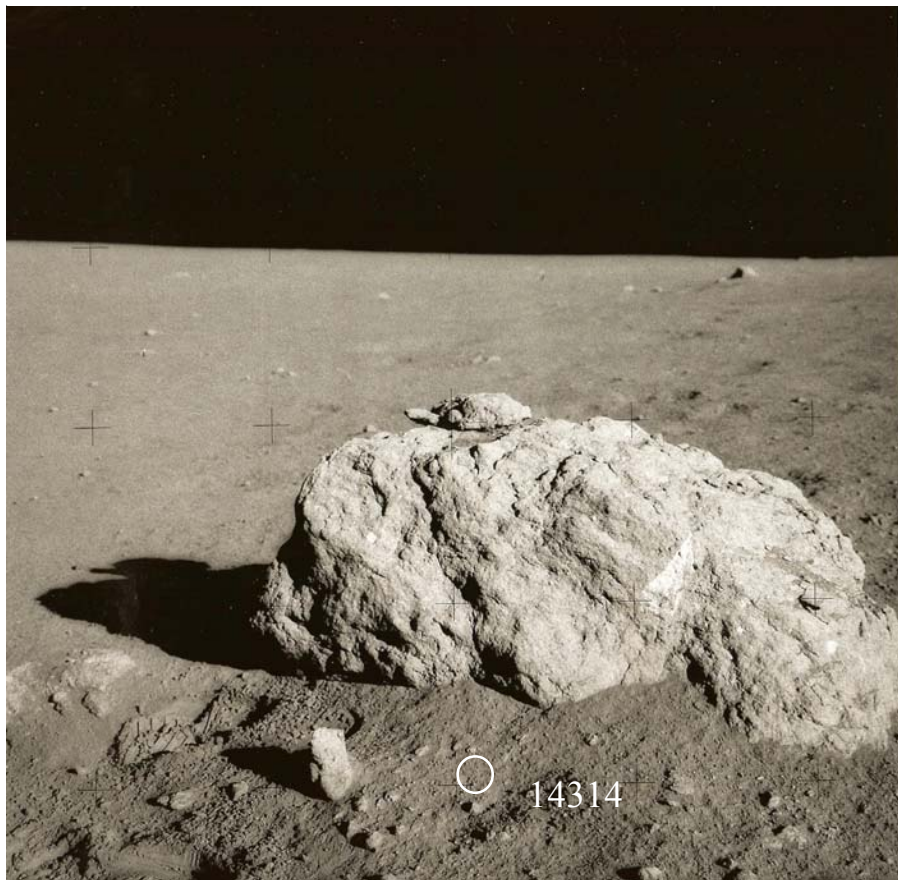


**14314**  
Crystalline-matrix Breccia  
115.7 grams



*Figure 1: Photo of 14314. Sample is 6 cm across. NASA S71-30368.*



*Figure 2: 14314 was picked from the AS14-68-9476*

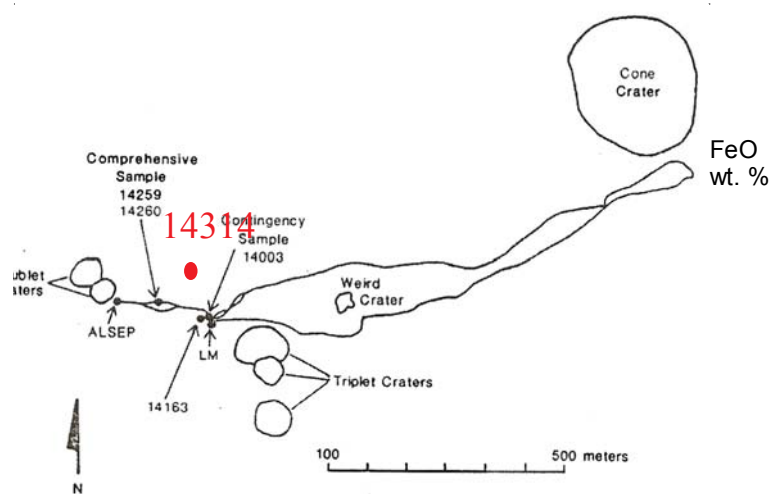


Figure 3: Map of Apollo 14 with location of 14314.

### Mineralogical Mode for 14314

	Simonds et al 1977
Matrix	55.5 %
Clasts	
Plagioclase	9.5
Mafic	4
Breccia	23
Granulite	7
Mare basalt	
Felds basalt	
Pore space	

### Introduction

14314 was collected from the fillet in front of the boulder (Turtle Rock) where 14312 and 14319 were collected at station H (figure 2). It is a slabby, angular rock with several irregular fractures parallel to the flat surface of the slab. The rock is a coherent breccias with a medium-gray matrix and a moderate percentage of light and dark clasts. Light clasts appear to be predominate (Swann et al. 1977).

