

67515 – 60.8 grams
67516 – 14.4 grams
67517 – 9.65 grams
67518 – 3.74 grams
67519 – 2.04 grams
Anorthositic Breccia

Figure 1: Photo of 67515. Cube is 1 cm. S72-43481



Figure 2: Photo of 67516. Scale in mm. S72-51052



Figure 3: Photo of 67517. Scale in mm. S72-51281.



Figure 4: Photo of 67518. Scale in mm. S72-49577



Figure 5: Photo of 67519. Scale in mm. S72-51047.

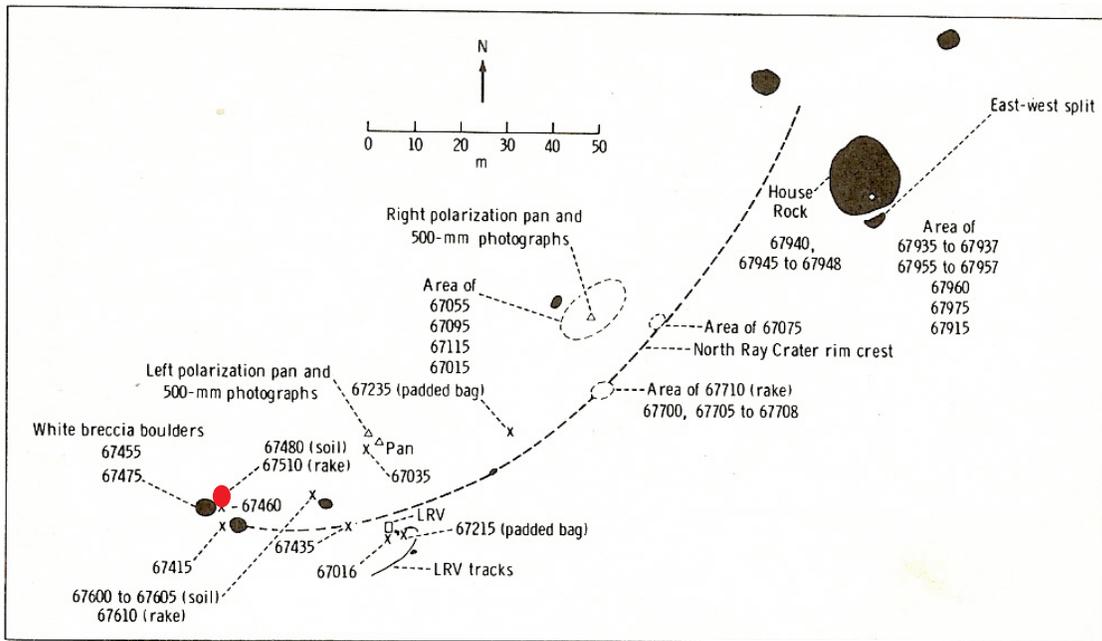


Figure 6: South Rim of North Ray Crater in East Central Moon.

