65095 FRAGMENTAL REGOLITH (?) BRECCIA, PARTIALLY GLASS-COATED 560 g

INTRODUCTION: 65095 is composed of abundant gray clasts in a friable white matrix (Fig. 1). It is partially coated with dark glass.

65095 was collected from the lower slope of Stone Mountain. Lunar orientation is known. It must have been disturbed shortly before collection as zap pits are absent from the "lunar top" but abundant on the opposite surfaces.

FIGURE 1. 65095,21, about half of the sample.

PETROLOGY: 65095 is a clastic breccia with an abundant and diverse clast population in a fragmental matrix (Fig. 2). Clasts include grains of plagioclase, mafic minerals, Fe-metal (some rusty), troilite, ilmenite, and spinel, and fragments of poikilitic and basaltic impact melt, vitric matrix breccia, cataclastic and granoblastic anorthosite, feldspathic granulite (some with a relict basaltic texture), and rare mafic vitrophyres (Fig. 2). Beads and fragments of glass and vitrophyric impact melt are abundant and suggest the presence of a regolith component. One fragment of shocked and partially recrystallized cataclastic anorthosite has a grain size >1 cm and small grains of interstitial pyroxene. Bickel and Warner (1978) refer to the pyroxene in this clast as ferroan and unequilibrated but provide no specific data.

Portions of the white matrix (TS ,13 - ,15) are nearly monomict cataclastic anorthosite. The Apollo 16 Lunar Sample Information Catalog (1972) describes one of these areas.

Metal compositional data for the bulk rock are given by Misra and Taylor (1975) (Fig. 3).

CHEMISTRY: Krahenbuhl et al. (1973) analyzed a representative interior split and found high levels of both siderophile and volatile elements (Table 1). The high volatile to involatile ratios (e.g. Tl/U) are interpreted as indicating a fumarolic component. Hertogen et al. (1977) assign 65095 to meteoritic group 1H, a group largely restricted to Apollo 16.

Eldridge et al. (1973) and Rancitelli et al. (1973a,b) provide whole rock data for K, U, Th, and cosmogenic radionuclides. These data indicate that the levels of incompatible elements in 65095 are roughly similar to those in the local soils.

EXPOSURE AGES: From the cosmogenic radionuclide data of Eldridge et al. (1973) and Rancitelli et al. (1973a), Yokoyama et al. (1974) conclude that 65095 is saturated in ^{26}Al activity.

PHYSICAL PROPERTIES: Hargraves and Dorety (1975) and Cisowski et al. (1975, 1976) provide magnetic data. Cisowski et al. (1975, 1976) note that a field of at least a few tenths of an oersted is implied by the magnetization of this rock. Sugiura et al. (1978) investigated the effects of heating under a controlled oxygen fugacity on the magnetic properties of 65095 (Fig. 4). The prominent peak in pTRM is probably due to the formation of magnetite from the natural rust in the rock.

PROCESSING AND SUBDIVISIONS: In 1972 two small chips (,1) of nearly pure white matrix were made into thin sections ,13 - ,15. In 1973 the rock was broken along existing fractures into two main pieces (,21 and ,22) and the smaller of these (,22) extensively subdivided. The largest single piece remaining is ,21 (361.5 g). ,22 (129.15 g) is stored at the Brooks Remote Vault.