### Petrography

14314 is a crystalline-matrix breccia, probably from the Fra Mauro Formation. It was first studied by Dence and Plant (1972) who found that it contained a wide variety of clasts including mineral clasts, mare basalt and annealed glass. They reported shock features. Simonds et al. (1977) included 14314 in the list with crystalline-matrix breccia.

A glass-lined impact pit stands out on the surface of a light-colored clast in sample 14314 (Schaal et al. 1976).

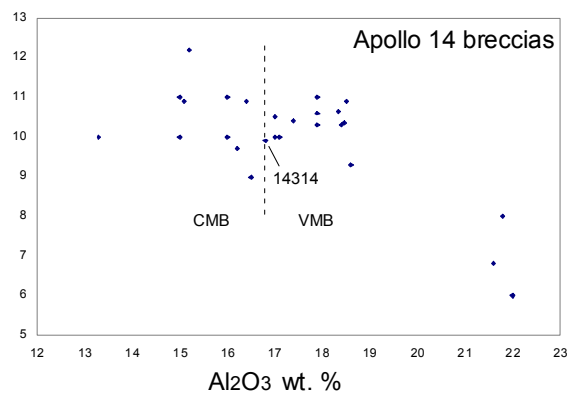


Figure 4: Composition of Apollo 14 breccias.

### Table 1. Chemical composition of 14314.

reference	Christian76	
weight		
SiO2 %	48.48	(a)
TiO2	1.57	(a)
Al2O3	16.77	(a)
FeO	9.89	(a)
MnO	0.13	(a)
MgO	10.69	(a)
CaO	9.78	(a)
Na2O	0.75	(a)
K2O	0.94	(a)
P2O5	0.62	(a)
S %		

### Chemistry

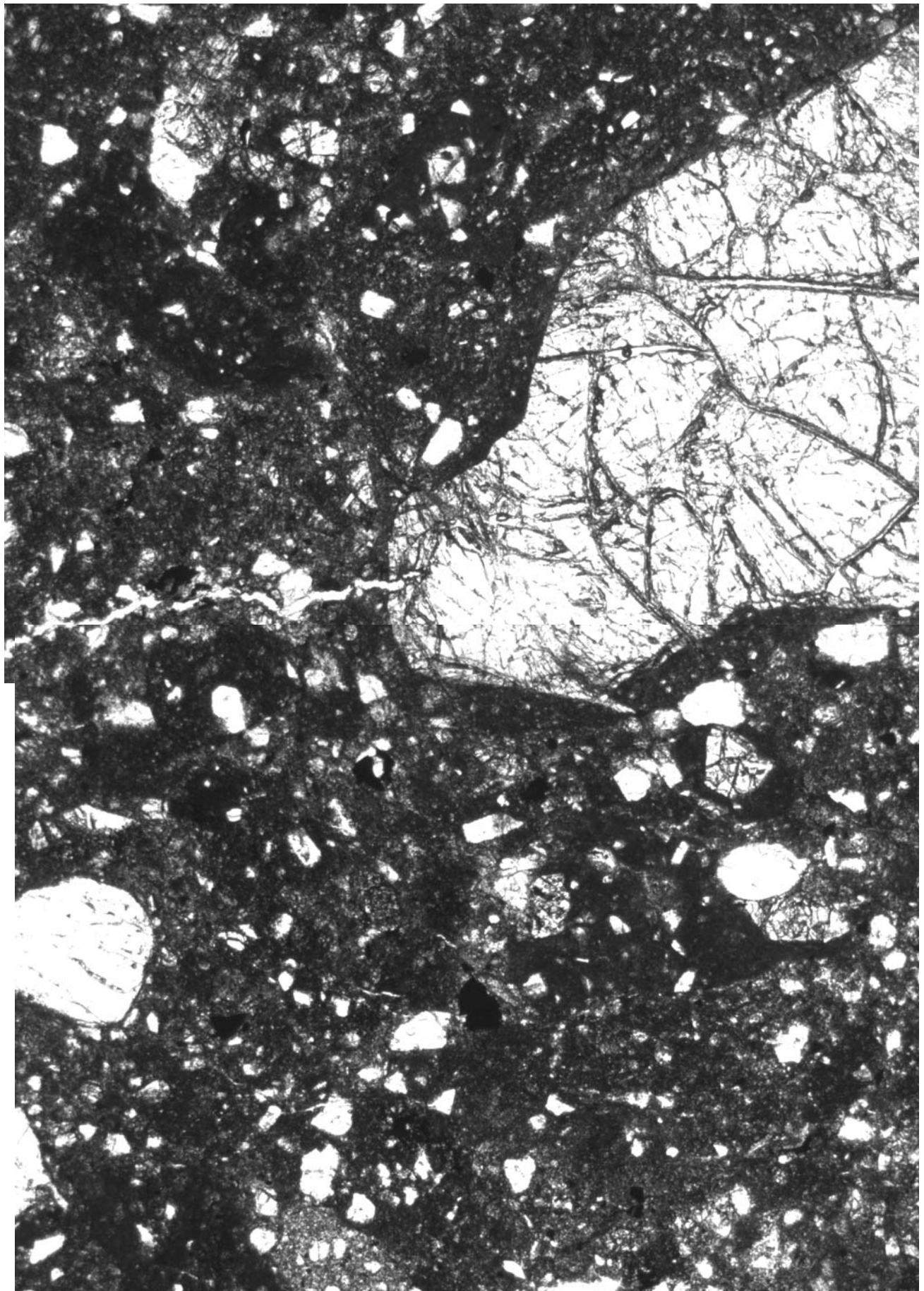
The only analysis is by Christian et al. (1972).

