64569 POIKILITIC IMPACT MELT 14.32 g

INTRODUCTION: 64569 is a coherent, medium gray, poikilitic impact melt (Fig. 1) with high levels of incompatible elements. It is a rake sample from the rim of a subdued doublet crater on Stone Mountain. Zap pits are absent.

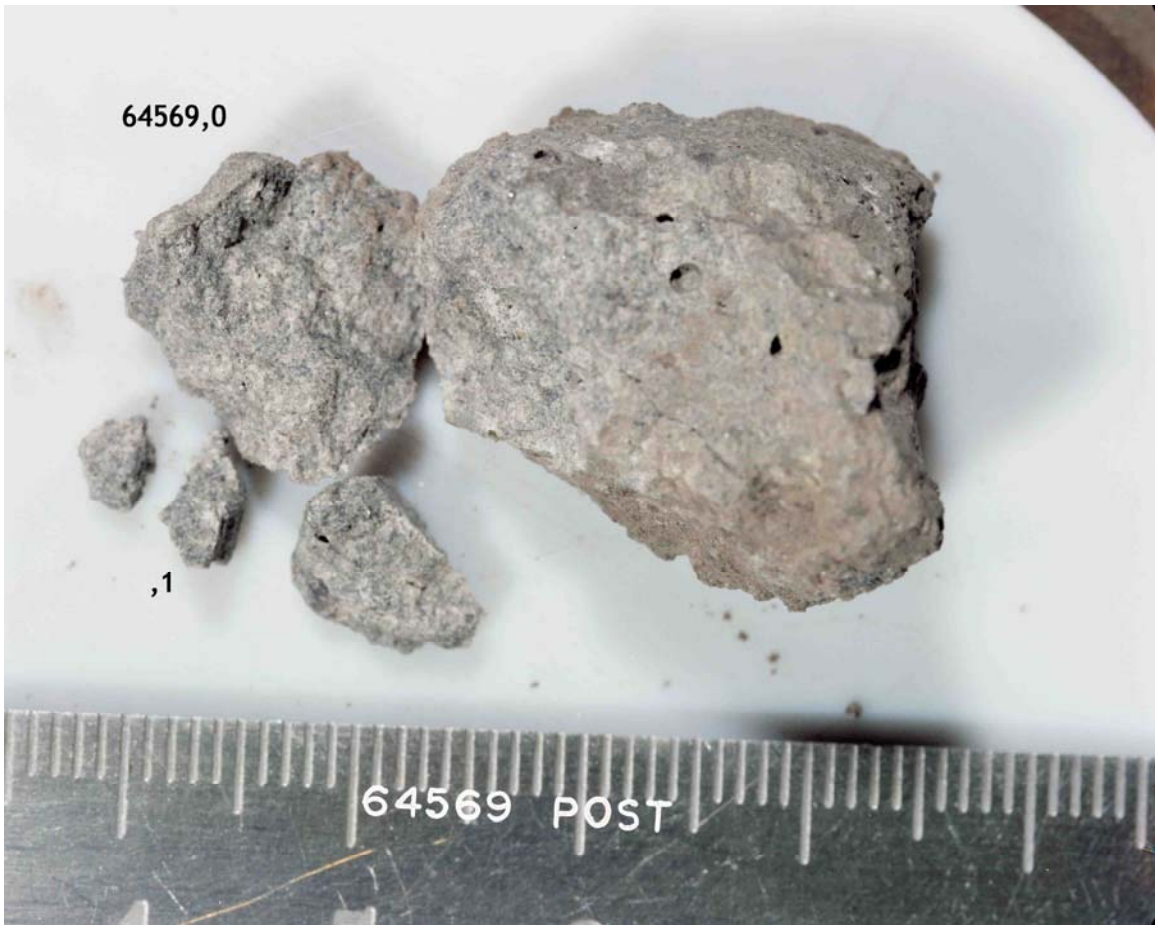

FIGURE 1. Aluminum cup bottom is 2 inches in diameter. S-72-55367.

PETROLOGY: A petrographic description is given by Simonds et al. (1973). Warner et al. (1973) include this rock in a general petrographic discussion of Apollo 16 rake samples.

Pigeonite is the sole oikocryst phase (to ~0.4 mm) and encloses abundant tabular chadacrysts of plagioclase (Fig. 2). Shocked clasts of plagioclase and olivine are also abundant. A mode by Simonds et al. (1973) is 57% plagioclase + mesostasis, 19%

pigeonite, 21% olivine and 4% opaques. Silicate mineral compositions (Simonds et al., 1973) are shown in Figure 3. Metal compositions are presented by Gooley et al. (1973) and reproduced here as Table 1.

