	0.004	0.005	0.003
MG	0.318	0.332	0.329	0.296	0.344	0.322	0.314	0.324	0.324	0.319
CA	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001
GK	29.8	30.9	31.2	27.8	33.2	29.7	29.1	30.0	31.1	29.6
IL	54.0	52.5	54.4	56.6	55.6	52.4	53.3	52.4	59.2	53.2
HM	16.2	16.6	14.4	15.6	11.2	17.9	17.6	17.6	9.7	17.2
MG/MG+FE (AT.%)	35.6	37.0	36.4	32.9	37.4	35.8	35.3	36.4	34.4	35.7

* TOTAL IRON AS FEO
+ FE2O3 AND FEO IS CALCULATED FROM THE TOTAL FE AND FROM THE ILMENITE STRUCTURAL FORMULA ABO_3, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION

TABLE 25
COMPOSITION OF MONASTERY LHERZOLITES

	FRB 1 (BOYD & NIXON, 1975)				1589N (BOYD & NIXON, 1973)			
WT %	OL	EN	DI	GT	OL	EN	DI	GT
SIO2	40.5	56.3	55.2	42.9	41.11	58.12	54.67	41.86
TIO2	0.03	0.10	0.15	0.48	0.01	0.05	0.27	0.09
AL2O3	0.06	0.92	2.09	20.8	0.02	0.80	3.28	20.50
CR2O3	0.03	0.22	0.88	3.07	0.04	0.37	2.89	5.00
FEO	8.59	5.14	3.14	6.90	6.20	3.76	1.90	5.42
MNO	0.12	0.11	0.13	0.28	0.09	0.09	0.06	0.32
MGO	50.8	35.9	19.3	21.9	52.28	36.70	15.82	22.10
CAO	0.07	1.07	18.2	4.82	0.03	0.43	17.85	5.15
NA2O		0.18	1.55	0.03		0.17	3.22	0.04
NIO	0.39				0.37			
TOTAL	100.6	99.9	100.6	101.2	100.46	100.49	99.96	100.47
NUMBER OF CATIONS FOR N OXYGEN								
N	4	6	6	12	4	6	6	12
SI	0.984	1.943	1.972	3.014	0.992	1.973	1.971	2.966
TI	0.000	0.003	0.004	0.025	0.000	0.001	0.007	0.005
AL	0.002	0.037	0.088	1.720	0.000	0.032	0.139	0.712
CR	0.001	0.006	0.025	0.171	0.000	0.010	0.082	0.280
FE	0.175	0.148	0.094	0.406	0.125	0.106	0.057	0.321
MN	0.002	0.003	0.004	0.017	0.001	0.003	0.002	0.019
MG	1.842	1.848	1.030	2.296	1.881	1.858	0.850	2.335
CA	0.002	0.038	0.698	0.363	0.000	0.016	0.689	0.391
NA		0.012	0.107	0.004		0.011	0.225	0.005
NI	0.008				0.007			
MG/MG+FE	91.3	92.6	91.6	85.0	93.8	94.6	93.7	97.9
CA/CA+MG		0.020	40.4			0.009	44.8	

TABLE 26

	KIMBERLITE INCLUSION IN OLIVINE RJ469	MONASTERY QUARRY TYPE KIMBERLITE 1870 #
SIO2	31.4	27.98
TIO2	5.5	4.22
AL2O3	2.63	2.64
CR2O3	0.15	0.14
FEO *	13.9	11.58
MNO	0.15	0.18
MGO	25.9	26.17
CAO	8.97	9.16
NA2O	0.38	0.64
K2O	1.45	1.78
H2O-	ND	0.40
H2O+	ND	7.33
P2O5	ND	0.94
CO2	PRESENT	5.83
S	ND	0.09
TOTAL	91.8	99.86

* TOTAL IRON AS FEO
ND NOT DETERMINED
\# FROM GURNEY AND EBRAHIM (1973)

TABLE 27
ANALYSES OF CLINOPYROXENES COEXISTING WITH ILMENITE
(LITERATURE VALUES)

