

INTRODUCTION: 15467 is dominantly a regolith breccia, with vesicular glass cutting through it (Fig. 1). It is blocky, angular, and coherent. The breccia is medium gray and the glass is grayish black macroscopically. Its surface is irregular, and has no zap pits. 15467 was retrieved from the same bag as 15465 and 15466, hence was collected with them just inside the north-northwest rim crest of Spur Crater and may well have once been part of one of them.

PETROLOGY: The glassy regolith breccia contains glass balls, numerous mineral fragments, and conspicuous KREEP basalt fragments (Fig. 2). The glasses include minor amounts of red glass, but are mainly green or colorless. Lithic fragments include a small polygonal olivine as observed in 15445 and 15455; plagioclase-pyroxene vitrophyre with an opaque glass which may be of mare origin; a coarse plagioclase and pyroxene radial intergrowth; and a small piece of poikilitic impact melt. The vesicular glass contains numerous breccia pieces (Fig. 2b), and is very pale colored. One large mineral clast is an orthopyroxene (Fig. 2a). The breccia evidently has varied sources. According to the I_s/FeO of 6 to 9 (McKay et al., 1974), revised to 9 with FeO data of Korotev (1984, unpublished), the breccia is very immature compared with typical Apollo 15 soils.

CHEMISTRY: An analysis of a breccia portion (no glass included) is given in Table 1, and its rare earths plotted in Figure 3. The incompatible elements are rather high, indicating a substantial KREEP component.

PROCESSING AND SUBDIVISIONS: 15467 was retrieved from the sample bag as two pieces (Fig. 4). A separate chip was made (,1) to produce thin section ,4. In 1983, 15467 was substantially chipped to produce interior breccia chips (,5 and ,6); the glass and breccia pieces constituting ,0 now have a mass of 0.748 g.



