

15285
Regolith Breccia
264.2 grams



Figure 1: Photo of 15285. Cube is 1 cm. S75-20518

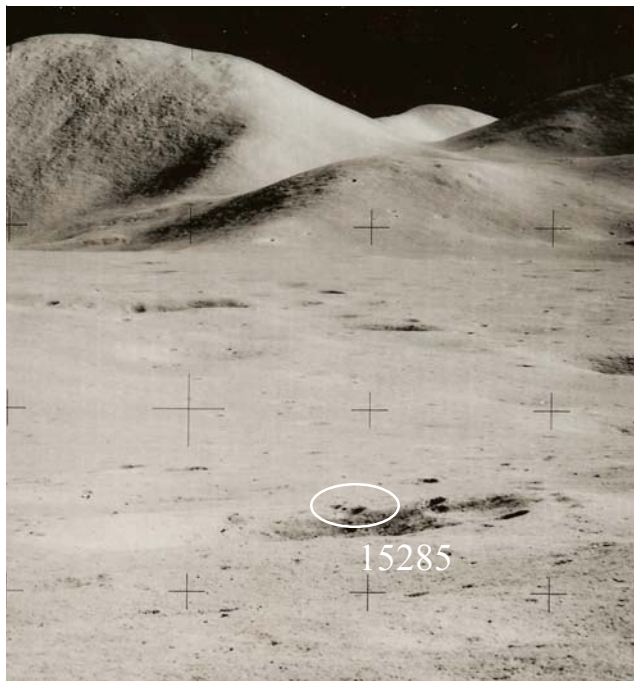


Figure 2: Location of 15285 at station 6. AS15-85-11511.

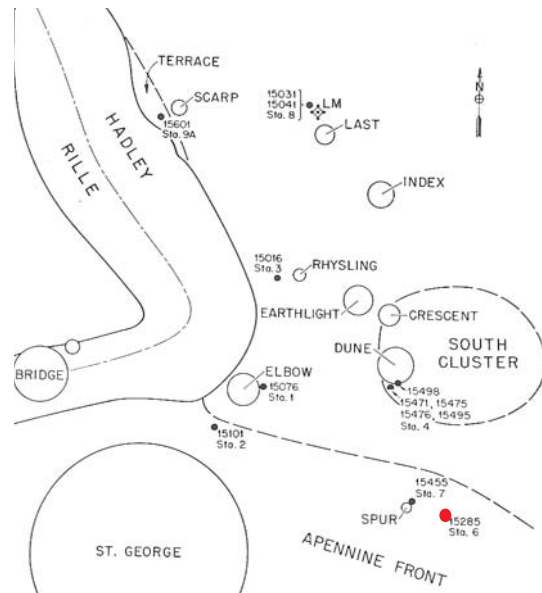


Figure 3: Location of 15285 at station 6, Apollo 15.



Figure 4: Photomicrograph of thin section 15285, . Field of view is 2 mm. S71-52207

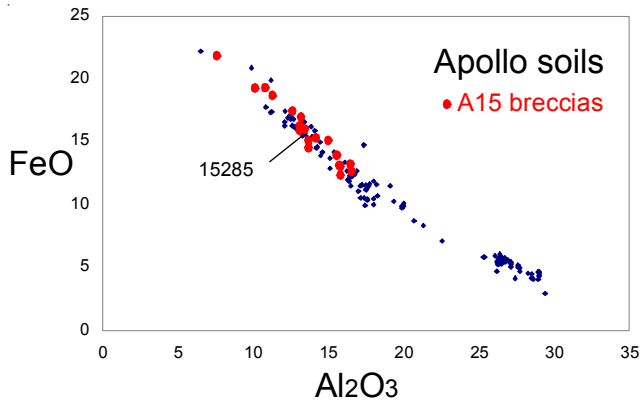


Figure 5: Chemical composition of Apollo soils, Apollo 15 breccias and of 15285.

