12055

DRAFT

Pigeonite Basalt

912 grams

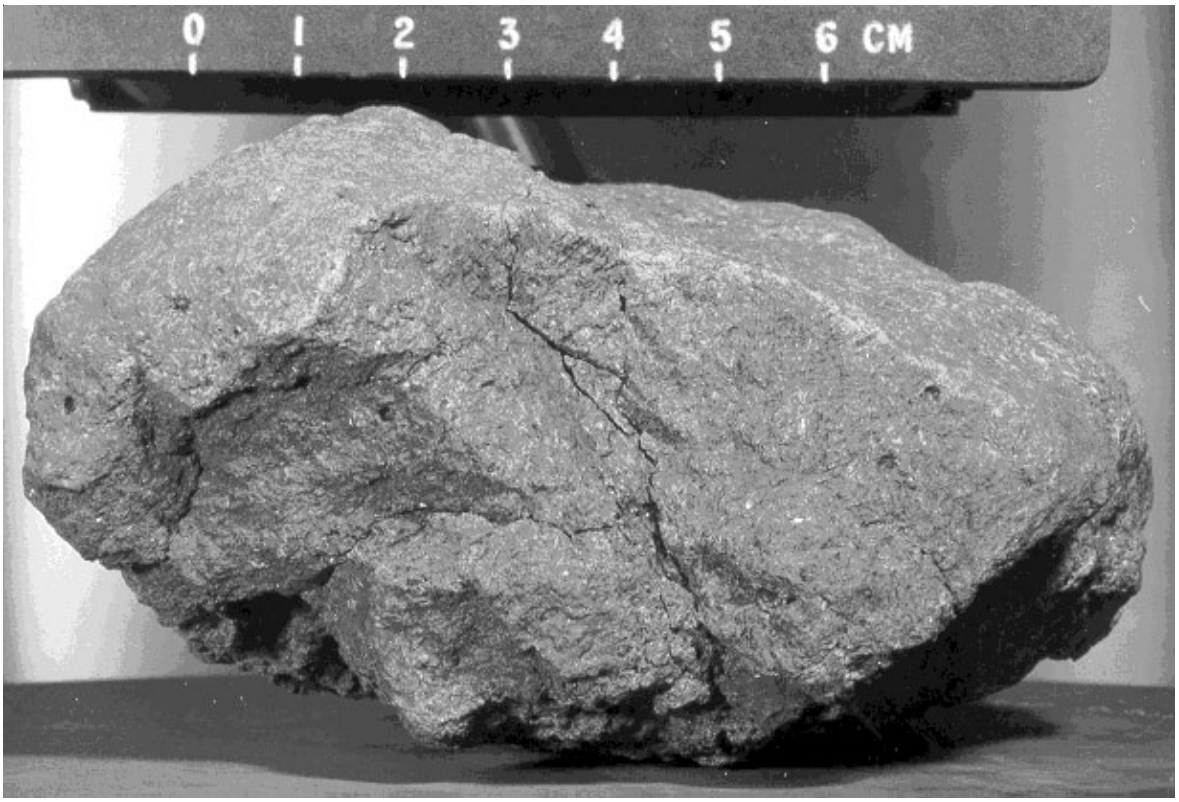


Figure 1: Photo of broken surface of 12055. NASA # S69-61032

Introduction

This little potato has zap pits on all sides. The texture is very like that of 12052 and 12053.

Petrography

Baldridge et al. (1979) briefly mention 12055 as a "porphyritic rock with a medium-grained, variolitic to subophitic groundmass". They mention that the width of plagioclase laths is 115 microns. Figures 2 a,b show random orientation of pyroxene phenocrysts in 12055.

Chemistry

The chemical composition of 12055 is the same as that of 12052 and 12053 (table 1).

Radiogenic age dating

The Rb/Sr age was determined by Nyquist et al. (1977) to be 3.19 ± 0.06 b.y. (figure 5).

Cosmogenic isotopes and exposure ages

Burnett et al. (1975) determined an exposure age of 330 m.y. by $^{126}Xe/Ba$..

