

64537 DILITHOLOGIC (CATACLASTIC ANORTHOSITE 124.3 g
AND POIKILITIC IMPACT MELT) BRECCIA

INTRODUCTION: 64537 is dominated by two lithologies: a coherent, dark gray, crystalline impact melt and a coherent, white, cataclastic anorthosite (Fig. 1). The impact melt appears to intrude the anorthosite and coarsens away from the contact. Vesicles are very rare in the impact melt, absent from the anorthosite. A few thin glass veins cut the impact melt.

This rock is a rake sample collected from the rim of a subdued doublet crater on Stone Mountain. Zap pits and patina are present on all surfaces indicating a complex exposure history.

PETROLOGY: Two distinct lithologies compose the bulk of 64537: a fine-grained impact melt and a cataclastic anorthosite (Fig. 2). Warner et al. (1973) include this rock in a general petrographic discussion of Apollo 16 rake samples.



FIGURE 1. S-75-20885.

The impact melt has a fine-grained poikilitic texture and appears to intrude the anorthosite. Oikocrysts (up to ~0.2 mm) are choked with tiny plagioclase laths (most 0.05 mm). Angular plagioclase clasts (rarely up to 2 mm) are present. A single clast of basaltic impact melt was observed. Accessory phases include ilmenite, Fe-metal with associated troilite and schreibersite, and rare euhedral spinel (?).

The anorthosite has been cataclasized and mildly recrystallized. It is probably monomict. Plagioclase grains range up to ~2 mm long. A few grains (<5%) of exsolved pyroxene are present, sometimes retaining original grain boundaries and showing a relict cumulate texture. Blebby intergrowths of troilite and silica (?) rim some pyroxenes. Fe-metal and chromite (?) are extremely rare.

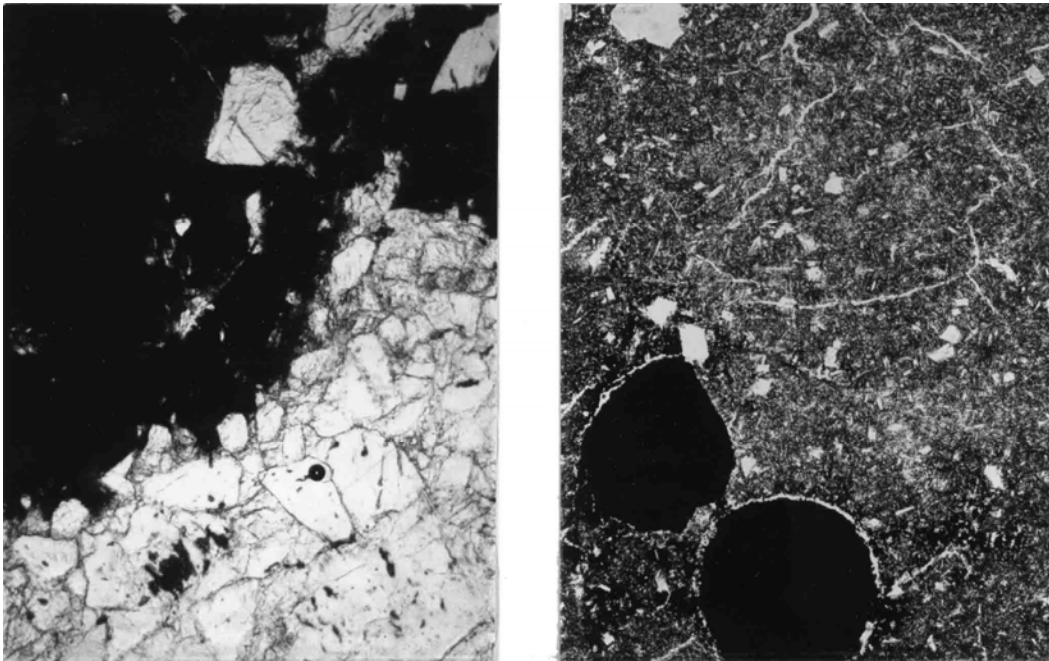


FIGURE 2. a) 64537,4, anorthosite, impact melt contact, ppl. Width 2 mm.
b) 64537,18, impact melt, ppl. Width 1 mm.

PHYSICAL PROPERTIES: Pearce and Simonds (1974) report the results of a room temperature hysteresis curve determination on a potted butt containing both the dark and light lithologies. The very small saturation remanence to saturation magnetization ratio ($J_{RS}/J_S = 0.003$) indicates that most of the ferromagnetic phases in this rock occur as >300 Å, multidomain particles. Fe^0/Fe^{2+} is 0.086 and total Fe^0 is 0.46 wt% (Pearce and Simonds, 1974).

PROCESSING AND SUBDIVISIONS: In 1972 five small pieces were removed and one of these (,1) allocated for thin sectioning and petrography. The magnetic studies were done on the potted butt of ,1. In 1975 the rock was split into several pieces for further allocations (Fig. 1). The largest single piece remaining is ,0 (91.13 g). ,5 (19.55 g) is stored at the Brooks Remote Storage Vault.