

71596 – 61 grams
71537 – 12.3 grams
 Ilmenite Basalt



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

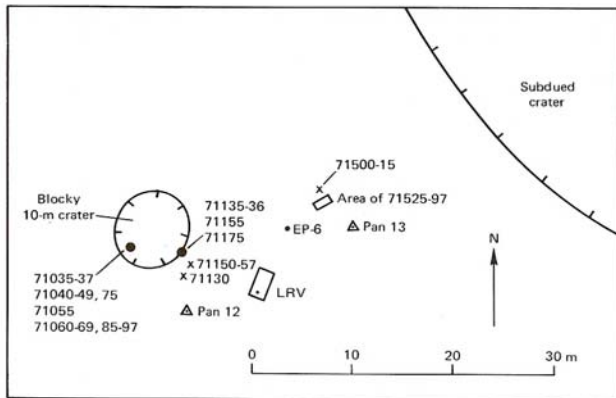


Figure 2: Map of station 1 showing location of rake samples.

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.

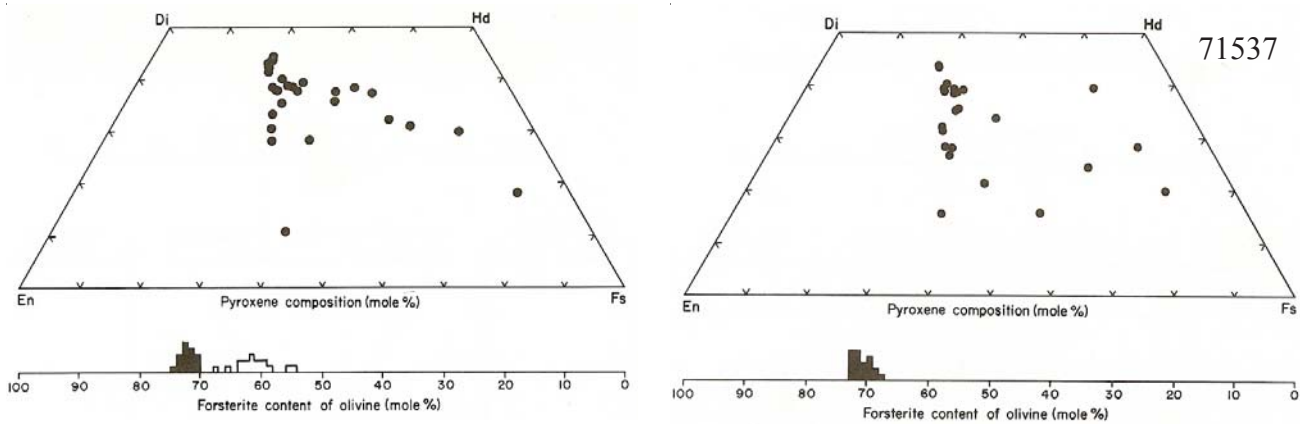


Figure 3: Composition of pyroxene and olivine in 71596 and 71537 (Warner et al. 1978).

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 an analysis of 71596. The composition of 71537 is given in the section on 71586.

Processing

There is only one thin section of 71596.

