

76136
Ilmenite Basalt
86.6 grams

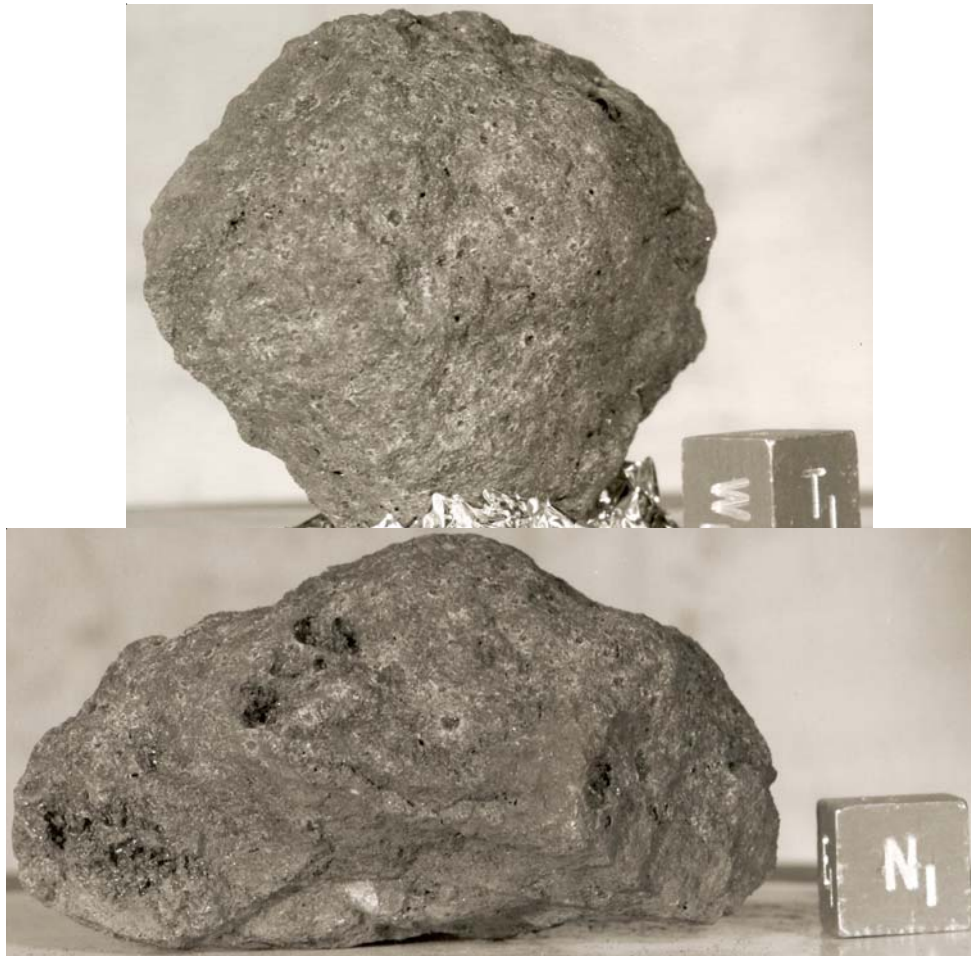


Figure 1: Photos of 76135. Cube is 1 cm. S73-23923 and 934.

Introduction

76136 is a rare example of a mare basalt that has been transported across the mare-highland boundary at the base of the North Massif, Apollo 17. Its surface is rounded by micrometeorite bombardment (figure 1). It is an ilmenite basalt with olivine phenocrysts.

Petrography

Brown et al. (1975) give the modal mineralogy of 76136 and other Apollo 17 basalts. Elongate ilmenite and equant olivine are set in a holocrystalline intersertal matrix (figure 2). Olivine is surrounded by pyroxene. Pyroxene chemistry has not been studied.

Usselman et al. (1975) experimentally reproduced textures and mineral chemistries of high-titanium mare basalts.

Chemistry

The chemical composition of 76136 was determined by Rhodes et al. (1976). It is a type A, Apollo 17 basalt (figures 4 and 5).

Radiogenic age dating

Nyquist et al. (1976) determined Rb, Sr and $\text{Sr}^{87/86}$, but did not determine an age.

Processing

There are 7 thin sections.

