76335

Cataclastic Troctolite
502, 89 g, largest piece 8 x 6.5 x 5 cm

INTRODUCTION

Sample 76335 is a pristine, friable "anorthosite" that was collected from the regolith about 15 meters from the Station 6 Boulder (LMP- "It's pretty fragile ... very white- looks like a crushed anorthosite"). It was returned in the BSLSS bag (which received rough handling on the return from the Moon). Fig. 1 shows the pieces of 76335 in a tray. The residue in the BSLSS bag (76330) contained additional pieces of this sample.

76335 is a poorly studied, potentially important piece of the original lunar crust that deserves additional study (Ryder and Norman, 1979). All of the thin sections are from one piece and may, or may not, be representative!

PETROGRAPHY

Warren and Wasson (1978) estimate the mineral mode of 76335 is 88% plagioclase ($An_{95.6}$) and 12% olivine ($Fo_{86.8}$) Bersch et al. (1991) also report minor low-Ca pyroxene. The plagioclase and olivine are shocked, but Warren and Wasson report that "the rock shows vestigial cumulate texture" with intact plagioclase grains up to 4 mm in dimension and relict olivine at least 2 mm across. The olivine has been crushed (Fig. 2).

MINERAL CHEMISTRY

The olivine and plagioclase composi-tions have been plotted in Fig. 3. Precise mineral compositions for olivine and low-Ca-pyroxene are given in Bersch et al. (1991). Ryder et al. (1980) report the composition of metal grains.

WHOLE-ROCK CHEMISTRY

Warren and Wasson (1978) have determined the composition of 76335 (Table 1). It is free of meteoritic contamination and low in trace element abundance (Fig. 4).

RADIOGENIC ISOTOPES

So far, no one has attempted to date 76335.

Note: Weight discrepancy with original catalog; additional pieces were selected from the fines in the BSLSS bag.

Figure 1: Tray full of 76335. S73-19384.

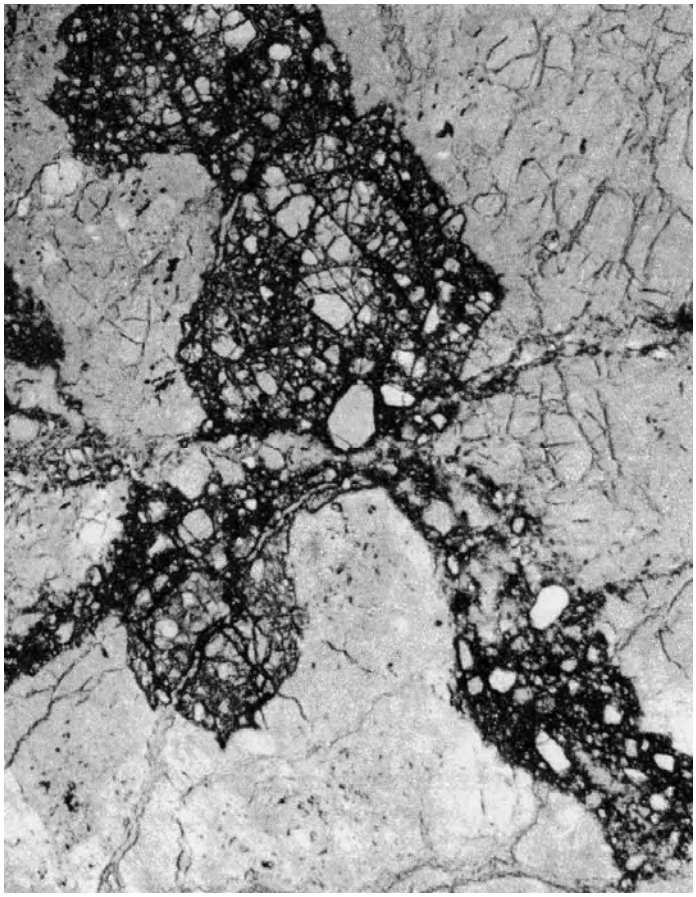

Figure 2: Photomicrograph of thin section 76335,28. Field of view is 2 x 3 mm.

