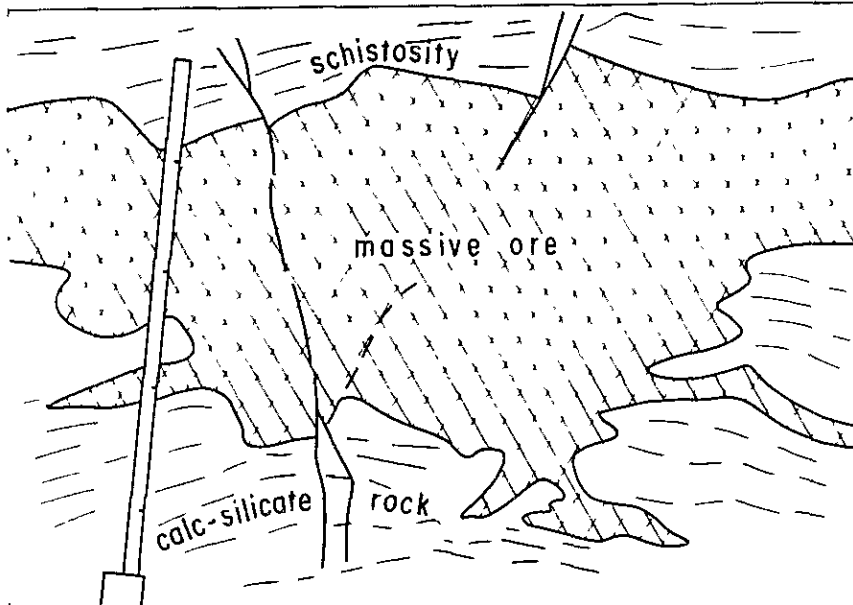




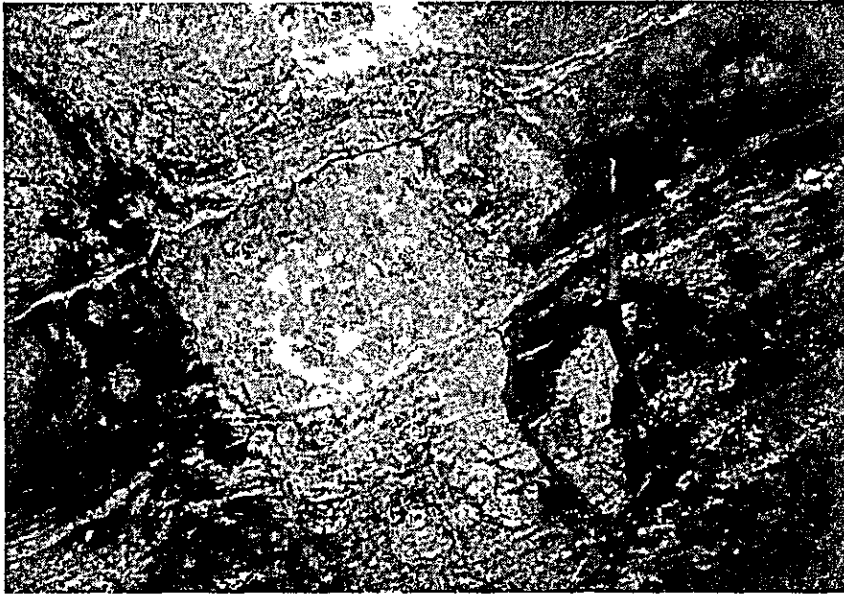
Location Perau Area
Soil sampling for geochemistry



Location Perau Mine G1L
Massive Ore forming "Hanekom-spur" shape
Coarse galena injected in the host rock



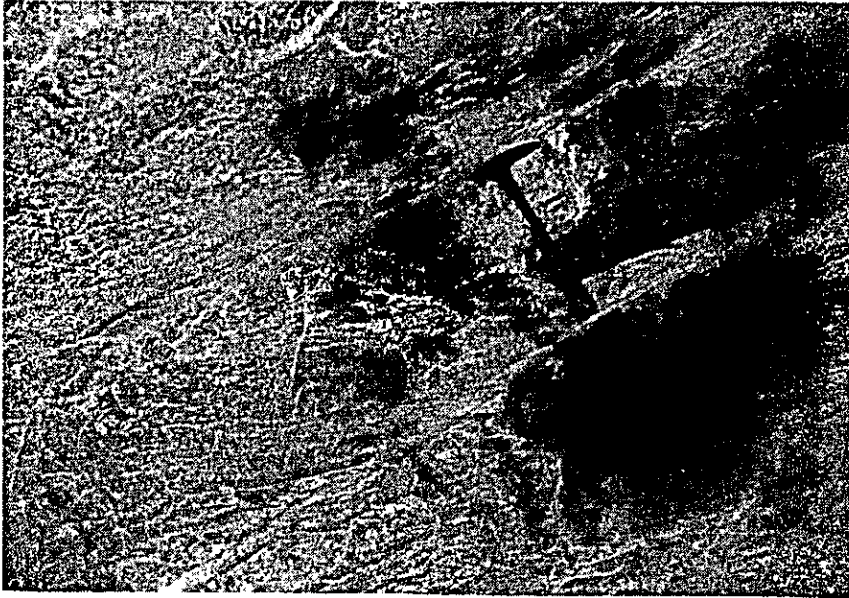
Explanation Sketch of above pht



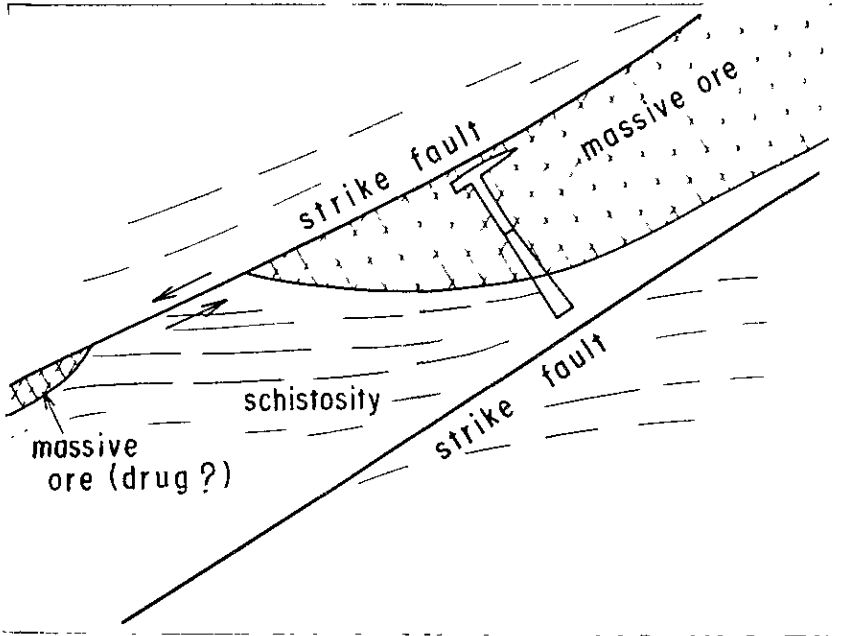
Location . Perau Mine G1L
Massive ore bearing
fine fragments of host
rock



