

78585
Vitrophyric Basalt
44.6 grams



Figure 1: Photo of 78585. Cube is 1 cm. S73-21395.

Introduction

78585 is from the rake sample collected as part of a large comprehensive sample at station 8, Apollo 17 (figure 2). It is an aphanitic basalt.

Petrography

78585 has an opaque matrix with about 10% skeletal olivine and 20-30% thin skeletal opaques (ilmenite or armalcolite) set in black glass (figure 3). There are no mineral analyses reported.

Chemistry

Ma et al. (1977) and Warner et al. (1979) first reported the chemical composition of 78585 – later confirmed by analyses by Neal (2001). It is a type B basalt (figure 5).

Radiogenic age dating

Apollo 17 mare basalts are generally considered 3.72 ± 0.04 b.y. old (see Paces et al. 1991).

Processing

78585 has been split (figure 7). There are 3 thin sections.

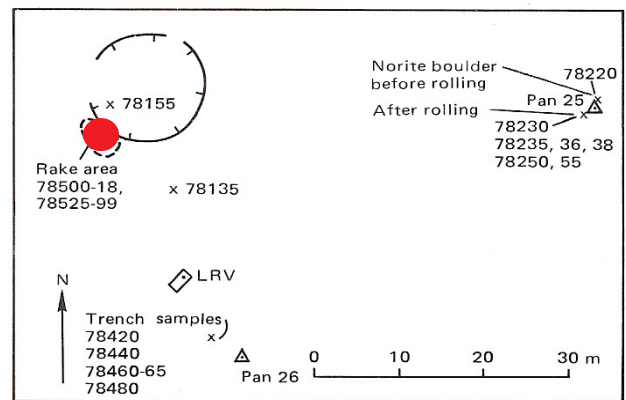


Figure 2: Location where 78585 was found.

References for 78585

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Figure 3: Photomicrographs in transmitted and reflected light of thin section 78585,4. 2.8 mm across