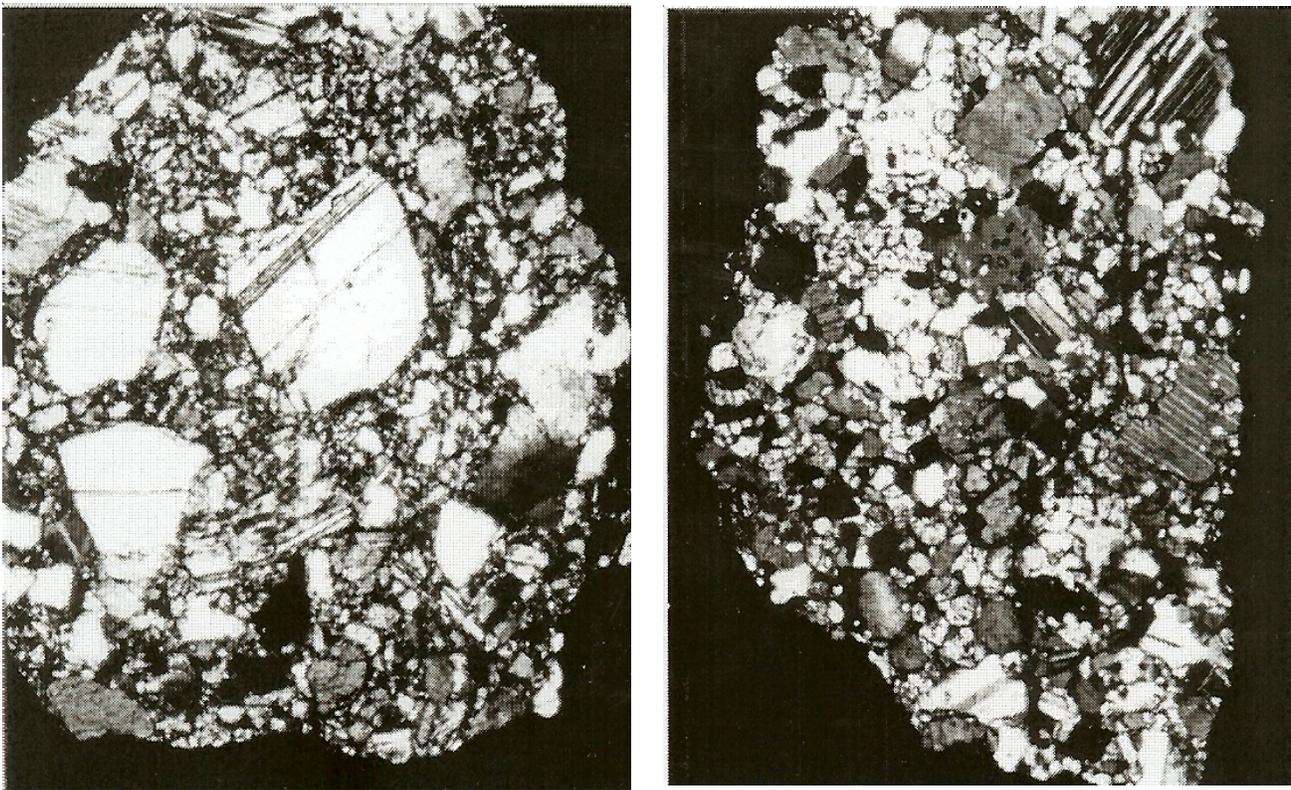
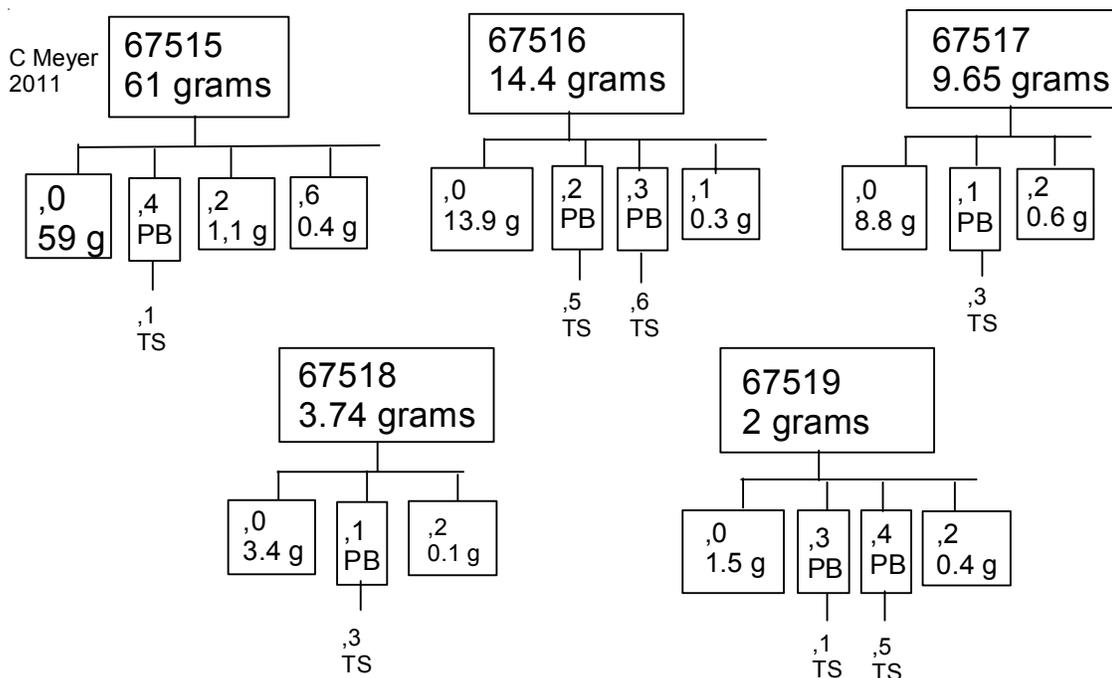


Figure 7 a, b: Photomicrographs of two areas of 67515. Crossed polarizers. From Ryder and Norman 1980.