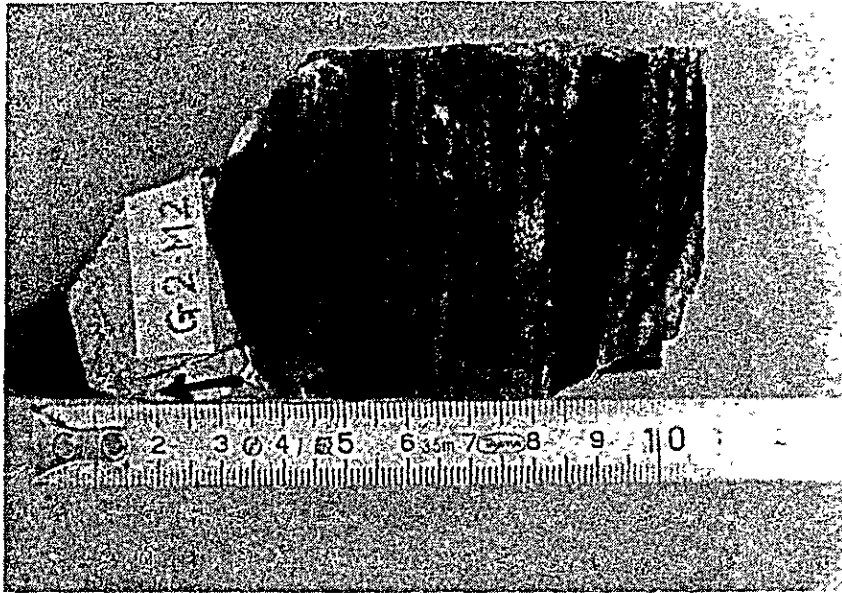
Location Perau Mine G3L
Folded massive ore
with many cleavages



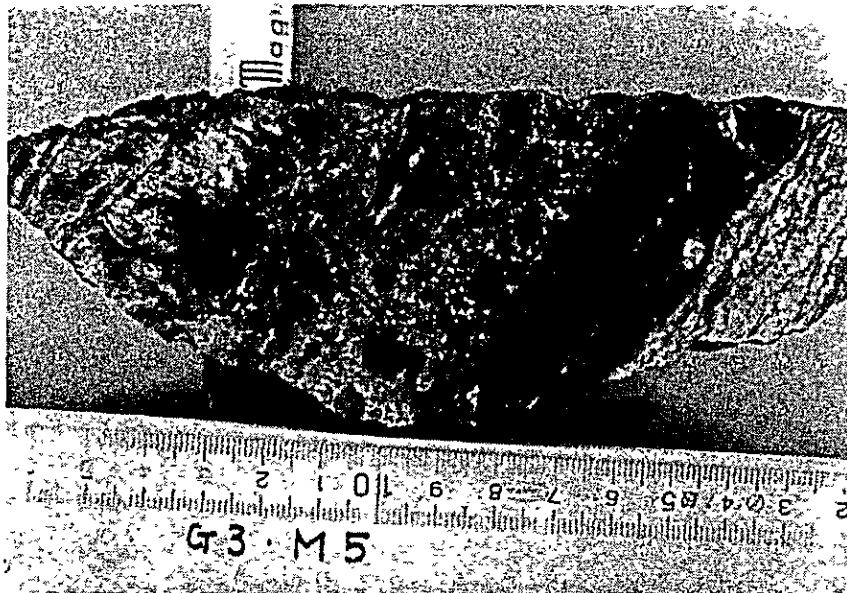
Location Perau Mine G3L
Strike faults are observed in both side of massive ore



