

INTRODUCTION: 61195 is a coherent, medium gray breccia with a glassy matrix and abundant clasts (Fig. 1). A significant regolith component is indicated by the petrography and chemistry. A dark, vesicular glass coats 80-90% of the exterior surface and intrudes the rock as small veins.

This sample was collected from the northeast rim of Plum Crater, where it was about 1/4 buried. Its orientation is known. Zap pits are common on the “lunar up” surface, rare to absent on other surfaces.

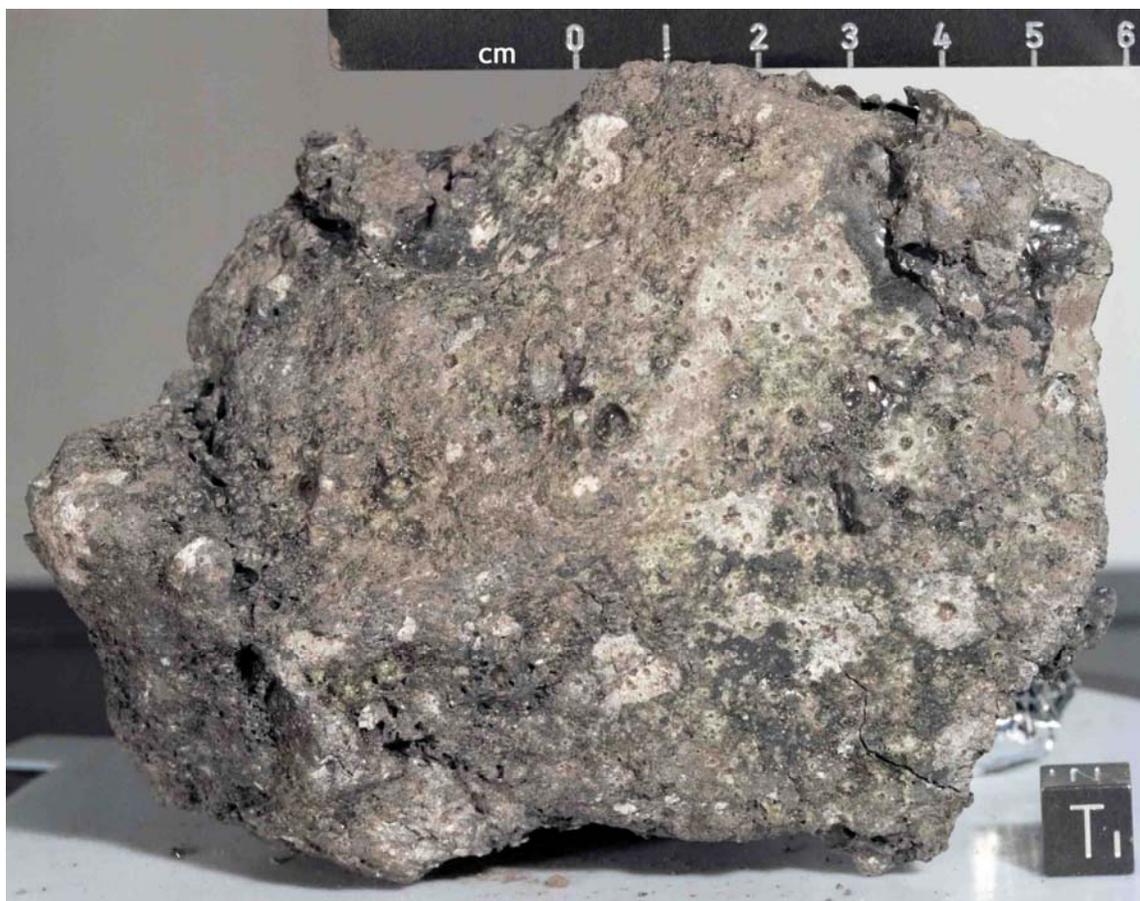


FIGURE 1. S-72-37972.

