76275

Impact Melt Breccia

55.9 grams

Figure 1: Side view of 76275. Cube is 1 cm. S73-15077

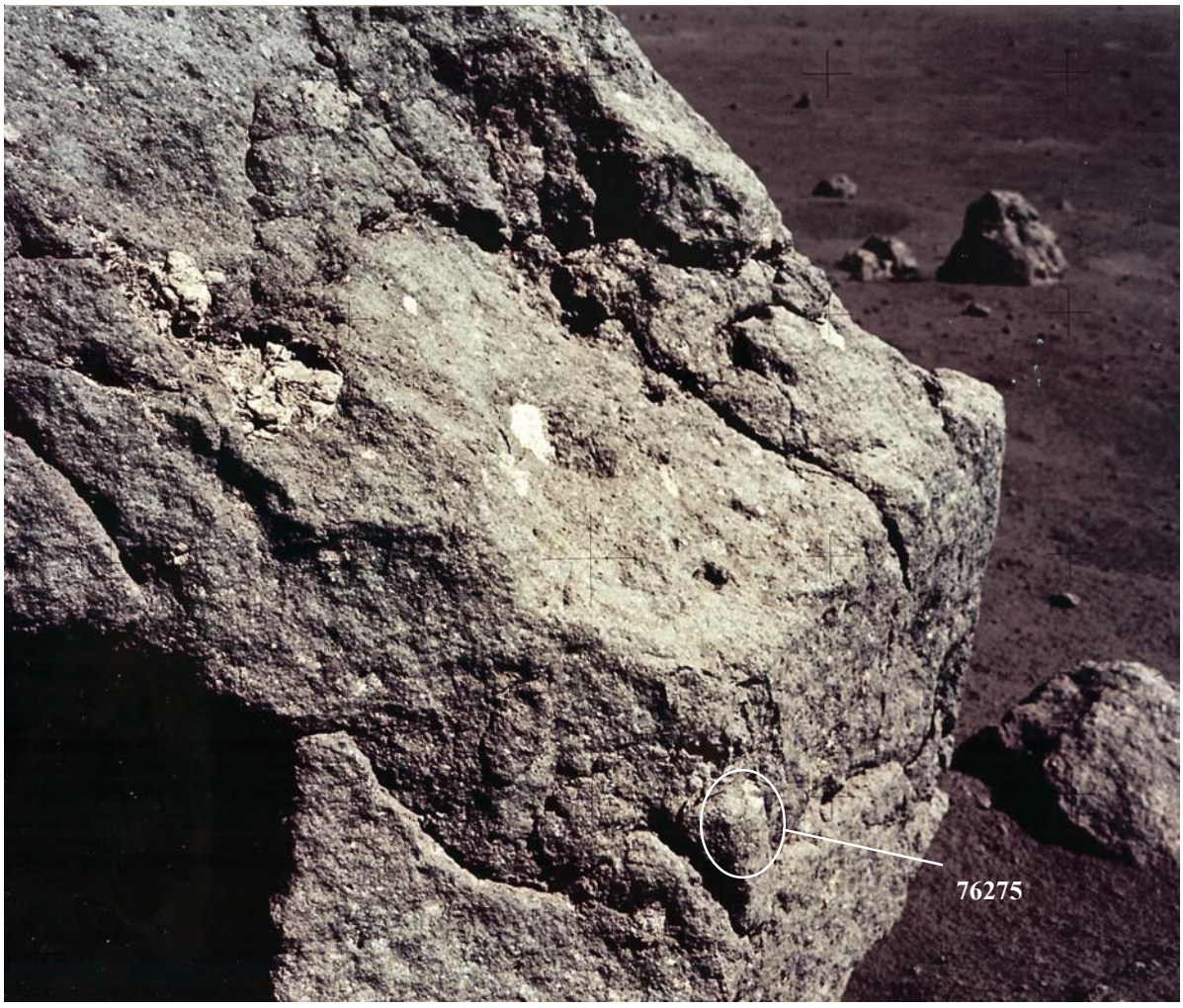


Figure 2: Original location of 76275 on side of block 1, of boulder at station 6, Apollo 17. AS17-140-21443.

Figure 3: Photomicrograph of thin section 76275,4 by C Meyer. Partially crossed polarizers. Field of view about 2 mm.

Introduction

76275 was chipped off of the side of block 1 of the big boulder at station 6, Apollo 17 (Wolfe et al. 1981). One side is freshly broken, the other side rounded by micrometeorite bombardment and coated with patina (glass splash from the regolith).

The remaining large piece of 76275 contains white clasts that have never been studied.

