

65795
Highland Basalt
6.84 grams

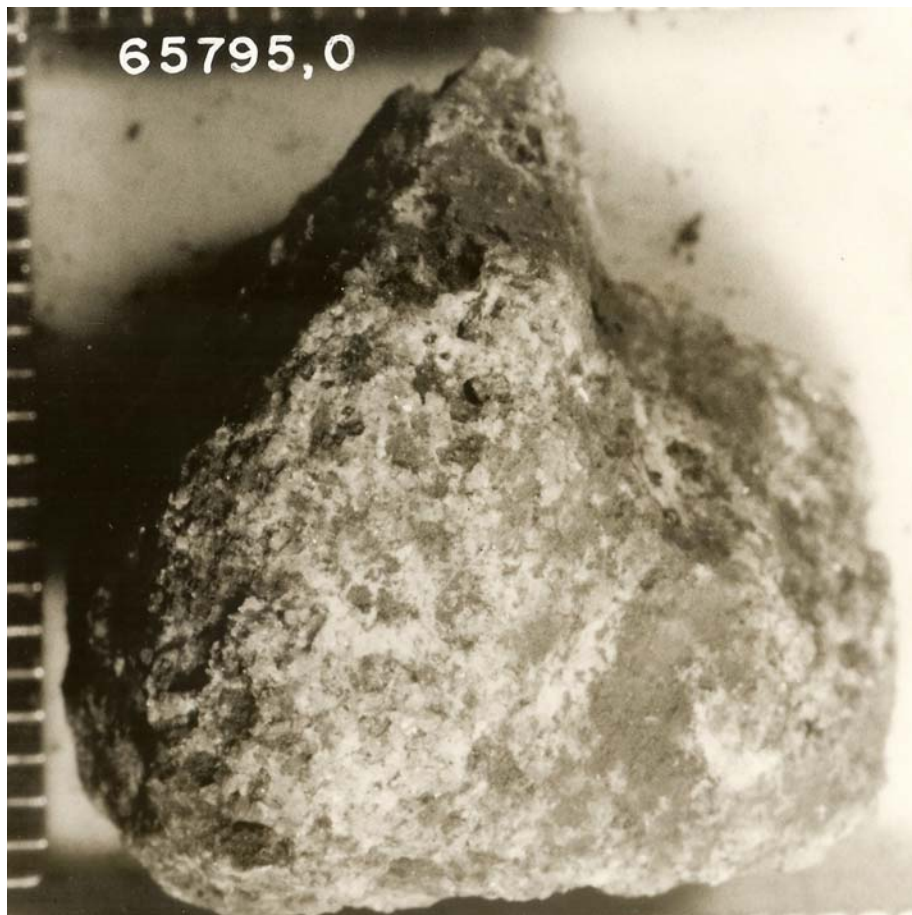


Figure 1: Photo of 65795 with mm scale. S72-48955

Introduction

65795 is a rake sample from station 5 – see section on 65701. It has a basaltic texture, is highly aluminous and has high Ir and Au so it is considered an “impact melt”. 65795 has been dated at 3.81 b.y.

Petrography

Dowty et al. (1974), Warner et al. (1976) and Ryder and Norman (1980) describe 65795 as an igneous rock with “basaltic” texture (figure 2). Plagioclase laths are up to 1.5 mm long and poikilitically enclose pyroxene and olivine. Some plagioclase are blocky and may be relict xenocrysts. Plagioclase is An₉₈; olivine and pyroxene range in composition (figure 3). Accessory minerals are ilmenite, Ni-Fe metal, troilite and a silica phase.

Chemistry

Warner et al. (1976) reported major element analysis and Deutsch and Stoffler (1987) reported trace element analysis (table).

Radiogenic age dating

Deutsch and Stoffler (1987) determined a Rb-Sr isochron age of 3.81 b.y. for 65795 (figure) with ($\lambda^{87} = 1.42 \cdot 10^{-11} \text{ yr}^{-1}$).

Processing

There are 4 thin sections.



Figure 2: Photomicrograph of thin section 65795,2
Width of field is 2.5 mm.

Summary of Age Data for 65795

Rb-Sr
Deutsch and Stoffer 1987 3.81 ± 0.04 b.y

References for 65795

Butler P. (1972a) Lunar Sample Information Catalog Apollo 16. Lunar Receiving Laboratory. MSC 03210 Curator's Catalog. pp. 370.

Deutsch A. and Stoffer D. (1987) Rb-Sr-analyses of Apollo 16 melt rocks and a new age estimate for the Imbrium basin: Lunar basin chronology and the early heavy bombardment of the moon. *Geochim. Cosmochim. Acta* **51**, 1951-1964.