PETROLOGY: 61195 is a glassy matrix breccia with an abundant and diverse clast population (<0.1-3 mm) (Fig. 2) and a low porosity. Two sets of nearly perpendicular fractures cut the rock and cross clast-matrix boundaries.

Homogeneous and partly crystalline glass beads and fragments are common, and indicate a regolith component. Mineral clasts include plagioclase, pyroxene and olivine, nearly all of which have been shocked or recrystallized. Lithic clasts include rounded to angular fragments of granoblastic anorthosite and anorthositic norite, cataclastic anorthosite, spinel- and clast-bearing basaltic impact melt, fine-grained poikilitic impact melt, clast-rich vitric matrix breccia, and plagioclase vitrophyre. Fe-metal, troilite, schreibersite and rare ilmenite are accessory phases in both the matrix and some clasts.

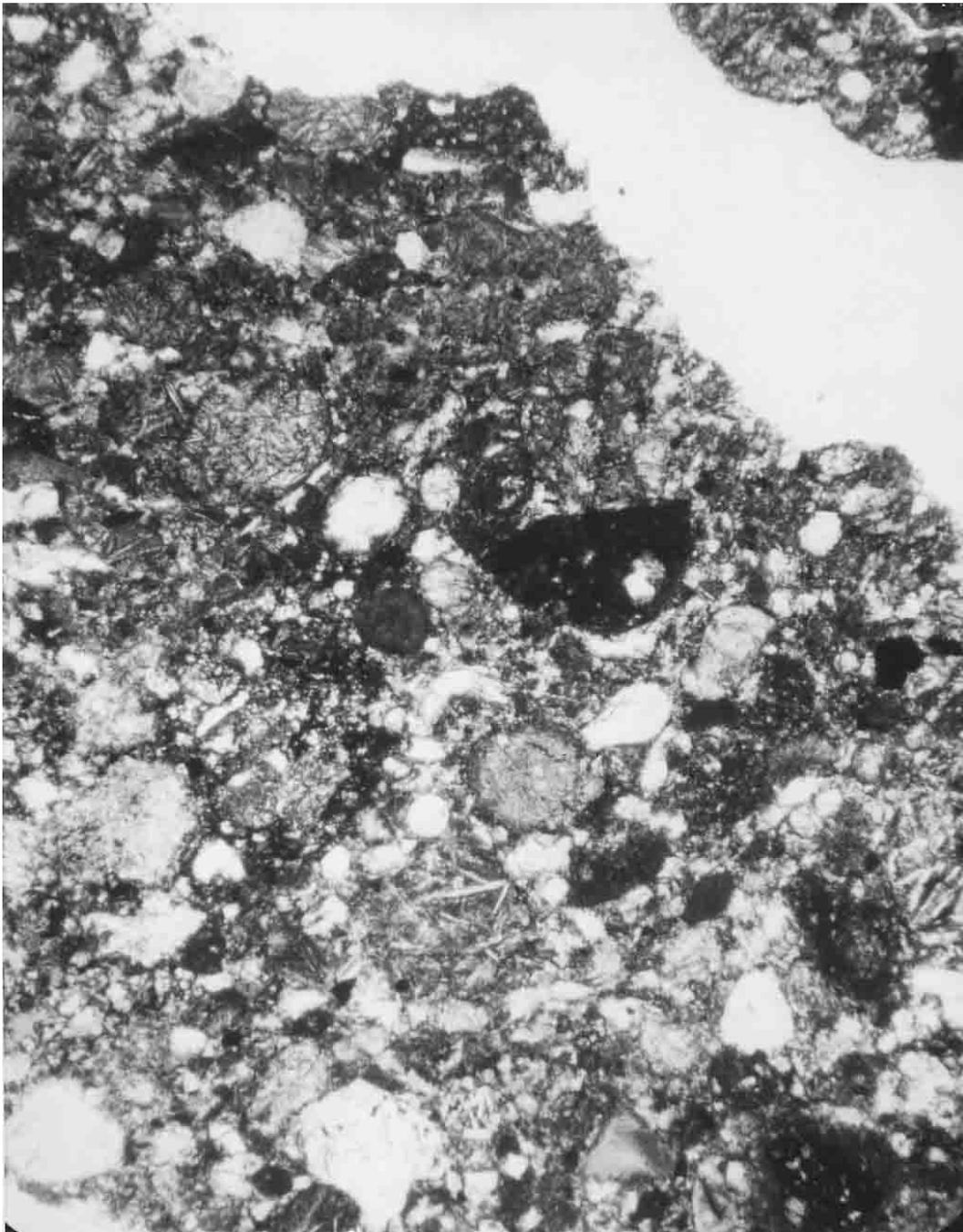


FIGURE 2. 61195,36, general view, ppl. Width 2 mm.

CHEMISTRY: Wanke et al. (1975) provide bulk major and trace element data. Eldridge et al. (1973) report whole rock data for K, U, and Th determined by gamma-ray spectroscopy. The major and lithophile element abundances (Table 1, Fig. 3) are identical to those of local mature soils. Siderophile element abundances in the rock are slightly lower than in the soils.

