15616 MEDIUM-GRAINED OLIVINE-NORMATIVE MARE BASALT ST. 9A 8.00 g

INTRODUCTION: 15616 is an olivine-bearing mare basalt which is very vesicular (Fig. 1). The olivines form microphenocrysts. Chemically the sample appears to be a magnesian member of the Apollo 15 olivine-normative mare basalt group. It is tough with porphyritic olivine macroscopically visible. It was collected as part of the rake sample at Station 9A.

PETROLOGY: 15616 is a medium-grained, olivine-bearing mare basalt (Fig. 2). It is vesicular. Some olivines form small anhedral phenocrysts (less than 1 mm). Some pyroxenes are as large as 2 mm and twinned, but most are smaller and granular. Plagioclases are up to 1 mm long laths, or hollow stubby sections.

Figure 1. Pre-chip view of 15616. S-71-49120

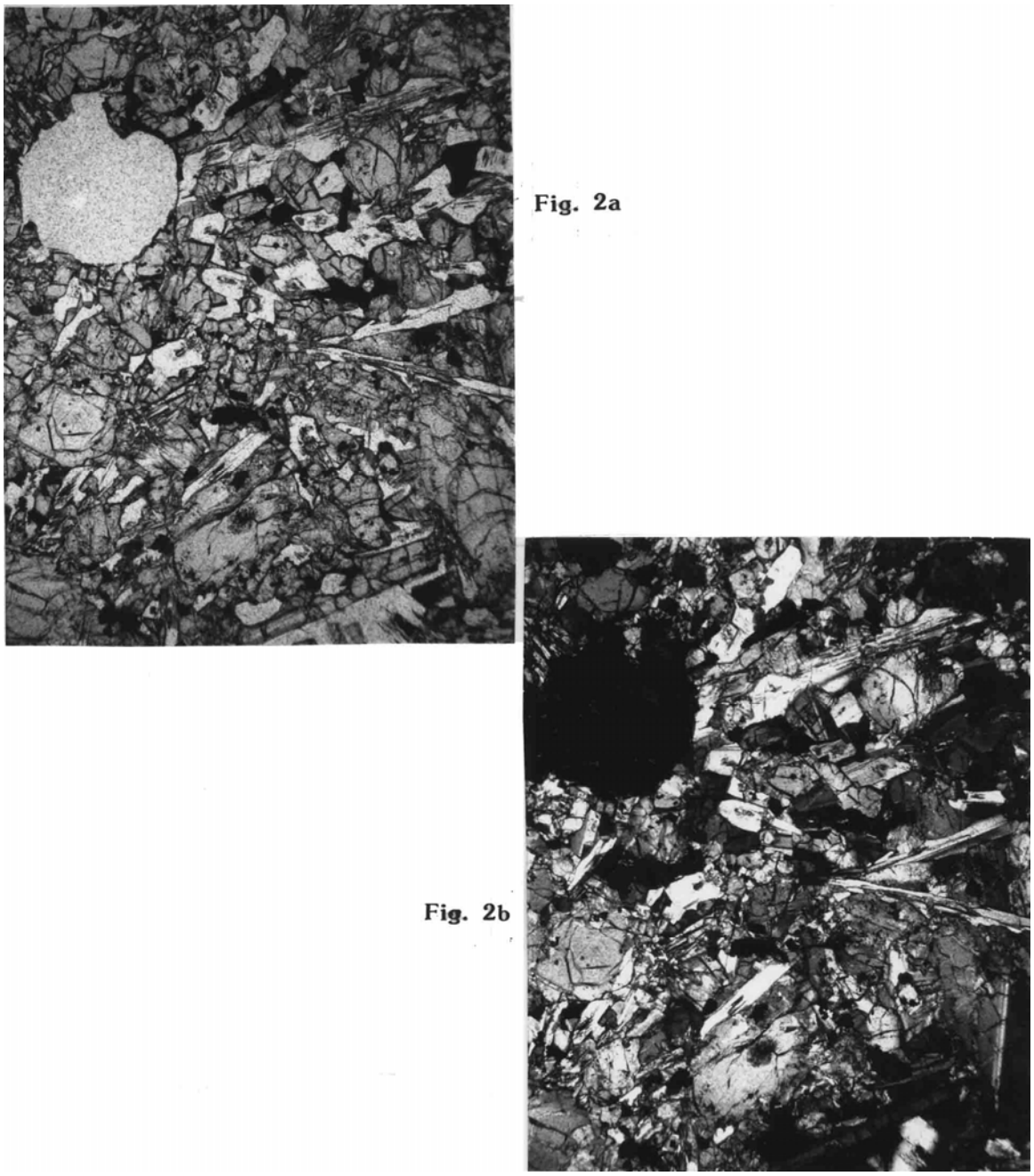

Figure 2. Photomicrographs of 15616,11.
Widths about 2 mm. a) transmitted light; b) crossed polarizers.