References for 71596

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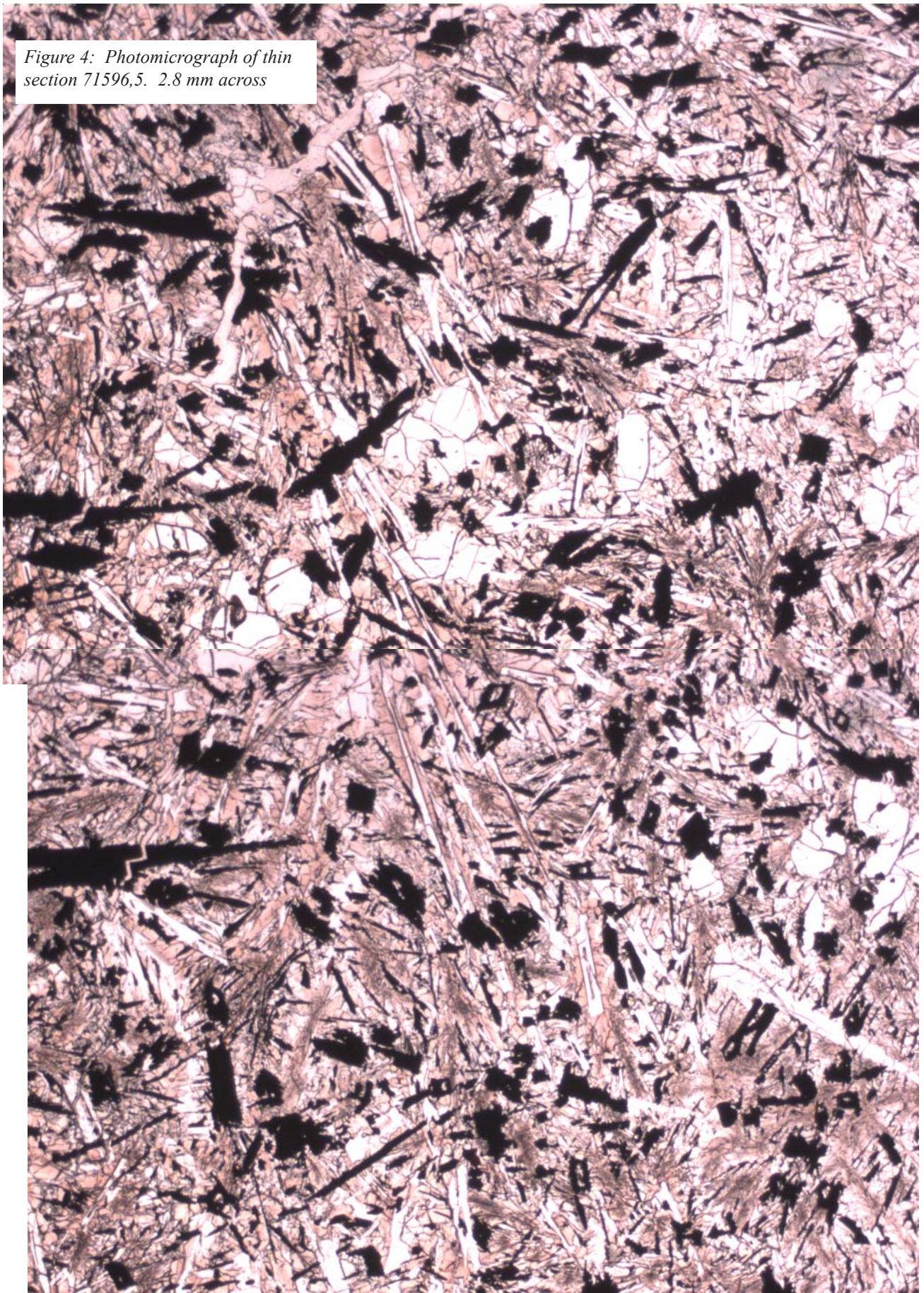
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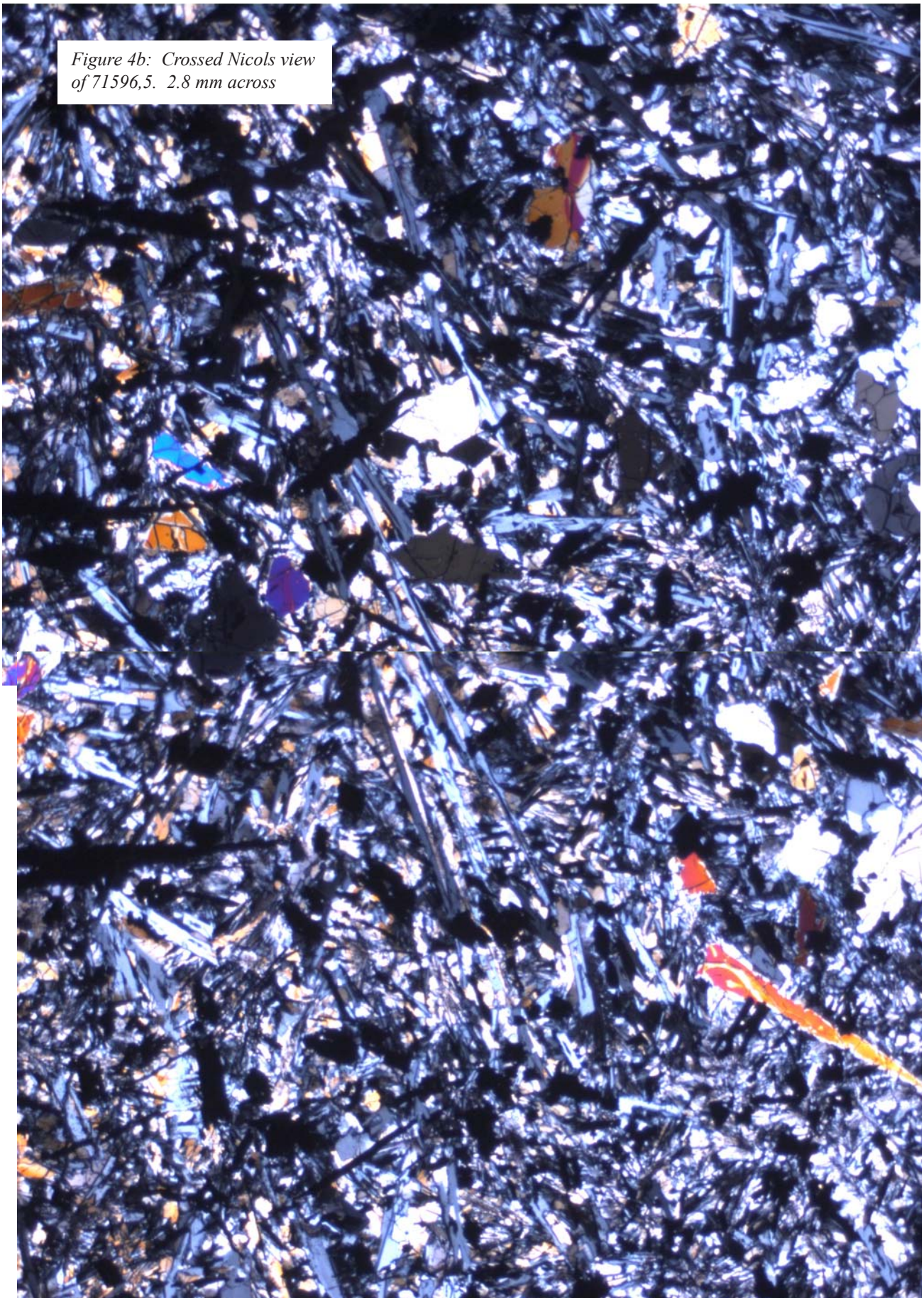
Warner R.D., Berkley J.L., Mansker W.L., Warren R.G. and Keil K. (1976b) Electron microprobe analyses of spinel, Fe-Ti oxides and metal from Apollo 17 rake sample mare basalts. *Spec. Publ. #16, UNM Institute of Meteoritics, Albuquerque.* 114 pp.