EXPOSURE AGE: Eldridge et al. (1973) report cosmogenic radionuclide data and conclude that the rock is unsaturated in ^{26}Al . The very low $^{26}\text{Al}/^{22}\text{Na}$ indicates a surface exposure age of <1 m.y.

PROCESSING AND SUBDIVISIONS: In 1973, 61195 was cut into three main pieces including a slab. The slab was entirely subdivided into smaller chips (Fig. 4). Allocations for thin sections were made from two chips of the slab (7 and 9). Wanke et al. (1975) analyzed a collection of small chips (29) for chemistry. Other chips were also taken from butt end 4.

TABLE 1. Summary chemistry of 61195.

SiO ₂	45.5
TiO ₂	0.50
Al ₂ O ₃	26.8
Cr ₂ O ₃	0.099
FeO	5.13
MnO	0.06
MgO	5.56
CaO	15.4
Na ₂ O	0.46
K ₂ O	0.088
P ₂ O ₅	0.17
Sr	166
La	14.6
Lu	0.64
Rb	3.86
Sc	8.53
Ni	410
Co	27.1
Ir ppb	11.3
Au ppb	6.1
C	-
N	-
S	660
Zn	9.71
Cu	3.76

Oxides in wt%; others in ppm
except as noted.

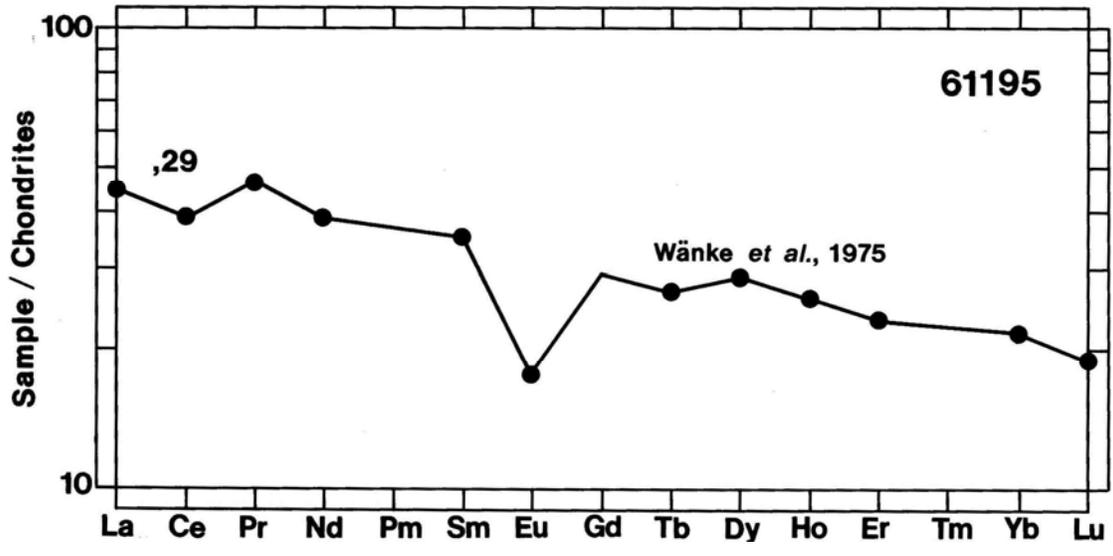


FIGURE 3. Rare earths.