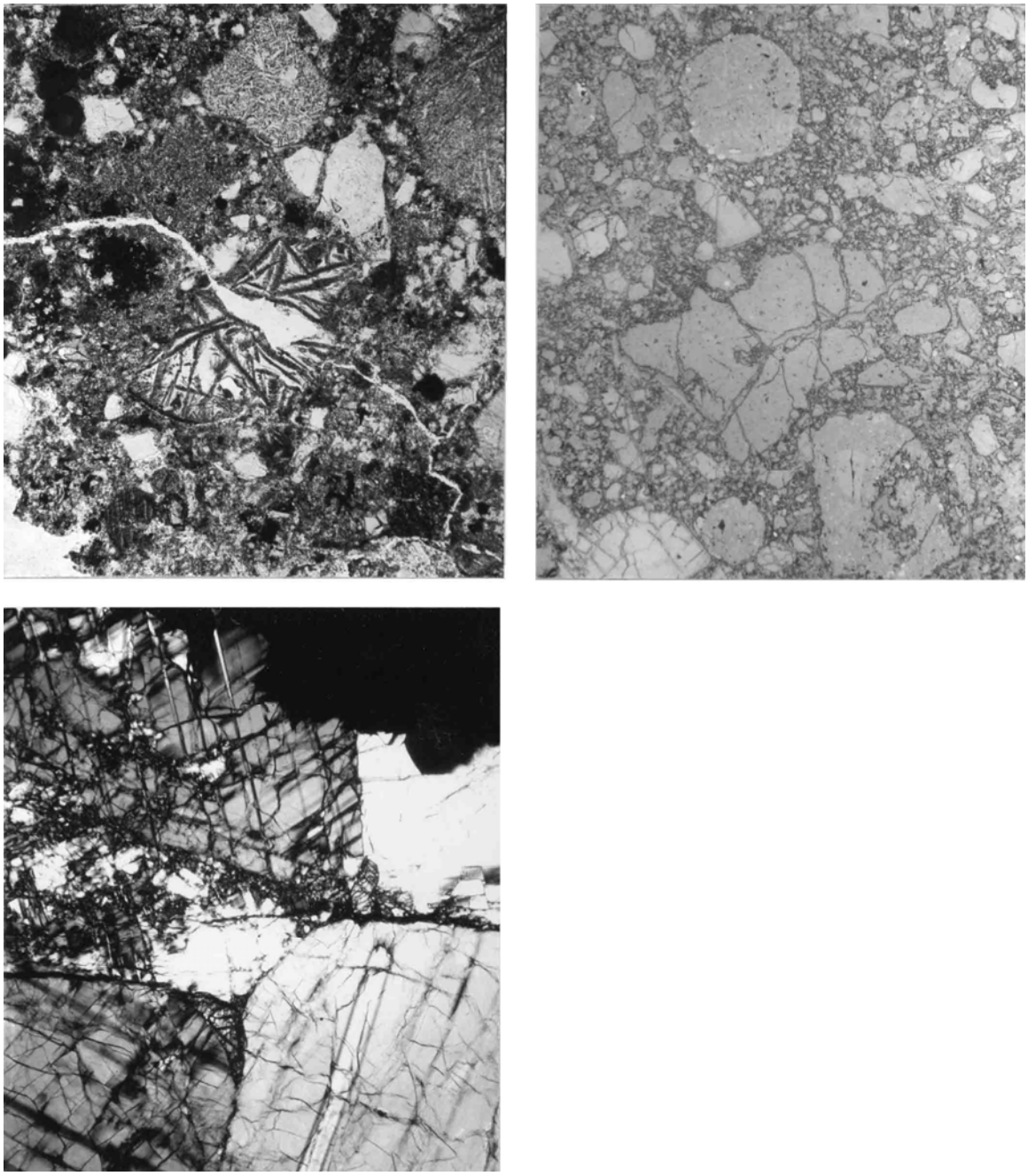

FIGURE 2.
a) 65095,49. General matrix with olivine vitrophyre clast (lower center), ppl. Width 1 mm.
b) 65095,54. General matrix, rfl. Width 2 mm.
c) 65095,49. Cataclastic anorthosite clast, xpl. Width 2 mm.

TABLE 1. Summary chemistry of 65095.

K_2O	wt%	0.098
Rb	ppm	1.1
Ni	ppm	235
Ir	ppb	6.43
Au	ppb	5.45
Zn	ppm	8.65

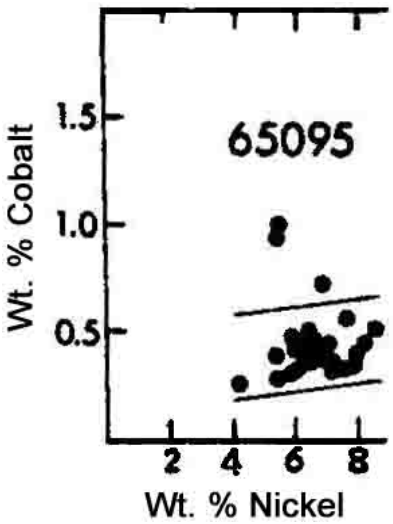

FIGURE 3. Metals; from Misra and Taylor, (1975).

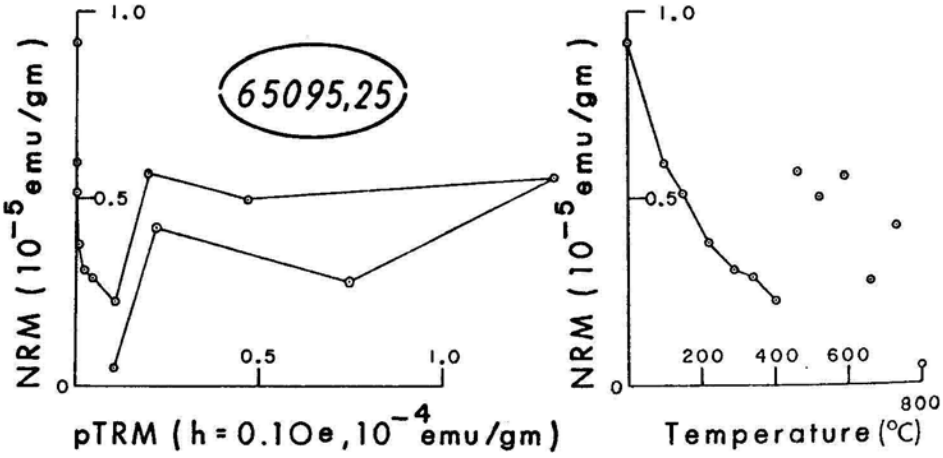

FIGURE 4. From Sugiura et al. (1978).