Petrography

76275 is a clast-bearing impact melt breccia (figure 3), similar to other samples of the station 6 boulder (Phinney 1981). The matrix has a poikilitic texture with a matrix of interlocking low-Ca pyroxene oikocrysts that surround abundant clasts and laths of plagioclase, olivine and augite. Sieve-like ilmenite is found between pyroxene oikocrysts.

The composition of pyroxene and olivine is given in figure 5. Misra et al. (1976) studied iron grains in 76275 (figure 6).

Chemistry

The bulk composition of 76275 was reported by Phinney (1981). Gros et al. (1976) reported the critical siderophile elements, showing that 76275 was similar to the rest of the station six boulder.

Radiogenic age dating

Cadogen and Turner (1976) determined an age of 4.02 ± 0.04 b.y. by the Ar/Ar plateau technique (figure 7).

Cosmogenic isotopes and exposure ages

Rancitelli et al. (1974) determined the cosmic-ray-induced activity of ^{22}Na =100 dpm/kg, ^{26}Al = 110 dpm/

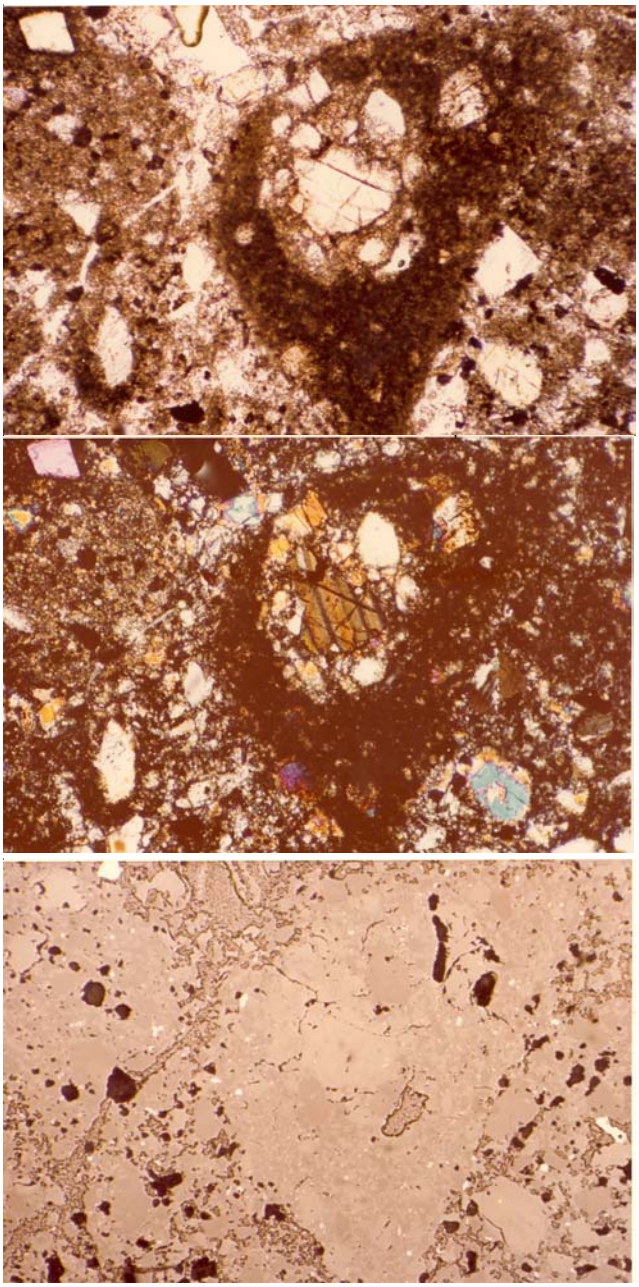


Figure 4: Photomicrographs of 76275,46. PPL-S79-27774, XPL-75, RL-73. Field of view is 1.4 mm.

kg, ^{46}Sc = 7 dpm/kg, ^{54}Mn = 103 dpm/kg and ^{56}Co = 86 dpm/kg.

Processing

76275 was to be part of a consortium study by Bill Phinney and team. However, the processing was delayed and, for whatever reason, the sample studies were not completed. There are 16 thin sections of 76275. It has been sawn to create an end piece and a wedge which were further subdivided (figure 8).

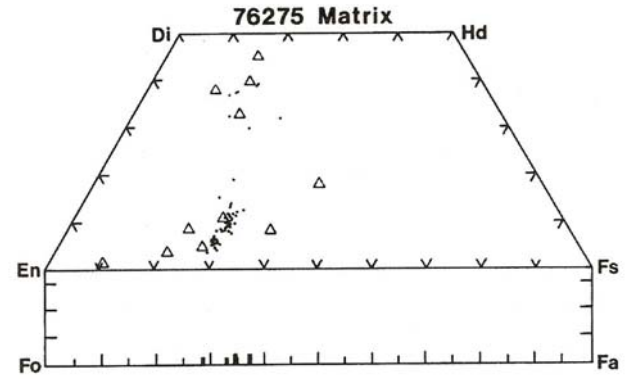


Figure 5: Pyroxene and olivine in 76275 as reported by Phinney (1981).