Other Studies

Bogard et al. (1971) reported the content and isotopic composition of rare gases in 12055.

Mineralogical Mode for 12055

	Neal et al. 1994
Olivine	1
Pyroxene	58.2
Plagioclase	33.8
Ilmenite	0.4
Chromite +Usp	3.3
mesostasis	1.4
"silica"	0.4

Figure 2a: Reflected light photomicrograph of 12052,8 showing porosity and random ilmenite. Scale is 1 cm.

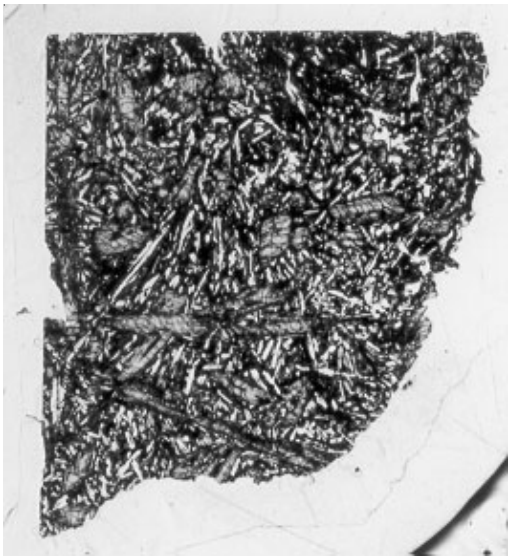


Figure 2b: Transmitted light photomicrograph of 12052,8 showing random pyroxene and plagioclase. Scale 1 cm. NASA #S70-51003.

Processing

12055,35 is on public display at the Cleveland Museum of Natural History (figure 7). Pieces of 12055 are also on public display in the Philippines and in Bonn, Germany.

List of Photo #s for 15055

S69-61011 – 61034	B & W mug
S69-62690 – 62698	B & W mug
S69-63835 – 63838	color mug
S70-22488 – 22491	color mug
S70-29255 – 29259	display
S86-38612 – 38615	surface color

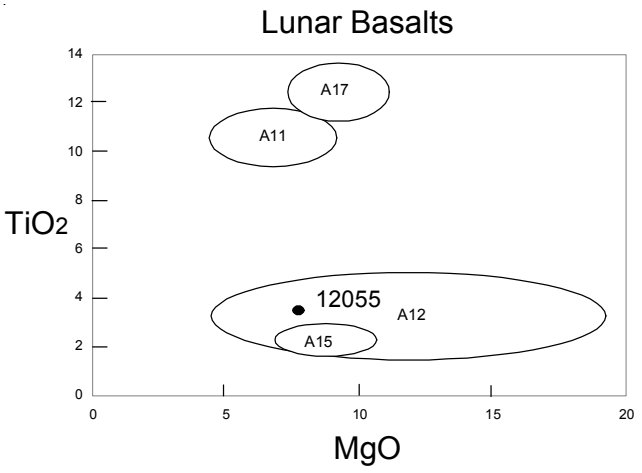


Figure 3: Composition of 12055 compared with that of other lunar basalts.

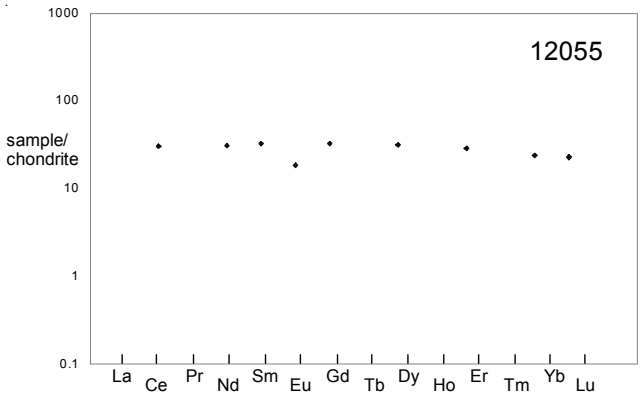


Figure 4: Normalized rare-earth-element diagram for 12055 (Nyquist et al. 1977).