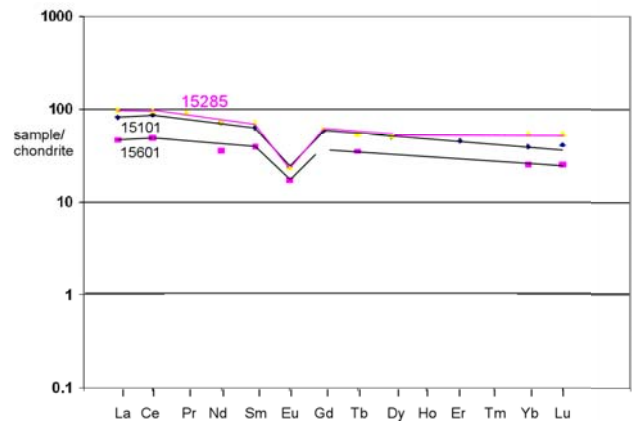


Figure 6: Normalized rare-earth-element diagram of 15285.

Introduction

Samples 15285 – 15288 (and 15268) were all collected from the rim of a small crater at station 6 and returned in the same bag. They are breccia fragments from the same location as 15265 (Swann et al. 1972).

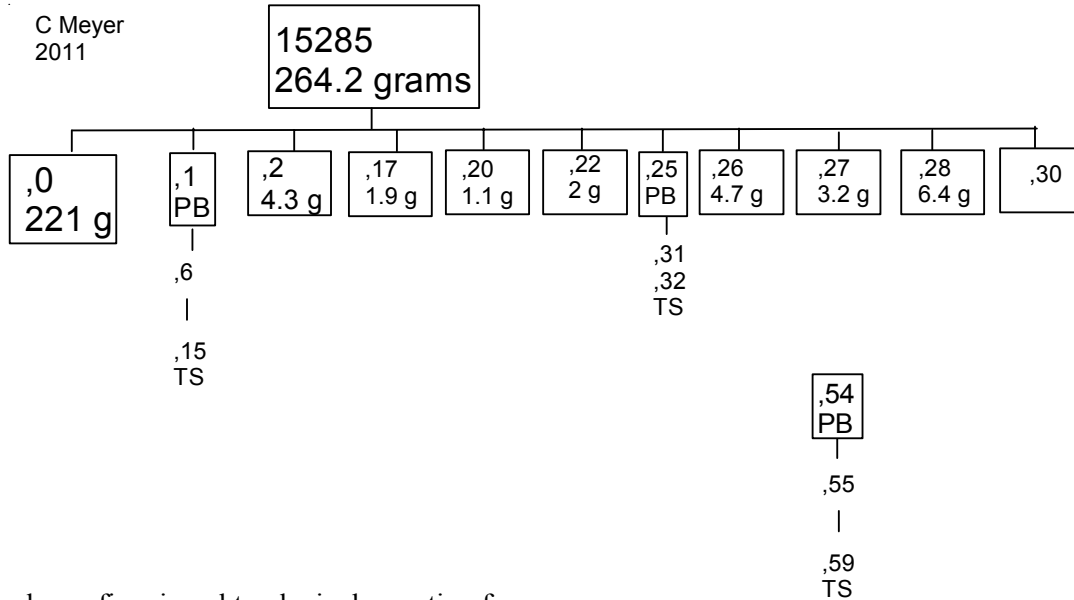
Petrography

Von Engelhardt et al. (1973) found 15285 to consist of all components of the soils in a fragmental, perhaps partly glassy matrix and contains, besides ophitic and intersertal basalts, plagioclase breccias, troctolites, noritic fragments, glass and individual mineral grains.

Table 1. Chemical composition of 15285.