Dowty E., Keil K. and Prinz M. (1974a) Igneous rocks from Apollo 16 rake samples. *Proc. 5th Lunar Sci. Conf.* 431-445.

Keil K., Dowty E., Prinz M. and Bunch T.E. (1972) Description, classification and inventory of 151 Apollo 16 rake samples from the LM area and station 5. Curator's Catalog, JSC.

LSPET (1973b) The Apollo 16 lunar samples: Petrographic and chemical description. *Science* **179**, 23-34.

LSPET (1972c) Preliminary examination of lunar samples. In Apollo 16 Preliminary Science Report. NASA SP-315, 7-1—7-58.

McKinley J.P., Taylor G.J., Keil K., Ma M.-S. and Schmitt R.A. (1984) Apollo 16: Impact sheets, contrasting nature of the Cayley Plains and Descartes Mountains, and geologic history. *Proc. 14th Lunar Planet. Sci. Conf.* in *J. Geophys. Res.* **89**, B513-B524.

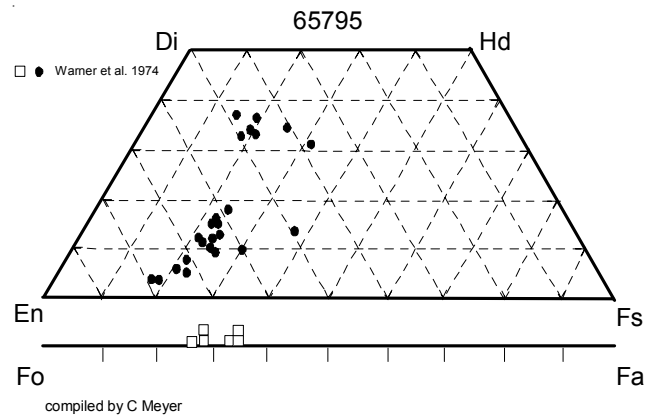


Figure 3: Pyroxene and olivine in 65795 (Warner et al. 1976).

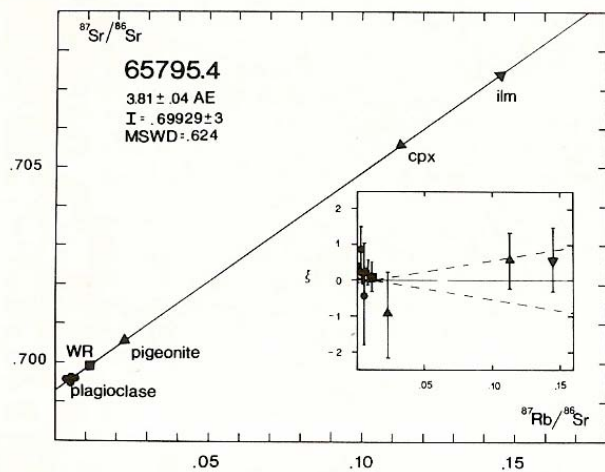
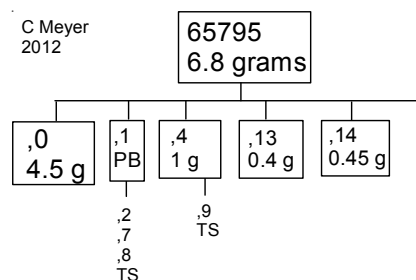


Figure 4: Internal Rb-Sr isochron for 65795 (Deutsch and Stoffer 1984).