Introduction

These chalky white rocks were returned in the same bag. They are from a rake sample taken near the White Boulder on the south rim of North Ray Crater - see section on 67481. They are friable, which is why they are rounded. They contain lithic fragments of cataclastic anorthosite and feldspathic granulite.

Petrography

Steele and Smith (1972) gave the original descriptions of these particles. Ryder and Norman (1980) and Stoffler et al. (1981) found that they were feldspathic granulite and contain areas of aphanitic impact melt. In thin section they appear to be pristine and monomict (figures 7 - 13). They are mostly plagioclase, with only minor mafic minerals. Textures of lithic fragments vary from cataclastic anorthosite to feldspathic granulite.

Although there are eight thin sections, there has been no petrographic description with resulting pyroxene diagrams. They await study - perhaps along with the White Boulder samples (67455 etc.)

Chemistry

None

Radiogenic age dating

None

References for 67515

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.

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

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

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

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.

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.

Figure 8: Thin section photos of 67515 by C Meyer. 2 mm across

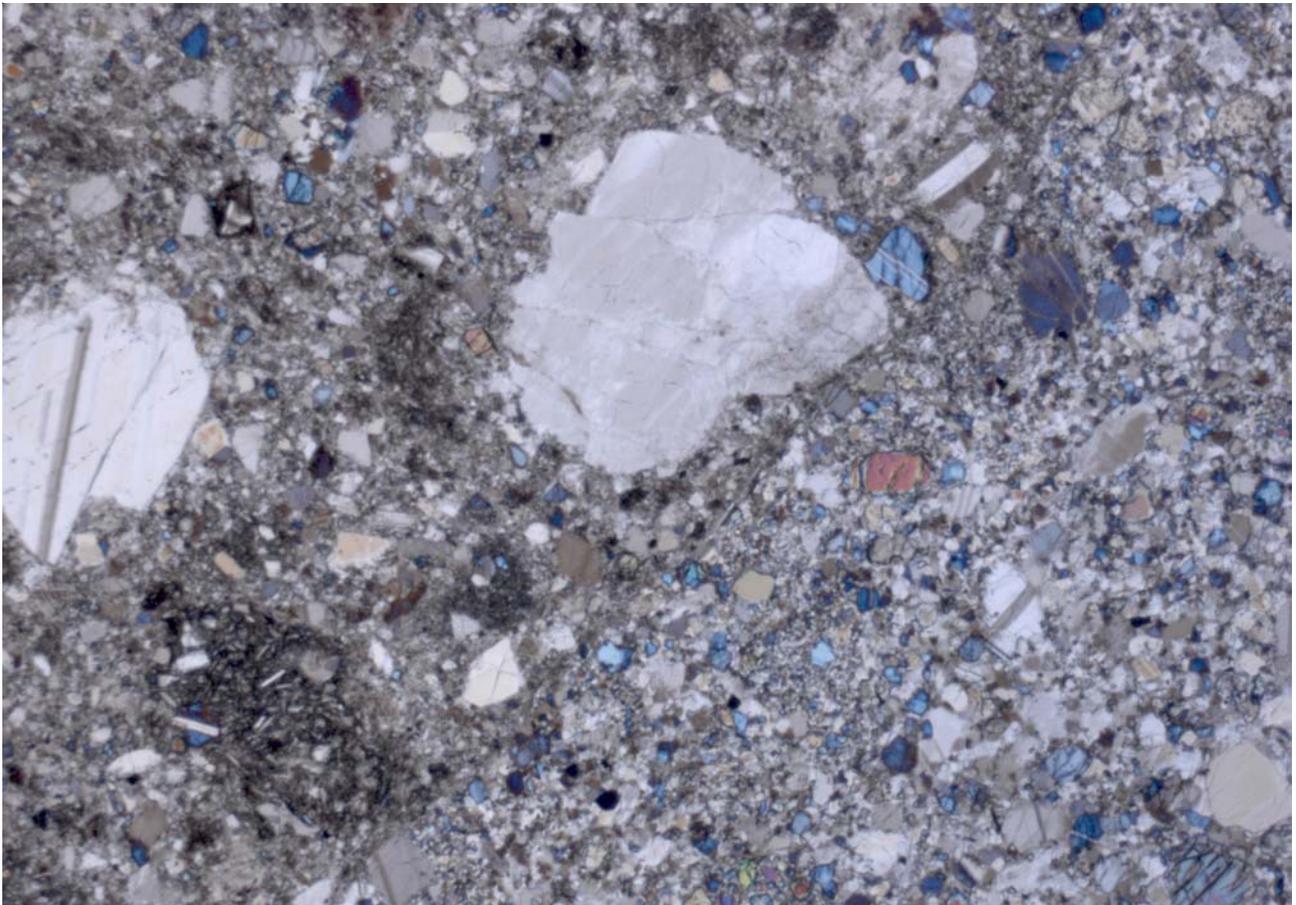
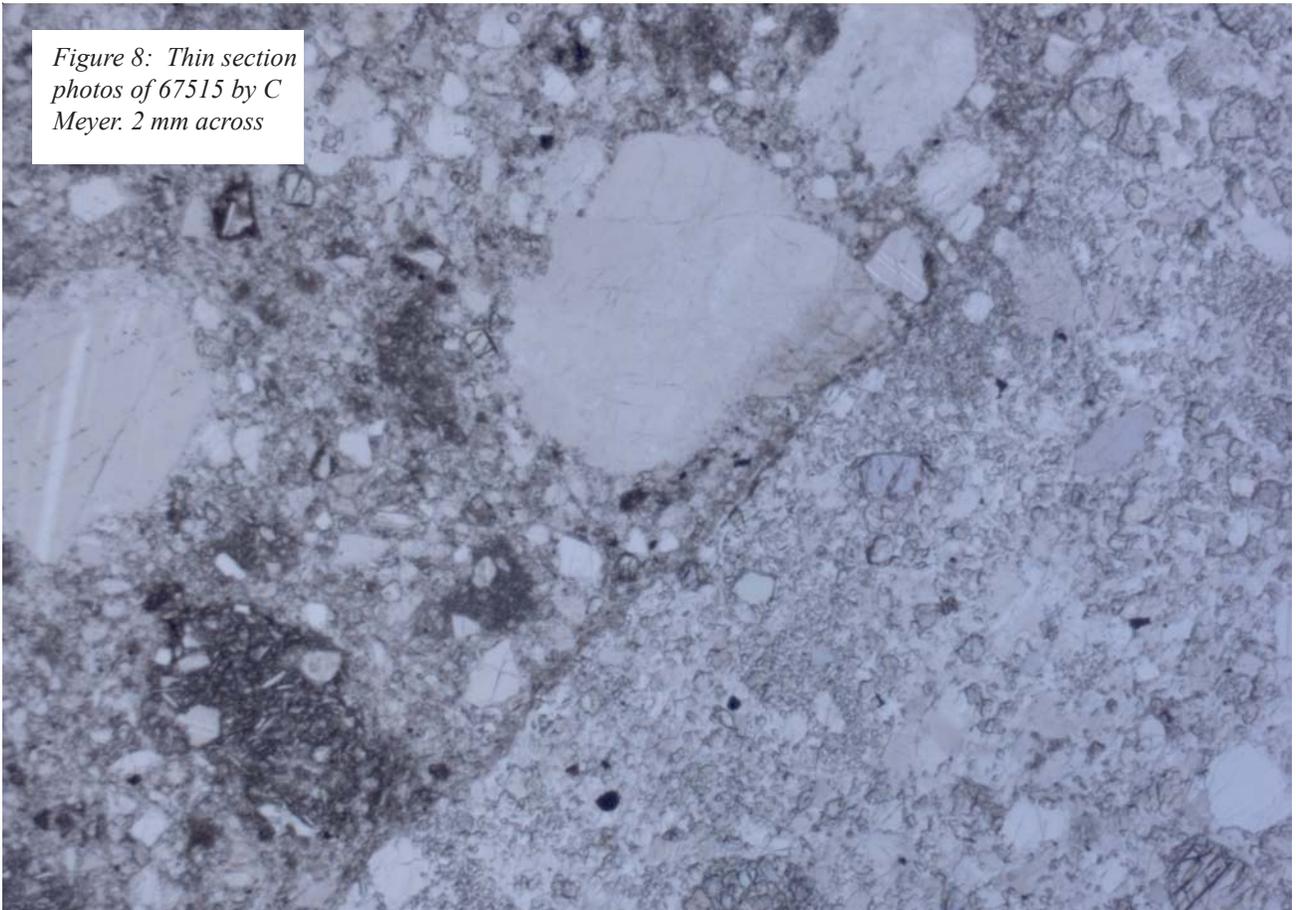
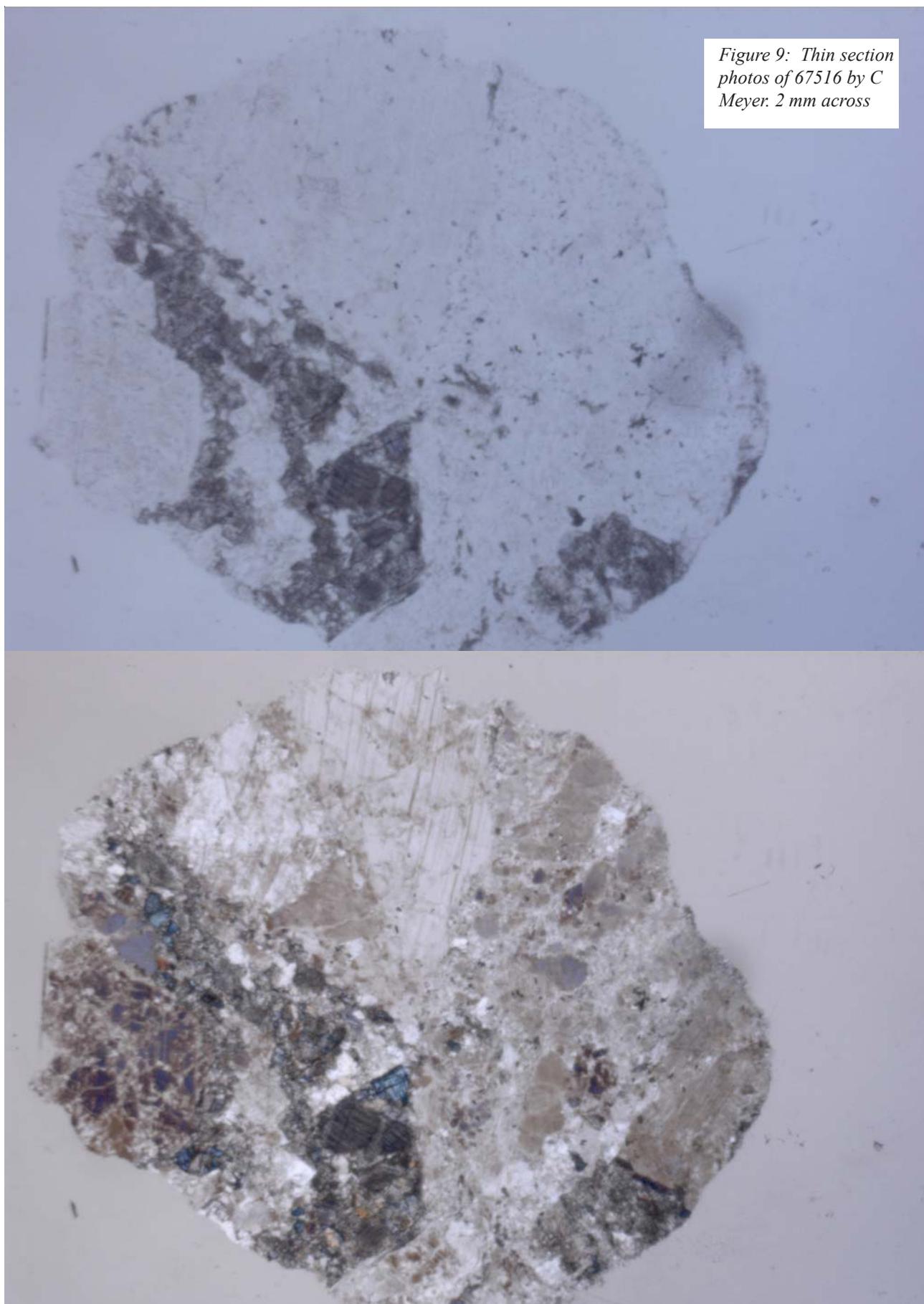