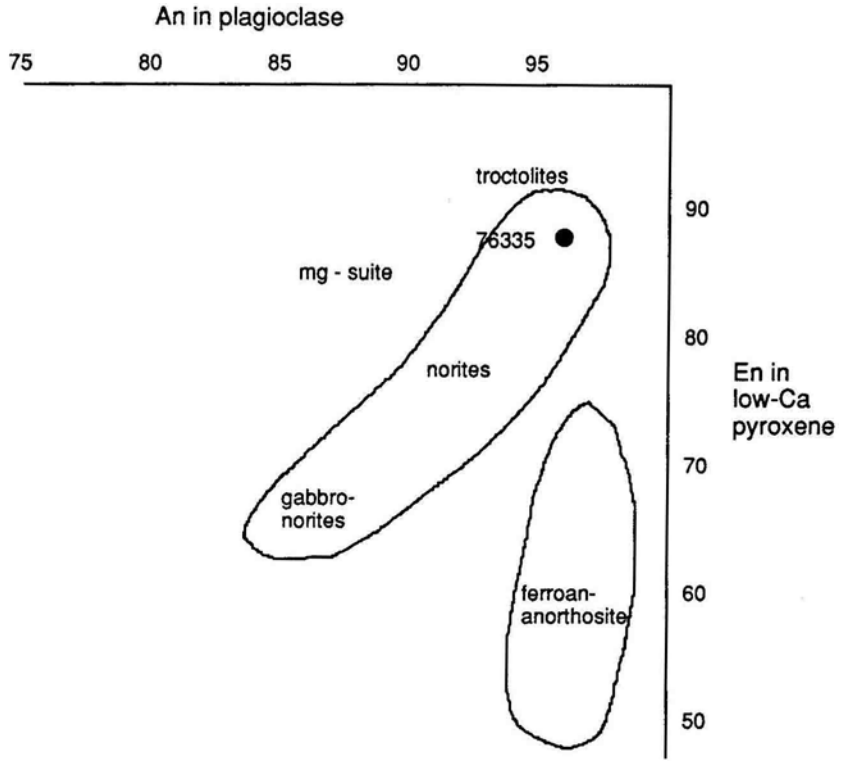

Figure 3: Diagram of plagioclase composition and olivine composition.

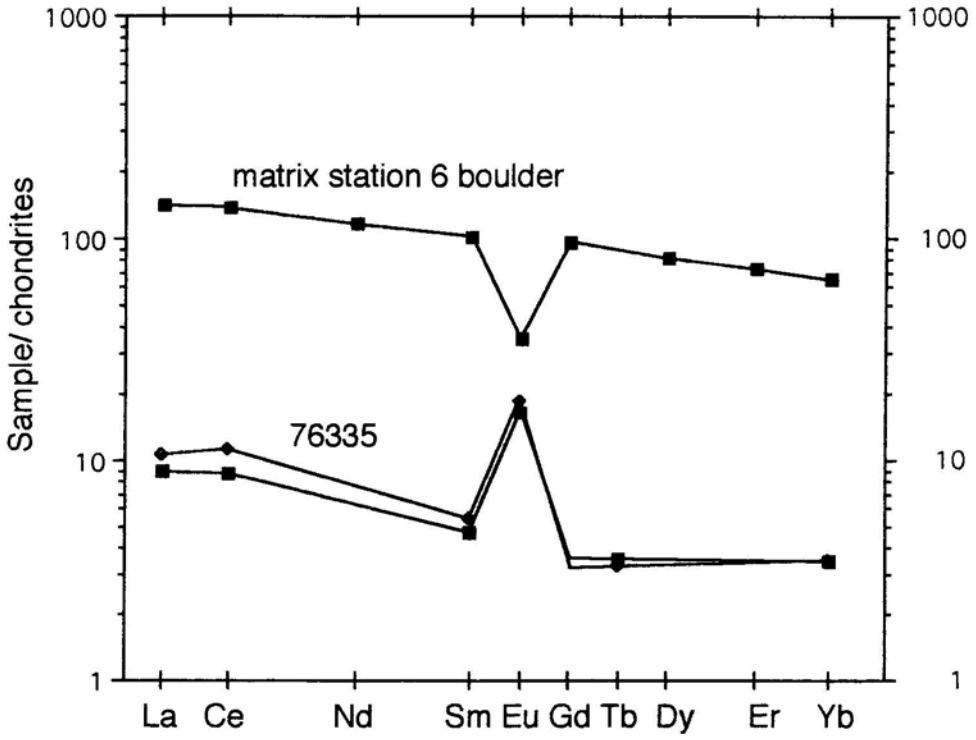

Figure 4: Normalized rare earth element diagram for 76335. Data by Warren and Wasson (1977).

Table 1: Composition of 76335.
From Warren and Wasson (1978).

	Sample 76335,38	Sample 76335,38
Na (%)	0.239	0.228
Mg (%)	5.4	6.2
Al (%)	16.5	14.6
Si (%)		20.3
K (%)	0.03	
Ca (%)	12	10.7
Sc (ppm)	1.33	1.72
Ti (%)		0.04
Cr (ppm)	356	408
Mn (ppm)	202	286
Fe (%)	1.75	2.3
Co (ppm)	13.1	15.6
Ni (ppm)	20.4	<20
Zn (ppm)	3.1	0.38
Ga (ppm)	3.5	3.15
Ge (ppb)	10.2	1.1
Zr (ppm)	160	
Cd (ppm)	5.2	8.7
In (ppm)	0.078	<1.1
Ba (ppm)	56	46
La (ppm)	2.47	2.12
Ce (ppm)	6.7	5.3
Nd (ppm)		
Sm (ppm)	0.8	0.7
Eu (ppm)	1.03	0.91
Tb (ppm)	0.12	0.13
Yb (ppm)	0.56	0.56
Lu (ppm)	0.073	0.082
Hf (ppm)	0.4	0.45
Ta (ppm)		
Re (ppb)		
Ir (ppb)	0.013	0.13
Au (ppb)	0.089	0.013
Th (ppm)		0.16
U (ppm)		0.1