64819 CATACLASTIC ANORTHOSITE, PRISTINE 11.76 g

INTRODUCTION: 64819 is a coherent, white, cataclastic anorthosite partially coated and veined by a clast-laden, glassy impact melt (Fig. 1). The anorthosite is chemically pristine. This rock is a rake sample from the rim of a small, subdued crater on Stone Mountain. Zap pits are absent.

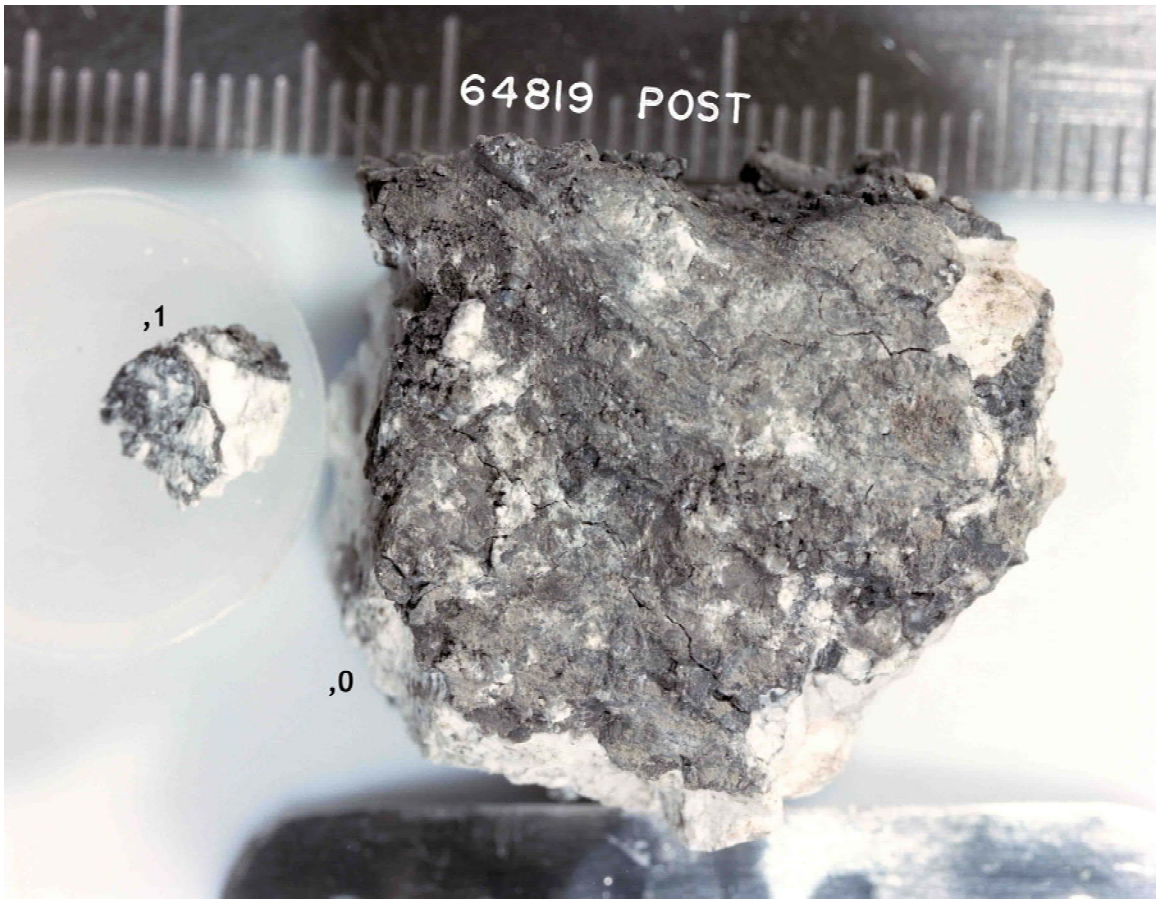

FIGURE 1. Smallest scale division in mm. S-72-55335.

PETROLOGY: A petrographic description is given by Dixon and Papike (1975). 64819 is a cataclastic anorthosite with original grain size >5 mm (Fig. 2). Rare pyroxenes with small exsolution lamellae occur as interstitial grains and are of composition Wo_3En_{65} and $Wo_{44}En_{44}$; plagioclase is An_{96-97} (Dixon and Papike, 1975). Small amounts of Fe-metal and troilite are also present. A mode by Dixon and Papike (1975) shows 72% feldspar, 1.0% orthopyroxene, 0.1% clinopyroxene, 0.1% opaques and 27% brown glass as veins or a coating. The glassy material is compositionally identical to feldspar.

