71596 – 61 grams
71537 – 12.3 grams
Ilmenite Basalt

Figure 1: Photo of 71596. Sample is cm across. S73-31347

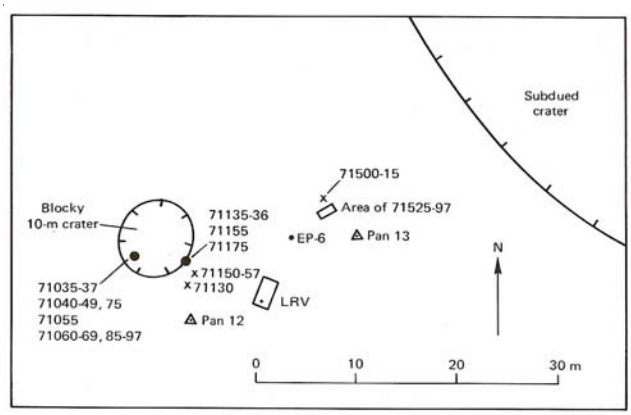

Figure 2: Map of station 1 showing location of rake samples.

Mineralogical Mode

	71596	**71537**
Olivine	7.1	6.8
Pyroxene	40.9	40.4
Plagioclase	32	30.9
Opaques	13.5	15.2
Silica	5.4	5.7
Meostasis	0.9	0.7

Introduction

71596 and 71537 are olivine-microporphyritic ilmenite basalt similar to 71569 and 71586 (Warner 1978).

71525 - 71596 etc. are rake samples collected as part of a comprehensive sample at station 1, taken near Steno Crater, Apollo 17. They include numerous small ilmenite basalts.

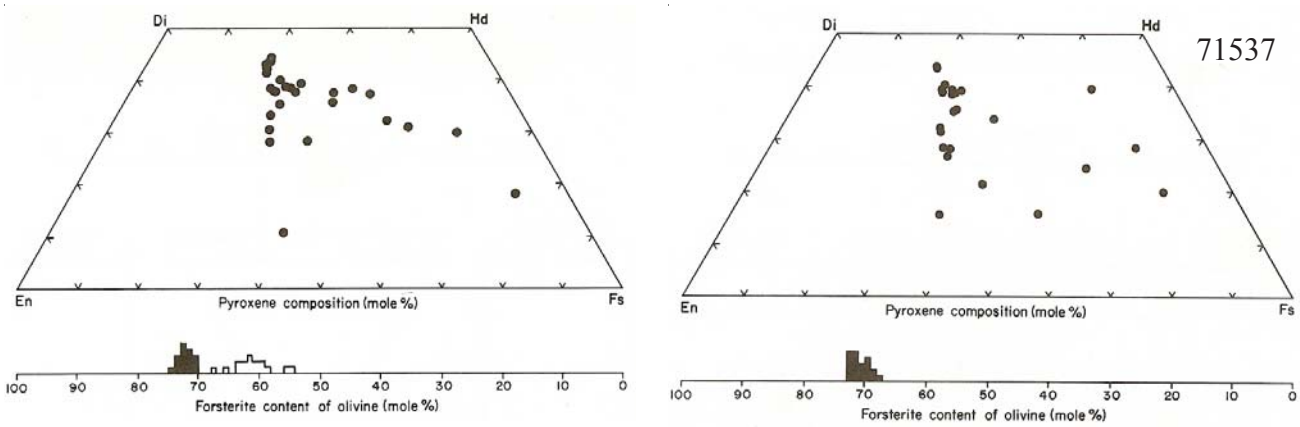

Figure 3: Composition of pyroxene and olivine in 71596 and 71537 (Warner et al. 1978).

Petrography

71596 and 71537 have small phenocrysts of equant olivine and acicular ilmenite set in a variolitic groundmass (figure 4 and 5). Sheaths of plagioclase and pyroxene are intergrown in bowties. Olivine includes Cr-spinel grains. Armalcolite is present (Warner et al. 1976).

Chemistry

Warner et al. (1975) reported and analysis of 71596. The composition of 71537 is given in the section on 71586.

Processing

There is only one thin section of 71596.