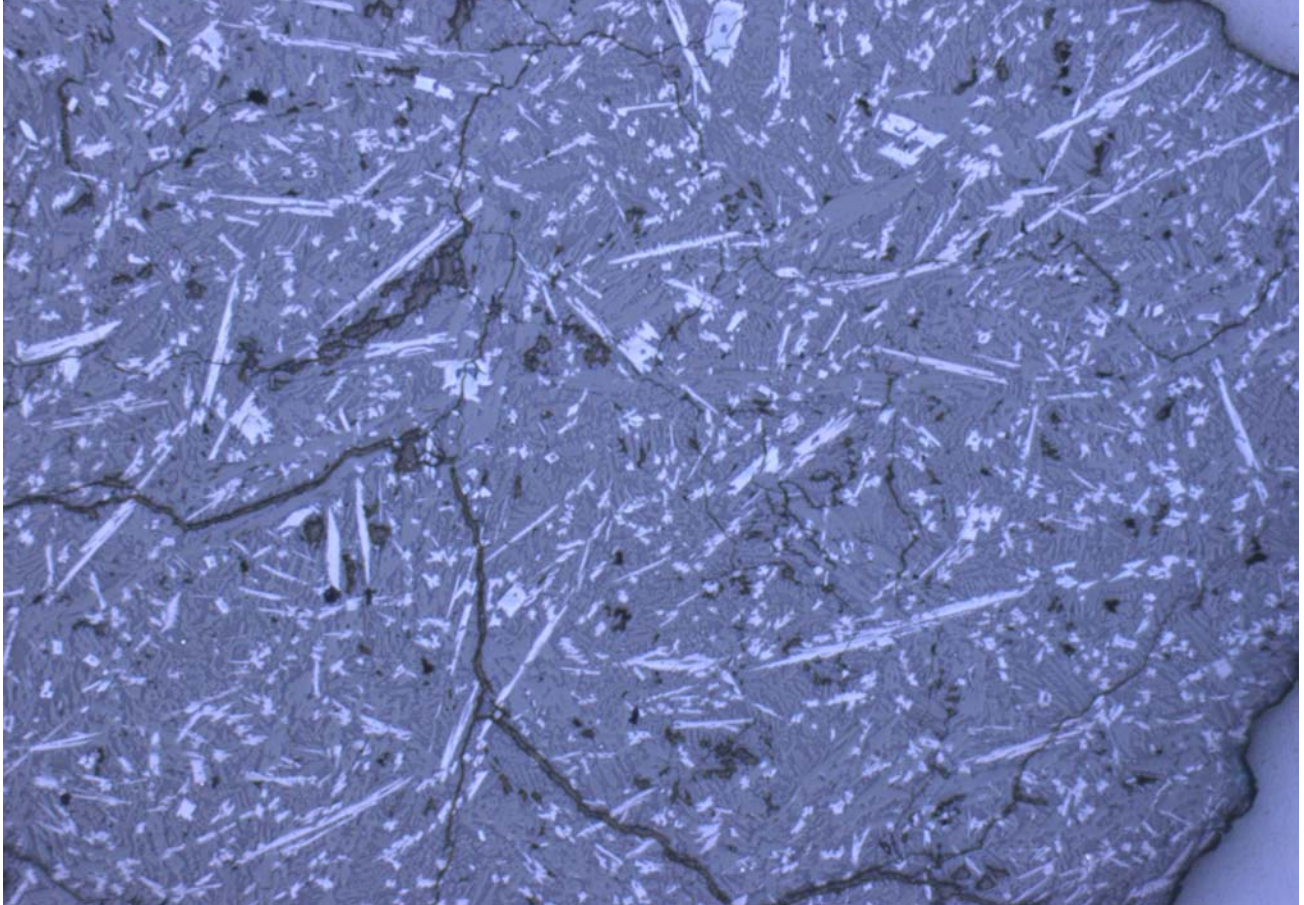
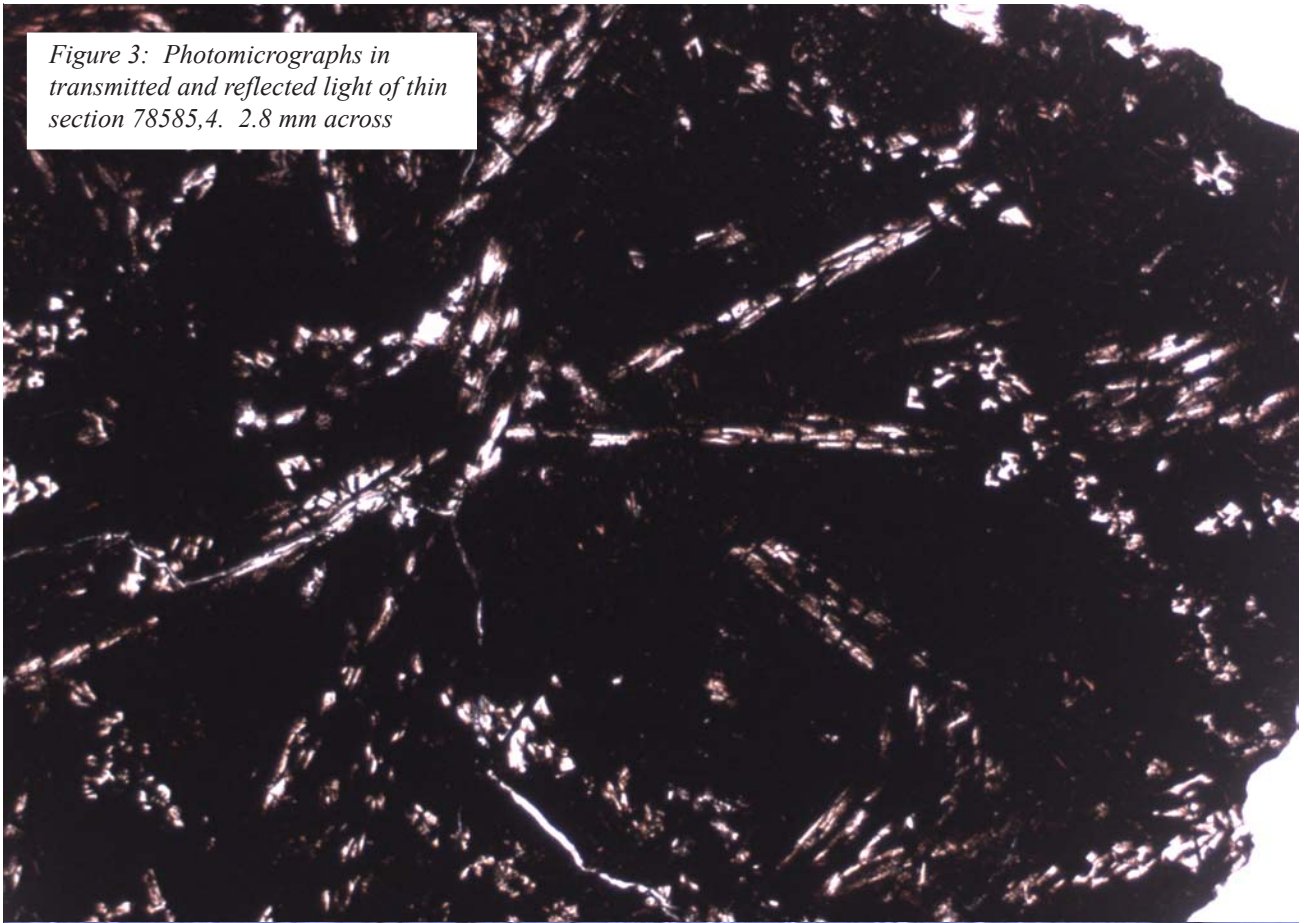