Figure 9: Thin section photos of 67516 by C Meyer. 2 mm across



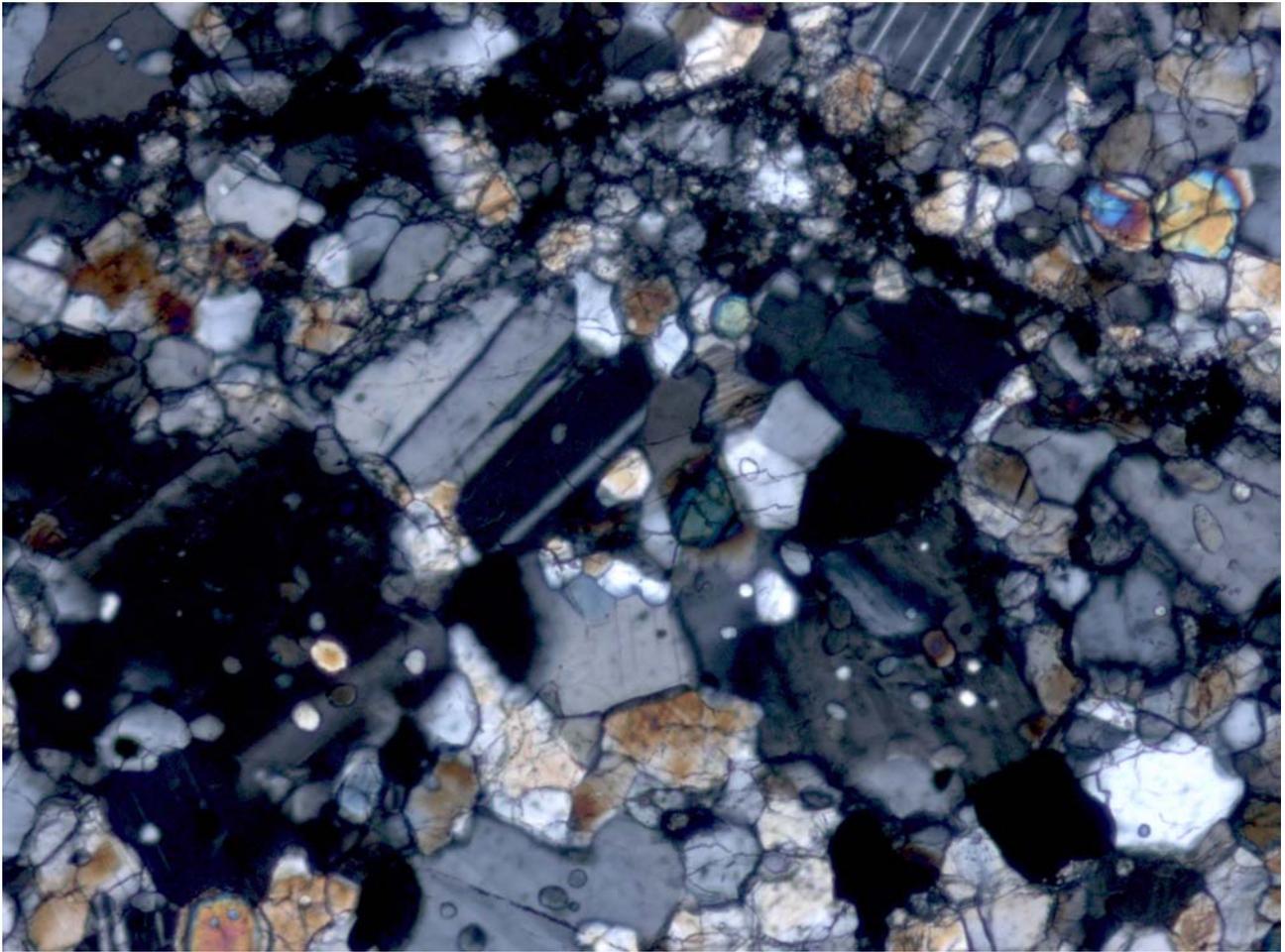


Figure 10: Photomicrograph