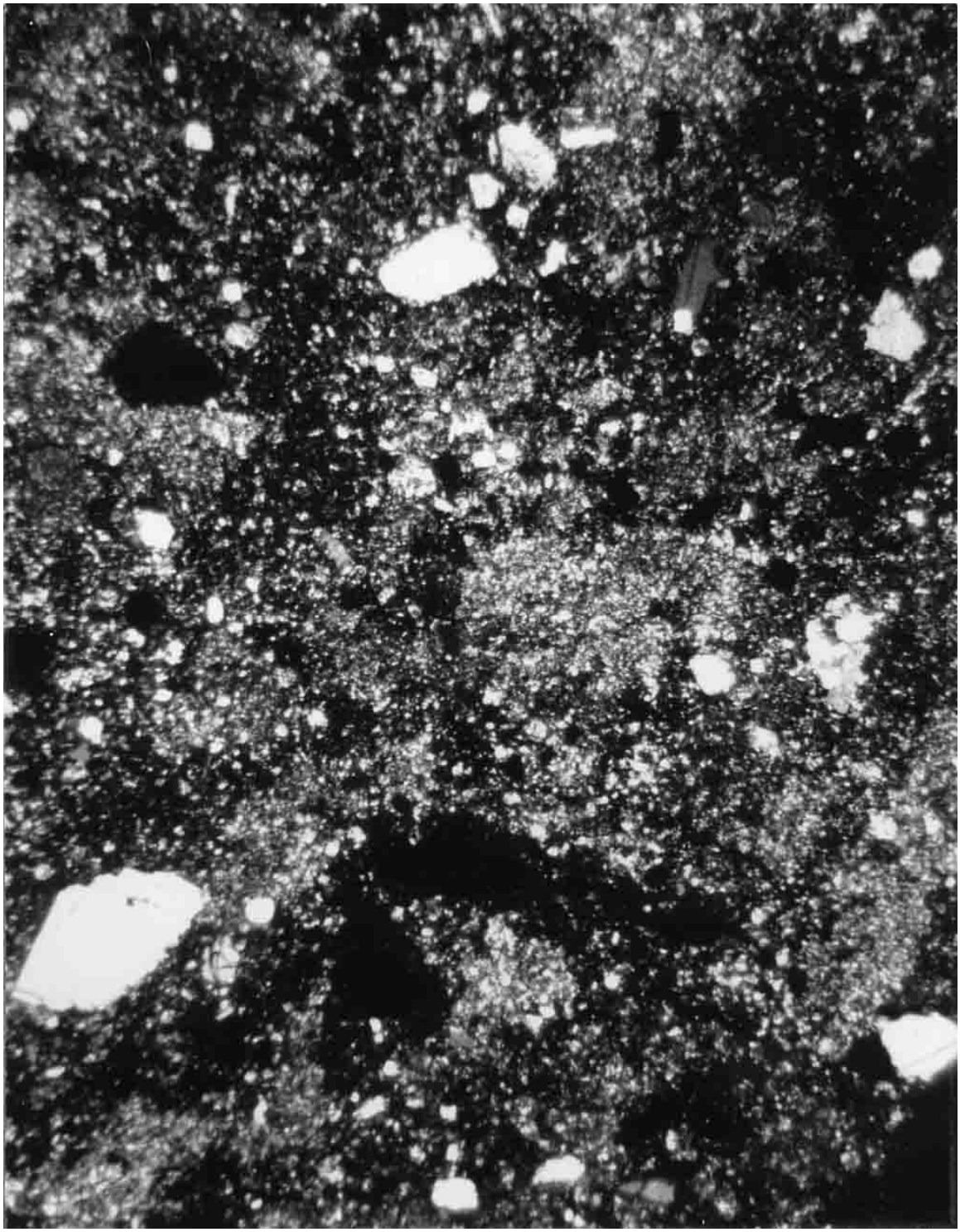

FIGURE 2. 64569,4, general view. Width 2 mm.

CHEMISTRY: Wasson et al. (1977) present a major and trace element analysis. Floran et al. (1976) report 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 Blanchard (unpublished data) provides a trace element analysis and the FeO and Na_2O data quoted by Floran et al.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).

The different analyses are all in good agreement. The low $A1_2O_3$ and high levels of REEs (Table 2, Fig. 4) are typical of Apollo 16 poikilitic impact melts.

PROCESSING AND SUBDIVISIONS: In 1972 four chips were removed and one of these (,1) allocated to Phinney for thin sectioning and petrography. In 1975 a set of four small chips (,3) was allocated for chemistry; the analyses of Floran et al. (1976) and Blanchard (unpublished) ire both portions of this split. In 1976 a small chip (,6) was allocated to Wasson for chemistry. The magnetic studies were done on the potted butt of ,1. The remainder of the rock remains at JSC as ,0 (13.85 g).