Summary of Age Data for 12055

	Ar/Ar	Rb/Sr	Nd/Sm
Nyquist et al. 1977		3.19 ± 0.06 b.y.	

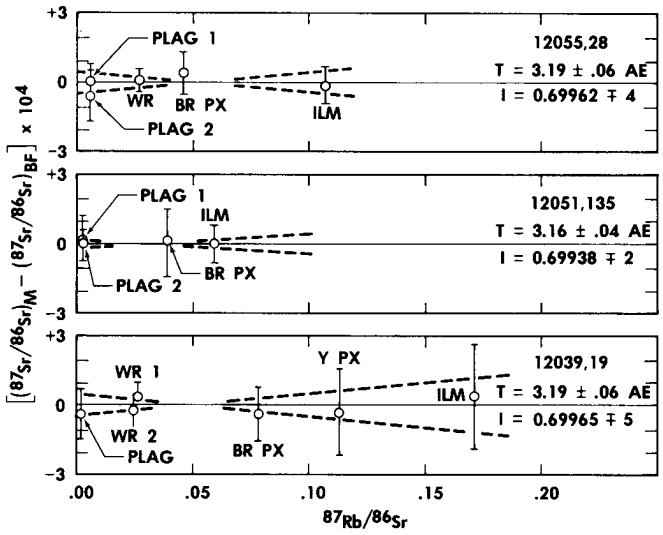


Figure 5: Rb/Sr isochron for 12055 (Nyqusit et al. 1977).

