15606 MEDIUM-GRAINED OLIVINE-NORMATIVE MARE BASALT ST. 9A 10.10 g

INTRODUCTION: 15606 is a medium-grained olivine-bearing and very vesicular mare basalt (Fig. 1). The olivine only rarely forms phenocrysts. In chemistry, the sample is a fairly average member of the Apollo 15 olivine-normative mare basalt group. The sample is brownish gray with the few small yellow-green olivines visible, and is blocky, subangular, and tough. The large (up to 5 mm) spherical vesicles compose 45% of the volume. No zap pits were observed. 15606 was collected as part of the rake sample at Station 9A.

Figure 1. Pre-split view of 15606. S-71-44940

PETROLOGY: 15606 is an olivine-bearing basalt with a gabbroic texture of medium grain size (Fig. 2). The dominant phase is pigeonite which is anhedral and smaller ones are granular. Larger ones have small olivine inclusions. The plagioclases form laths less

than 1 mm long; a few are up to 2 mm and ophitically enclose small olivines and pyroxenes. Most olivines are less than 1 mm across. Opaque phases range from chromite to ulvospinel to ilmenite. Residual phases include fayalite, cristobalite, glass, ilmenite, ulvospinel, and troilite. Fe metal is scarce.

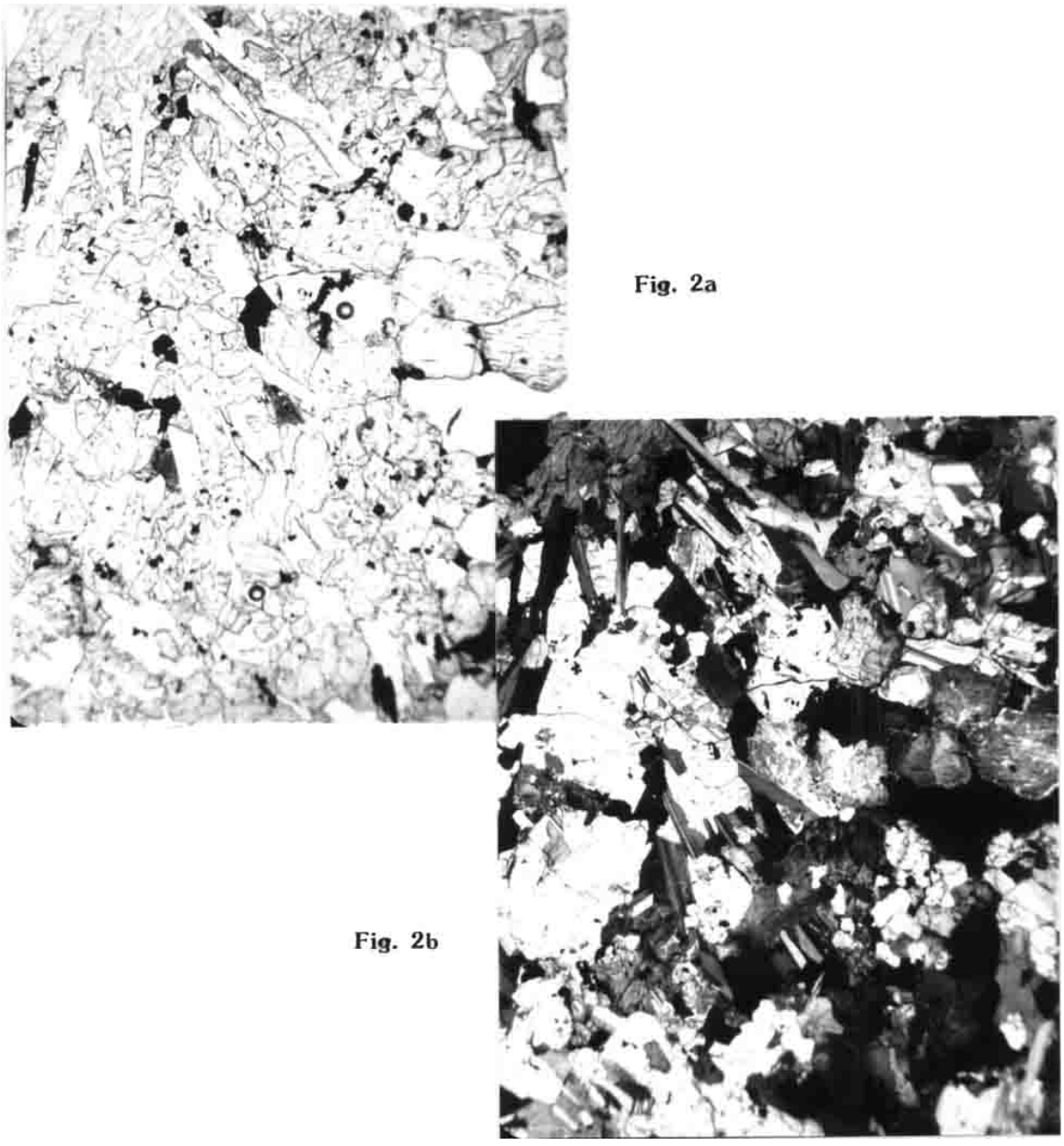

Figure 2. Photomicrographs of 15606,5.
Widths about 3 mm. a) transmitted light; b) crossed polarizers.