WT %	JJG 201	JJG 207	JJG 214	JJG 216	PHN 1859GL	R 1115B	R 1115C	BD 1374	BD 1634
SIO2	54.30	54.34	54.50	54.49	54.3	54.41	54.42	55.19	54.8
TIO2	0.45	0.42	0.39	0.51	0.39	0.17	0.30	0.38	0.34
AL2O3	2.65	2.75	2.73	2.70	2.52	2.62	2.74	2.76	2.58
CR2O3	0.03	0.05	0.04	0.06	0.05	0.03	0.06		0.01
FE2O3							1.72		
FEO *	5.46	5.46	5.60	5.57	6.23	6.36	5.18#	5.76	6.35
MNO	0.08	0.09	0.07	0.06	0.16	0.07	0.07	0.17	0.14
MGO	17.59	17.31	17.51	18.28	17.5	16.60	18.09	17.10	17.8
CAO	17.14	17.46	17.61	16.71	16.6	17.52	16.34	17.03	16.4
NA2O	1.75	1.74	1.89	1.82	2.48	1.76	1.71	1.28	1.88
TOTAL	99.45	99.62	100.34	100.20	100.2	99.51	100.63	100.12	100.3
NUMBER OF CATIONS FOR 6 OXYGENS									
SI	1.976	1.975	1.970	1.967	1.970	1.986	1.959	1.998	1.980
TI	0.012	0.011	0.011	0.014	0.011	0.005	0.008	0.010	0.009
AL	0.114	0.118	0.116	0.115	0.108	0.113	0.116	0.118	0.110
CR	0.001	0.001	0.001	0.002	0.000	0.001	0.002		0.000
FE3+							0.047		
FE2+	0.166	0.166	0.169	0.168	0.189	0.194	0.156	0.174	0.192
MN	0.002	0.002	0.002	0.002	0.005	0.002	0.002	0.005	0.004
MG	0.954	0.938	0.943	0.983	0.949	0.903	0.971	0.922	0.959
CA	0.668	0.680	0.682	0.646	0.646	0.685	0.630	0.660	0.635
NA	0.123	0.123	0.132	0.127	0.175	0.125	0.119	0.090	0.132
CA	37.4	38.1	38.0	35.9	36.2	38.4	35.9	37.6	35.6
MG	53.4	52.6	52.6	54.7	53.2	50.7	55.3	52.5	53.7
FE	9.3	9.3	9.4	9.3	10.6	10.9	8.9	9.9	10.8
MG/MG+FE	85.2	85.0	84.8	85.4	83.4	82.3	86.2	84.1	83.3
CA/CA+MG	41.2	42.0	42.0	39.7	40.5	43.1	39.4	41.7	39.8

* TOTAL IRON AS FEO
\# DETERMINED CHEMICALLY
JJG 201-216 MONASTERY GURNEY ET.AL. 1973
PHN 1859 GL/1 MONASTERY BOYD AND NIXON 1975
R1115 B AND C MONASTERY RINGWOOD AND LOVERING 1969
BD 2374 MONASTERY DAWSON AND REID 1970
BD 1634,BD 1635 MONASTERY BOYD 1971
BD 1971 UINTJESBERG BOYD AND DAWSON 1972
KEN 1 RILEY COUNTY,KENTUCKY,U.S.A. GURNEY ET.AL. 1973
IL 527 MIR PIPE,YAKUTIA ILYUPIN ET.AL. 1973
IL 528 MIR PIPE,YAKUTIA ILYUPIN ET.AL. 1973

TABLE 27 CONT.
ANALYSES OF CLINOPYROXENES COEXISTING WITH ILMENITE
(LITERATURE VALUES)