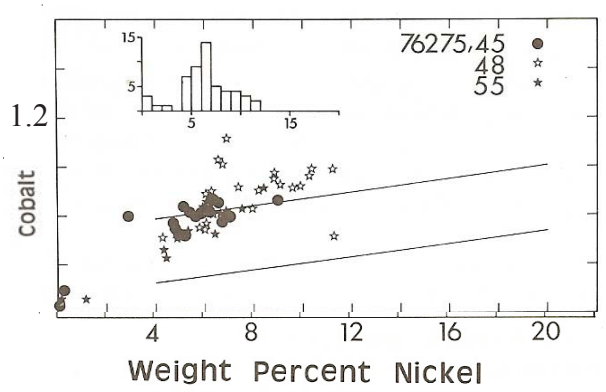


Figure 6: Ni and Co content of metal grains in 76275 (Misra et al. 1976).

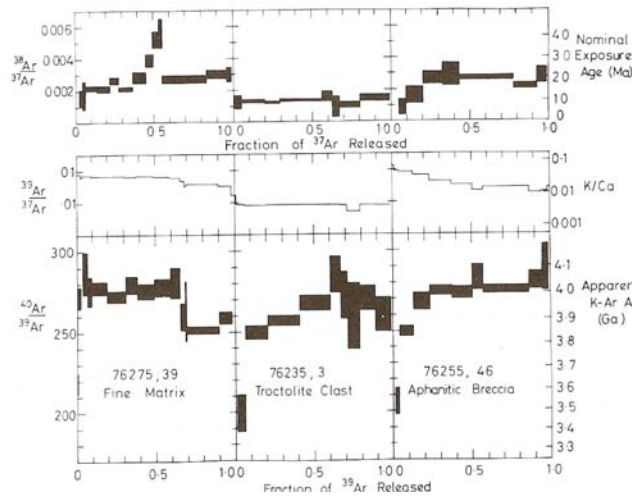


Figure 7: Ar/Ar pleateau diagrsm for Station 6 samples (Cadogen and Turner 1976)

Summary of Age Data for 76275

	Ar/Ar
Cadogen and Turner 1976	4.05 ± 0.04 b.y

Table 1. Chemical composition of 76275.

reference	Gros76		Rancitelli74		Simonds81	
weight					tan matrix	
SiO2 %					47.14	(c)
TiO2					1.65	(c)
Al2O3					18.7	(c)
FeO					8.54	(c)
MnO						
MgO					9.22	(c)
CaO					12.06	(c)
Na2O					0.72	(c)
K2O			0.27	(b)	0.34	(c)
P2O5						
S %						
sum						
Sc ppm						
V						
Cr						
Co						
Ni	387	(a)				
Cu						
Zn	4	(a)				
Ga						
Ge ppb	383	(a)				
As						
Se	125	(a)				
Rb	3.67	(a)				
Sr						
Y						
Zr						
Nb						
Mo						
Ru						
Rh						
Pd ppb	19.8	(a)				
Ag ppb	1.22	(a)				
Cd ppb	8.8	(a)				
In ppb	12.4	(a)				
Sn ppb						
Sb ppb	2	(a)				
Te ppb	9.8	(a)				
Cs ppm	0.196	(a)				
Ba						
La						
Ce						
Pr						
Nd						
Sm						
Eu						
Gd						
Tb						
Dy						
Ho						
Er						
Tm						
Yb						
Lu						
Hf						
Ta						
W ppb						
Re ppb	0.725	(a)				
Os ppb	8.6	(a)				
Ir ppb	7.76	(a)				
Pt ppb						
Au ppb	5.1	(a)				
Th ppm			5.69	(b)		
U ppm	2.35	(a)	1.4	(b)		

