

64585
Vitric Impact Melt Breccia
4.7 grams



Figure 1: Photo of 64585. sample is 1.5 cm across. S72-55315

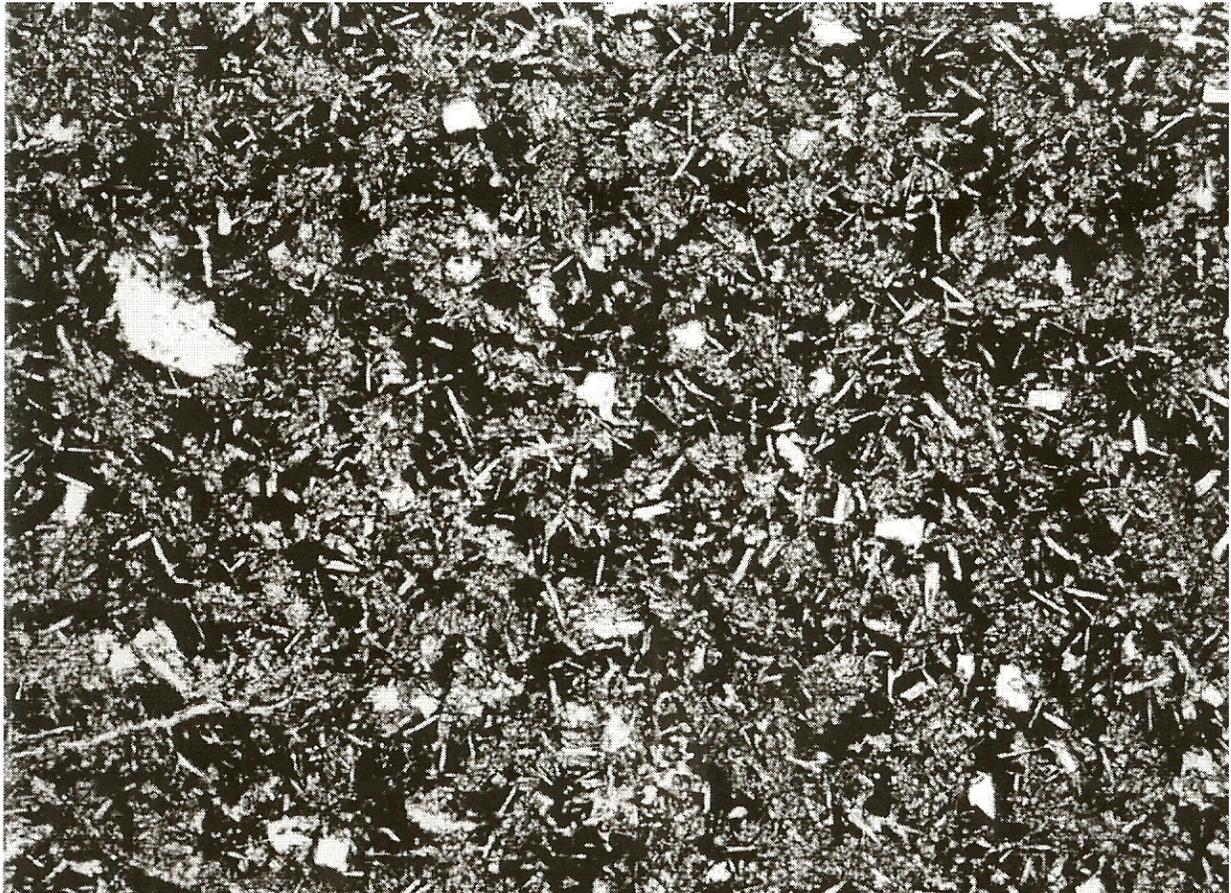
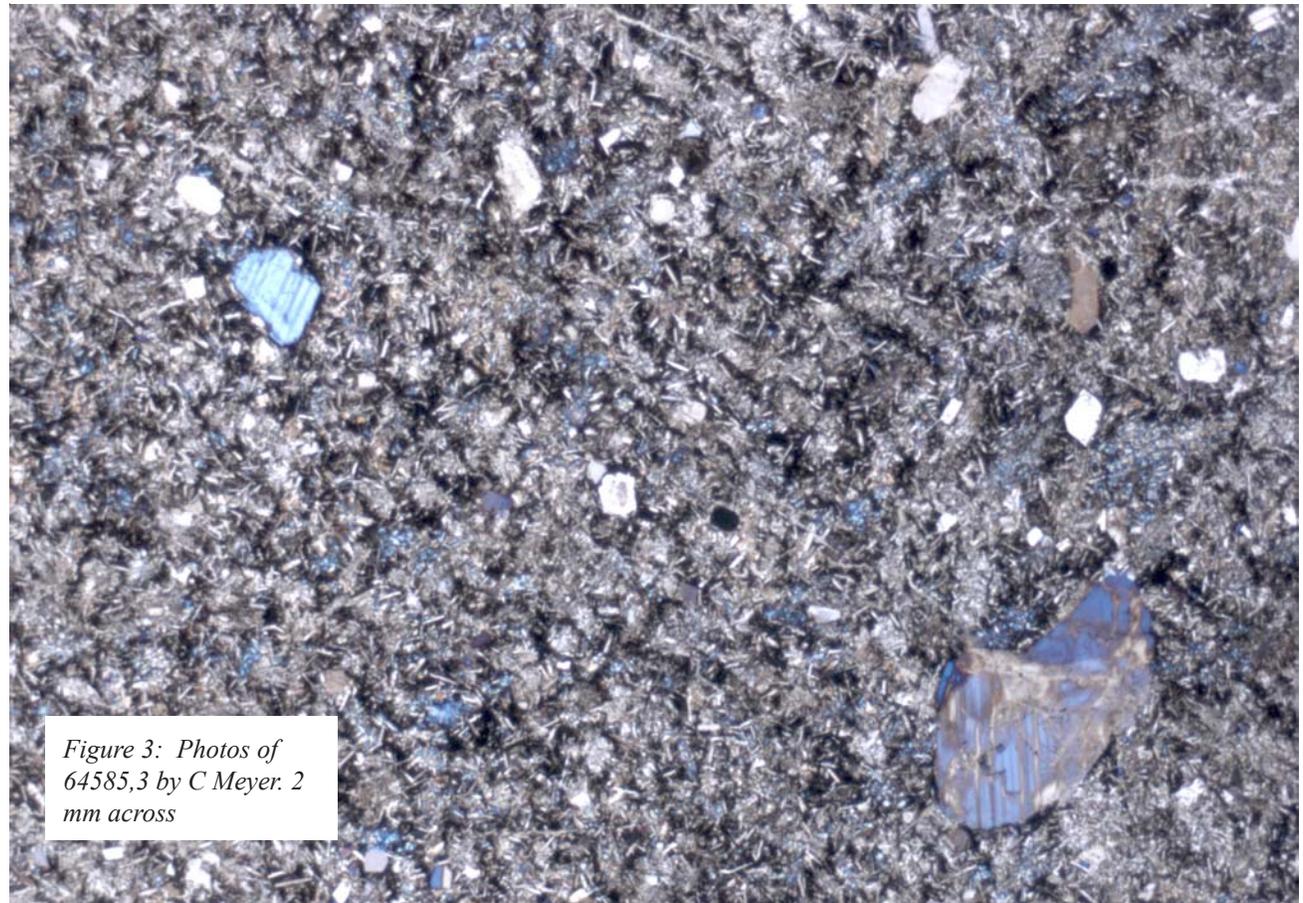
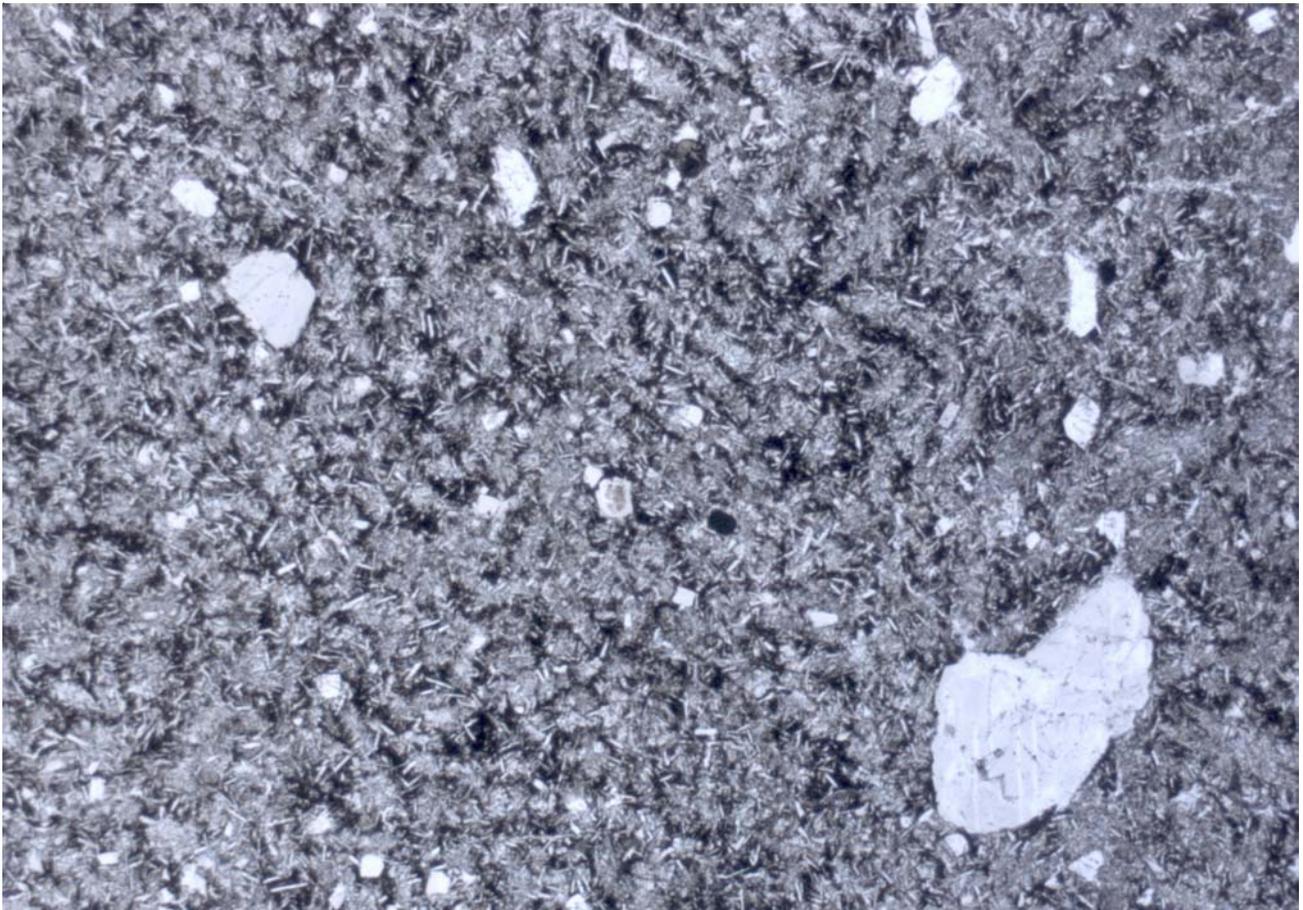