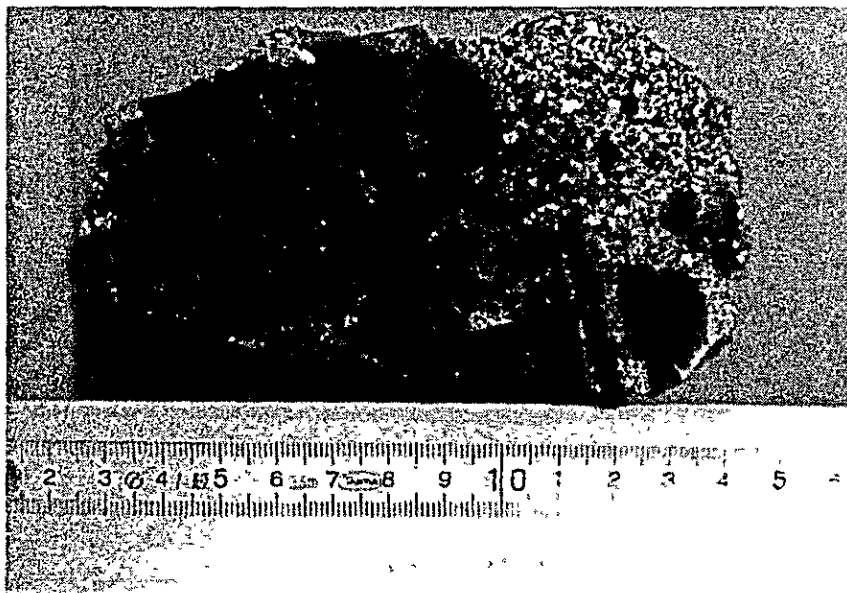
Explanation sketch of above photo



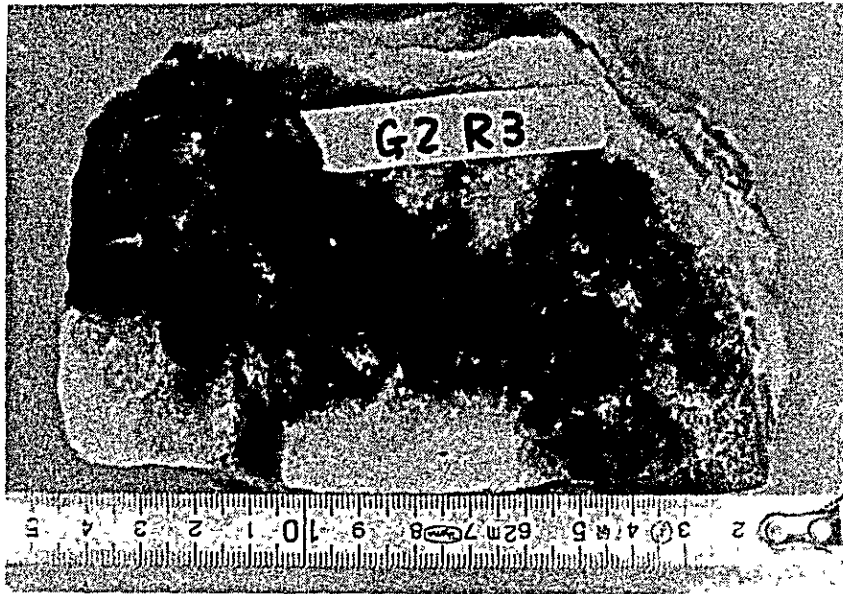
Location Perau Mine G2L
Banded pyrite



Location Perau Mine G3L
Massive ore bearing
many fragments of host
rock



Location Perau Mine G3 + 20 mL
Massive galena and
banded pyrite



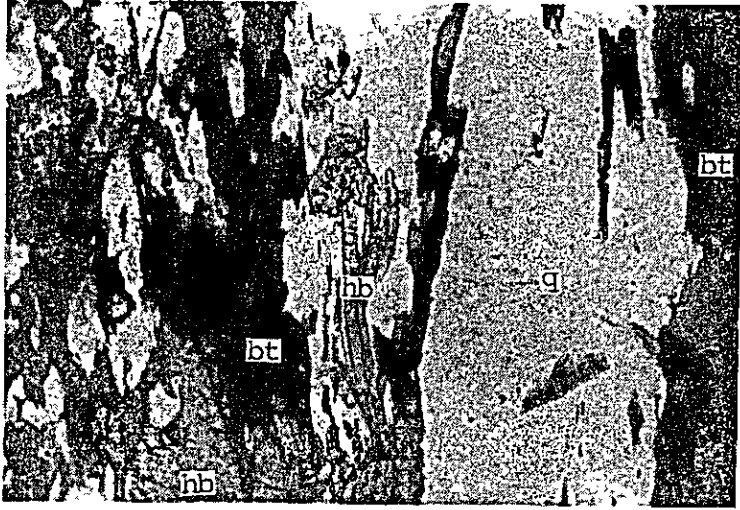
Location Perau Mine G2L
Massive barite with
galena impregnation

Photo A-2 Microphotograph of Thin Section

Abbreviations

q	quartz
pl	plagioclase
bt	biotite
mus	muscovite
hb	hornblende
tr	tremolite
gar	garnet
chl	chlorite
cal	calcite
cpx	clinopyroxene
act	actinolite
mcl	microcline
ol	olivine
sta	staurolite
hem	hematite

Sample No A- 091
Rock name Hornblende-biotite-schist (Setuva F)
Location Perau



It shows lepidoblastic texture

(only lower polar)

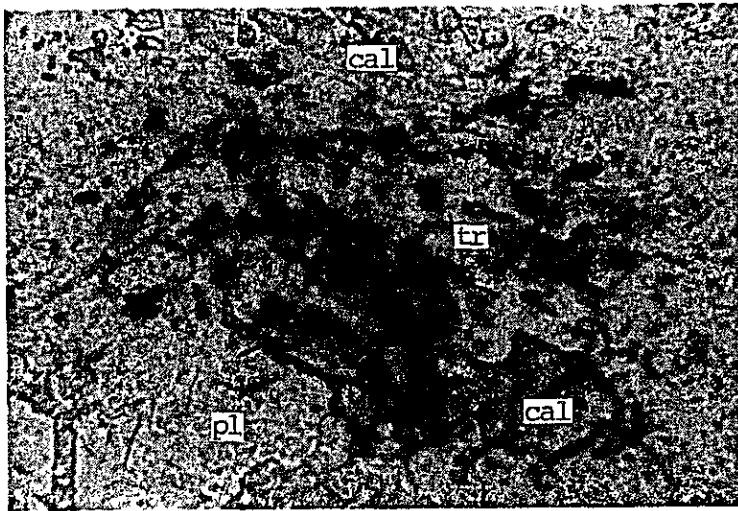
0 0.5mm



(crossed polars)

0 0.5mm

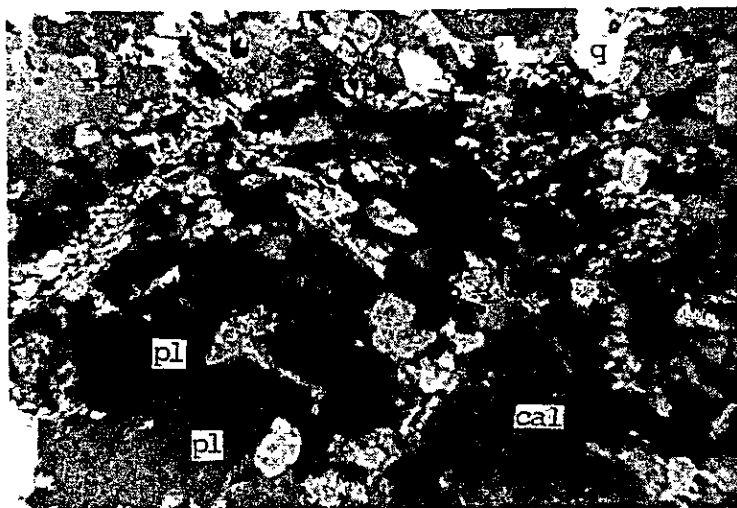
Sample No A-063
Rock name Calc-schist (Açungui I F)
Location Quil Ometro Quarenta



It shows equigranular texture, with partially lepidoblastic texture
Tremolite is found as needle-shaped crystal

(only lower polar)

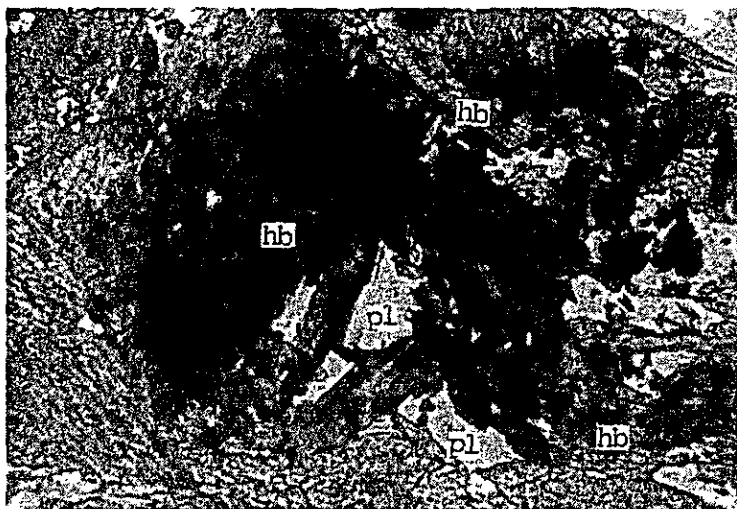
0 0.5mm



(crossed polars)