WT %	BD 1635	BD 1971	KEN 1	IL 527	IL 528	IL 528
SIO2	54.4	54.9	55.15	53.80	55.1	55.9
TIO2	0.43	0.6	0.50	0.50	0.09	0.09
AL2O3	2.60	3.1	2.52	1.67	2.26	5.25
CR2O3	0.03	0.05	0.32	0.32	0.03	0.04
FE2O3				3.29		
FEO	6.16	5.8	4.93	4.02	5.88	5.78
MNO	0.14	0.2	0.19	0.17		
MGO	17.9	18.1	18.54	17.73	17.4	16.9
CAO	16.4	16.1	17.12	16.29	15.1	14.6
NA2O	1.80	1.6	1.42	1.70	1.5	1.5
TOTAL	99.9	100.4	100.69	99.49	97.36	100.06
NUMBER OF CATIONS FOR 6 OXYGENS						
SI	1.974	2.032	1.975	1.963	2.030	1.992
TI	0.012	0.016	0.013	0.014	0.002	0.002
AL	0.111	0.131	0.106	0.072	0.098	0.220
CR	0.001	0.001	0.009	0.009	0.001	0.001
FE3+				0.090		
FE2+	0.187	0.174	0.148	0.113	0.181	0.172
MN	0.004	0.006	0.006	0.005		
MG	0.968	0.969	0.990	0.964	0.955	0.897
CA	0.638	0.620	0.657	0.637	0.596	0.557
NA	0.127	0.111	0.099	0.120	0.107	0.104
CA	35.6	35.2	36.6	37.2	34.4	34.2
MG	54.0	55.0	55.2	56.2	55.1	55.2
FE	10.4	9.9	8.2	6.6	10.4	10.6
MG/MG+FE	83.8	84.8	87.0	89.5	84.1	83.9
CA/CA+MG	39.7	39.0	39.9	39.8	38.4	38.3

* TOTAL IRON AS FEO
\# DETERMINED CHEMICALLY
JJG 201-216 MONASTERY GURNEY ET.AL. 1973
PHN 1859 GL/1 MONASTERY BOYD AND NIXON 1975
R1115 B AND C MONASTERY RINGWOOD AND LOVERING 1969
BD 2374 MONASTERY DAWSON AND REID 1970
BD 1634,BD 1635 MONASTERY BOYD 1971
BD 1971 UINTJESBERG BOYD AND DAWSON 1972
KEN 1 RILEY COUNTY,KENTUCKY,U.S.A. GURNEY ET.AL. 1973
IL 527 MIR PIPE,YAKUTIA ILYUPIN ET.AL. 1973
IL 528 MIR PIPE,YAKUTIA ILYUPIN ET.AL. 1973

TABLE 28
ANALYSES OF MONASTERY ILMENITES CO-EXISTING WITH CLINOPYROXENE
(LITERATURE VALUES)

WT %	JJG 201	JJG 207	JJG 214	JJG 216	PHN 1859GL	R 1115B	R 1115C	BD 1374	1635
SIO2	0.08	0.08	0.08	0.08	0.10	0.04	0.04	0.04	0.11
TIO2	50.44	49.96	50.11	51.46	49.5	48.27	48.77	50.22	49.3
AL2O3	0.53	0.51	0.53	0.55	0.25	0.56	0.50	0.55	0.61
CR2O3	0.14	0.13	0.13	0.22	0.05	0.05	0.08	0.07	ND
FEO *	37.74	38.04	38.63	36.32	38.8	37.86	37.32	37.65	38.7
MNO	0.22	0.23	0.24	0.22	0.23	0.23	0.23	0.23	0.20
MGO	9.20	9.26	8.50	9.43	9.16	10.65	11.82	8.31	9.64
CAO	0.10	0.09	0.12	0.09	0.03	0.08	0.08		0.02
TOTAL	99.4	99.4	99.3	99.1	99.4	97.73	99.8	97.07	98.6
FE2O3	10.04	10.97	10.03	7.89	12.00	15.26	9.63#	8.32	12.06
FEO	28.70	28.16	29.61	29.22	28.03	24.13	28.65	30.16	27.05
NUMBER OF CATIONS FOR 3 OXYGENS **									
SI	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002
TI	0.900	0.892	0.899	0.918	0.886	0.856	0.848	0.915	0.874
AL	0.015	0.014	0.015	0.015	0.007	0.016	0.014	0.016	0.017
CR	0.003	0.002	0.002	0.004	0.001	0.001	0.001	0.001	ND
FE3+	0.179	0.196	0.180	0.141	0.214	0.270	0.168	0.152	0.230
FE2+	0.569	0.559	0.591	0.580	0.558	0.476	0.554	0.611	0.533
MN	0.004	0.005	0.005	0.004	0.005	0.004	0.004	0.005	0.004
MG	0.325	0.328	0.302	0.333	0.325	0.374	0.407	0.300	0.339
CA	0.002	0.002	0.003	0.002	0.001	0.002	0.002	0.000	0.000
GK	30.3	30.3	28.2	31.6	29.6	33.4	36.0	28.2	30.7
IL	53.0	51.6	55.0	55.0	50.9	42.5	49.1	57.5	48.4
HM	16.7	18.1	16.8	13.4	19.5	24.1	14.9	14.3	20.9
MG/MG+FE	36.4	37.0	33.8	36.5	36.8	44.0	42.4	32.9	38.9

