

INTRODUCTION: 64548 is a moderately coherent, white, anorthositic breccia with abundant dark, angular clasts (Fig. 1). It is a rake sample from the rim of a subdued doublet crater on Stone Mountain. Zap pits are rare or absent.



FIGURE 1. Smallest scale division in mm. S-72-55353.

PETROLOGY: Warner et al. (1973) include 64548 in a general petrographic discussion of Apollo 16 rakes. Two lithologies appear to dominate 64548. The white matrix is largely brecciated anorthosite (Fig. 2). The dark clasts are virtually all fine-grained impact melt with a faintly poikilitic texture. The anorthositic material and the impact melt appear to have been intimately mixed (Fig. 2), making a separation of pure anorthosite extremely difficult. Gooley et al. (1973) provide compositional data for metal with and without coexisting schreibersite in the impact melt. These data are reproduced in Table 1.

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 Na₂O, by instrumental neutron activation). Blanchard (unpublished data) provides a bulk rock

trace element analysis and the FeO and Na₂O data quoted by Floran et al. (1976). These data indicate that 64548 is similar to the local mature soils in both major and trace element composition (Table 2, Fig. 3).

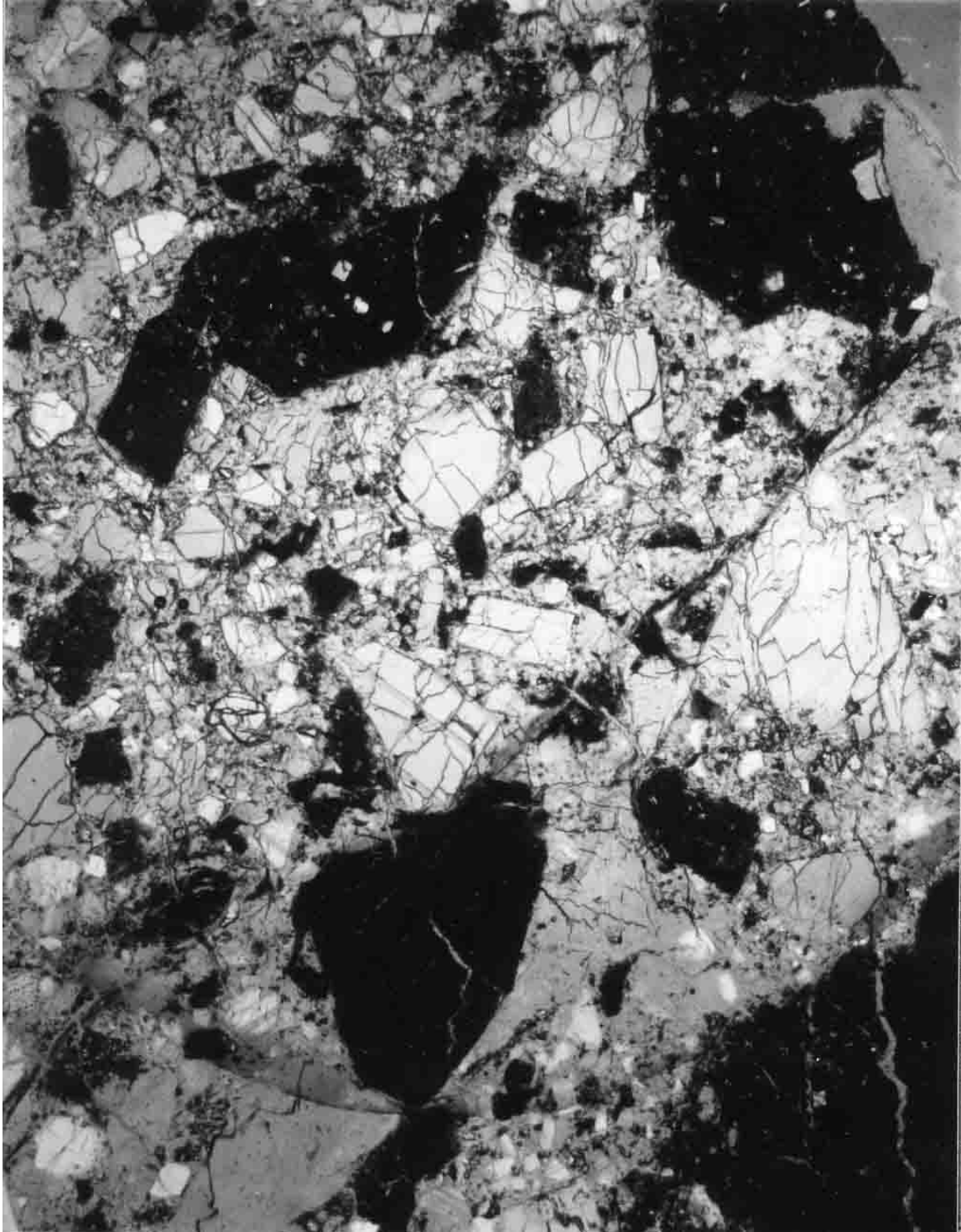


FIGURE 2. 64548,4, general view, ppl. Width 2 mm.

