

79175
Regolith Breccia
677.7 grams

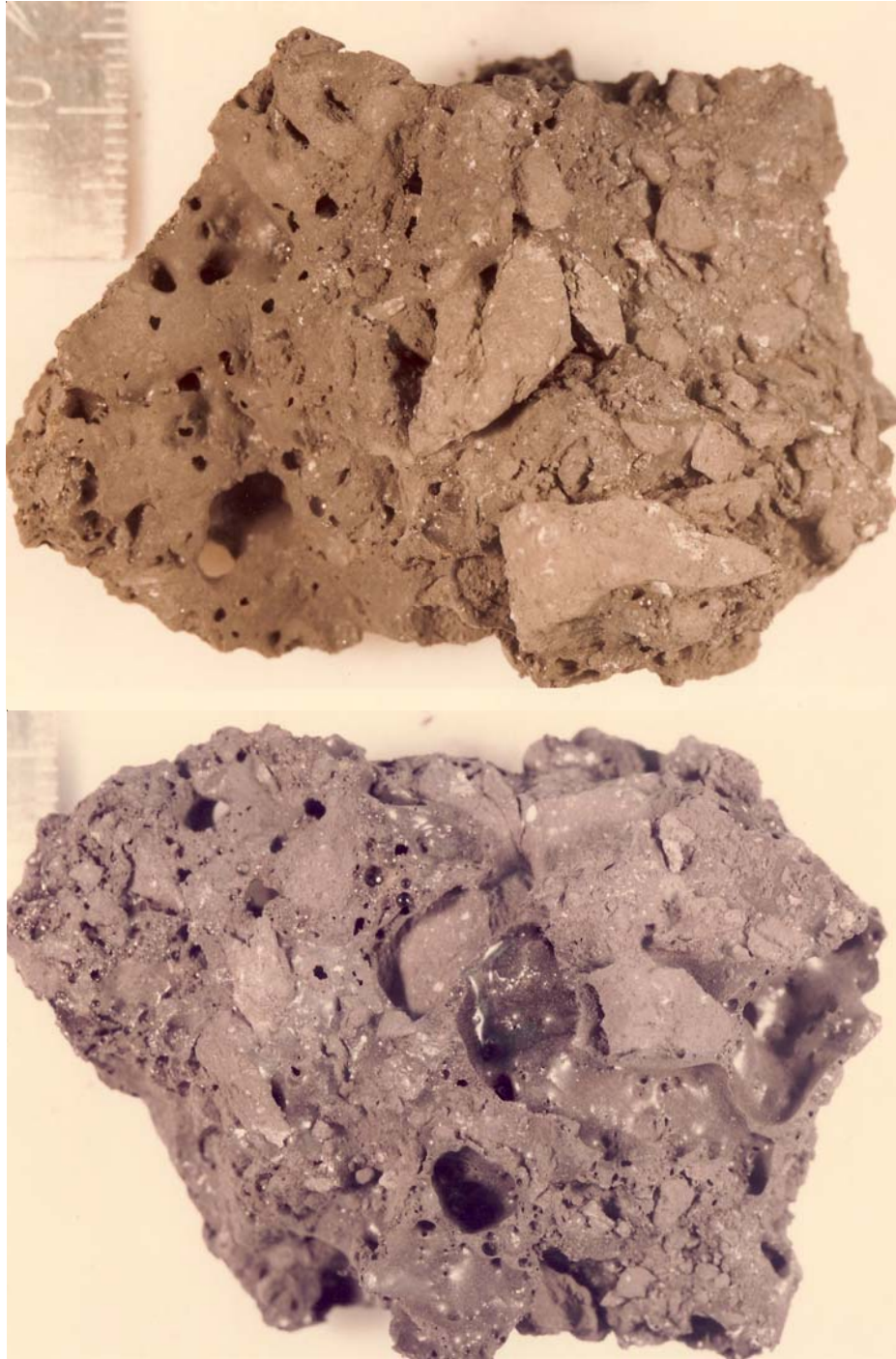


Figure 1: Photos of top and bottom of 79175. S75-34256 (top), S75-34268 (bottom). Scale is in cm/mm.