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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*



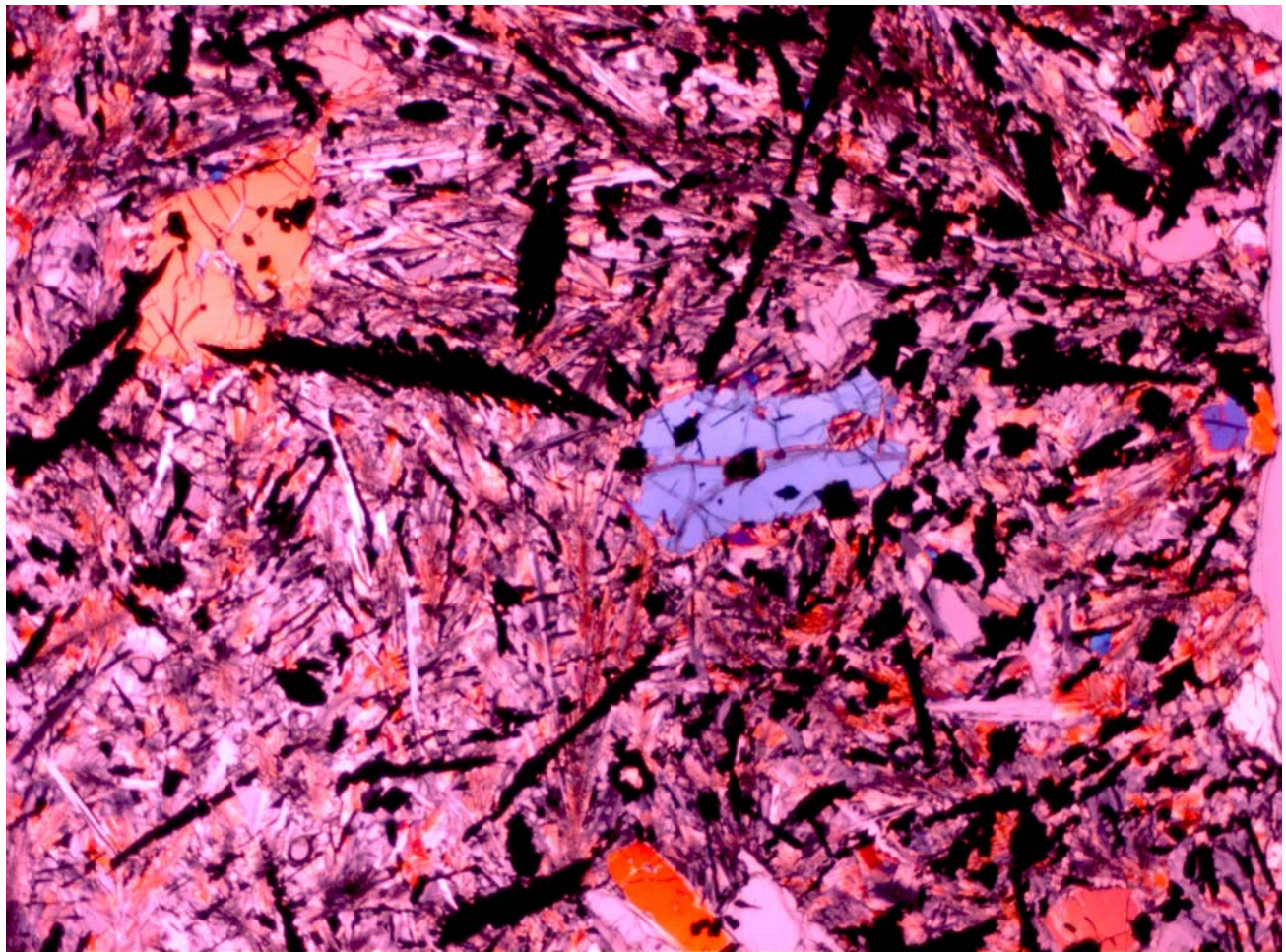
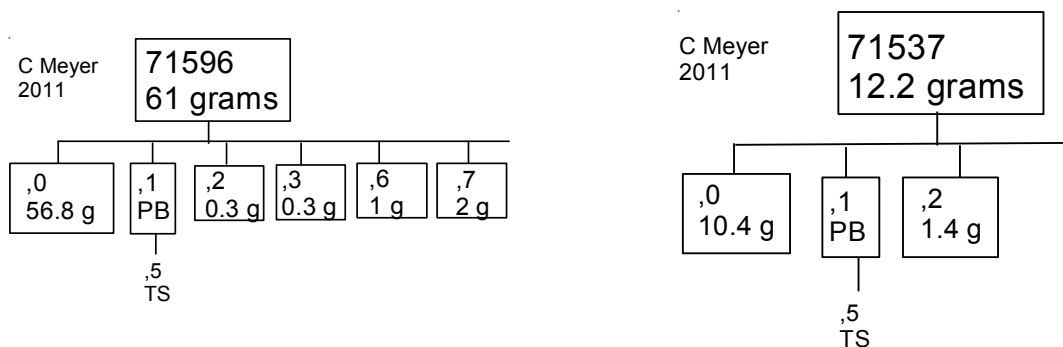


