

NWA 1586

The specimen weighs 400 g and was obtained by D. Bessey from a dealer in Morocco in June of 2002. Current distribution: 2.7 g chip and thin section used for analysis with S. Singletary, 20 g type specimen at TCU, main mass with D. Bessey.

In thin section, the sample is coarse-grained (1-2 mm average grain size with one or two grains up to 5 mm in length)(Figure 1) with abundant triple junctions and curved intergranular boundaries. Modal mineralogy is 75% Olivine:25% pyroxene - determined by image analysis of an electron microprobe stage rastered, Mg xray map of the entire thin section (see fig. 1). Olivine displays prominent reduction rims that contain mg-rich olivine (Fo₉₇) and finely dispersed grains of metal. Olivine cores are homogeneous and are Fo₇₉ (see table 1 for analysis).

The pyroxene is dominantly pigeonite of mg# 80 (calculated as Mg/Mg+Fe) and Wo 11 (n=103). Pigeonite rims show no reduction. However, within the pigeonite grains are wide swaths containing a metal-three pyroxene assemblage (Figure 2). The pyroxenes within these regions are augite (mg# 90, Wo 32, n=17), orthopyroxene (mg# 86, Wo 5, n=8), and pigeonite (mg# 86, Wo 9, n=6)(Figure 3 and Table 1). The swaths display a sharp contact with the host pigeonite and are not observed in olivine.

S. Singletary
(submitted to
nomenclature
committee)
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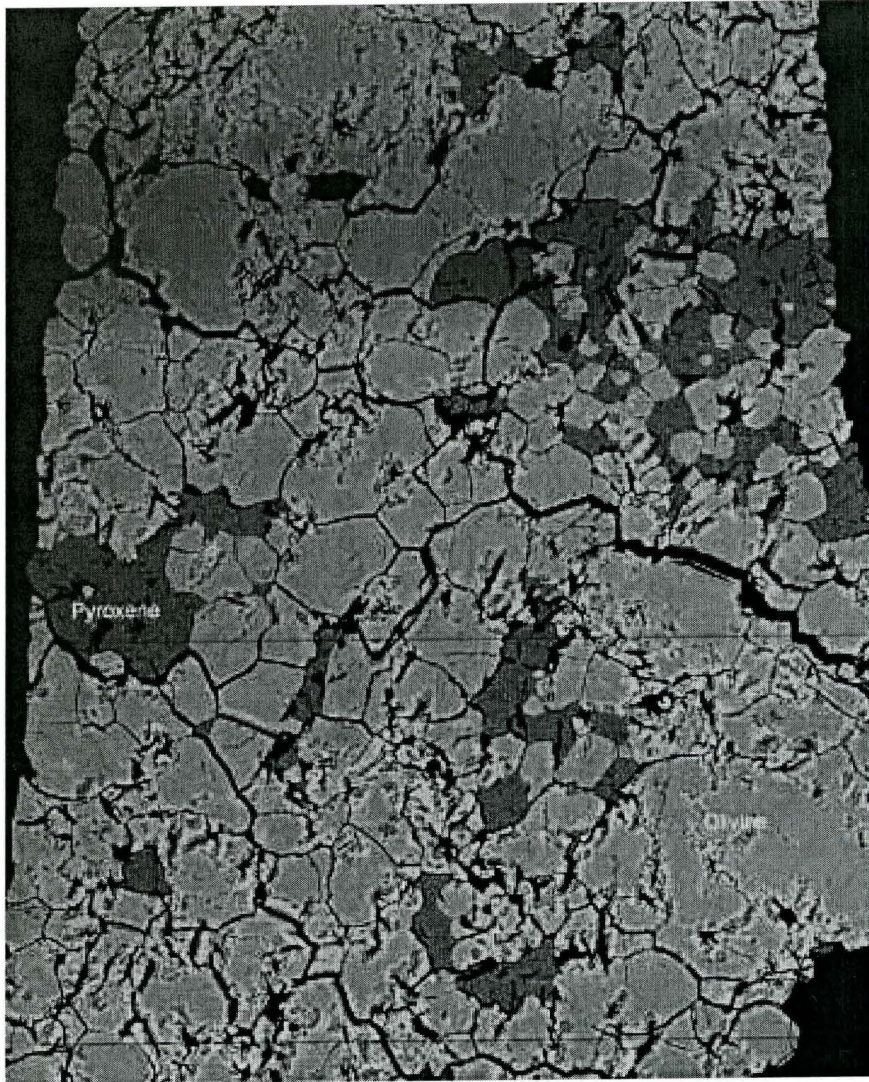


Figure 1. Mg x-ray map of the thin section. Scale bar is 3mm.