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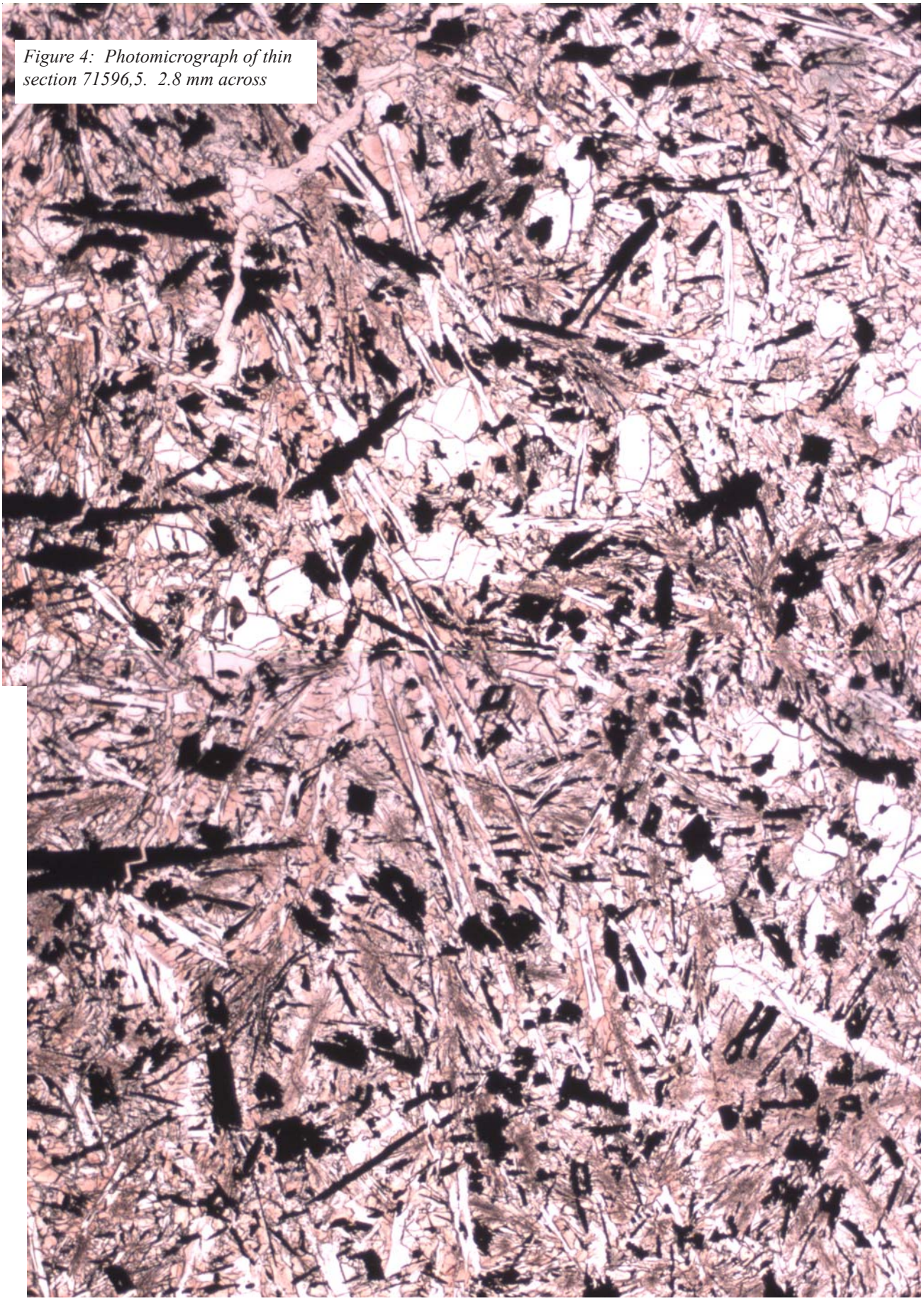