0 0.5mm

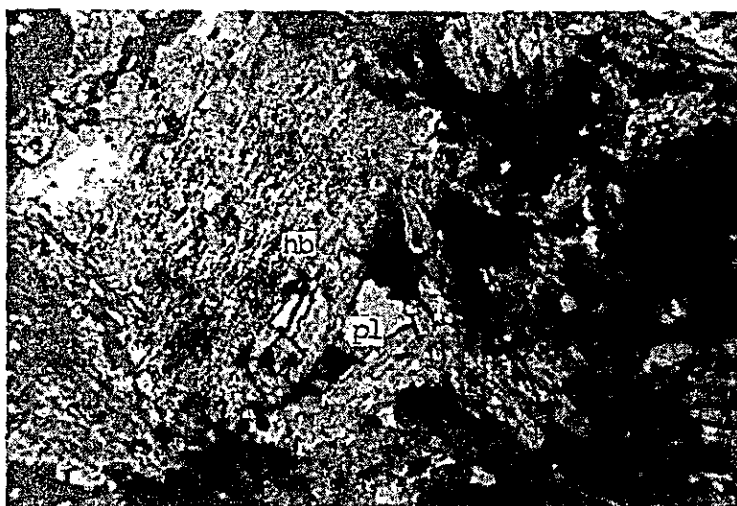
Sample No A-077
Rock name Amphibolite (Açungui I F.)
Location Perau



It shows nematoblastic texture

(only lower polar)

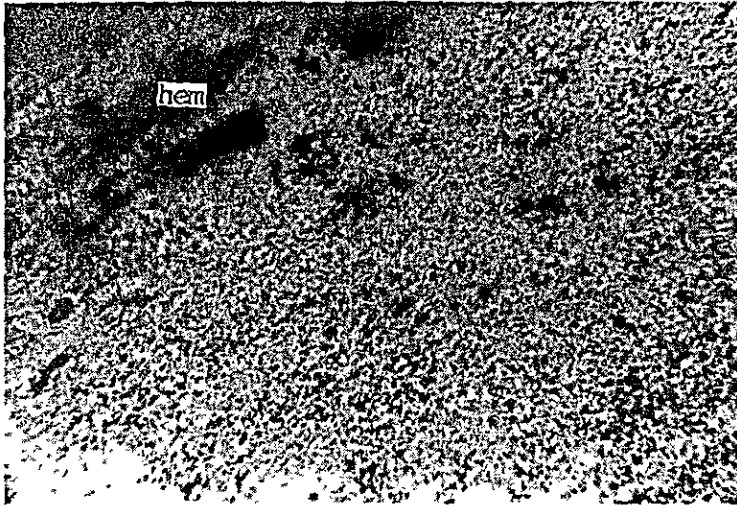
0 0.5mm



(crossed polars)

0 0.5mm

Sample No D-075
Rock name Sericite-phyllite (Açungui F)
Location Tunas



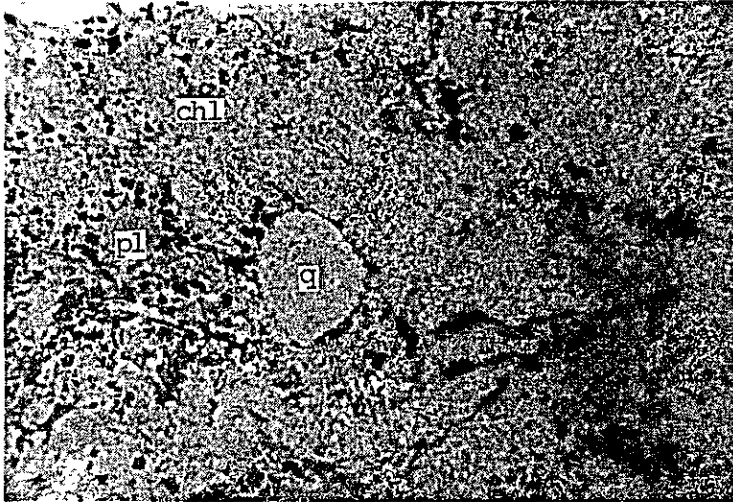
It shows lapidoblastic texture
Hematite is intercalated as lens in a matrix

(only lower polar)
0 0.5mm



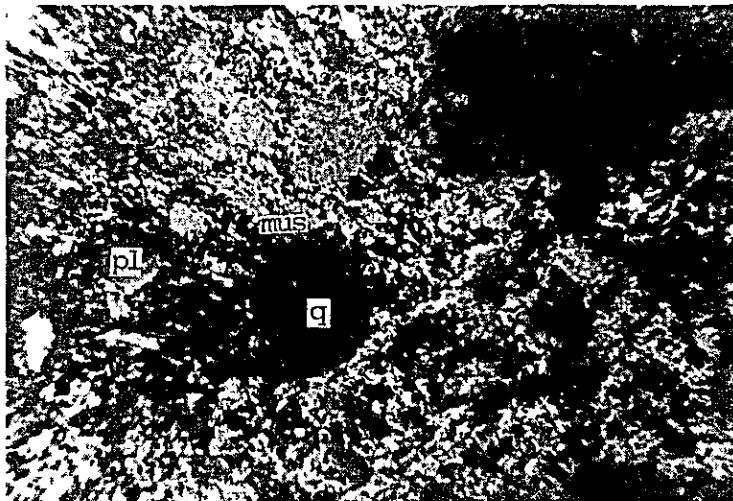
(crossed polars)
0 0.5mm

Sample No C-068
Rock name Chlorite-muscovite-schist (Açungu II.F.)
Location Quil Ometro Quarenta



It shows porphyroblastic and partly lepidoblastic texture. Porphyroblasts are composed of quartz and plagioclase.

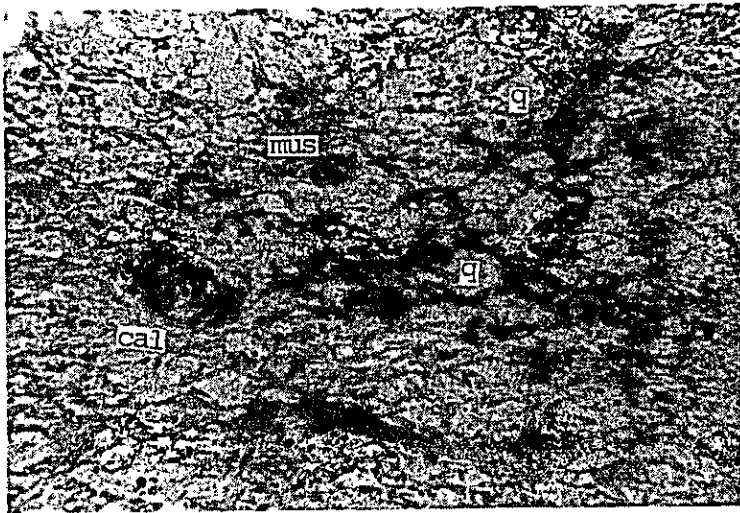
(only lower polar)



(crossed polars)