Figure 2: Thin section photo of 64585 about 2 mm across (from Ryder and Norman 1980).



*Figure 3: Photos of
64585,3 by C Meyer. 2
mm across*

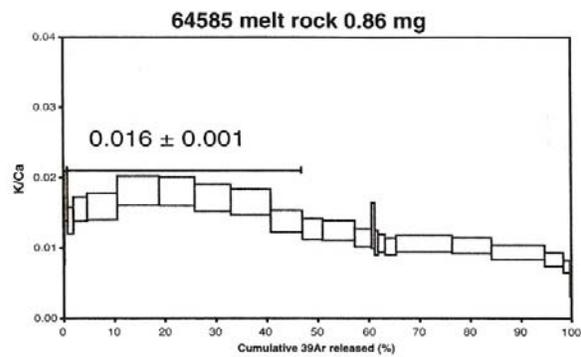
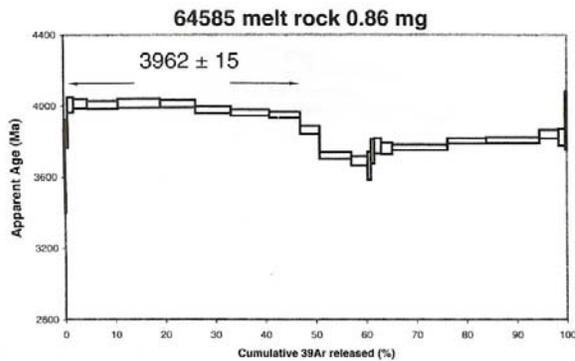


Figure 4: The low temperature release of Ar gives an age older than most Apollo impact melts (Norman et al. 2006).

Introduction

64585 was collected as a rake sample from Stone Mountain – see section on 64501. It is an old impact melt with unique texture.

Petrography

64585 has a brownish color (figure 1) and a devitrified glass matrix (figure 2). Plagioclase laths and xenocrysts are trapped in a devitrified matrix. Warner et al. (1973) give an analysis of the “mesostasis”.

Chemistry

none reported – but Korotev says it is “2DB”.

Radiogenic age dating

Norman et al. (2006) determined an age of 3.962 ± 0.015 for 64585 by the Ar/Ar plateau technique (figure 4).

References for 64585

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

Gooley R.C., Brett R. and Warner J.L. (1973) Crystallization history of metal particles in Apollo 16 rake samples. *Proc. 4th Lunar Sci. Conf.* 799-810.

Hunter R.H. and Taylor L.A. (1981) Rust and schreibersite in Apollo 16 highland rocks: Manifestations of volatile-element mobility. *Proc. 12th Lunar Planet. Sci. Conf.* 253-259.

Korotev R.L. (1994) Compositional variation in Apollo 16 impact melt breccias and inferences for the geology and bombardment history of the central highlands of the Moon. *Geochim. Cosmochim. Acta* **58**, 3931-3969.

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.

Norman M.D., Duncan R.A. and Huard J.J. (2006) Identifying impact events within the lunar cataclysm from ^{40}Ar - ^{39}Ar ages and compositions of Apollo 16 impact melt rocks. *Geochim. Cosmochim. Acta* **70**, 6032-6049.

Pearce G.W. and Simonds C.H. (1974) Magnetic properties of Apollo 16 samples and implications for their mode of formation. *J. Geophys. Res.* **79**, 2953-2959.

Phinney W. and Lofgren G. (1973) Description, classification and inventory of Apollo 16 rake samples from stations 1, 4 and 13. Curators Office.

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 J.L., Simonds C.H. and Phinney W.C. (1973b) Apollo 16 rocks: Classification and petrogenetic model. *Proc. 4th Lunar Sci. Conf.* 481-504.