Figure 5: Photomicrograph of thin section 71537,5 showing microporphritic texture with partially resorbed olivine. Field of view is 2.8 mm. Partailly corssed polarizers with quartz plate..



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Wolfe E.W., Bailey N.G., Lucchitta B.K., Muehlberger W.R., Scott D.H., Sutton R.L and Wilshire H.G. (1981) The geologic investigation of the Taurus-Littrow Valley: Apollo 17 Landing Site. US Geol. Survey Prof. Paper, 1080, pp. 280.

Table 1. Chemical composition of 71596.

<i>reference</i>	Warner78	
<i>weight</i>	Warner75	
SiO ₂ %		
TiO ₂	11	(a)
Al ₂ O ₃	9.2	(a)
FeO	18.8	(a)
MnO	0.25	(a)
MgO	7.8	(a)
CaO	10.3	(a)
Na ₂ O	0.38	(a)
K ₂ O	0.04	(a)
P ₂ O ₅		
S %		
<i>sum</i>		

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

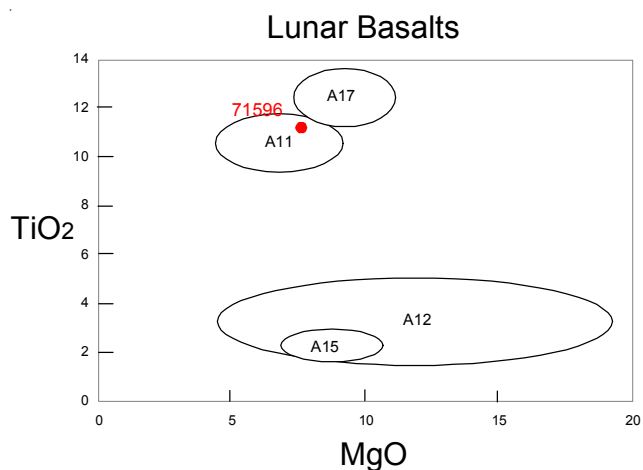


Figure 6: Composition of lunar basalts.

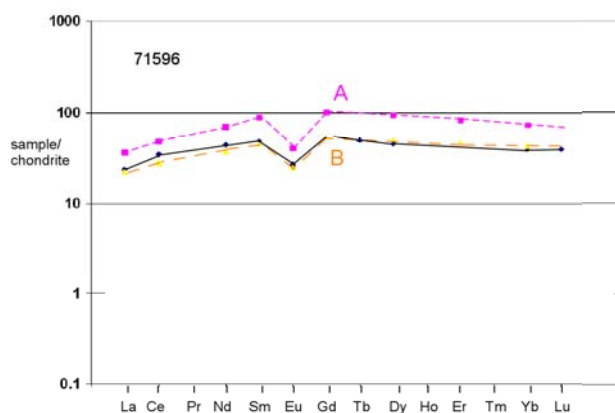


Figure 7: Normalized rare-earth-element diagram for 71596 and type A and B basalts.