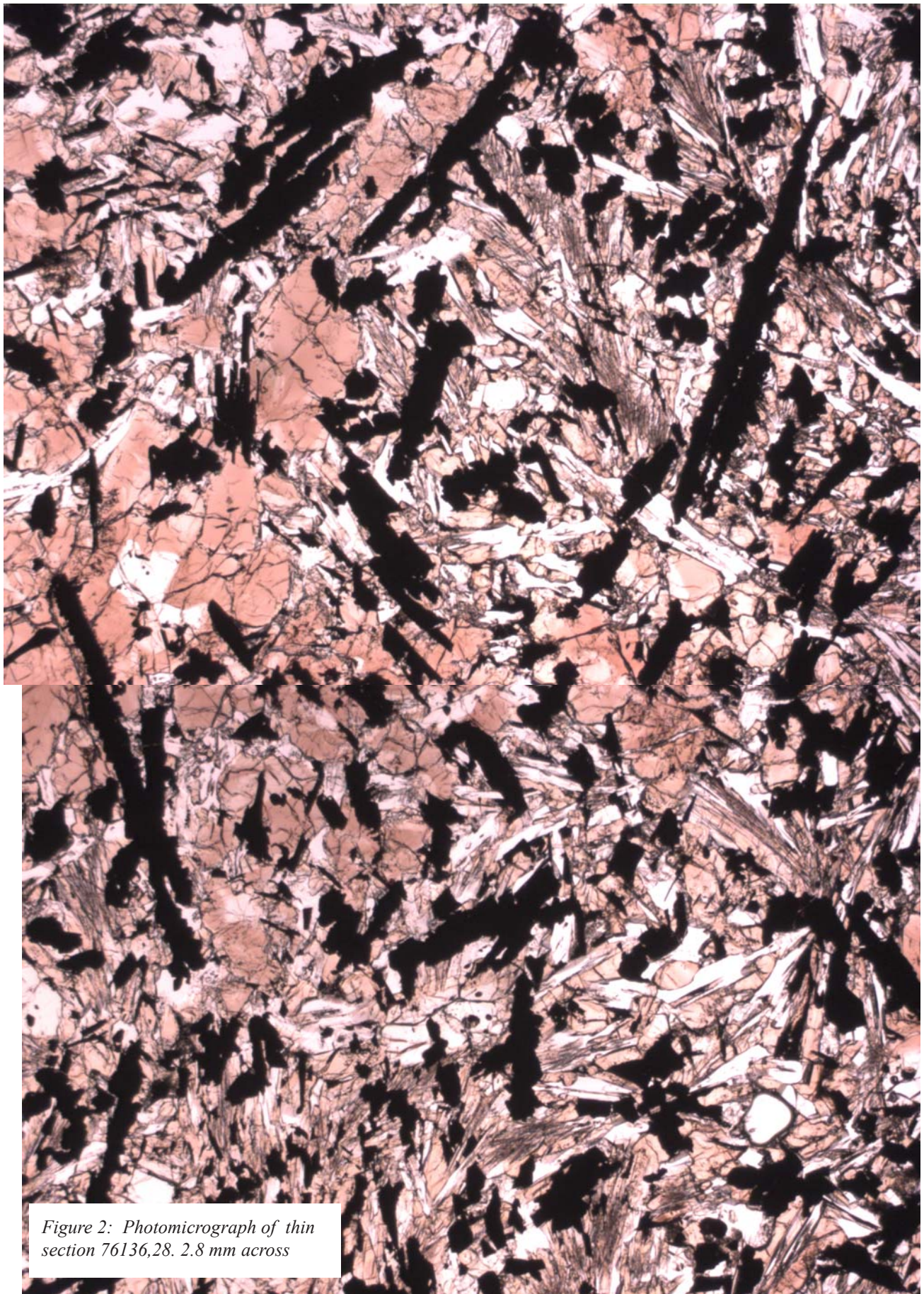
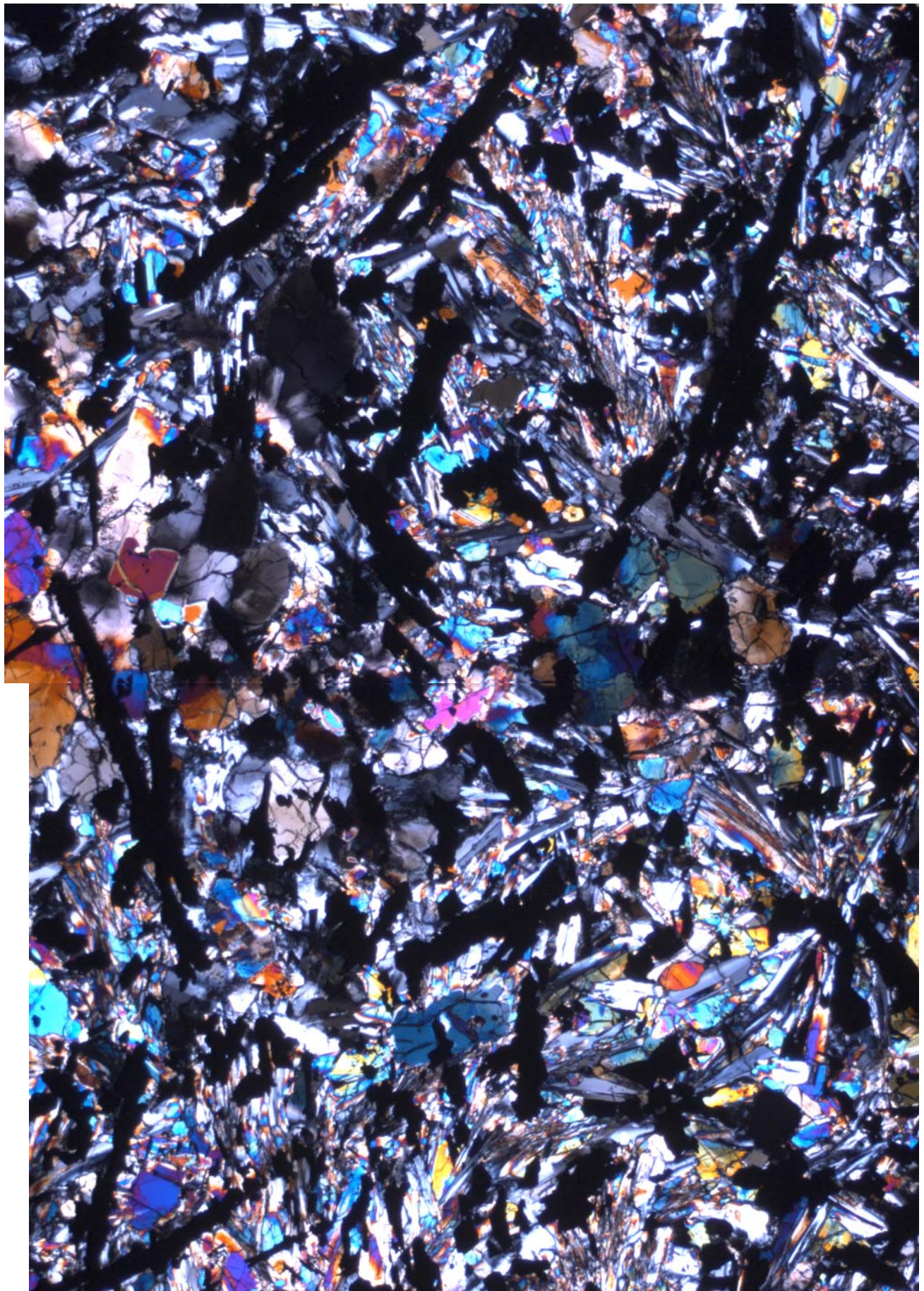