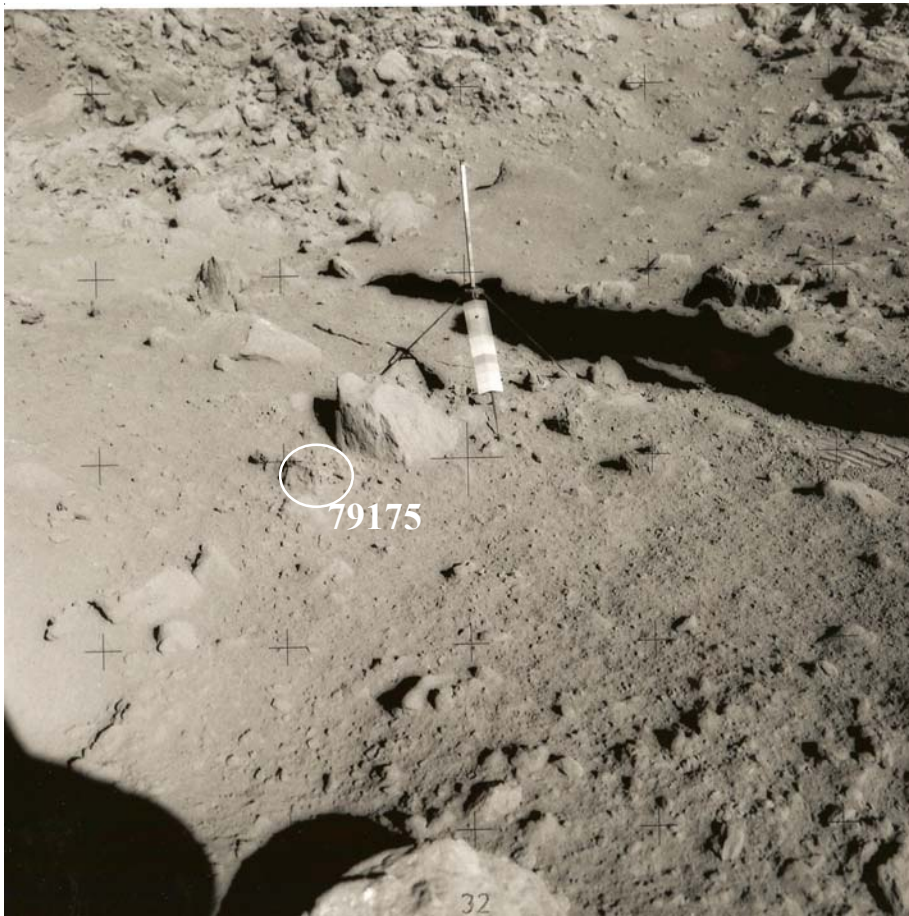


Figure 2: Location of 79175. AS17-142-21795

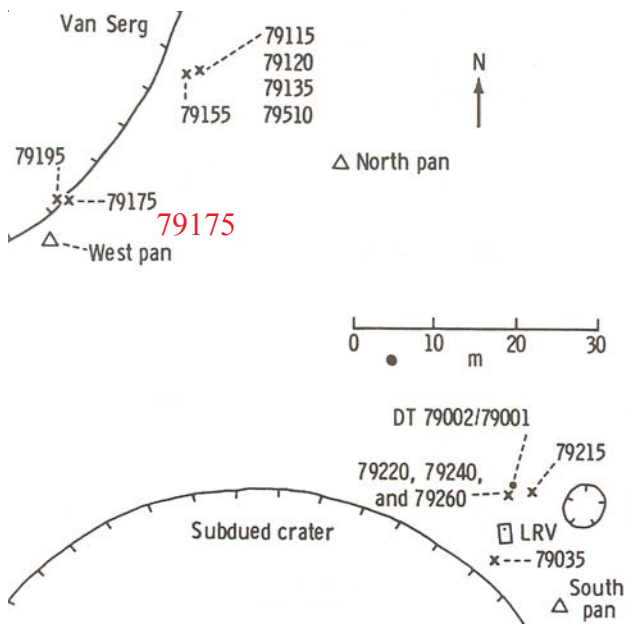


Figure 3: Location of 79175 on rim of Van Serg Crater.

Introduction

79175 is a polymict breccia with fragments of regolith breccia cemented together in a glassy matrix – something like a giant agglutinate.