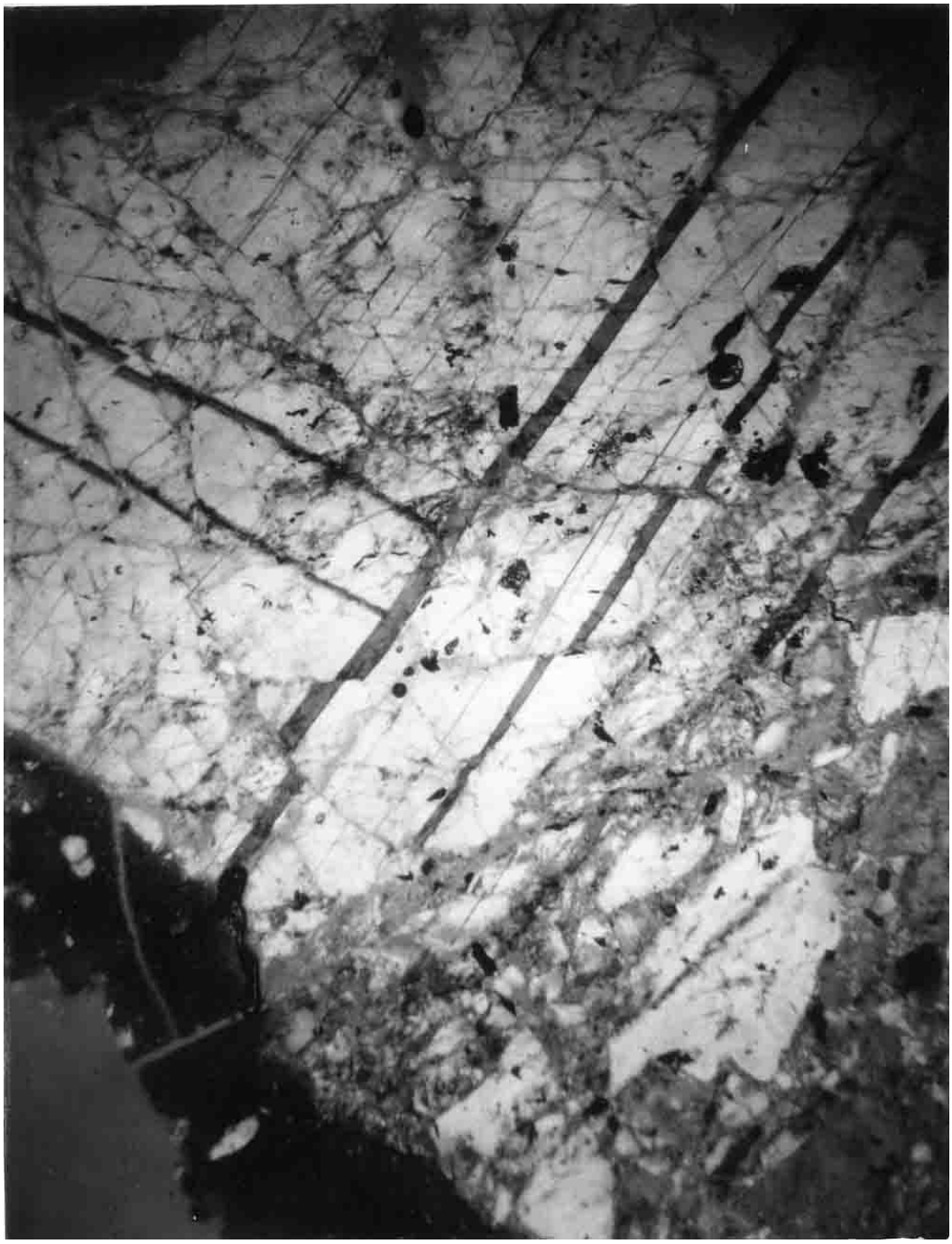

FIGURE 2. 64819,7, general view, partly xpl. Width 4 mm.

CHEMISTRY: Floran et al. (1976) present major element data obtained by electron microprobe analysis of natural rock powder fused to a glass (except FeO and Na_2O by instrumental neutron activation). Blanchard (unpublished data) provides a trace element analysis and the FeO and Na_2O data quoted by Floran et al. (1976). These data show that

64819 is nearly pure plagioclase with the low levels of siderophile and lithophile elements typical of pristine lunar anorthosites (Table 1, Fig. 3).

PROCESSING AND SUBDIVISIONS: In 1972 a single chip (,1) was removed and allocated for thin sectioning. In 1975 a set of several chips of clean anorthosite (,4) was allocated for chemistry; the analysis of Floran et al. (1976) and Blanchard (unpublished) are both of portions of this split.