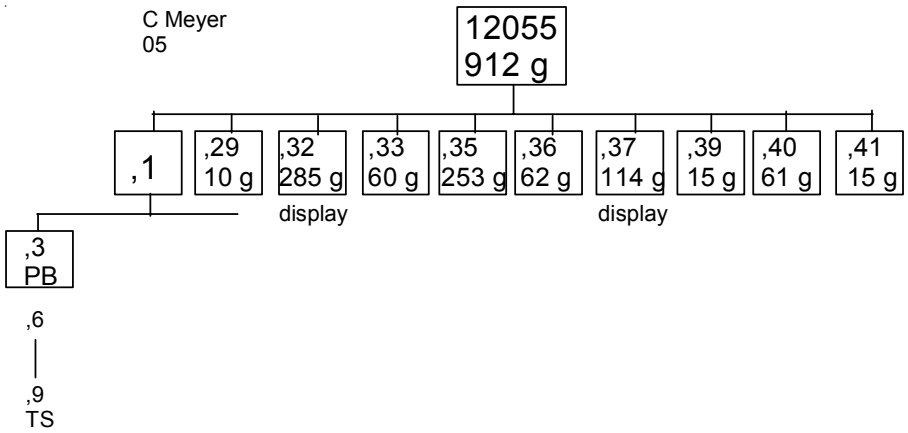
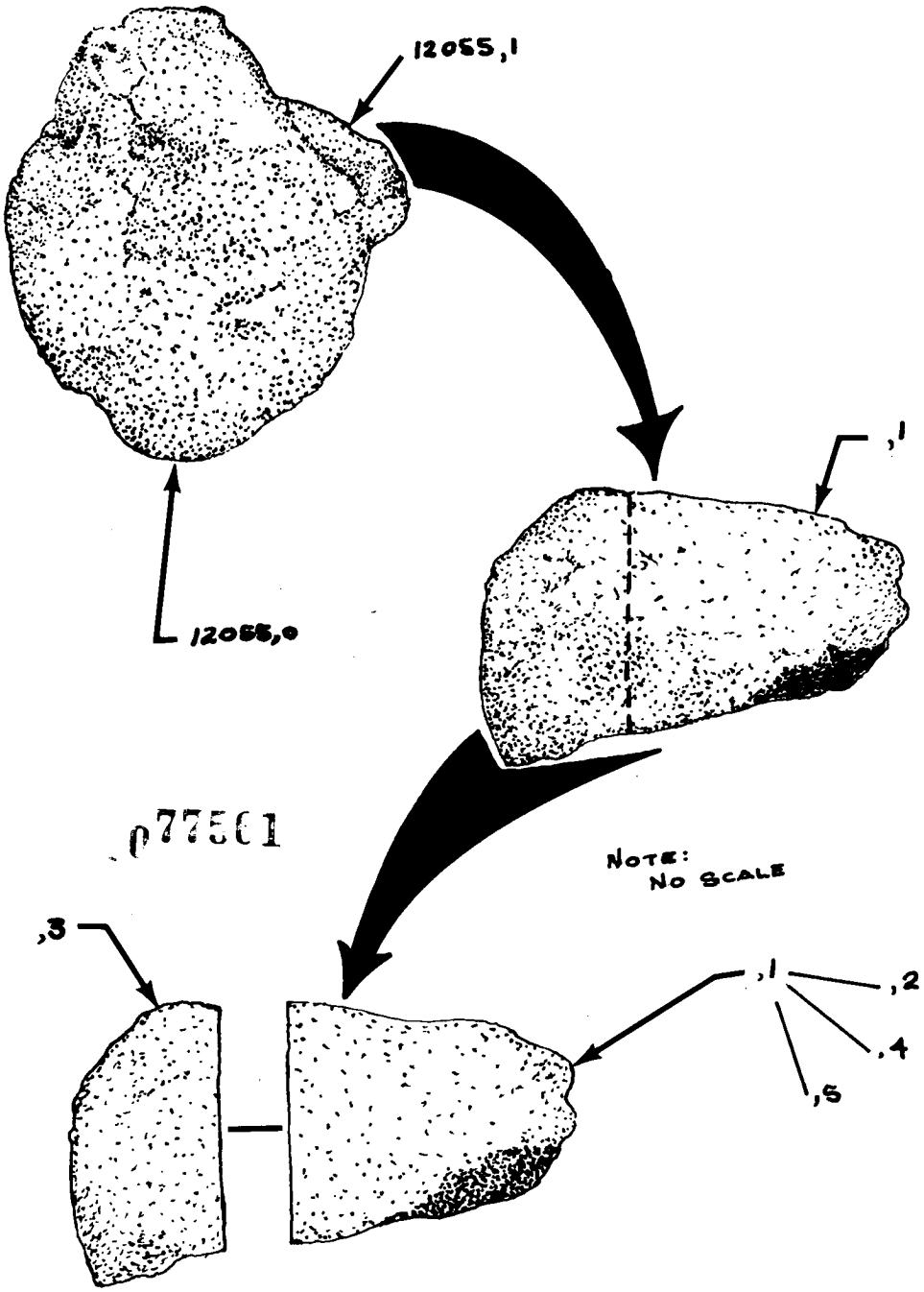


Table 1. Chemical composition of 12055.

reference	Rhodes77		Nyquist77	
weight				
SiO2 %	47	(c)		
TiO2	3.52	(c)		
Al2O3	10.15	(c)		
FeO	19.54	(c)		
MnO	0.29	(c)		
MgO	7.46	(c)		
CaO	11.1	(c)		
Na2O	0.27	(a)		
K2O	0.07	(c)	0.062	(b)
P2O5	0.07	(c)		
S %	0.07	(c)		
sum				
Sc ppm	54	(a)		
V				
Cr	3200	(a)		
Co	38	(a)		
Ni				
Cu				
Zn				
Ga				
Ge ppb				
As				
Se				
Rb			1.14	(b)
Sr	121	(c)	120	(b)
Y	43	(c)		
Zr	131	(c)		
Nb	8.5	(c)		
Mo				
Ru				
Rh				
Pd ppb				
Ag ppb				
Cd ppb				
In ppb				
Sn ppb				
Sb ppb				
Te ppb				
Cs ppm				
Ba	69	(b)	68.8	(b)
La				
Ce	18.2	(a)	18.4	(b)
Pr				
Nd			14	(b)
Sm	5.25	(a)	4.8	(b)
Eu	0.95	(a)	1.05	(b)
Gd			6.44	(b)
Tb	1.02	(a)		
Dy			7.8	(b)
Ho				
Er			4.63	(b)
Tm				
Yb	4.4	(a)	3.98	(b)
Lu	0.67	(a)	0.562	(b)
Hf	5.2	(a)		
Ta				
W ppb				
Re ppb				
Os ppb				
Ir ppb				
Pt ppb				
Au ppb				
Th ppm				
U ppm				
technique	*(a) INAA, (b) IDMS, (c) XRF*			