Figure 1. Main piece of 15467,0 prior to splitting. S-71-44910

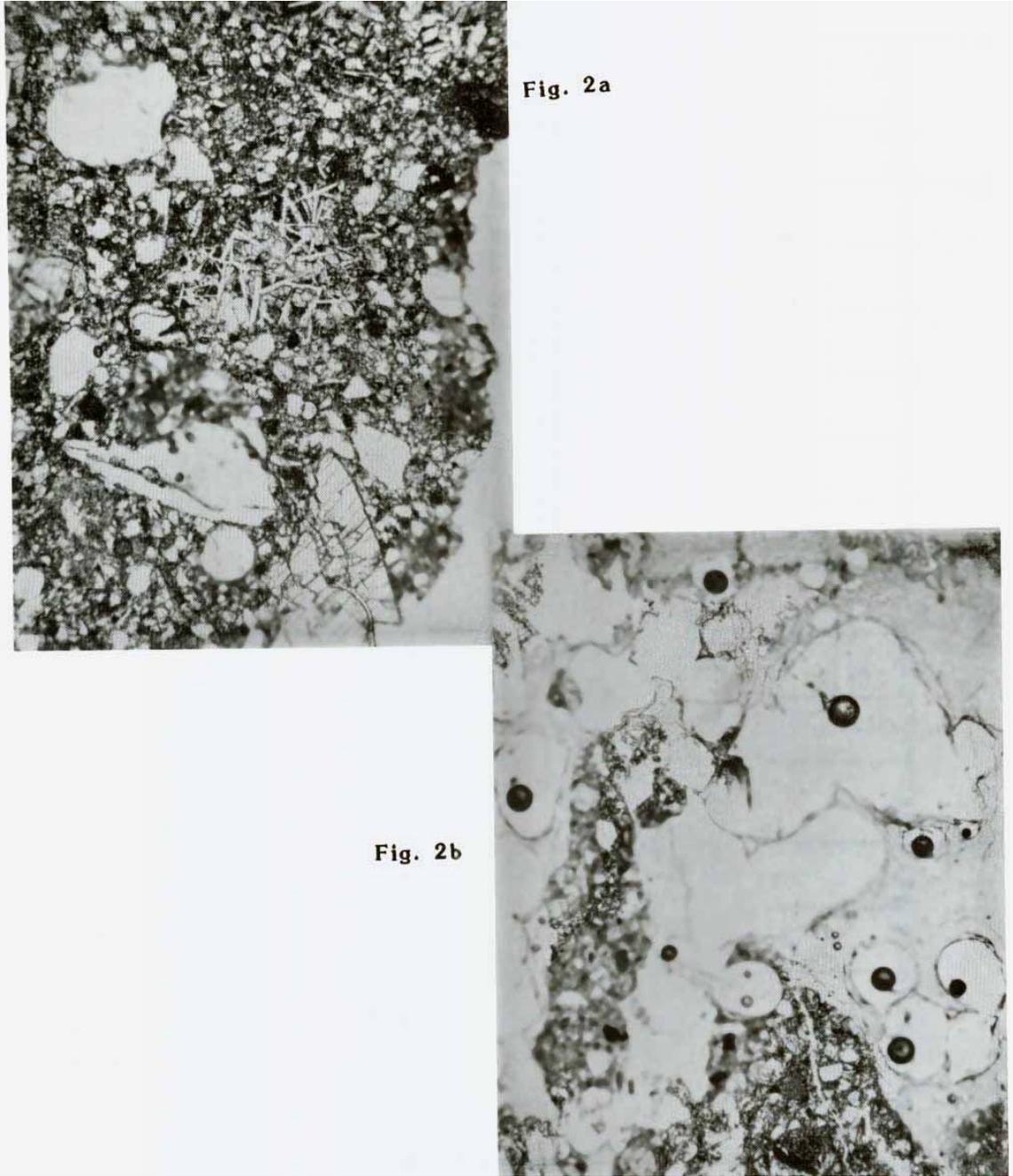


Figure 2. Photomicrographs of 15467,4. Transmitted light. Widths about 2 mm.
a) regolith breccia portion, showing KREEP basalt clast (center), large orthopyroxene fragment (bottom right), and glass and mineral pieces,
b) vesicular glass portion, showing included regolith breccia pieces.

TABLE 15467-1. Bulk rock chemical analysis

		.5
WT %	SiO ₂	
	TiO ₂	1.90
	Al ₂ O ₃	15.7
	FeO	11.0
	MgO	9.6
	CaO	10.5
	Na ₂ O	0.64
	K ₂ O	
	P ₂ O ₅	
(ppm)	Sc	22.6
	V	58
	Cr	2090
	Mn	1185
	Co	27.1
	Ni	63
	Rb	
	Sr	155
	Y	
	Zr	700
	Nb	
	Hf	18.3
	Ba	476
	Th	7.8
	U	2.3
	Pb	
	La	50.4
	Ce	132
	Pr	
	Nd	78
	Sm	22.8
	Eu	1.98
	Gd	
	Tb	4.39
	Dy	
	Ho	
	Er	
	Tm	
	Yb	15.6
	Lu	2.14
	Li	
	Be	
	B	
	C	
	N	
	S	
	F	
	Cl	
	Br	
	Cu	
	Zn	
(ppb)	I	
	At	
	Ga	
	Ge	
	As	
	Se	
	Mo	
	Tc	
	Ru	
	Rh	
	Pd	
	Ag	
	Cd	
	In	
	Sn	
	Sb	
	Te	
	Cs	440
	Ta	2110
	W	
	Re	
	Os	
	Ir	2.0
	Pt	
	Au	<5
	Hg	
	Tl	
	Bi	
		(1)

References and methods:

- (1) Korotev (1984, unpublished); INAA

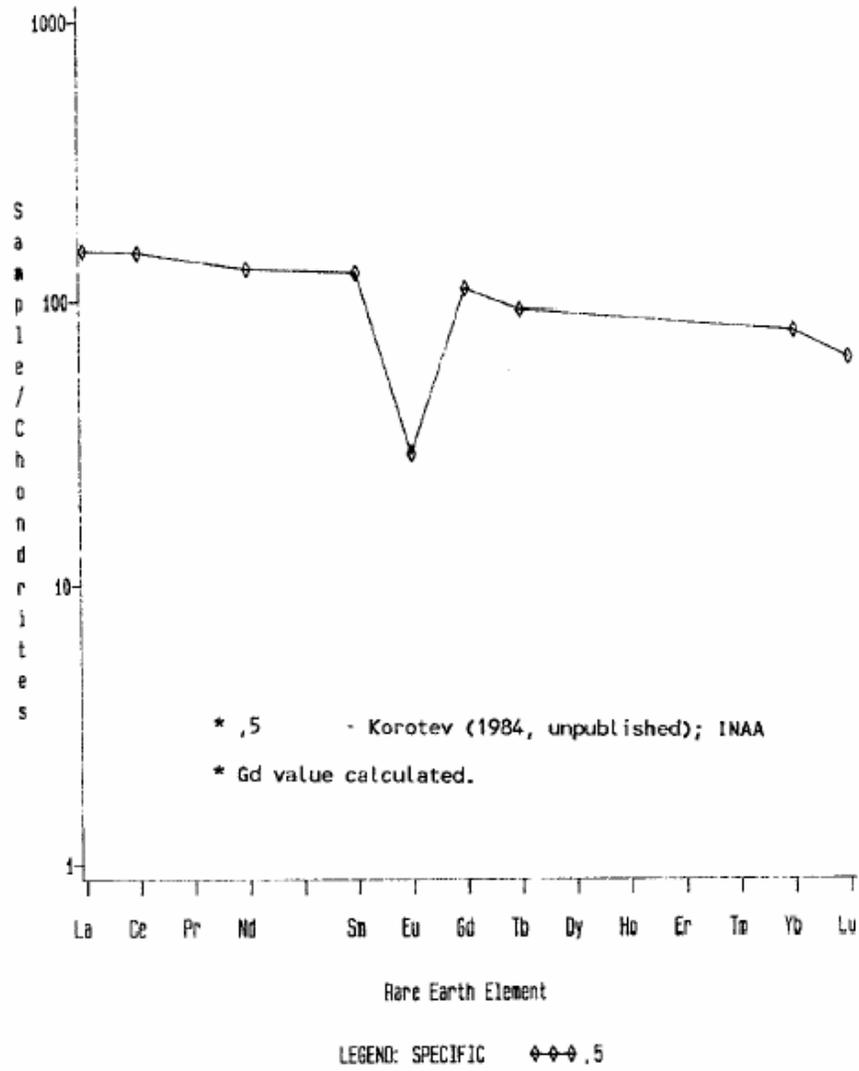


Figure 3. Rare earths in 15467 breccia.

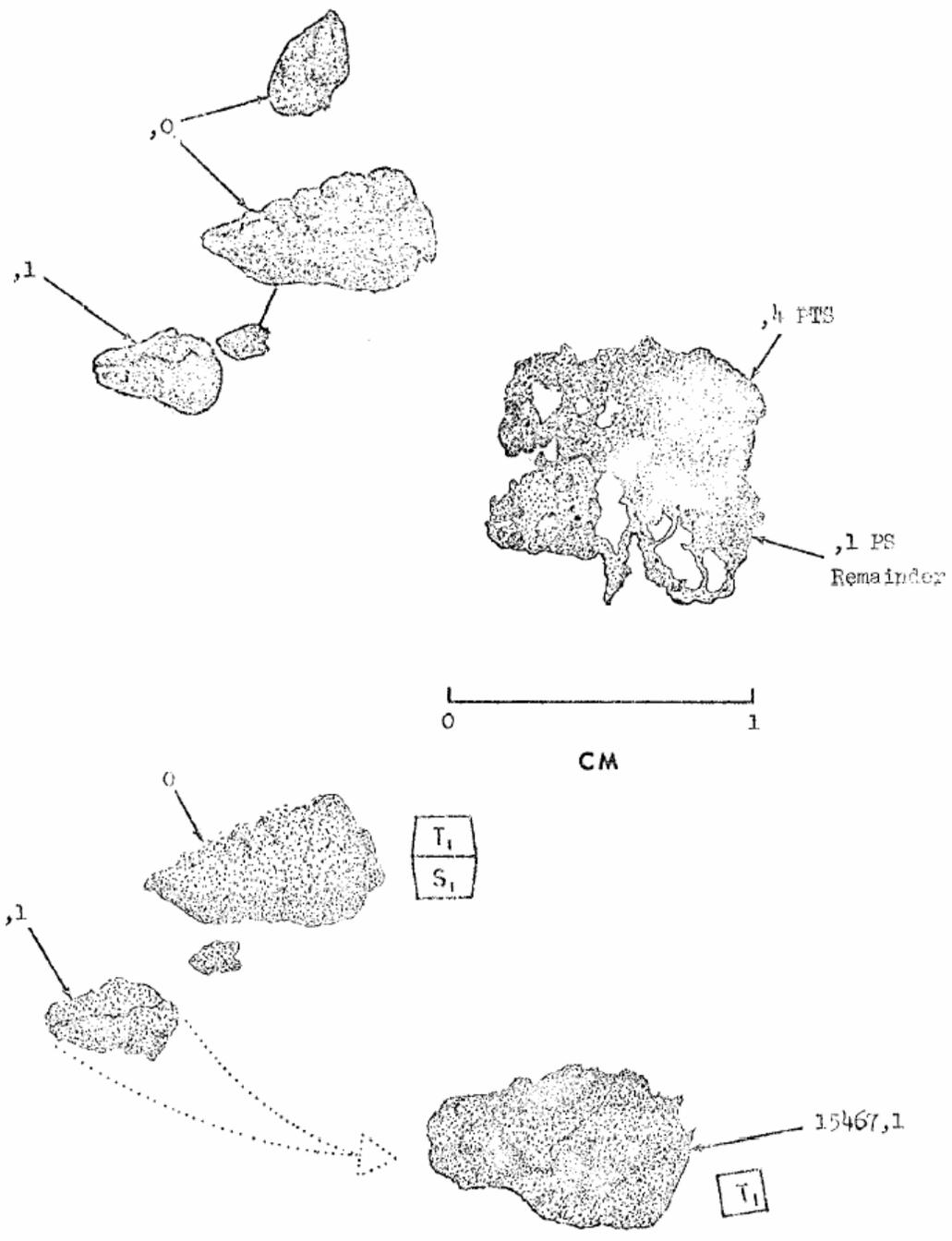


Figure 4. Original chipping of 15467.