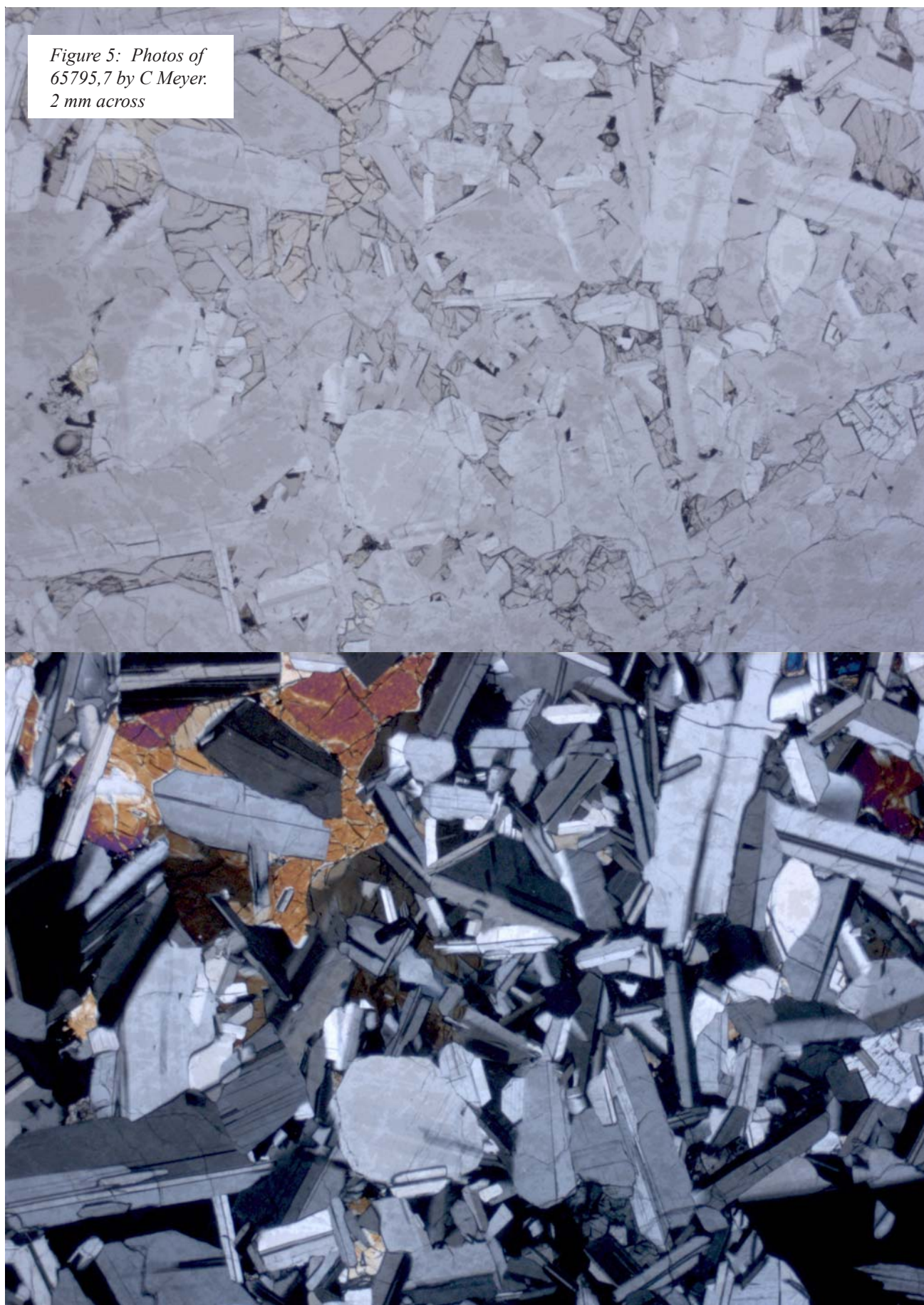
Ryder G. and Norman M.D. (1980) Catalog of Apollo 16 rocks (3 vol.). Curator's Office pub. #52, JSC #16904

Sutton R.L. (1981) Documentation of Apollo 16 samples. In *Geology of the Apollo 16 area, central lunar highlands.* (Ulrich et al.) U.S.G.S. Prof. Paper 1048.

Warner R.D., Dowty E., Prinz M., Conrad G.H., Nehru C.E. and Keil K. (1976c) Catalog of Apollo 16 rake samples from the LM area and station 5. Spec. Publ. #13, UNM Institute of Meteoritics, Albuquerque. 87 pp.



*Figure 5: Photos of
65795,7 by C Meyer.
2 mm across*



*Figure 6: This is 65795,9.
It is a basalt and it is from
the highlands. Any
Questions? 2 mm across*