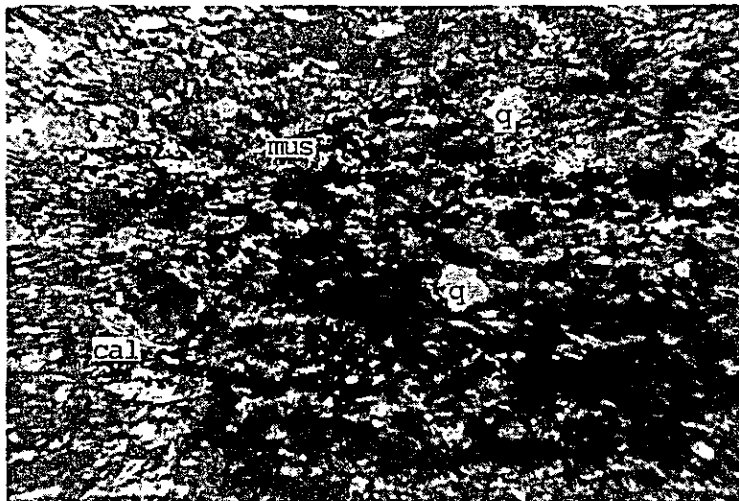
Sample No A 016
Rock name Muscovite schist (Açungui III F.)
Location Rio Ribeira



It shows lepidoblastic texture
A half amounts of muscovite is composed
of phengitic muscovite

(only lower polar)

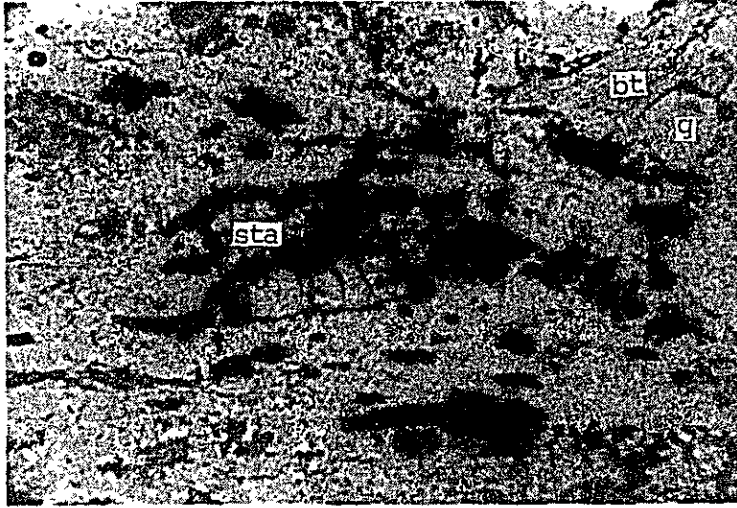
0 0.5mm



(crossed polars)

0 0.5mm

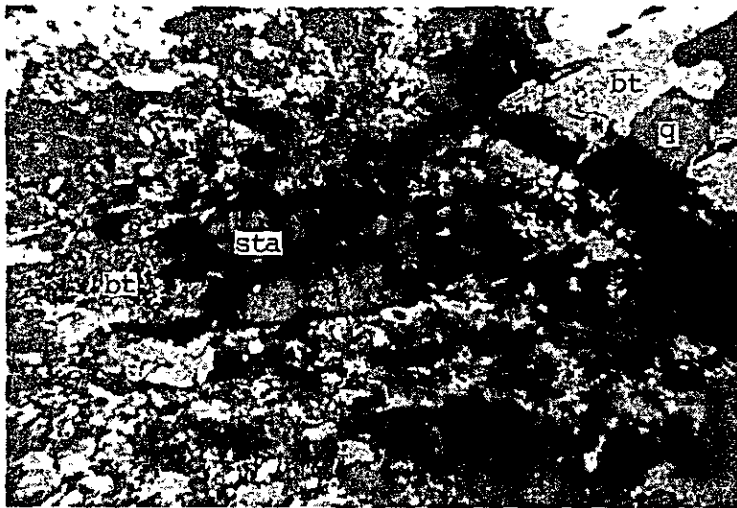
Sample No A-021
Rock name Staurolite-muscovite-biotite-schist (Açungu III F)
Location Rio Ribeira



*It shows lepidoblastic texture
Staurolite is a slender prism in shape*

(only lower polar)

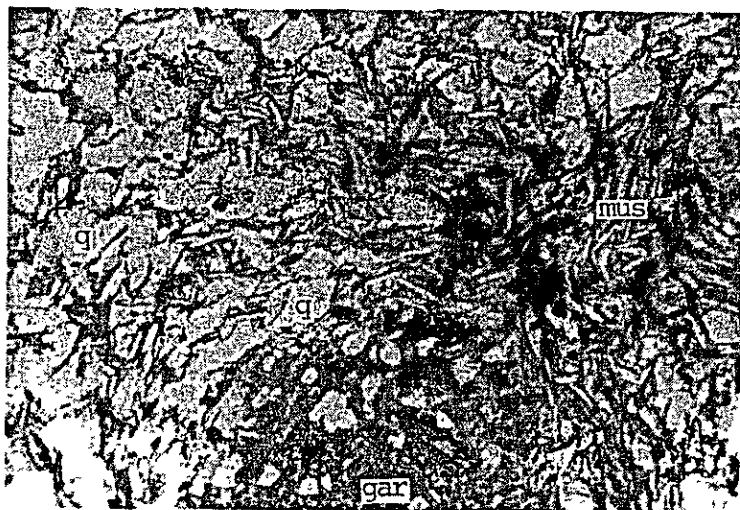
0 0.5mm



(crossed polars)

0 0.5mm

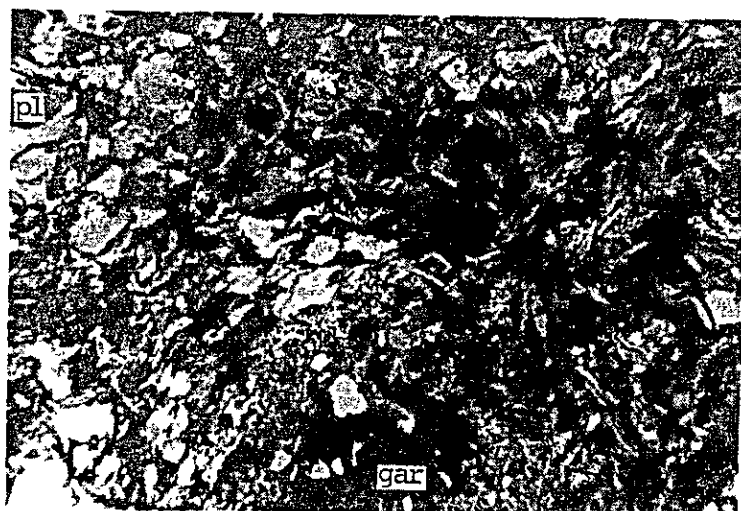
Sample No C 004
Rock name Garnet bearing chlorite-biotite-muscovite schist (Açungu III F)
Location Paneras



It shows lepidoblastic texture
Needles of muscovite crystals are
aggregated and micro-folded
Garnet crystal is fringed with
minute crystals of biotite

(only lower polar)