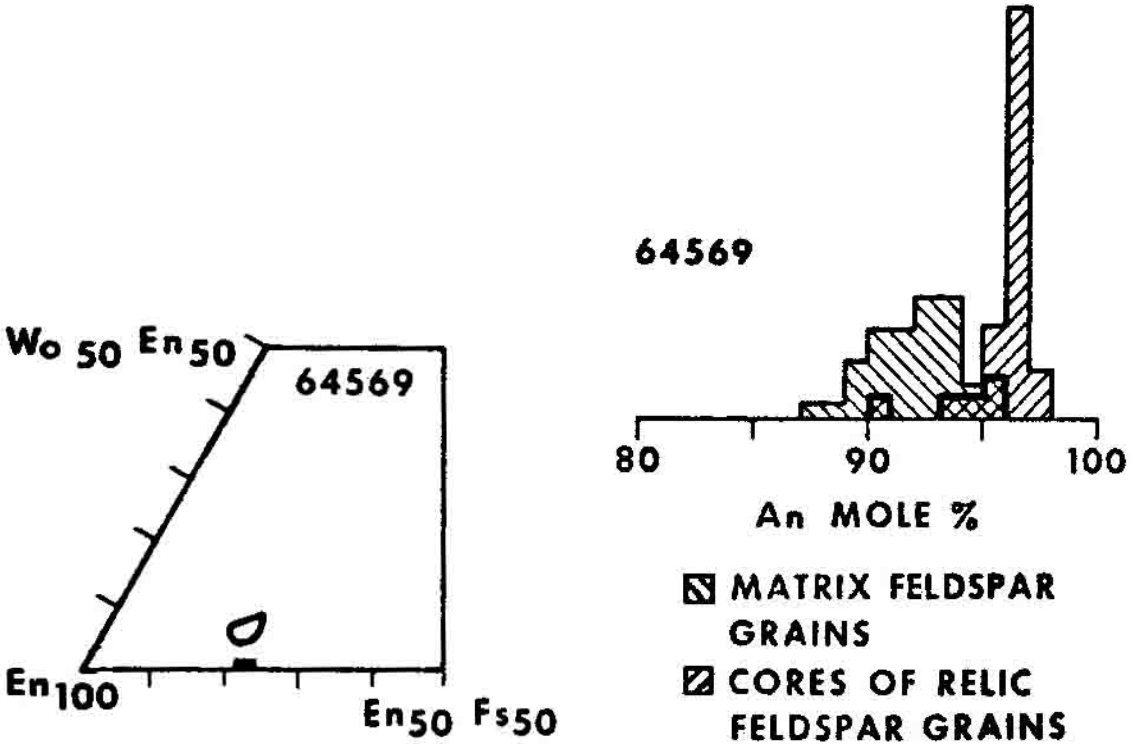

FIGURE 3. Mineral compositions, olivine plotted along base of pyroxene diagram, from Simonds et al. (1973).

TABLE 1. Metal composition (wt%) in 64569.

	Ni	Co	P	S
Metal	4.1-6.1	0.5	0.0-0.5	0.02

TABLE 2. Summary chemistry of 64569.

SiO_2	46.4
TiO_2	0.99
Al_2O_3	21.7
Cr_2O_3	0.193
FeO	8.1
MnO	0.10
MgO	11.9
CaO	12.1
Na_2O	0.514
K_2O	0.21
P_2O_5	
Sr	
La	26.3
Lu	1.22
Rb	
Sc	13.2
Ni	~760
Co	~45
Ir ppb	19
Au ppb	20
C	
N	
S	
Zn	
Cu	

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

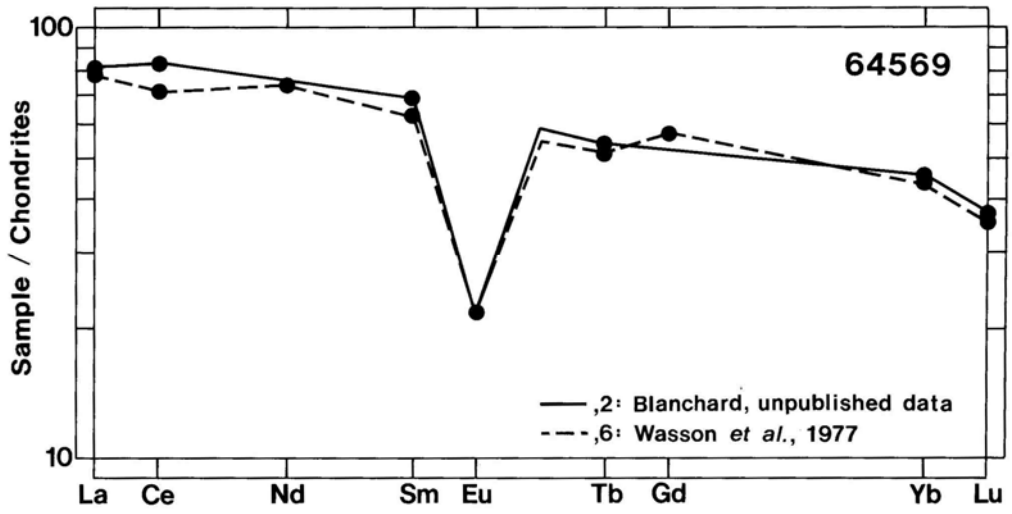

FIGURE 4. Rare earths.