reference weight	Taylor73		O'Kelley72	Christian76	Gros76	Hughes73
	total	black				
SiO2 %	45.6	46.7	(a)	45.7	(c)	
TiO2	1.34	1.31	(a)	1.56	(c)	
Al2O3	15.2	15.7	(a)	16.6	(c)	
FeO	15	12.9	(a)	12.8	(c)	
MnO	0.17		(a)	0.18	(c)	
MgO	11.6	11.4	(a)	11	(c)	
CaO	10.3	10.8	(a)	10.8	(c)	
Na2O	0.44	0.38	(a)	0.46	(c)	
K2O		0.15	(a)	0.19	(b)	0.27
P2O5				0.26	(c)	
S %						
sum						
Sc ppm	17	19	(a)	24	(d)	
V	102	98	(a)	68	(d)	
Cr	2600	3100	(a)			
Co	56	66	(a)	36	(d)	
Ni	300	190	(a)	180	(d)	198
Cu	9.2	11.2	(a)			(e)
Zn				18	(d)	22
Ga	3.6	4.5	(a)	4.2	(d)	
Ge ppb						391
As						
Se						220
Rb	4.1	4.5	(a)	4.8	(d)	4.77
Sr				120	(d)	
Y	80	65	(a)	84	(d)	
Zr	340	322	(a)	390	(d)	
Nb	24	23	(a)	22	(d)	
Mo						
Ru						
Rh						
Pd ppb					6.8	(e)
Ag ppb					7.6	(e)
Cd ppb					57	(e)
In ppb					3.9	(e)
Sn ppb	0.27	0.29	(a)			
Sb ppb					1.39	(e)
Te ppb					12	(e)
Cs ppm	0.15	0.19	(a)		0.234	(e)
Ba	280	260	(a)	270	(d)	
La	23	22	(a)	15	(d)	
Ce	58	59	(a)			
Pr	8.2	7.8	(a)			
Nd	33	31	(a)			
Sm	10.5	10	(a)			
Eu	1.3	1.27	(a)			
Gd	12	11.4	(a)			
Tb	1.93	1.9	(a)			
Dy	12.4	12.1	(a)			
Ho	2.9	2.9	(a)			
Er	8.2	8.6	(a)			
Tm	1.3	1.4	(a)			
Yb	7.8	8.2	(a)			
Lu	1.3	1.3	(a)			
Hf	6.5	7.7	(a)			
Ta						
W ppb	0.08	0.3	(a)			
Re ppb					0.48	0.49
Os ppb					6.7	6.5
Ir ppb					5.2	6.7
Pt ppb						
Au ppb					2.25	3.1
Th ppm	3.5	4.2	(a)	3.4	(b)	
U ppm	0.81	1.03	(a)	0.93	(b)	0.98

technique: (a) SSMS, (b) radiation count., (c) wet, (d) es, (e) RNAA



They observed a mafic mineral to plagioclase ratio of 1:2.

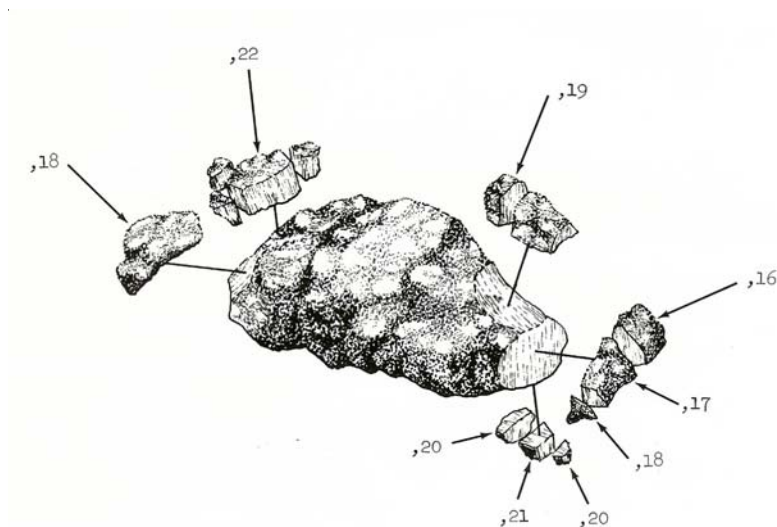
Figure 1 shows this breccia fragment to have a region of frothy, vesicular glass and figure 4 shows a seriate grain size distribution.

Chemistry

O'Kelley et al. (1972), Taylor et al. (1973), Christian et al (1976), Gros et al. (1976) and Hughes et al. (1973) reported the chemical composition (figures 5 and 6).

Processing

15285, 15286, 15287, 15288, 15289 and also 15268 were returned together in documented bag 192 and may be pieces of the same material.



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