of thin section of 67515 with crossed-nicols. C Meyer

Figure 11: Photos of 67517. 2 mm across

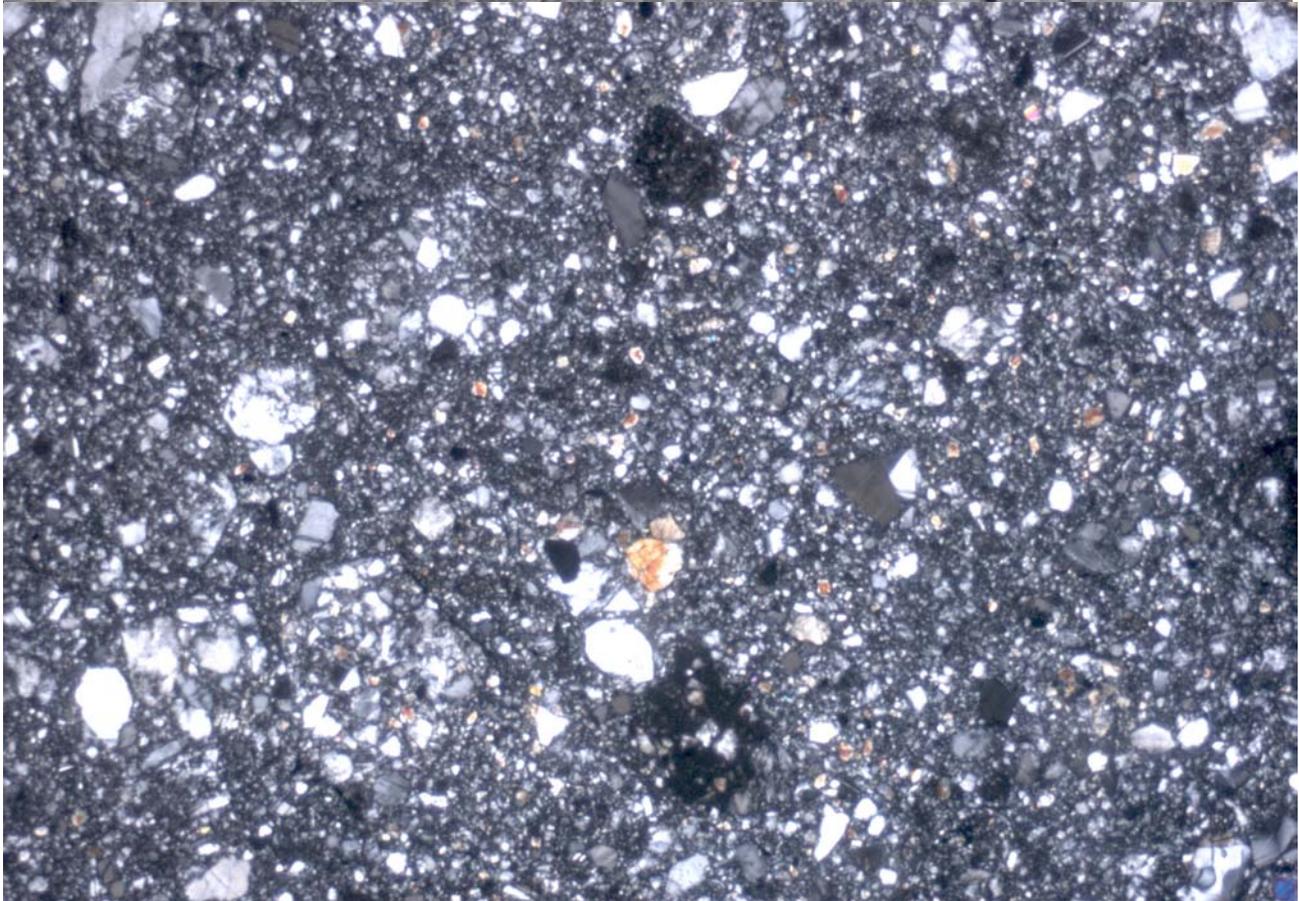


