67566

Impact Melt Breccia

4.3 grams

Figure 1: Photo of 67566. Scale is cm/mm. S72-51249

Introduction

67566 was collected from the south rim of North Ray Crater – see section on 67481.

Petrography

Ryder and Norman (1980) reported that 67566 had a "granoblastic" texture (figures 2 and 4). The protolith was clearly a breccia.

Chemistry

Stoffler et al. (1985) reported that the composition of 67566 was similar to other granulitic breccia samples from NRC (table and figure 5).

Radiogenic age dating

67566 has been outgassed to yield ages (figure 3).

Processing

There a two thin section.

Table 1. Chemical composition of 67566

reference	Stoffler85	
weight		
SiO2 %	43.7	(a)
TiO2	0.11	(a)
Al2O3	32.32	(a)
FeO	1.3	(a)
MnO		
MgO	1.99	(a)
CaO	18.22	(a)
Na2O	0.51	(a)
K2O	0.15	(a)
P2O5	0.01	(a)
Sc ppm	6.32	(b)
Co	22.7	(b)
Ni	240	(b)
Ba	47	(b)
Sm	1.61	(b)
Yb	1.3	(b)
technique:	*(a) DBA, (b) INAA*	

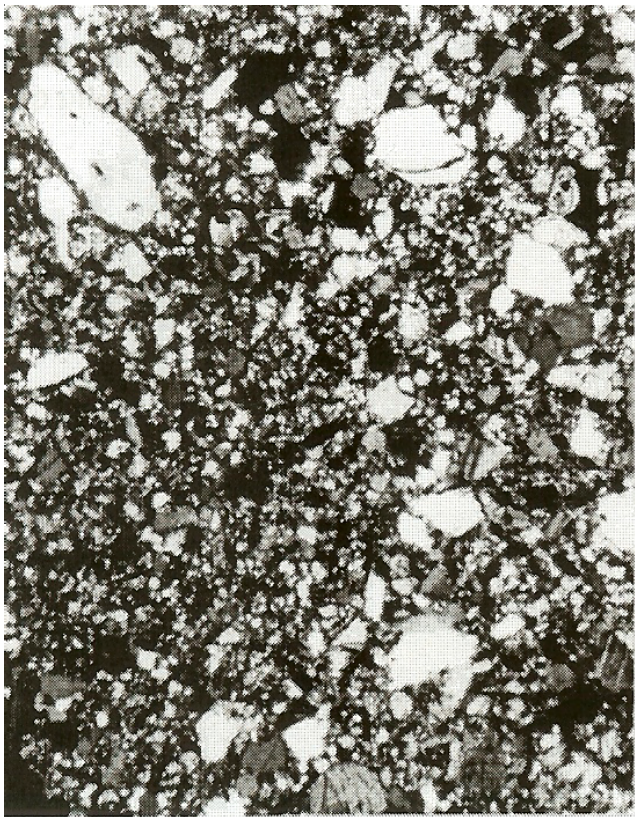


Figure 2a: Photomicrograph of thin section 67566,2 with crossed polarizers. Field of view is 2 mm. From Ryder and Norman 1980.

Figure 2b: Photomicrograph of thin section 67566,1 with crossed polarizers. Field of view is 2 mm. From Ryder and Norman 1980.

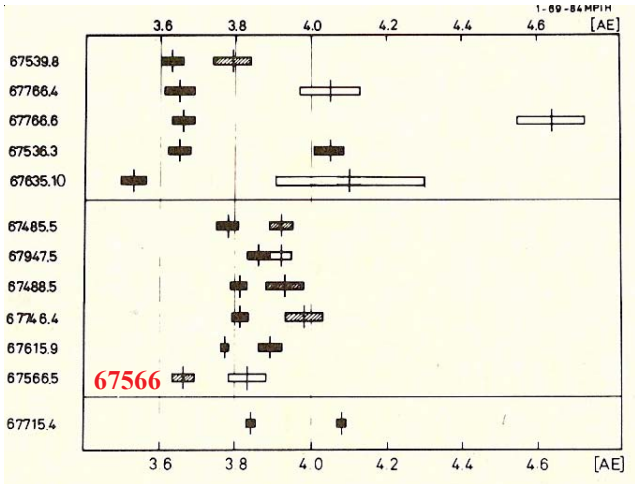
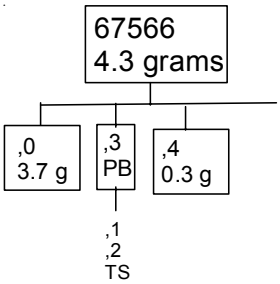


Figure 3: Summary diagram of a lot of hard work showing age of 67566 (from Stoffler et al. 1985).