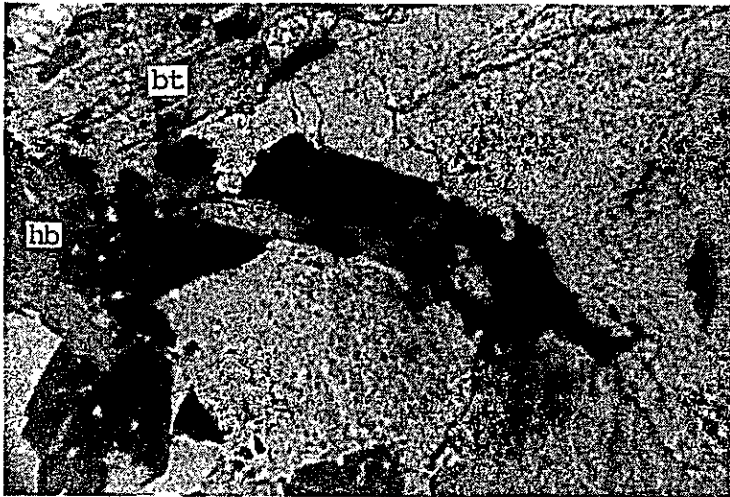
0 0.5mm



(crossed polars)

0 0.5mm

Sample No A-001
Rock name Biotite-hornblende-granodiorite (Intrusive rock)
Location Panelas



It shows porphyritic texture

(only lower polar)

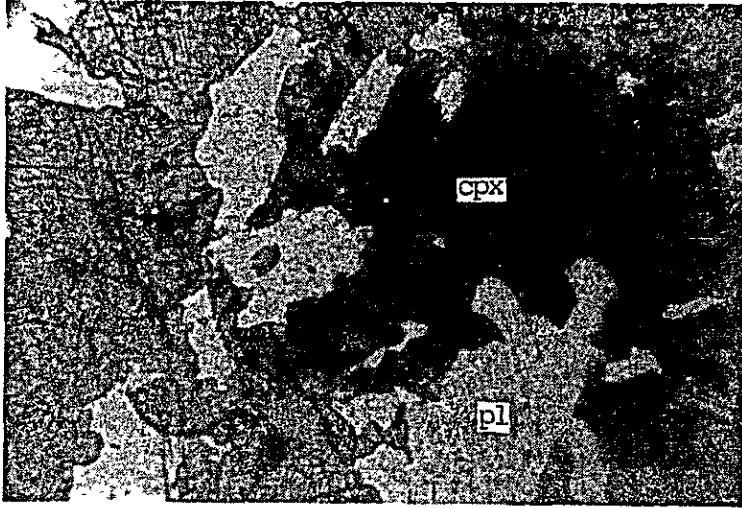
0 0.5mm



(crossed polars)

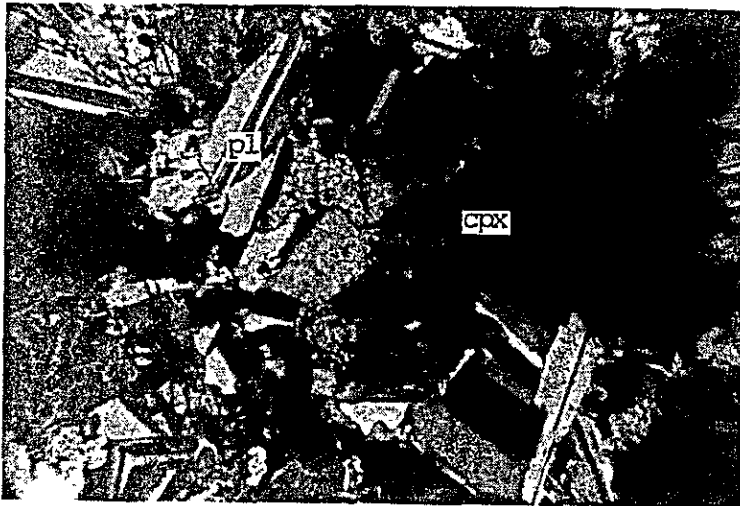
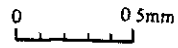
0 0.5mm

Sample No A 018
Rock name Hornblende-Gabbro (Intrusive Rock)
Location Rio Ribeira



It shows ophitic texture

(only lower polar)



(crossed polars)

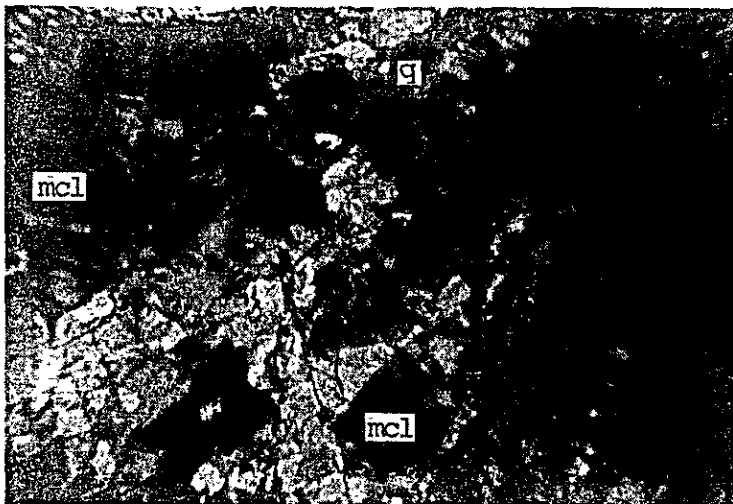
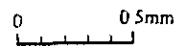


Sample No B-032
Rock name Mylonitized biotite-granite (Intrusive rocks)
Location Mato Preto



It shows porphyroblastic texture. Microcline forming porphyroblasts frequently shows parhite texture and poikilolitically encloses minute crystals of quartz and plagioclase.

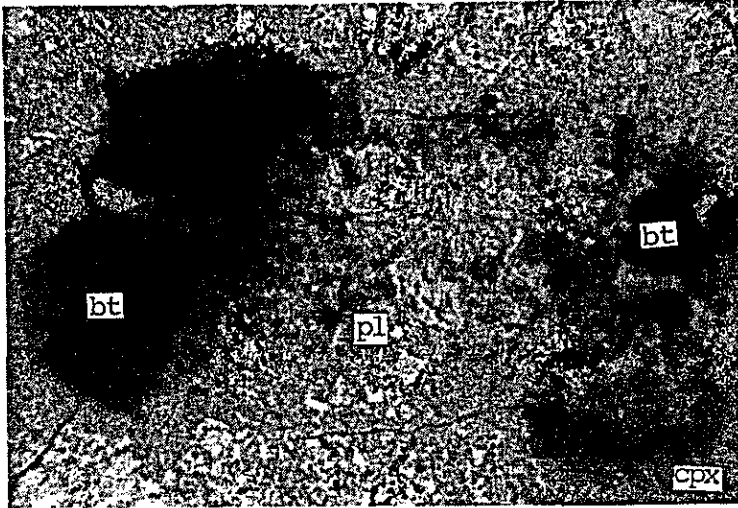
(only lower polar)



(crossed polar)



Sample No C-073
Rock name Hornblende-augite-biotite-syenite (Intrusive Rock)
Location Tunas



It shows equigranular texture

(only lower polar)



(crossed polars)