Figure 12: Photos of 67518. 2 mm across

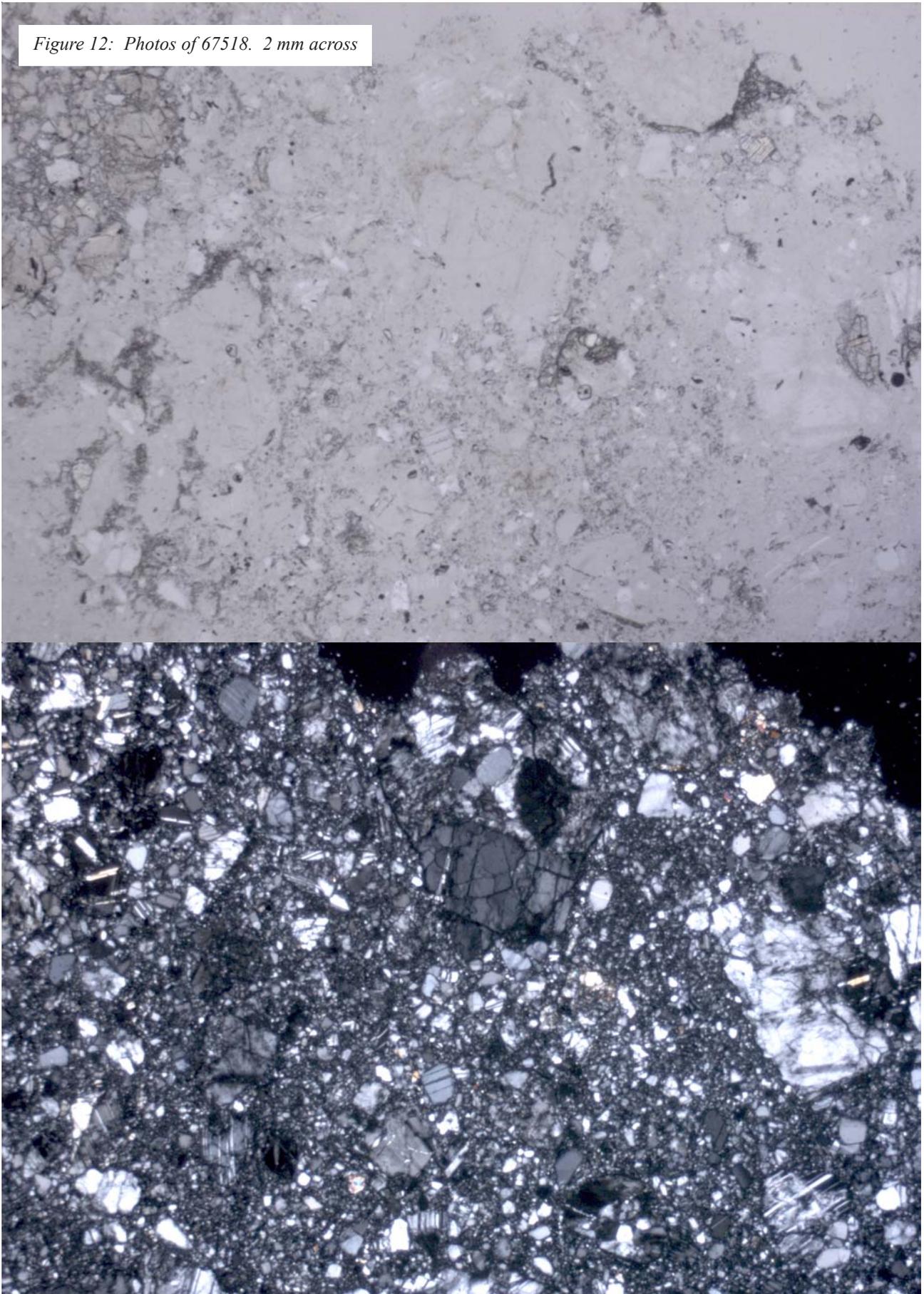


Figure 13: Photos of 67519. 2 mm across