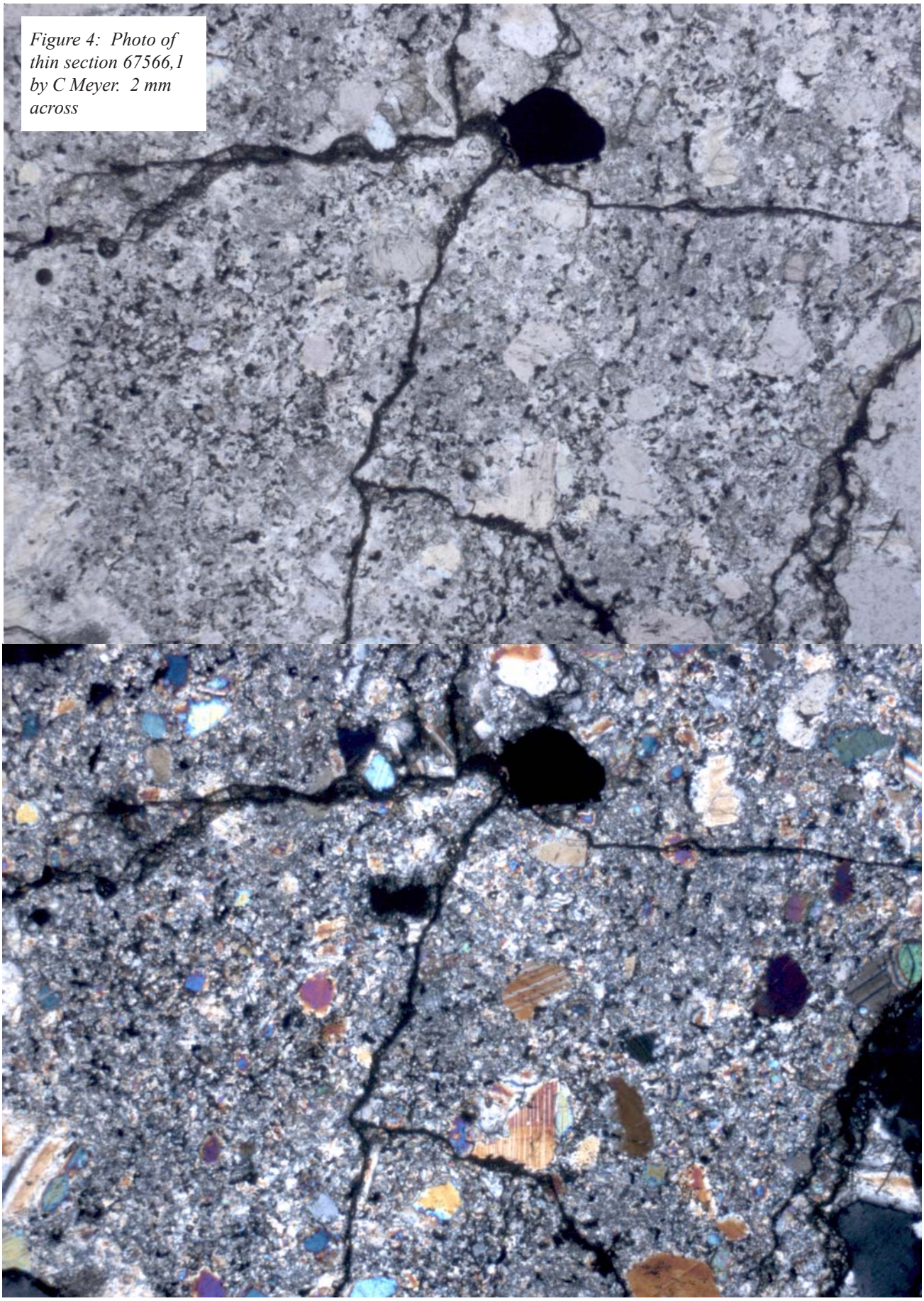


Figure 4: Photo of thin section 67566,1 by C Meyer. 2 mm across

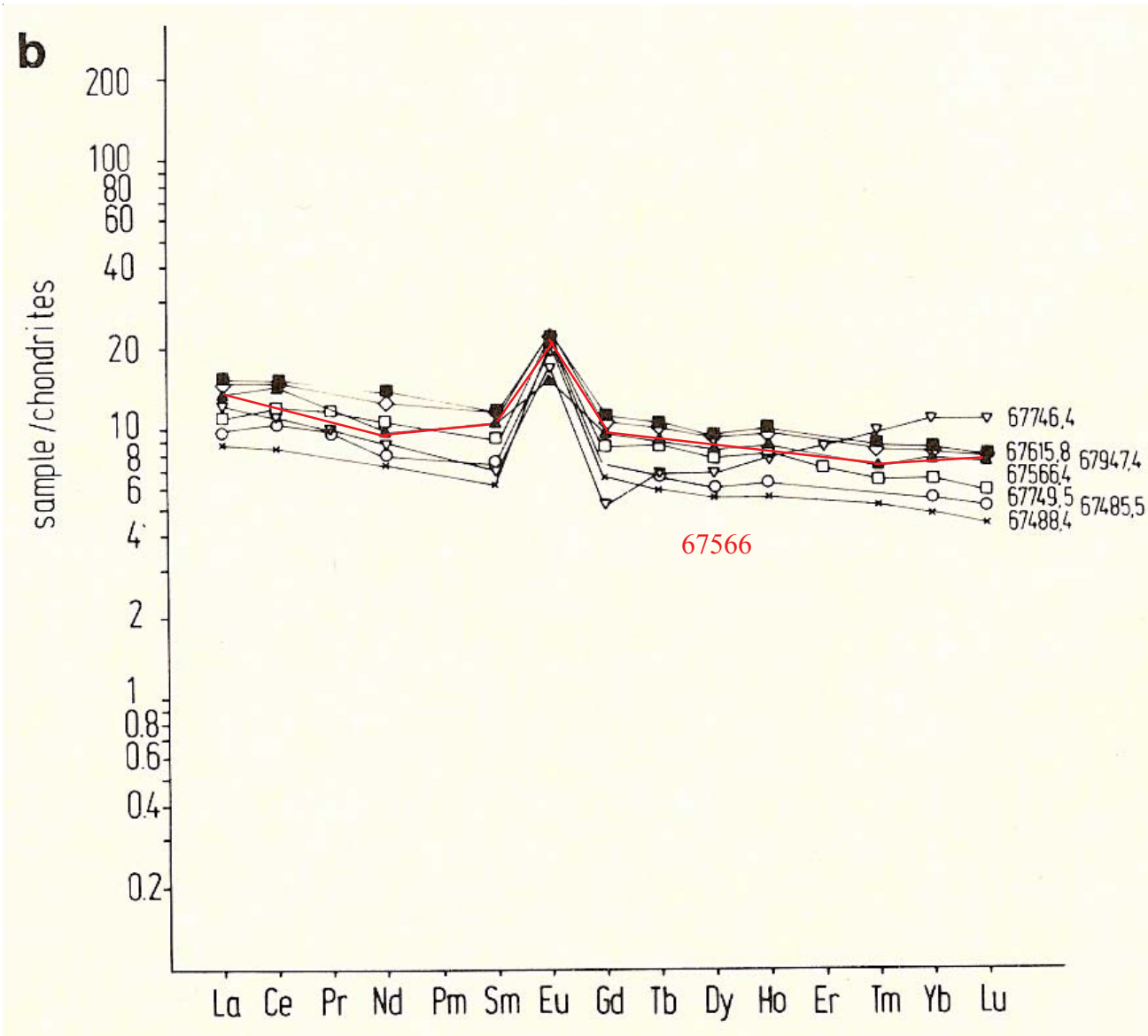


Figure 5: Normalized rare-earth-element diagram for 67566 compared with several granulitic breccias from rake samples taken at North Ray Crater (Stoffler et al. 1985).

References for 67566

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

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

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

Stöffler D., Ostertag R., Reimold W.U., Borchardt R., Malley J. and Rehfeldt A. (1981) Distribution and provenance of lunar highland rock types at North Ray Crater, Apollo 16. *Proc. 12th Lunar Planet. Sci. Conf.* 185-207.

Stöffler D., Bischoff A., Borchardt R., Burghele A., Deutsch A., Jessberger E.K., Ostertag R., Palme H., Spettel B., Reimold W.U., Wacker K. and Wanke H. (1985) Composition and evolution of the lunar crust in the Descartes highlands. *Proc. 15th Lunar Planet. Sci. Conf.* in J. Geophys. Res. **90**, C449-C506.

Smith J.V. and Steele I.M. (1972c) Apollo 16 rake samples 67515 to 68537: Sample classification, description and inventory. Curator Catalog, JSC

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.