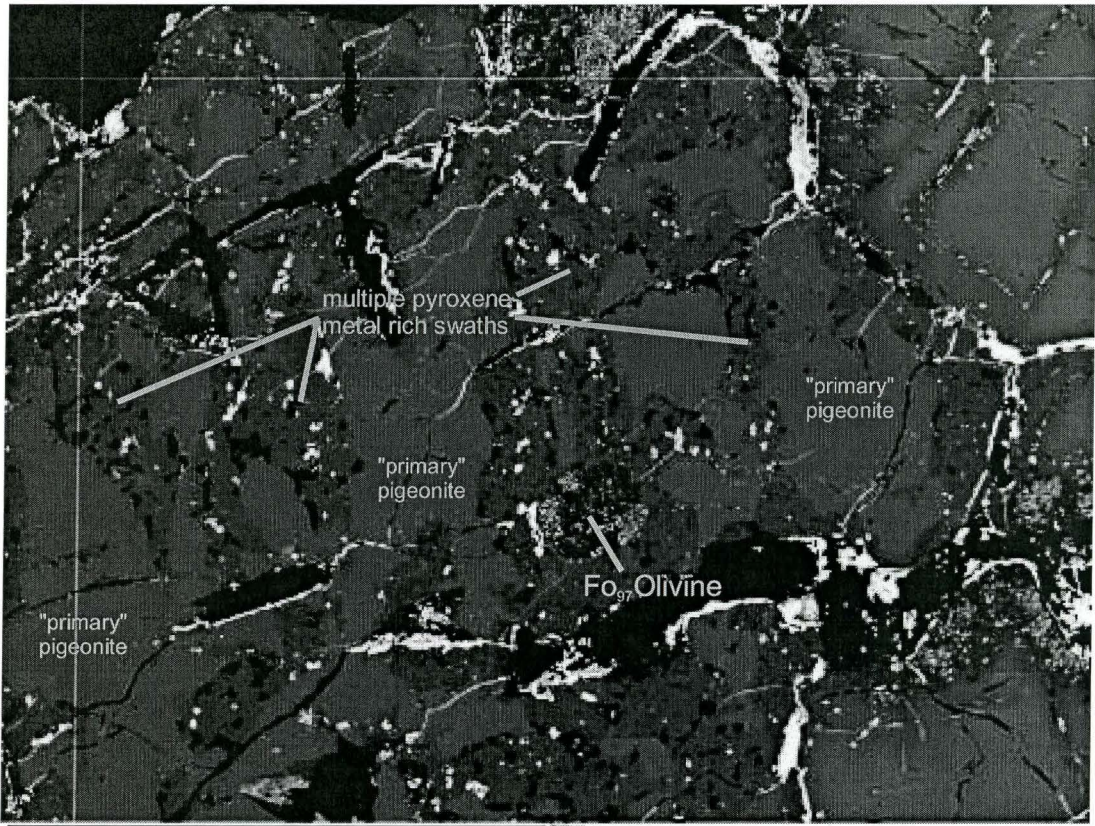


Figure 2. Backscattered Electron Image of pigeonite displaying swaths of three pyroxene-metal assemblage.

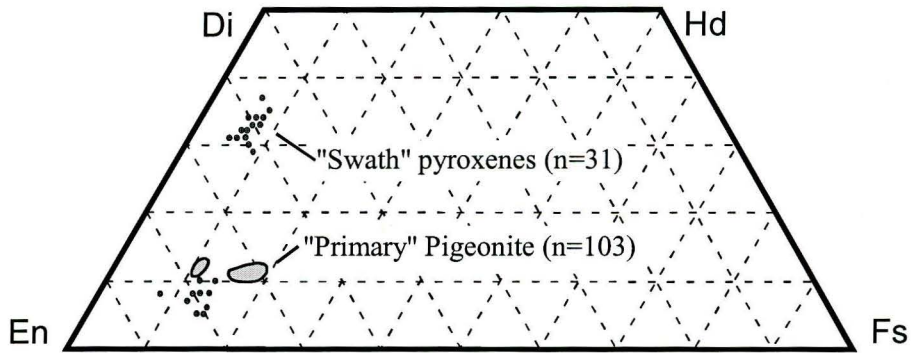


Figure 3. Pyroxenes from the sample. Red dots are pyroxenes from inside the metal rich swaths. Grey fields are "primary" pigeonite. The two grey fields indicate that some of the "primary" pigeonite may have re-equilibrated with the swaths at some point during their petrogenesis.

Table 1. Analysis of major phases.

	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Total
Olivine Cores (61) ¹	38.5(2)	0	0.03(1)	0.71(5)	19.2(4)	0.39(3)	39.9(3)	0.37 (3)	99.1
Olivine Reduced Rims (3)	41.9(2)	0	0.02(1)	0.62(4)	2.4(4)	0.55(2)	53.8(1)	0.29(3)	99.5
"primary" pigeonite (103)	54.7(7)	0.06(2)	0.8(3)	1.30(8)	10(1.4)	0.42(4)	26(1.4)	5.3(7)	99.6
"swath" augite (17)	54.5(5)	0.24(7)	0.9(3)	1.5(2)	4.2(8)	0.42(5)	21.7(8)	16(1.0)	99.6
"swath" opx (8)	56.2(7)	0.04(3)	0.2(1)	1.18(7)	8(1.7)	0.38(6)	29.7(8)	3.1(5)	99.4
"swath" pigeonite (6)	56.2(4)	0.03(1)	0.25(7)	1.35(6)	8.1(8)	0.43(3)	28.9(5)	4.6(6)	99.9

¹ Numbers in paranthesis by phase are number of analysis. Numbers in parenthesis by analysis are +/- 1 σ on the last decimal place reported