Figure 2: Photomicrograph of thin section 76136,28. 2.8 mm across



Lunar Sample Compendium
C Meyer 2011

Table 1. Chemical composition of 76136.

reference	Rhodes76	
<i>weight</i>		
SiO ₂ %	38.6	(a)
TiO ₂	12.64	(a)
Al ₂ O ₃	8.65	(a)
FeO	19.12	(a)
MnO	0.28	(a)
MgO	8.61	(a)
CaO	10.53	(a)
Na ₂ O	0.38	(a)
K ₂ O	0.06	(a)
P ₂ O ₅	0.06	(a)
S %	0.18	(a)
<i>sum</i>		
Sc ppm	82	(c)
V		
Cr	3010	(a)
Co	18.7	(c)
Ni		
Cu		
Zn		
Ga		
Ge ppb		
As		
Se		
Rb	0.67	(b)
Sr	190	(b)
Y		
Zr		
Nb		
Mo		
Ru		
Rh		
Pd ppb		
Ag ppb		
Cd ppb		
In ppb		
Sn ppb		
Sb ppb		
Te ppb		
Cs ppm		
Ba	83.7	(b)
La	6.91	(b)
Ce	23.8	(b)
Pr		
Nd	26.2	(b)
Sm	10.9	(b)
Eu	2.14	(b)
Gd	16.4	(b)
Tb		
Dy	19.3	(b)
Ho		
Er	11.4	(b)
Tm		
Yb	10.2	(b)
Lu	1.42	(c)
Hf	9.4	(b)
Ta		
W ppb		
Re ppb		
Os ppb		
Ir ppb		
Pt ppb		
Au ppb		
Th ppm		
U ppm		