TABLE 1. Summary chemistry of 64819.

SiO_2	44.3
TiO_2	0.01
Al_2O_3	34.6
Cr_2O_3	0.005
FeO	0.46
MnO	
MgO	0.37
CaO	19.3
Na_2O	0.371
K_2O	0.04
P_2O_5	
Sr	
La	0.16
Lu	<0.0062
Rb	
Sc	0.65
Ni	<5
Co	0.95
Ir ppb	
Au ppb	
C	
N	
S	
Zn	
Cu	

Oxides in wt%; others in ppm except as noted

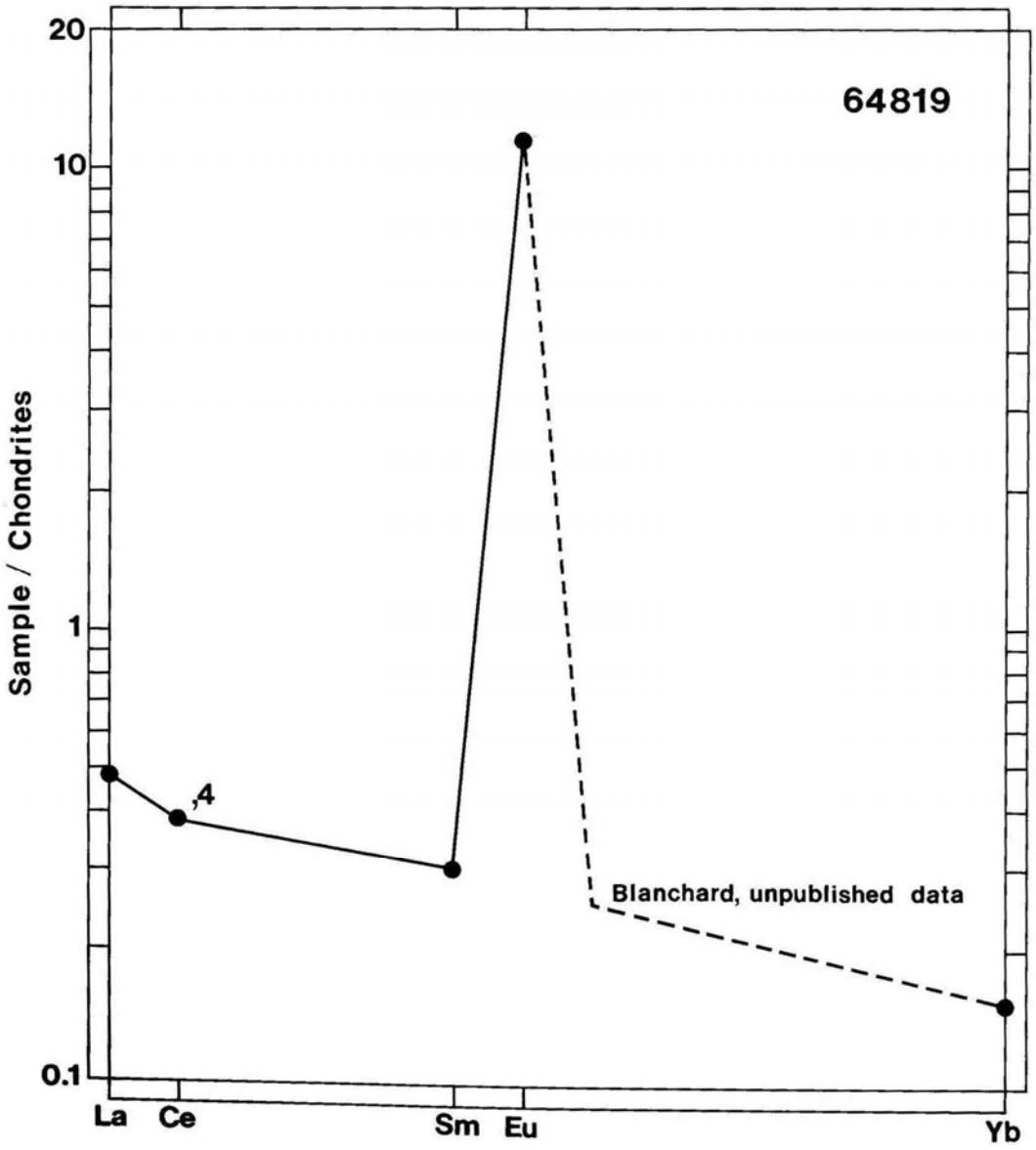

FIGURE 4. Rare earths.