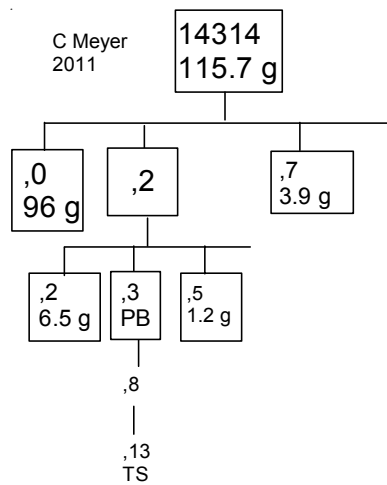
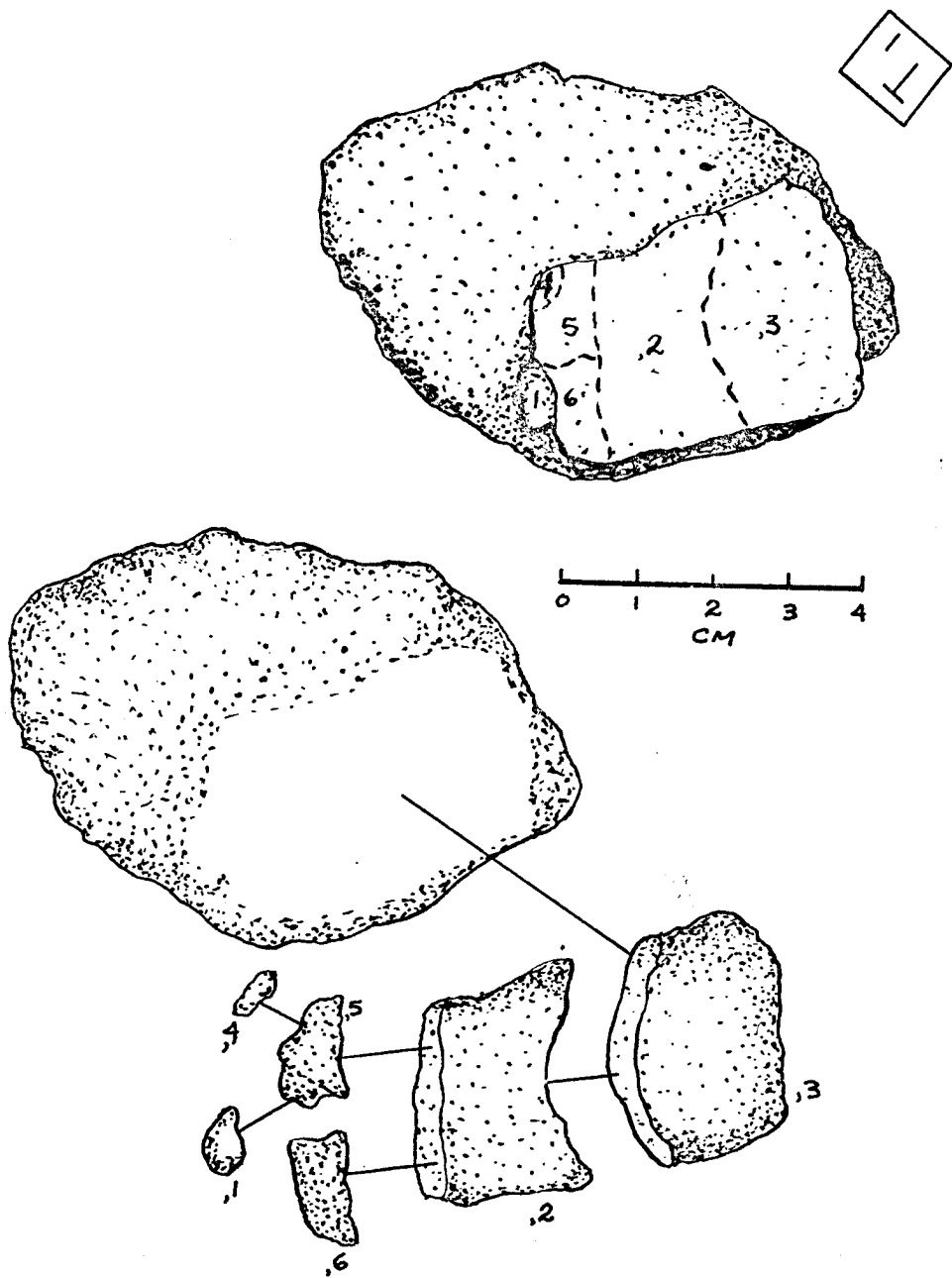
### Processing