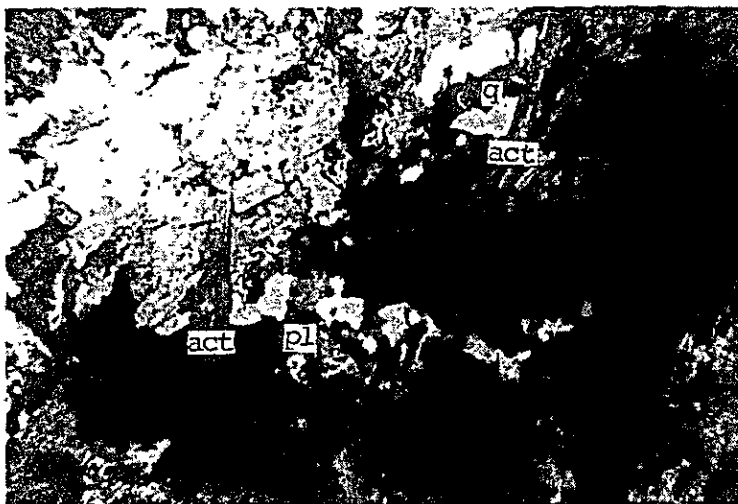
Sample No D-015
Rock name Meta gabbro (Intrusive Rock)
Location Rio Ribeira



It shows poikloblastic texture
Hornblende actinolite and plagioclase
are the main constituents in this rock
Crystals of hornblende and actinolite
poikloblastically enclose scattered minute
crystals of biotite quartz and plagioclase

(only lower polar)

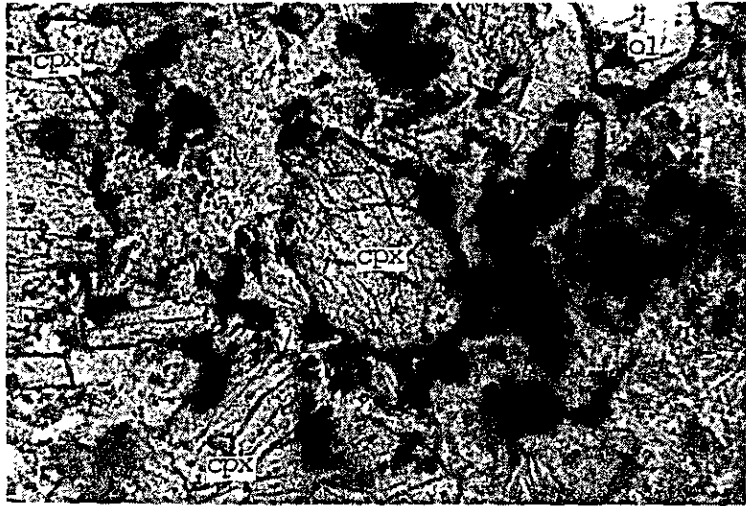
0 0.5mm



(crossed polars)

0 0.5mm

Sample No D-113
Rock name Olivine-basalt (Intrusive Rock)
Location Cnicum



It shows porphyritic and intergranular texture.
Clinopyroxene showing zoned texture is the main components

(only lower polar)

0 0.5mm



(zoned polars)

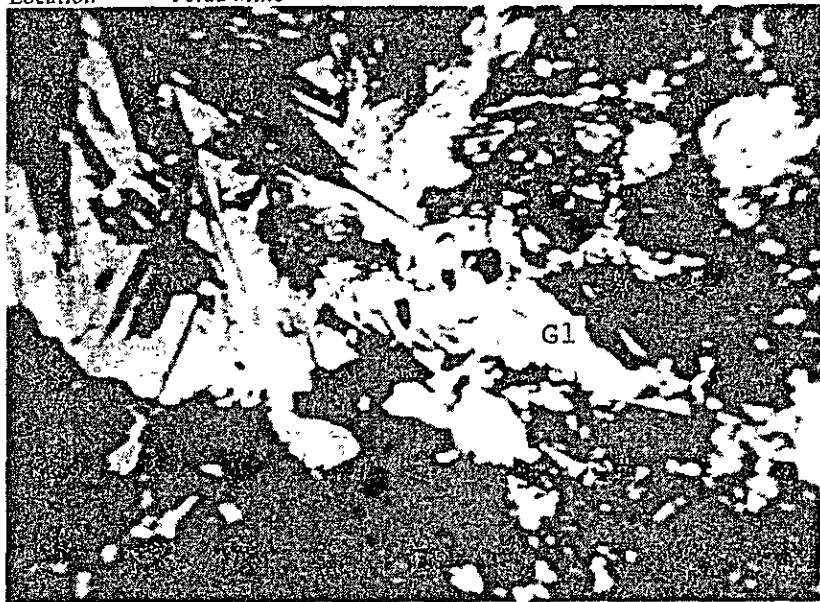
0 0.5mm

Photo A-3 Microphotograph of Polished Section

Abbreviation

Gl	galena
Py	pyrite
Tt	tetrahedrite
Sp	sphalerite
Cp	chalcopyrite
Po	pyrrhotite
Mc	malachite

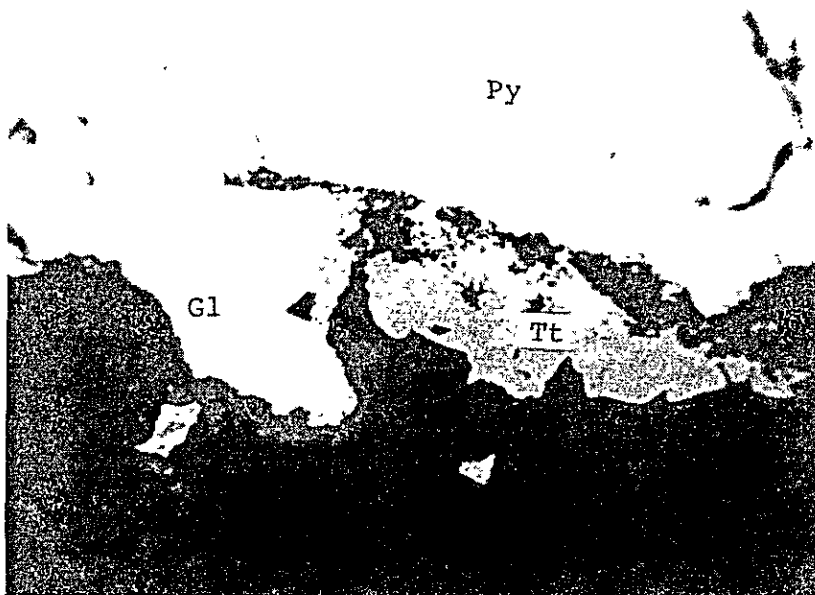
Sample No G1 M-05
Location Perau Mine



Galena fills the interstices of
foliated gangue minerals

(only lower polar)