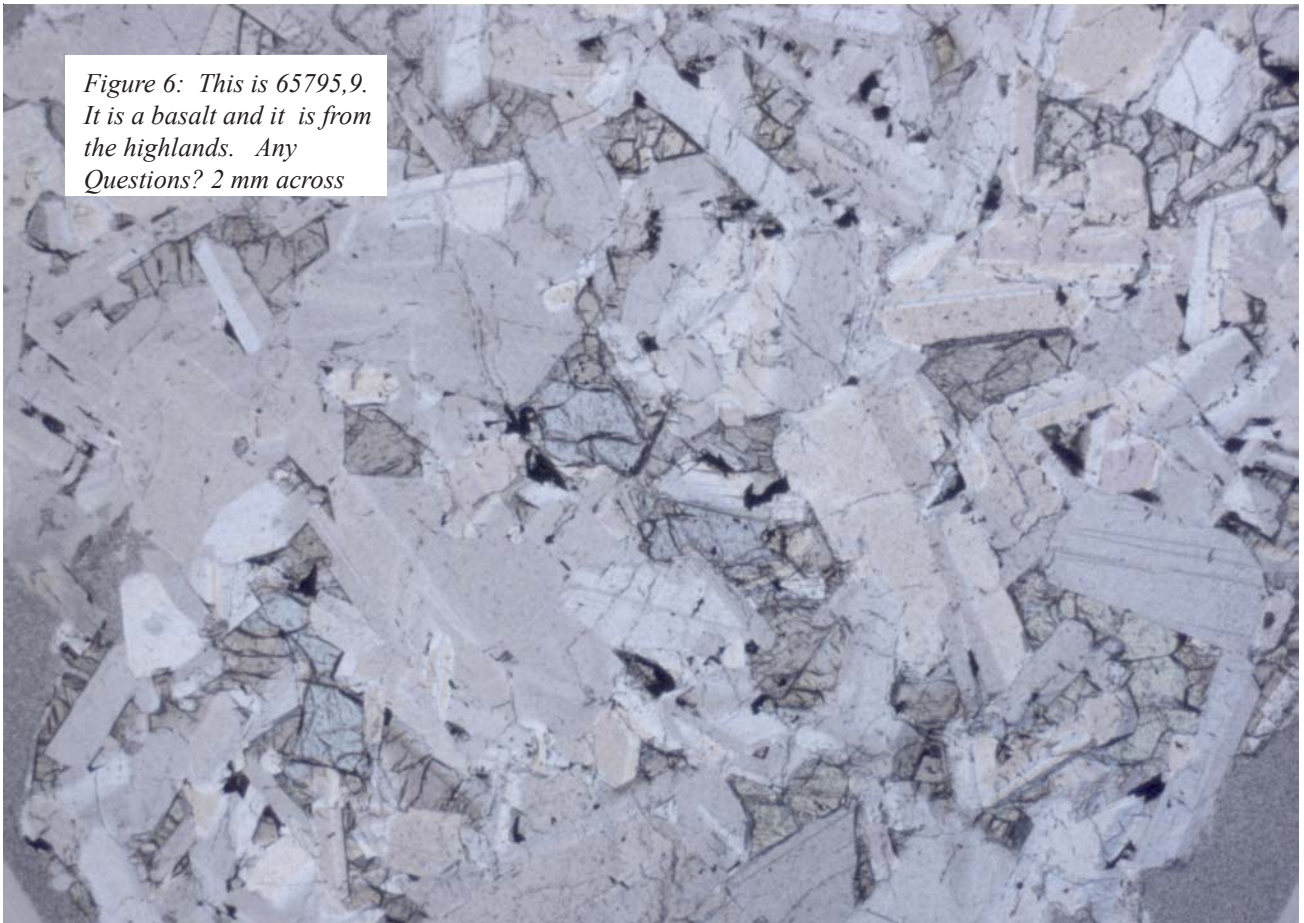


Table 1. Chemical composition of 65795

reference weight	McKinely84	Dowty74 Warner76	Deutsch87	
SiO2 %		45.2	(a)	
TiO2		0.19	(a)	
Al2O3		31.4	(a)	
FeO		2.25	(a)	
MnO		0.02	(a)	
MgO		2.78	(a)	
CaO		17.3	(a)	
Na2O		0.44	(a)	0.39 (b)
K2O		0.07	(a)	0.04 (b)
P2O5		0.08	(a)	
S %				
sum				
Sc ppm			5.85	(b)
V				
Cr			450	(b)
Co			25	(b)
Ni			360	(b)
Cu				
Zn				
Ga				
Ge ppb				
As				
Se				
Rb				
Sr				
Y				
Zr				
Nb				
Mo				
Ru				
Rh				
Pd ppb				
Ag ppb				
Cd ppb				
In ppb				
Sn ppb				
Sb ppb				
Te ppb				
Cs ppm				
Ba				
La			5.43	(b)
Ce			15.4	(b)
Pr				
Nd			8.6	(b)
Sm			2.52	(b)
Eu			1.01	(b)
Gd				
Tb			0.57	(b)
Dy			3.81	(b)
Ho			0.79	(b)
Er			2	(b)
Tm			0.3	(b)
Yb			1.82	(b)
Lu			0.25	(b)
Hf			1.91	(b)
Ta			0.26	(b)
W ppb				
Re ppb				
Os ppb				
Ir ppb			12	(b)
Pt ppb				
Au ppb			3.8	(b)
Th ppm			0.84	(b)
U ppm			0.25	(b)

technique: (a) broad beam e probe, (b) INAA