TABLE 1. Compositions of metal and coexisting schreibersite for 64548.

	Ni	Co	Fe	P	S
Metal (without schreibersite)	6.6-7.4	0.6	-	0.0-0.3	0.02
Metal (with schreibersite)	3.5	0.6	96.4	0.2	0.01
Schreibersite	11.4	0.2	73.8	15.5	0.1

TABLE 2. Summary of chemistry of 64548.

SiO ₂	45.28
TiO ₂	0.43
Al ₂ O ₃	27.67
Cr ₂ O ₃	0.098
FeO	4.47
MnO	
MgO	5.67
CaO	15.79
Na ₂ O	0.464
K ₂ O	0.13
P ₂ O ₅	
Sr	
La	14.6
Lu	0.67
Rb	
Sc	6.78
Ni	380
Co	24.5
Ir ppb	
Au ppb	
C	
N	
S	
Zn	
Cu	

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

PHYSICAL PROPERTIES: Pearce and Simonds (1974) report the results of a room temperature hysteresis curve determination on 64548. The very small saturation remanence to saturation magnetization ratio ($J_{RS}/J_S = 0.0043$) indicates that virtually all of the ferromagnetic phases in this sample are multidomain particles. Fe^0/Fe^{2+} is 0.113.

PROCESSING AND SUBDIVISIONS: In 1972 the rock was split into several pieces and one of these (,1) allocated to Phinney for thin sectioning and petrography. In 1975 a set of three small chips (,3) was allocated for chemistry; the analyses of Floran et al. (1976) and Blanchard (unpublished) are both of portions of this split. The magnetic studies were done on the potted butt of ,1. The remainder of the rock remains at JSC as ,0 (18.20 g).

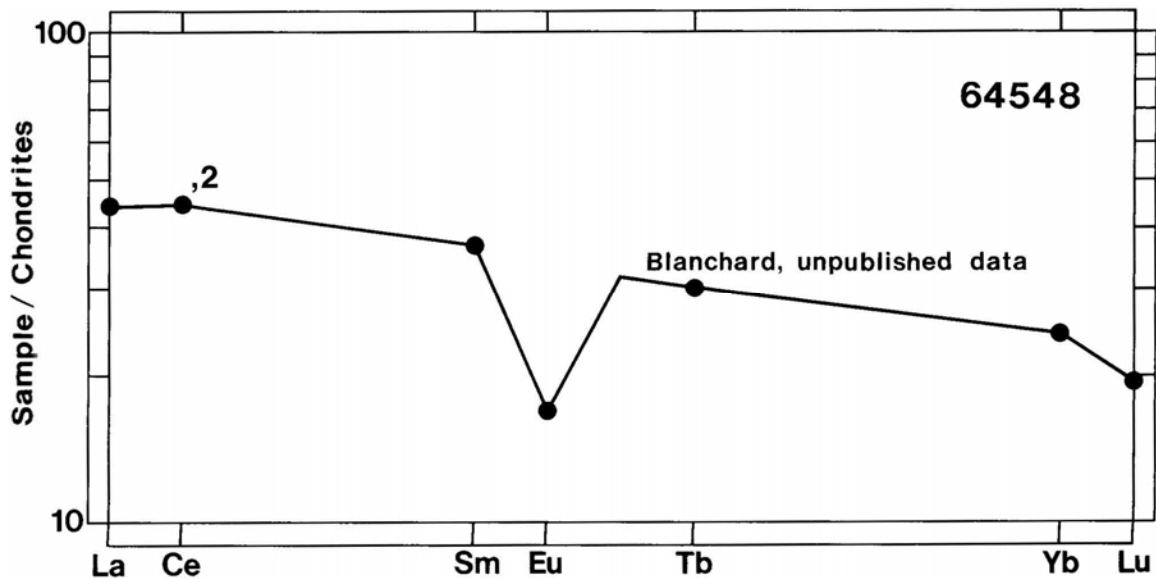


FIGURE 3. Rare earths