THE CUTTING AND CHIPPING OF LUNAR ROCK

12055 DRAWING COMPLETED SEPT 23, 1971



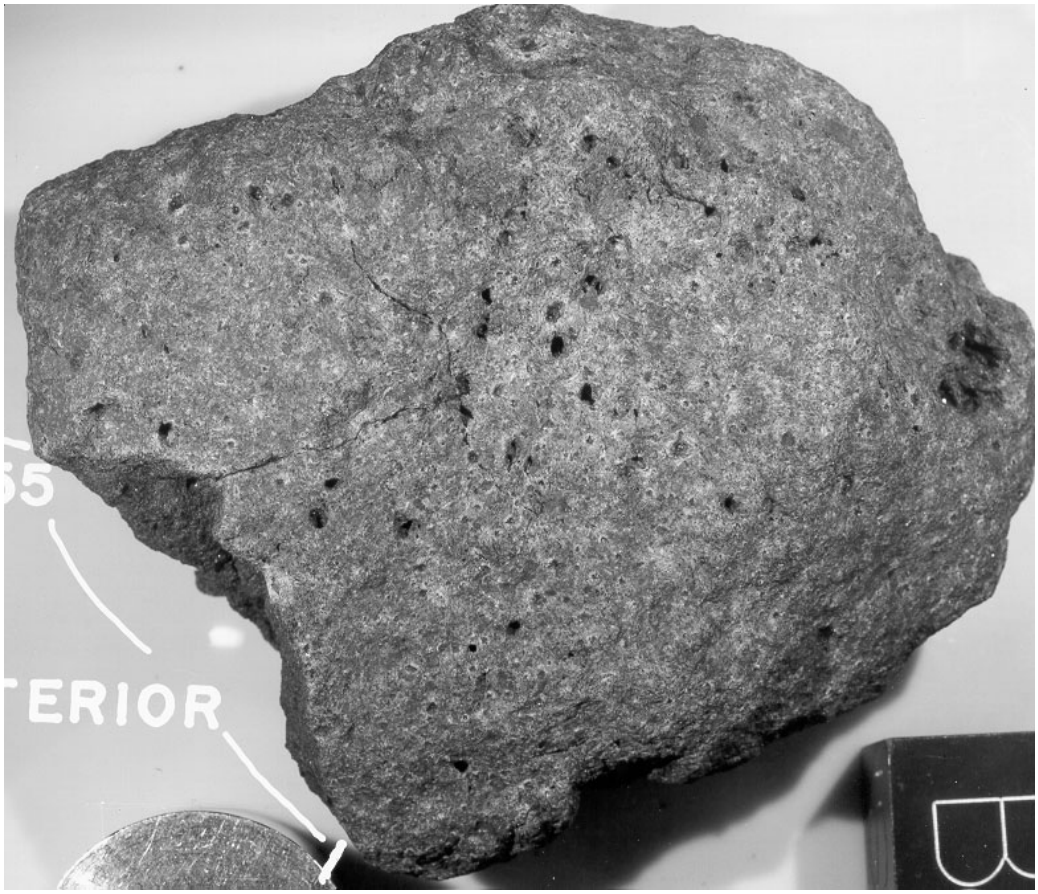


Figure 6: Large portion of 12055,0 showing zap pitted surface with vesicles. Cube is 1 inch. NASA #S86-38615.

Figure 7: Lunar display case. NASA S70-29258.