Petrography

Fruland (1983) and Simon et al. (1990) included 79175 in their study of regolith breccias. They found that it was 66 % matrix

Mineralogical Mode for 79175

(Simon et al. 1990)		
Matrix	65.9 %	
	20-90 micron	90-100 micron
Mare Basalt	0.5	3.3
Plutonic	0.3	3
Granulitic	0.1	0.2
Breccia	0.8	3.4
Olivine	1.5	0.4
Pyroxene	3.7	1.1
Plagioclase	3.8	1.1
Opagues	1.5	0.6
Glass	3.3	3.9
Agglutinate	0.6	4

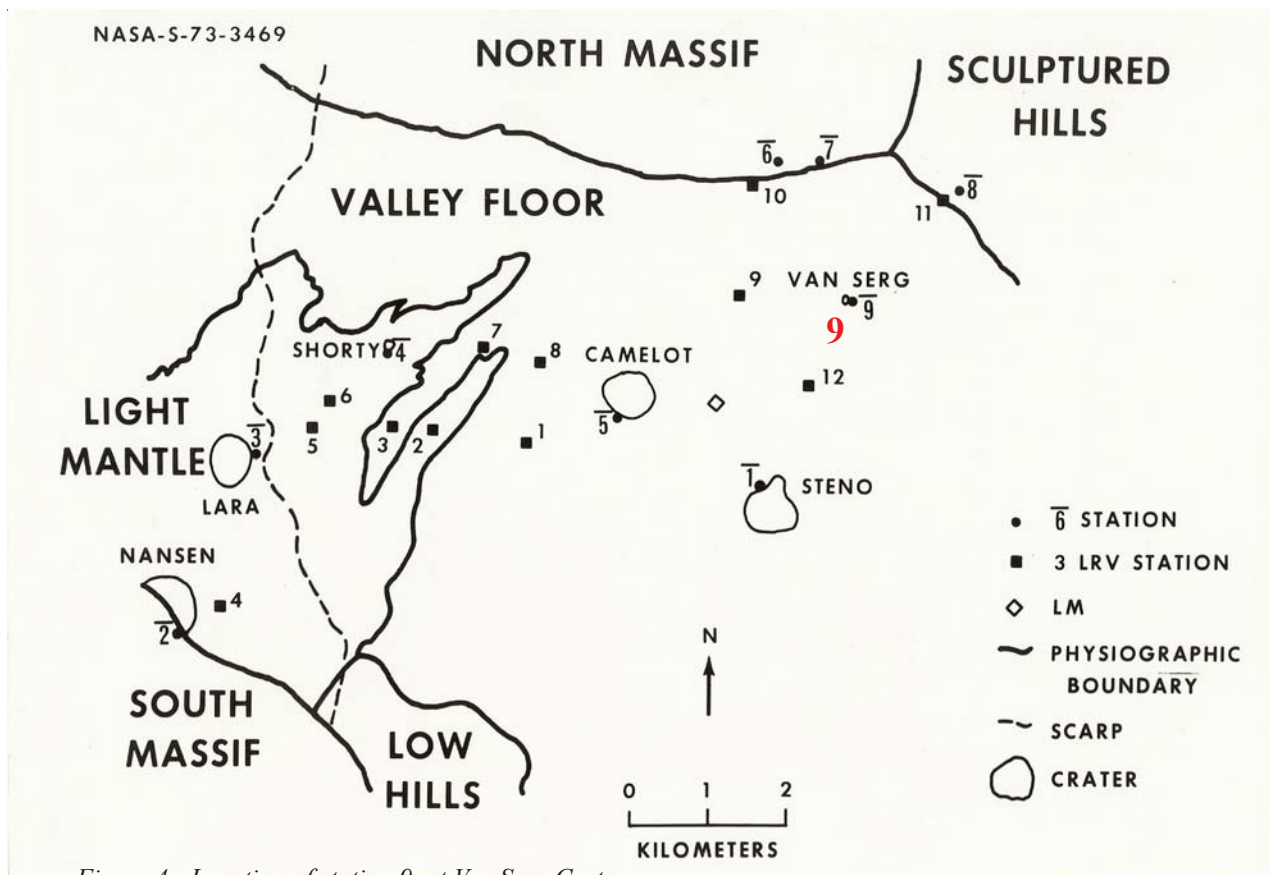


Figure 4: Location of station 9, at Van Serg Crater.

Neal and Taylor (1993) reported that the cementing glass was “ropy” and that “it permeates the rock, welding clasts of soil breccias, basalt (coarse and fine grained), and other clasts into a coherent mass. The glass varies from fresh and vitreous to dull and aphanitic”.

There are no studies of this sample to be found in the literature.

Significant clasts

Neal and Taylor (1993) reported on three basalt clasts.