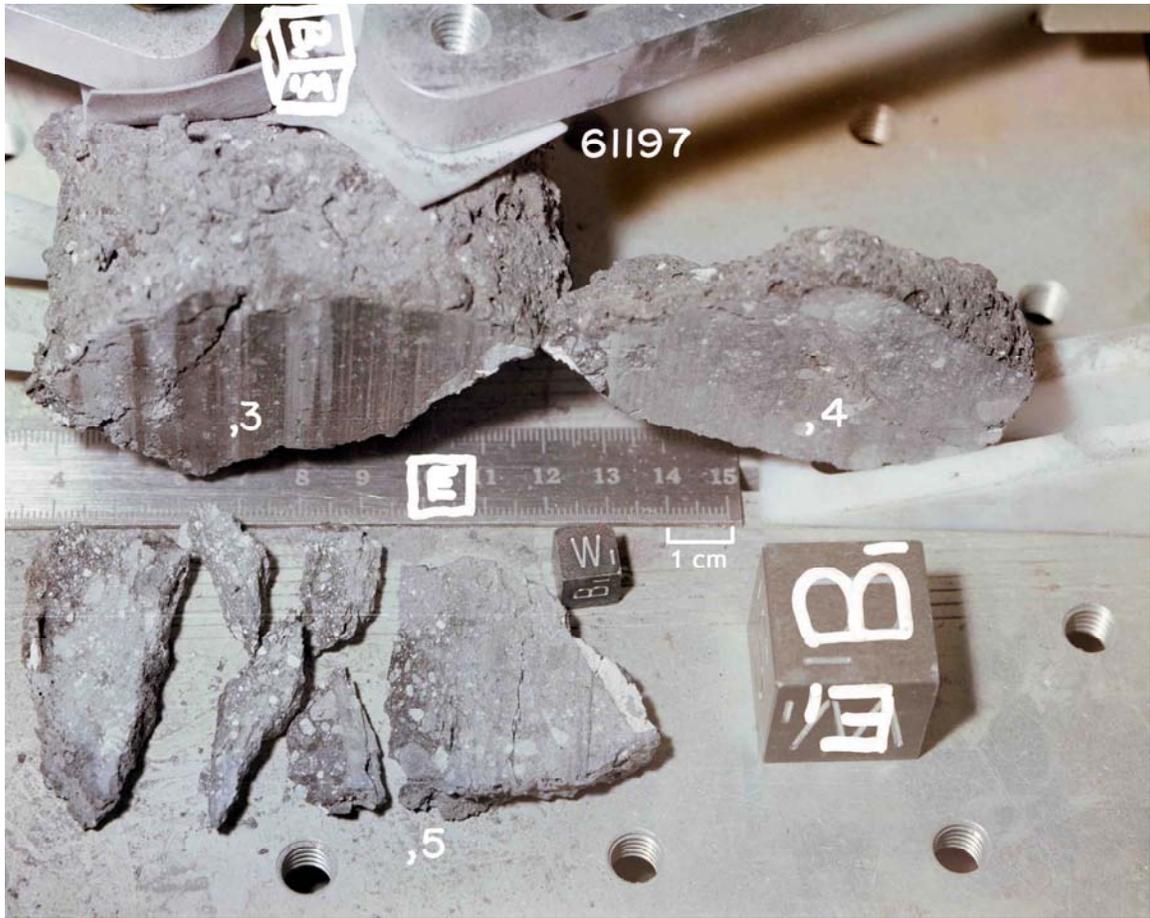


FIGURE 4. S-73-31174.