CHEMISTRY: A bulk rock analysis is presented in Table 1 with rare earths shown in Figure 3. The sample is an average member of the Apollo 15 olivine-normative mare basalt group.

PHYSICAL PROPERTIES: Gose et al. (1972) and Pearce et al. (1973) measured a natural magnetic intensity of 7.0 x 10^{-6} emu/g for the bulk sample, an intensity typical of Apollo 15 mare basalts.

PROCESSING AND SUBDIVISIONS: A single chip (,1) was removed and subdivided to give ,1 through ,4. ,2 was potted and partly used to make thin sections ,5 and ,6. ,0 is now 7.13 g.

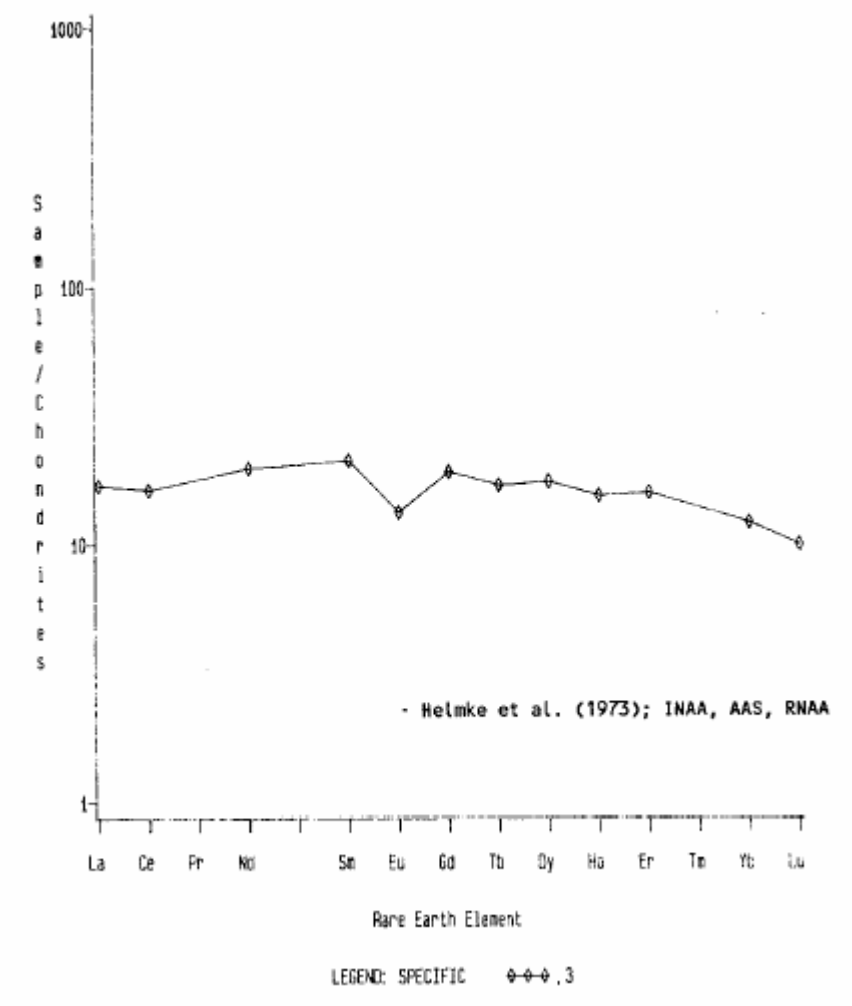

Figure 3. Rare earths in 15606.

TABLE 15606-1. Bulk rock chemical analysis

		,3
Wt %	SiO2	47.7
	TiO2	2.51
	Al2O3	8.72
	FeO	22.0
	MgO	10.0
	CaO	9.56
	Na2O	0.257
	K2O	0.053
	P2O5	
(ppm)	Sc	41.8
	V	
	Cr	4610
	Mn	2130
	Co	49
	Ni	
	Rb	0.71
	Sr	
	Y	
	Zr	
	Nb	
	Hf	3.4
	Be	
	Th	
	U	
	Pb	
	La	5.56
	Ce	14.3
	Pr	
	Nd	11.9
	Sm	3.84
	Eu	0.92
	Gd	4.8
	Tb	0.80
	Dy	5.60
	Ho	1.09
	Er	3.2
	Tm	
	Yb	2.45
	Lu	0.340
	Li	
	Be	
	B	
	C	
	N	
	S	
	F	
	Cl	
	Br	
	Cu	
	Zn	<2
(ppb)	I	
	At	
	Ga	3700
	Ge	
	As	
	Se	
	Mo	
	Tc	
	Ru	
	Rh	
	Pd	
	Ag	
	Cd	
	In	
	Sn	
	Sb	
	Te	
	Cs	44
	Ta	
	W	
	Re	
	Os	
	Ir	
	Pt	
	Au	
	Hg	
	Tl	
	Bi	
		(1)

References and methods:

(1) Helmke et al. (1973
INAA, AAS, RNAA