Chemistry

Simon et al (1990) reported the only analysis.

Processing

There are 8 thin sections of 79175.

References for 79175.

Butler P. (1973) **Lunar Sample Information Catalog Apollo 17**. Lunar Receiving Laboratory. MSC 03211 Curator’s Catalog. pp. 447.



Figure 5: Thin section photo of 79175 showing mostly matrix.

Table 1. Chemical composition of 79175.

reference	Simon80	
<i>weight</i>		
SiO ₂ %		
TiO ₂	5.64	(a)
Al ₂ O ₃	13.7	(a)
FeO	14.5	(a)
MnO	0.2	(a)
MgO	10	(a)
CaO	10.5	(a)
Na ₂ O	0.49	(a)
K ₂ O	0.107	(a)
P ₂ O ₅		
S %		
<i>sum</i>		
Sc ppm	42	(a)
V	79	(a)
Cr	2930	(a)
Co	35.4	(a)
Ni	170	(a)
Cu		
Zn	53	(a)
Ga		
Ge ppb		
As		
Se		
Rb	9.5	(a)
Sr	130	(a)
Y		
Zr	130	(a)
Nb		
Mo		
Ru		
Rh		
Pd ppb		
Ag ppb		
Cd ppb		
In ppb		
Sn ppb		
Sb ppb		
Te ppb		
Cs ppm	0.16	(a)
Ba	120	(a)
La	9.16	(a)
Ce	24	(a)
Pr		
Nd	20	(a)
Sm	6.84	(a)
Eu	1.58	(a)
Gd	8.8	(a)
Tb	1.57	(a)
Dy	9.4	(a)
Ho		
Er		
Tm	0.77	(a)
Yb	5.1	(a)
Lu	0.75	(a)
Hf	5.35	(a)
Ta	0.95	(a)
W ppb		
Re ppb		
Os ppb		
Ir ppb	4.7	(a)
Pt ppb	7.3	(a)
Au ppb		
Th ppm	1.02	(a)
U ppm	0.14	(a)
<i>technique: (a) INAA</i>		

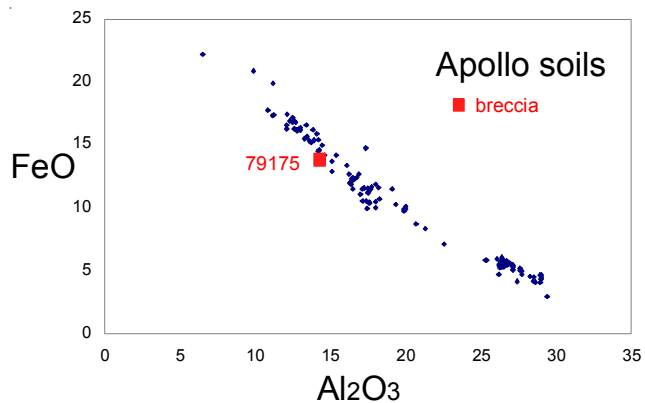


Figure 6: Composition of 79175 compared with Apollo soils.

Fruland R.M. (1983) Regolith Breccia Workbook. Curatorial Branch Publication # 66. JSC 19045.

LSPET (1973) Apollo 17 lunar samples: Chemical and petrographic description. *Science* **182**, 659-672.

LSPET (1973) Preliminary Examination of lunar samples. Apollo 17 Preliminary Science Rpt. NASA SP-330. 7-1 – 7-46.

Muehlberger W.R. and many others (1973) Preliminary Geological Investigation of the Apollo 17 Landing Site. *In Apollo 17 Preliminary Science Report*. NASA SP-330.

Neal C.R. and Taylor L.A. (1993) **Catalog of Apollo 17 rocks**, central valley. Volumes 2 and 3. Curators Office #26088 JSC, Houston.

Simon S.B., Papike J.J., Gosselin D.C., Laul J.C., Hughes S.S. and Schmitt R.A. (1990) Petrology and chemistry of Apollo 17 regolith breccias: A history of mixing of highland and mare regolith. *Proc. 20th Lunar Planet. Sci.* 219-230. Lunar Planetary Institute, Houston.

Wolfe E.W., Bailey N.G., Lucchitta B.K., Muehlberger W.R., Scott D.H., Sutton R.L. and Wilshire H.G. (1981) The geologic investigation of the Taurus-Littrow Valley: Apollo 17 Landing Site. US Geol. Survey Prof. Paper, 1080, pp. 280.