technique: (a) RNAA, (b) rad. count. , (c) unreliable fused bead e. probe

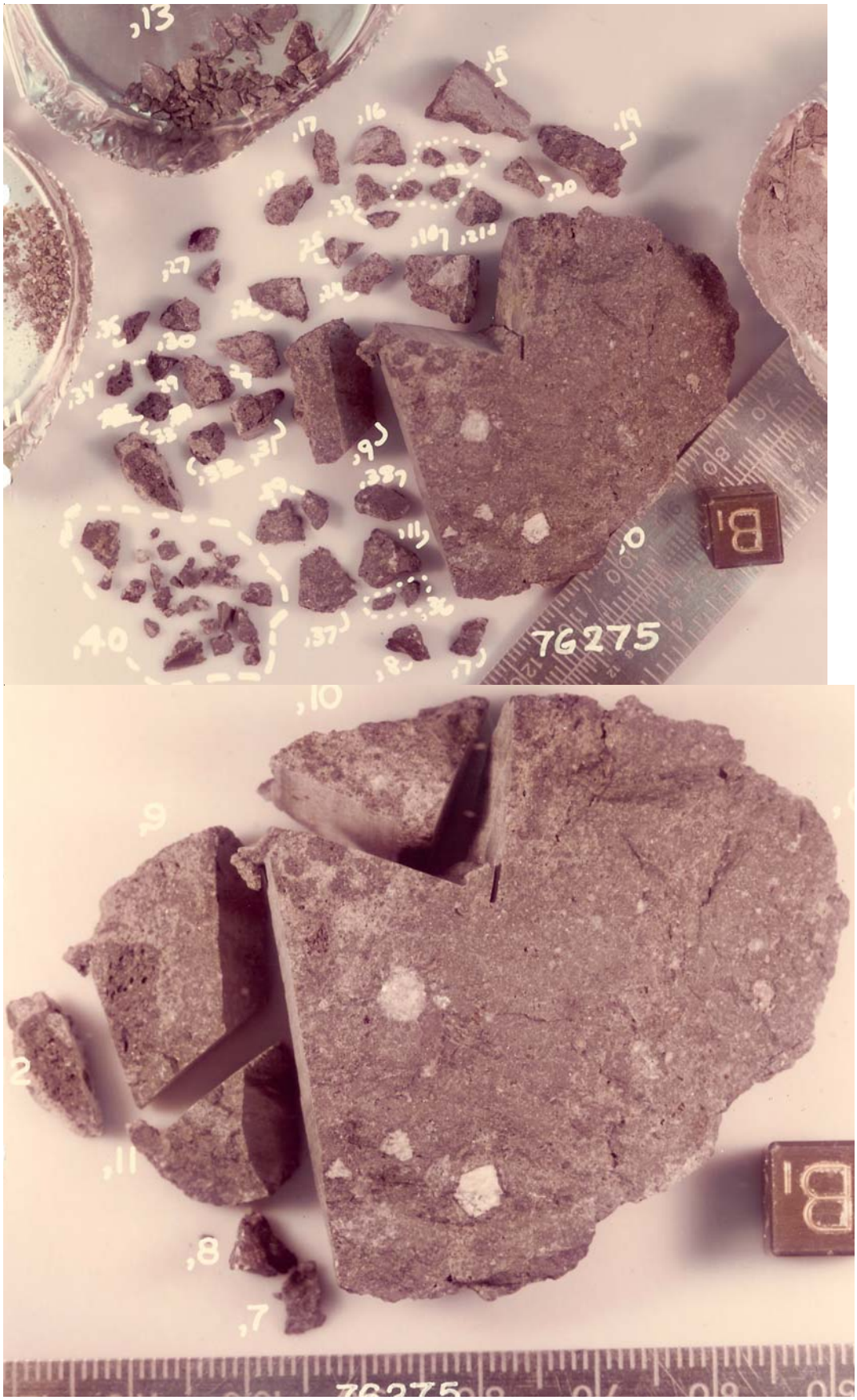
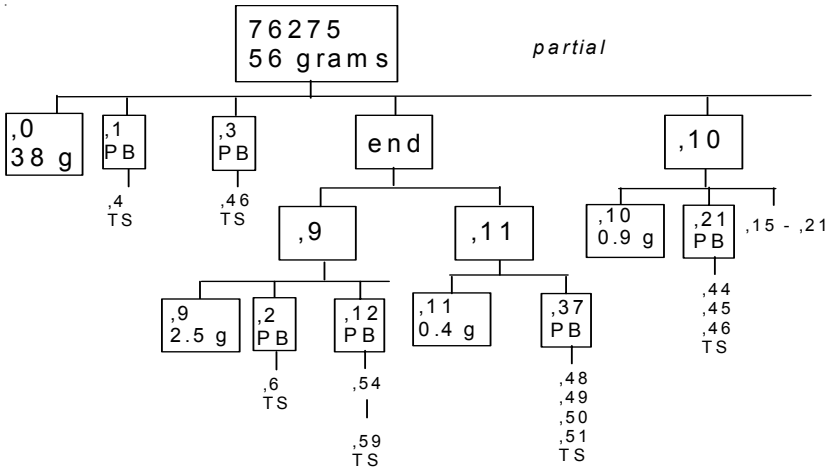


Figure 8a and b: Processing photo of 76275. Cube is 1 cm. S75-24192 and S75-24194



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