Figure 4: Photomicrograph of thin section 71596,5. 2.8 mm across

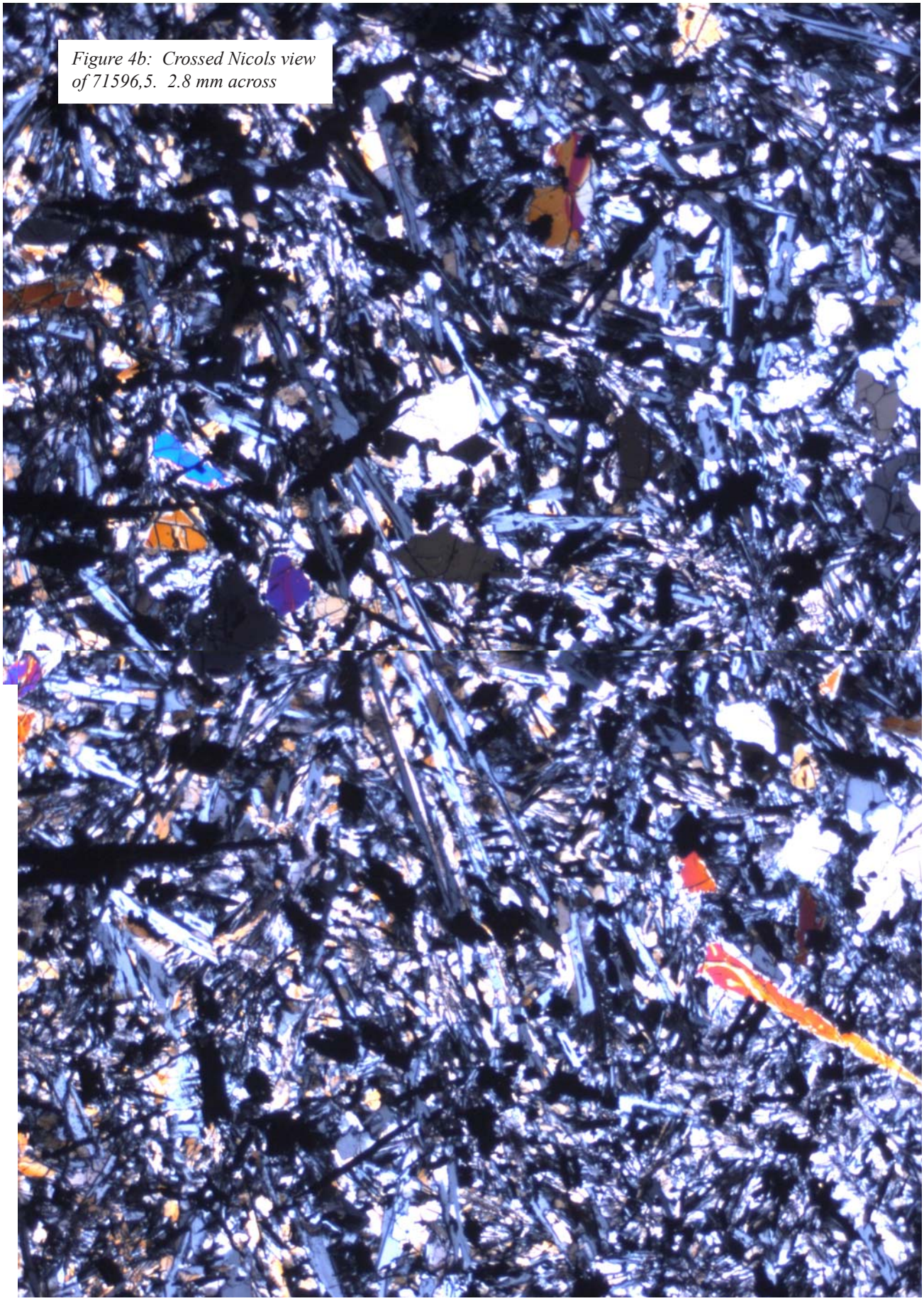


Figure 4b: Crossed Nicols view of 71596,5. 2.8 mm across

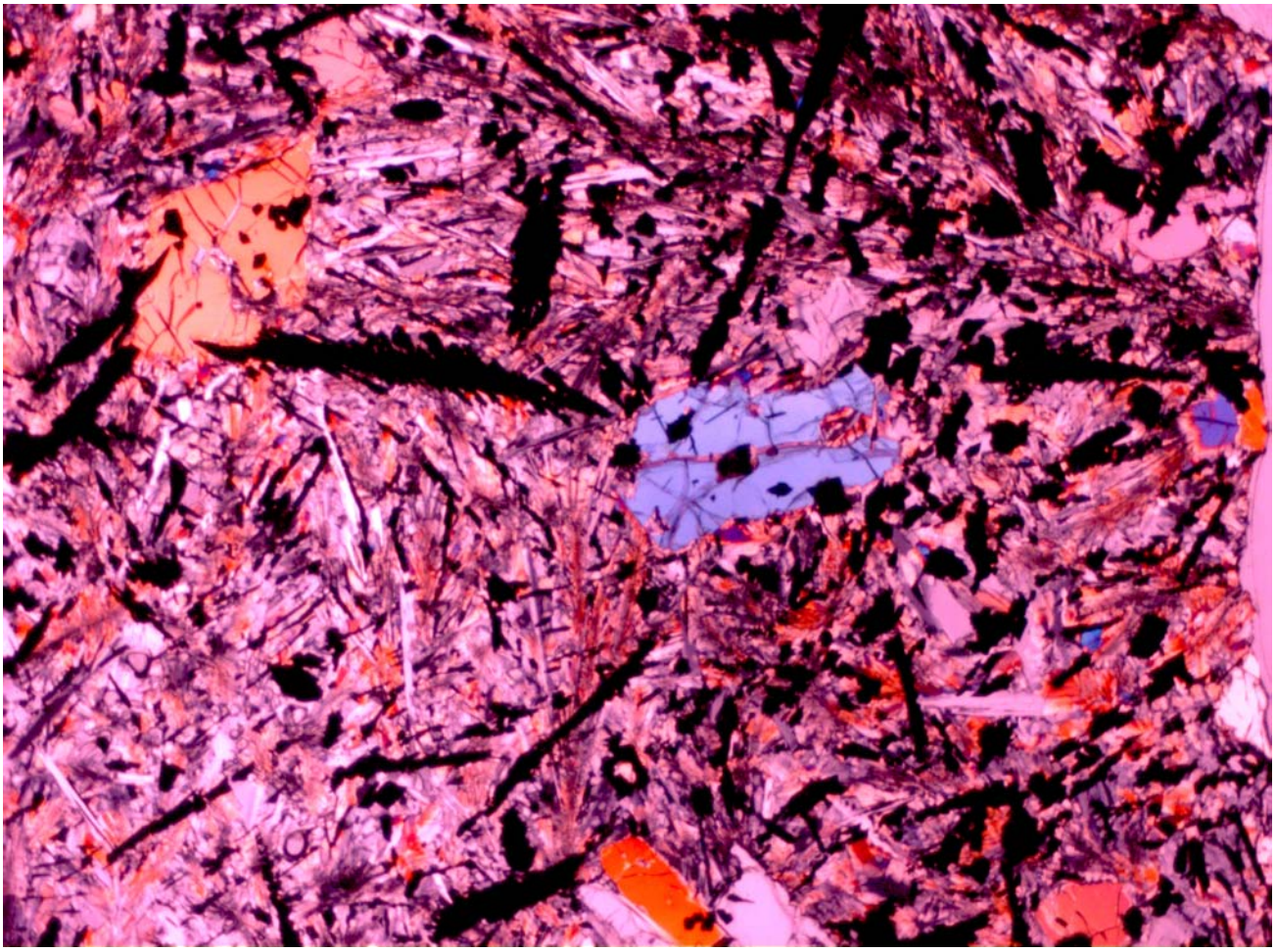
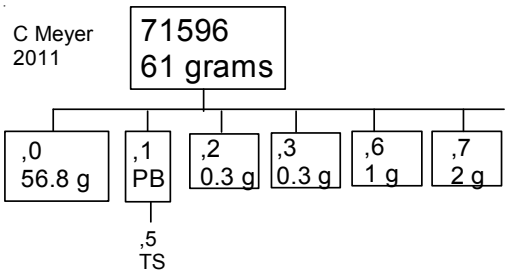


Figure 5: Photomicrograph of thin section 71537,5 showing microporphritic texture with partialy resorbed olivine. Field of view is 2.8 mm. Partailly corssed polarizers with quartz plate..