technique: (a) XRF, (b) IDMS, (c) INAA

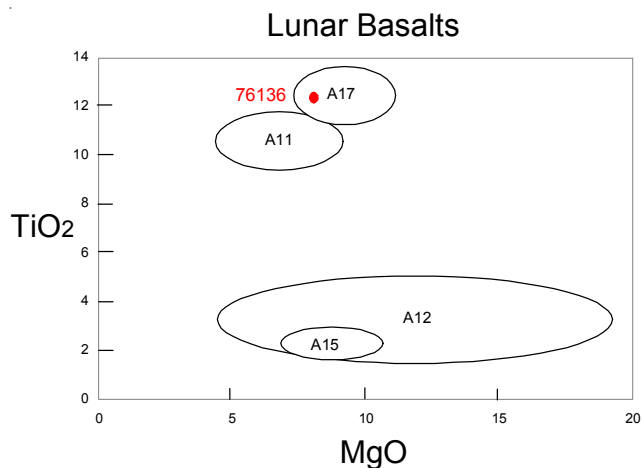


Figure 3: Composition of lunar basalts.

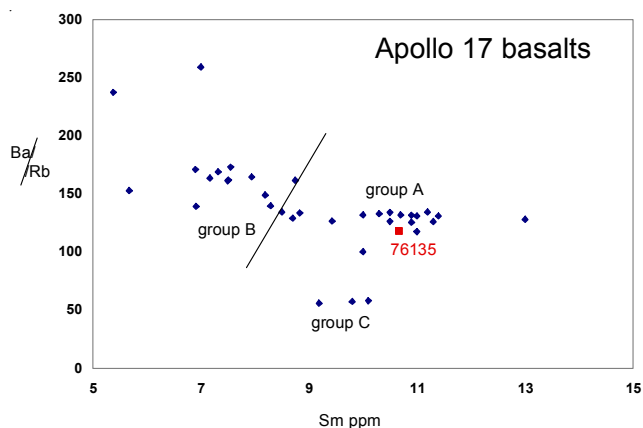


Figure 4: Neal's classification of Apollo 17 basalts.

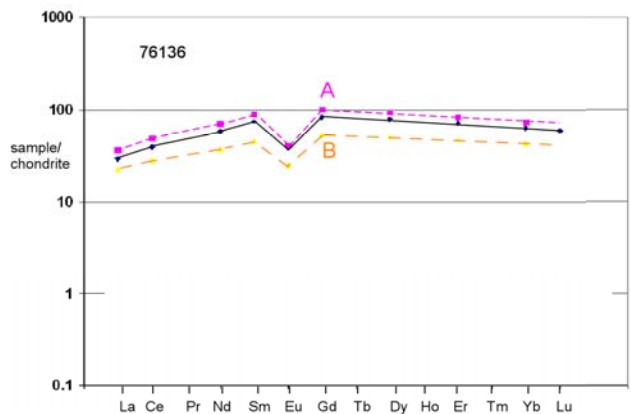
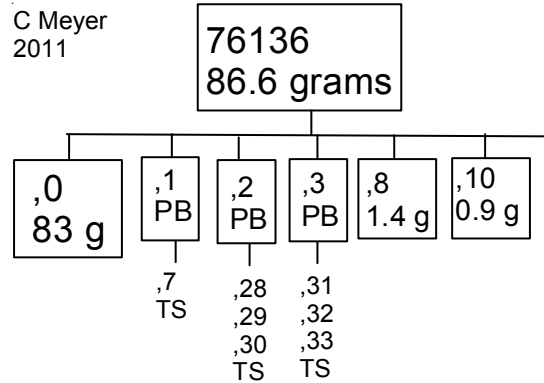


Figure 5: Normalized rare-earth-element diagram for 76136 compared with A and B types of Apollo 17 basalt.



References for 76136

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