14314 was returned in weigh bag 1038 which was opened in the Crew Reception Area before the sample was entered into the NNPL for description. There are 6 thin sections.

Next page Figure 5: Photomicrograph of thin section 14314,9. Scale = 2.8 mm across.







## References for 14314

- Carlson I.C. and Walton W.J.A. (1978) **Apollo 14 Rock Samples**. Curators Office. JSC 14240
- Chao E.C.T., Minkin J.A. and Best J.B. (1972) Apollo 14 breccias: General characteristics and classification. Proc. 3<sup>rd</sup> Lunar Sci. Conf. 645-659.
- Christian R.P., Berman S., Dwornik E.J., Rose H.J. and Schnepfe M.M. (1976) Composition of some Apollo 14, 15 and 16 lunar breccias and two Apollo 15 fines. LS VII, 138-140.
- Dence M.R. and Plant A.G. (1972) Analysis of Fra Mauro samples and the origin of the Imbrium Basin. Proc. 3<sup>rd</sup> Lunar Sci. Conf. 379-399.
- LSPET (1971) Preliminary examination of lunar samples from Apollo 14. Science 173, 681-693.
- Schaal R.B., Horz F. and Gibbons R.V. (1976) Shock metamorphic effects in lunar microcraters. Proc. 7<sup>th</sup> Lunar Sci. Conf. 1039-1054.
- Simonds C.H., Phinney W.C., Warner J.L., McGee P.E., Geeslin J., Brown R.W. and Rhodes J.M. (1977) Apollo 14 revisited, or breccias aren't so bad after all. Proc. 8<sup>th</sup> Lunar Sci. Conf. 1869-1893.
- Sutton R.L., Hait M.H. and Swann G.A. (1972) Geology of the Apollo 14 landing site. Proc. 3<sup>rd</sup> Lunar Sci. Conf. 27-38.
- Swann G.A., Trask N.J., Hait M.H. and Sutton R.L. (1971a) Geologic setting of the Apollo 14 samples. Science 173, 716-719.
- Swann G.A., Bailey N.G., Batson R.M., Eggleton R.E., Hait M.H., Holt H.E., Larson K.B., Reed V.S., Schaber G.G., Sutton R.L., Trask N.J., Ulrich G.E. and Wilshire H.G. (1977) Geology of the Apollo 14 landing site in the Fra Mauro Highlands. U.S.G.S. Prof. Paper 880.
- Swann G.A., Bailey N.G., Batson R.M., Eggleton R.E., Hait M.H., Holt H.E., Larson K.B., McEwen M.C., Mitchell E.D., Schaber G.G., Schafer J.P., Shepard A.B., Sutton R.L., Trask N.J., Ulrich G.E., Wilshire H.G. and Wolfe E.W. (1972) 3. Preliminary Geologic Investigation of the Apollo 14 landing site. *In* Apollo 14 Preliminary Science Rpt. NASA SP-272. pages 39-85.
- Twedell D., Feight S., Carlson I. and Meyer C. (1978) **Lithologic maps of selected Apollo 14 breccia samples**. Curators Office. JSC 13842
- von Engelhardt W., Arndt J., Stoffler D. and Schneider H. (1972) Apollo 14 regolith and fragmental rocks, their compositions and origins by impacts. Proc. 3<sup>rd</sup> Lunar Sci. Conf. 753-770.
- Warner J.L. (1972) Metamorphism of Apollo 14 breccias. Proc. 3<sup>rd</sup> Lunar Sci. Conf. 623-643.
- Williams R.J. (1972) The lithification of metamorphism of lunar breccias. Earth Planet. Sci. Lett. 16, 250-256.
- Wilshire H.G. and Jackson E.D. (1972) Petrology and stratigraphy of the Fra Mauro Formation at the Apollo 14 site. U.S. Geol. Survey Prof. Paper 785.