CHEMISTRY: A bulk rock analysis is listed in Table 1 and the rare earths shown in Figure 3. The sample is an Apollo 15 olivine-normative mare basalt. On the basis of TiO_2 and MgO it would appear to be an Mg-rich member of the group, but the MgO is imprecisely determined.

TABLE 156161. Bulk rock chemical analyses

		,4
Wt %	SiO2	
	TiO2	2.0
	Al2O3	8.7
	FeO	21.8
	MgO	12
	CaO	8.3
	Na2O	0.238
	K2O	0.043
	P2O5	
(ppm)	Sc	38
	V	248
	Cr	6230
	Mn	2045
	Co	57
	Ni	90
	Rb	
	Sr	
	Y	
	Zr	
	Nb	
	Hf	2.4
	Ba	60
	Th	
	U	
	Pb	
	La	5.3
	Ce	
	Pr	
	Nd	
	Sm	3.5
	Eu	0.77
	Gd	
	Tb	0.7
	Dy	3.8
	Ho	
	Er	
	Tm	
	Yb	2.2
	Lu	0.34
	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	
	Ta	470
	W	
	Re	
	Os	
	Ir	
	Pt	
	Au	
	Hg	
	Tl	
	Bi	
		(1)

References and methods:

(1) Ma et al. (1978); INAA

Notes:

(a) ±45 ppm
(b) ±30 ppm

PROCESSING AND SUBDIVISIONS: Several chips were numbered as ,2, and a single chip as ,1. ,1 was partly consumed in making thin sections ,6 and ,11. In 1977 the largest chip from ,2 was numbered ,4 and allocated for chemistry and a third section, ,14. ,0 is now 6.40 g.

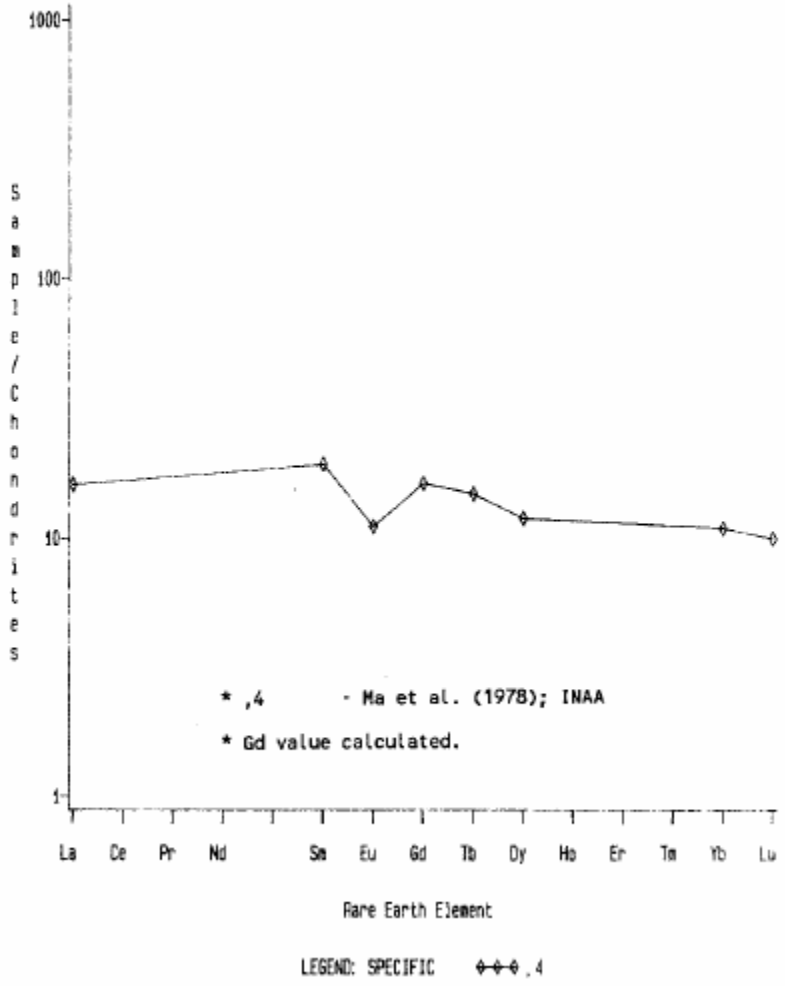

Figure 3. Rare earths in 15616.