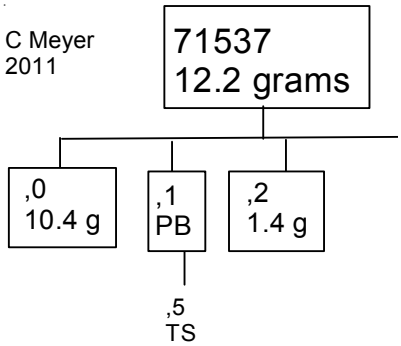


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Table 1. Chemical composition of 71596.

reference	Warner78	
weight	Warner75	
SiO2 %		
TiO2	11	(a)
Al2O3	9.2	(a)
FeO	18.8	(a)
MnO	0.25	(a)
MgO	7.8	(a)
CaO	10.3	(a)
Na2O	0.38	(a)
K2O	0.04	(a)
P2O5		
S %		
sum		
Sc ppm	75	(a)
V	120	(a)
Cr	2737	(a)
Co	20.2	(a)
Ni		
Cu		
Zn		
Ga		
Ge ppb		
As		
Se		
Rb		
Sr		
Y		
Zr		
Nb		
Mo		
Ru		
Rh		
Pd ppb		
Ag ppb		
Cd ppb		
In ppb		
Sn ppb		
Sb ppb		
Te ppb		
Cs ppm		
Ba		
La	5.5	(a)
Ce	21	(a)
Pr		
Nd	20	(a)
Sm	7.2	(a)
Eu	1.5	(a)
Gd		
Tb	1.8	(a)
Dy	11	(a)
Ho		
Er		
Tm		
Yb	6.5	(a)
Lu	0.96	(a)
Hf	6.3	(a)
Ta	1.3	(a)
W ppb		
Re ppb		
Os ppb		
Ir ppb		
Pt ppb		
Au ppb		
Th ppm		
U ppm		

technique: (a) INAA

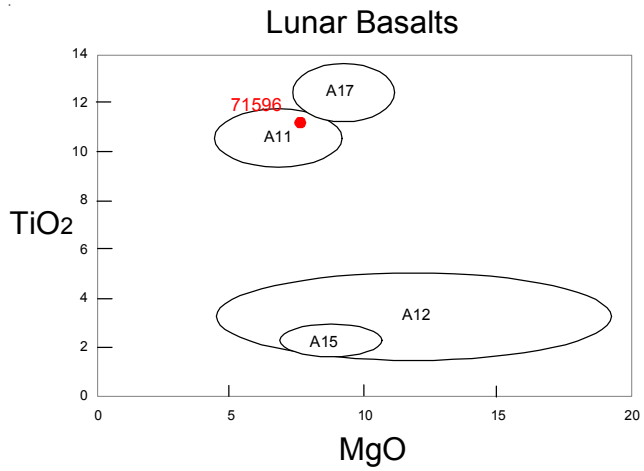

Figure 6: Composition of lunar basalts.

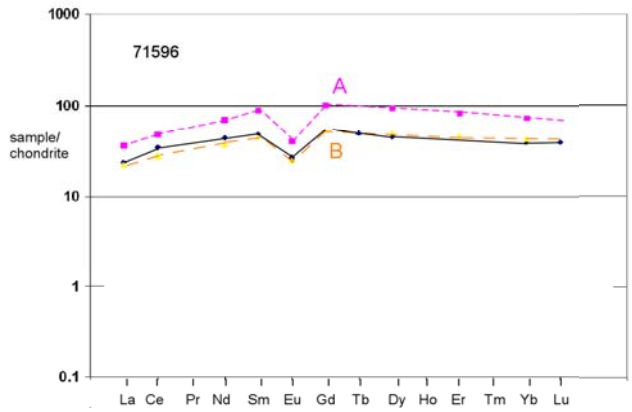

Figure 7: Normalized rare-earth-element diagram for 71596 and type A and B basalts.