Table 1. Chemical composition of 78585.

reference weight	Warner79	Neal2001	Ma79
SiO ₂ %			
TiO ₂	12.2	(a)	
Al ₂ O ₃	9.1	(a)	
FeO	19.6	(a)	
MnO	0.245	(a)	
MgO	7	(a)	
CaO	11	(a)	
Na ₂ O	0.396	(a)	
K ₂ O	0.041	(a)	
P ₂ O ₅			
S %			
sum			
Sc ppm	86	(a)	108 (b)
V	79	(a)	109 (b)
Cr	2470	(a)	2605 (b)
Co	21	(a)	24 (b)
Ni			3.4 (b)
Cu			44 (b)
Zn			95 (b)
Ga			3.97 (b)
Ge ppb			
As			
Se			
Rb		0.43	(b)
Sr		152	(b)
Y		132	(b)
Zr		272	(b)
Nb		32	(b)
Mo		0.16	(b)
Ru			
Rh			
Pd ppb			
Ag ppb			
Cd ppb			
In ppb			
Sn ppb			
Sb ppb			
Te ppb			
Cs ppm			
Ba		62	(b)
La	5.6	(a)	5.66 (b)
Ce	20	(a)	19.5 (b)
Pr			3.2 (b)
Nd	21	(a)	18.5 (b)
Sm	7.5	(a)	7.43 (b)
Eu	1.42	(a)	1.39 (b)
Gd			9.76 (b)
Tb	1.8	(a)	1.95 (b)
Dy	12	(a)	12.7 (b)
Ho			2.79 (b)
Er			7.52 (b)
Tm			1.02 (b)
Yb	6.9	(a)	7.74 (b)
Lu	0.97	(a)	1 (b)
Hf	6.4	(a)	6.17 (b)
Ta	1.6	(a)	1.47 (b)
W ppb			
Re ppb			
Os ppb			
Ir ppb			
Pt ppb			
Au ppb			
Th ppm		0.37	(b)
U ppm		0.21	(b)
technique		(a) INAA, (b) ICP-MS	

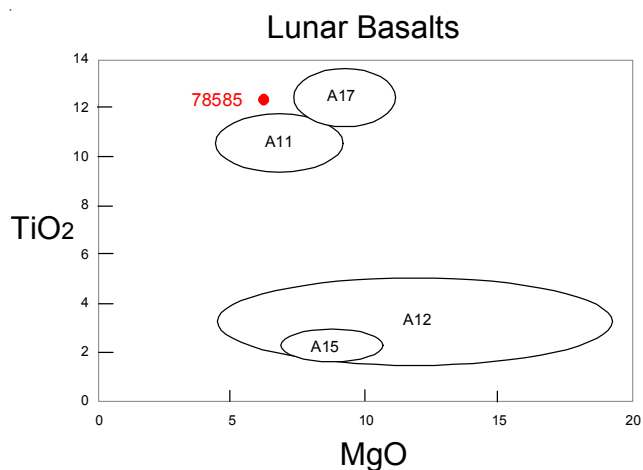


Figure 4: Composition of lunar basalts.

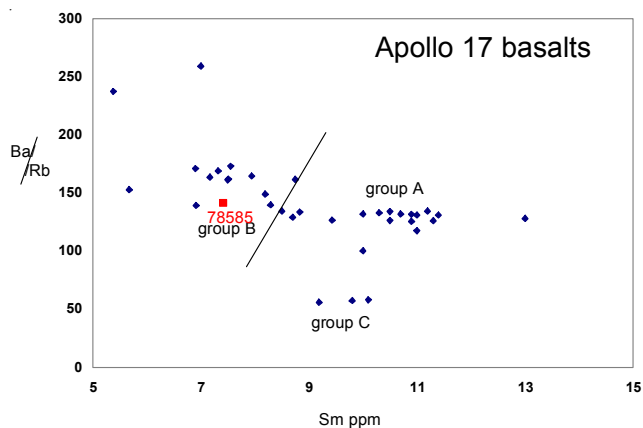


Figure 5: 78585 is a type B basalt!