* TOTAL IRON AS FEO
\+ FE2O3 AND FEO IS CALCULATED FROM THE TOTAL FE AND FROM THE ILMENITE STRUCTURAL FORMULA ABO3, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION
# DETERMINED CHEMICALLY
JJG 201-216 GURNEY ET.AL. 1973
PHN 1859 GL/1 BOYD AND NIXON 1975
R111S B AND C RINGWOOD AND LOVERING 1970
BD 1374 DAWSON AND REID 1970
1635 BOYD 1971

TABLE 28 CONT.
ANALYSES OF ILMENITES CO-EXISTING WITH CLINOPYROXENE FROM OTHER OCCURRENCES
(LITERATURE VALUES)

WT %	1635	BD 1971	KEN 1	A 265	IL 527	IL 528	IL 528	IL 528
SIO2	0.11	0.1	0.08	0.16	1.40	0.1	0.1	0.1
TIO2	49.3	52.4	50.92	48.52	50.10	49.3	49.9	49.8
AL2O3	0.61	0.7	1.08	0.44	0.85	0.17	0.15	0.17
CR2O3	ND	0.2	1.24	0.24	0.28	0.15	0.15	0.16
FEO *	38.7	35.5	29.8	39.21	36.02	40.2	41.15	40.8
MNO	0.20	0.2	0.20	0.21	0.28	0.1	0.1	0.1
MGO	9.64	10.7	15.30	9.20	9.74	8.89	8.62	8.92
CAO	0.02	0.05	0.07	0.36		0.05	0.05	0.05
TOTAL	98.6	99.8	98.7	98.34	98.67	99.0	100.2	100.1
FE2O3	12.06	8.45	12.76	13.85	7.71	13.07	12.99	13.30
FEO	27.05	27.90	18.32	26.75	29.08	28.44	29.46	28.83
NUMBER OF CATIONS FOR 3 OXYGENS **								
SI	0.002	0.002	0.002	0.004	0.033	0.002	0.002	0.002
TI	0.874	0.913	0.864	0.864	0.885	0.877	0.880	0.877
AL	0.017	0.019	0.029	0.012	0.024	0.005	0.004	0.005
CR	ND	0.004	0.022	0.004	0.005	0.003	0.003	0.003
FE3+	0.230	0.147	0.217	0.247	0.136	0.233	0.229	0.234
FE2+	0.533	0.540	0.346	0.530	0.571	0.563	0.577	0.565
MN	0.004	0.004	0.004	0.004	0.006	0.002	0.002	0.002
MG	0.339	0.369	0.515	0.325	0.341	0.314	0.301	0.311
CA	0.000	0.001	0.002	0.009		0.001	0.001	0.001
GK	30.7	35.0	47.8	29.5	32.5	28.3	27.2	28.0
IL	48.4	51.1	32.1	48.1	54.5	50.7	52.1	50.9
HM	20.9	13.9	20.1	22.4	13.0	21.0	20.7	21.1
MG/MG+FE	38.9	40.6	59.8	38.0	37.4	35.8	34.3	35.5

* TOTAL IRON AS FEO
\+ FE2O3 AND FEO IS CALCULATED FROM THE TOTAL FE AND FROM THE ILMENITE STRUCTURAL FORMULA AB03, ASSUMING ATOMIC PROPORTION OF R2+=R4+
** CATION TOTAL NORMALIZED IN THE COURSE OF FE3+ CALCULATION
BD 1971 UINTJESBERG BOYD AND DAWSON 1972
KEN1 RILEY COUNTY,KENTUCKY,U.S.A. GURNEY ET.AL. 1973
A 265 MIR KIMBERLITE,YAKUTIA ILYUPIN ET.AL. 1973
IL 527 MIR KIMBERLITE,YAKUTIA ILYUPIN ET.AL. 1973
IL 528 MIR KIMBERLITE,YAKUTIA ILYUPIN ET.AL. 1973