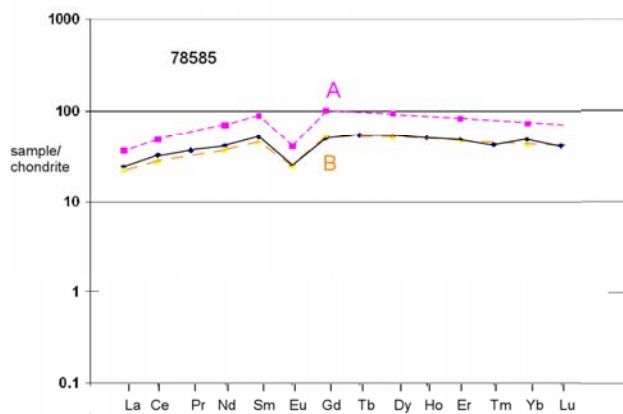


Figure 6: Normalized rare-earth-element diagram for 78585 compared with A and B types of Apollo 17 basalt.

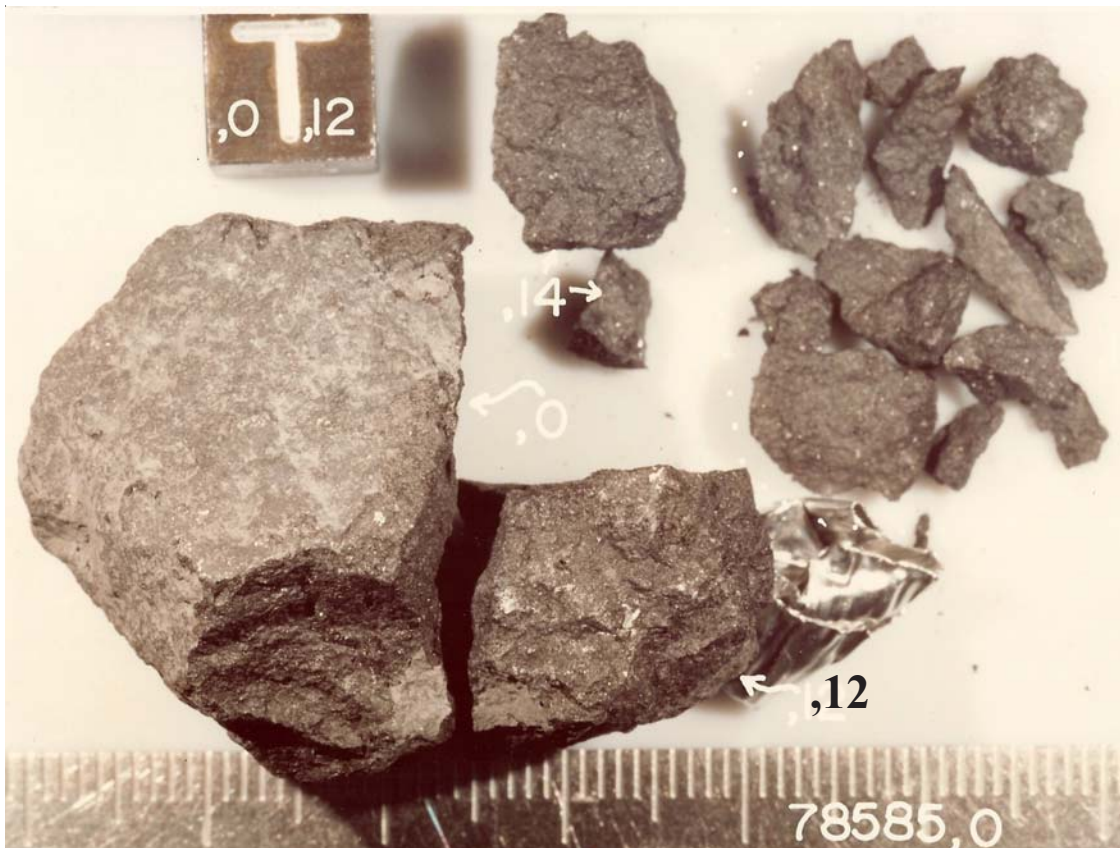
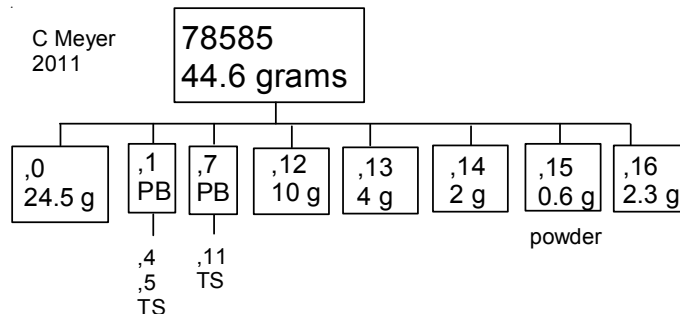


Figure 7: Processing photo of 78585. Cube is 1 cm. S82-27854



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