0.2mm

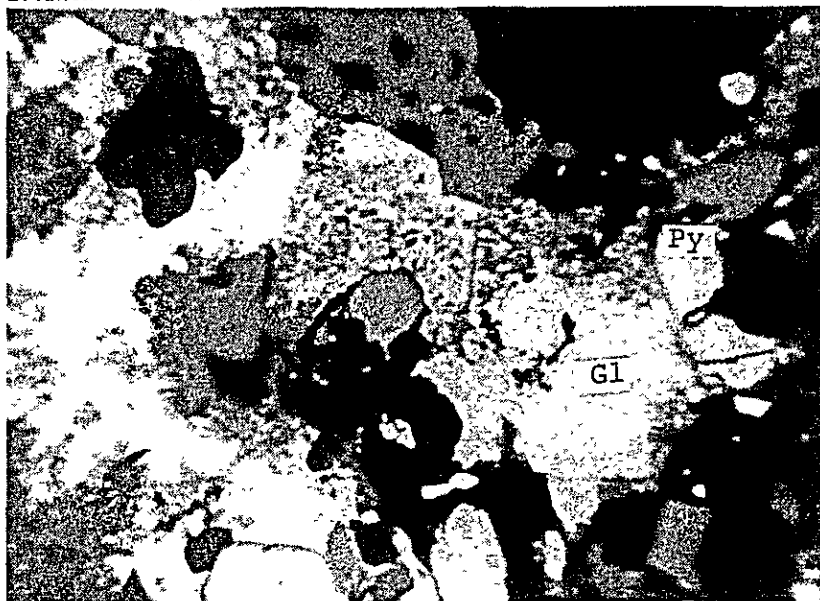


Tetrahedrite occurs intimately
associated with galena

(only lower polar)

0.05mm

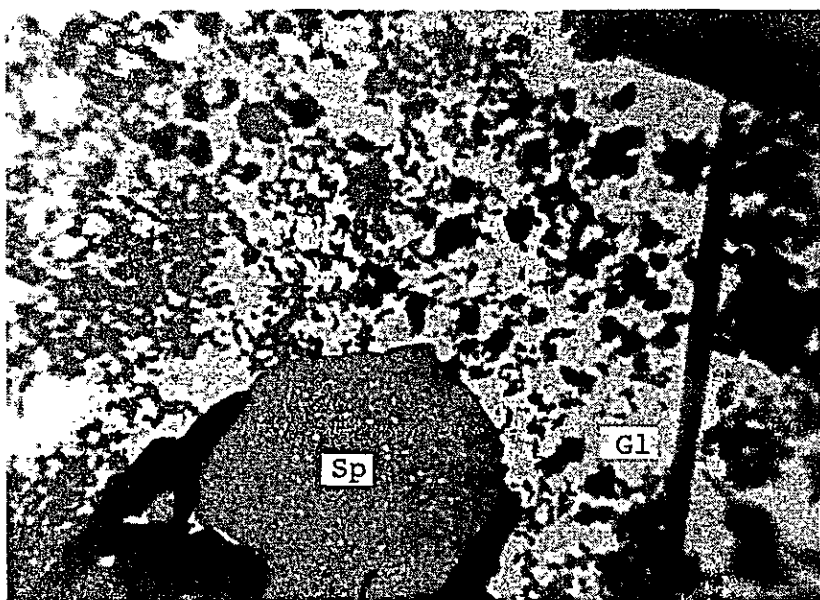
Sample No G1 M-08
Location Perau Mine



Galena is partly replaced by fine grains of gangue minerals

(only lower polar)

0.2mm

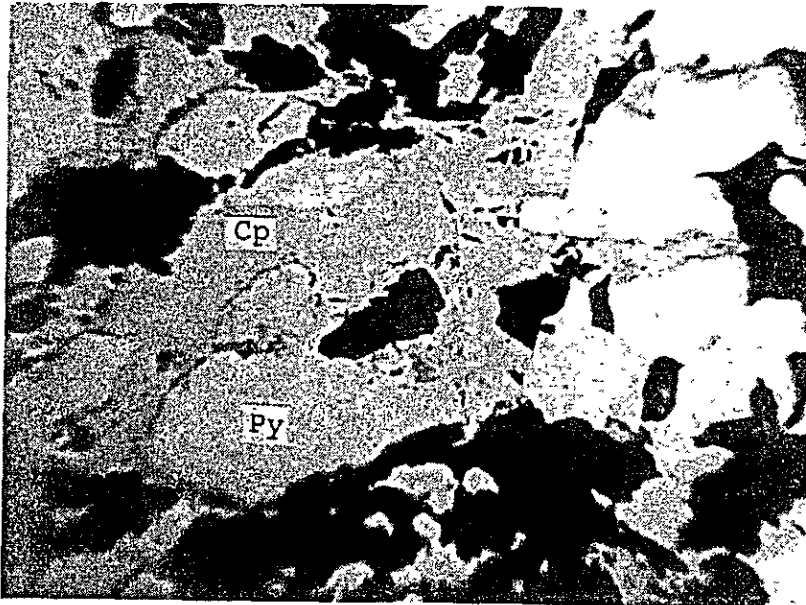


Sphalerite having minute chalcopyrite blebs and a gangue mineral which disseminates finely in galena and fills cleavages

(only lower polar)

0.05mm

Sample No G1 M-04
Location Perau Mine

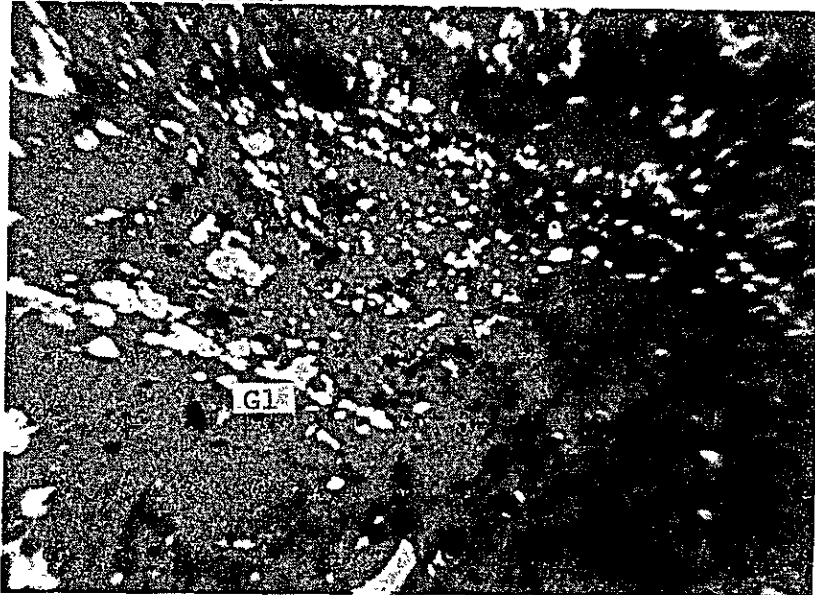


Pyrite is corroded by chalcopyrite
Some parts of pyrite are changed
to fine-grained pyrite in
chalcopyrite

(only lower polar)

0.2mm

Sample No G2 M-05
Location Perau Mine

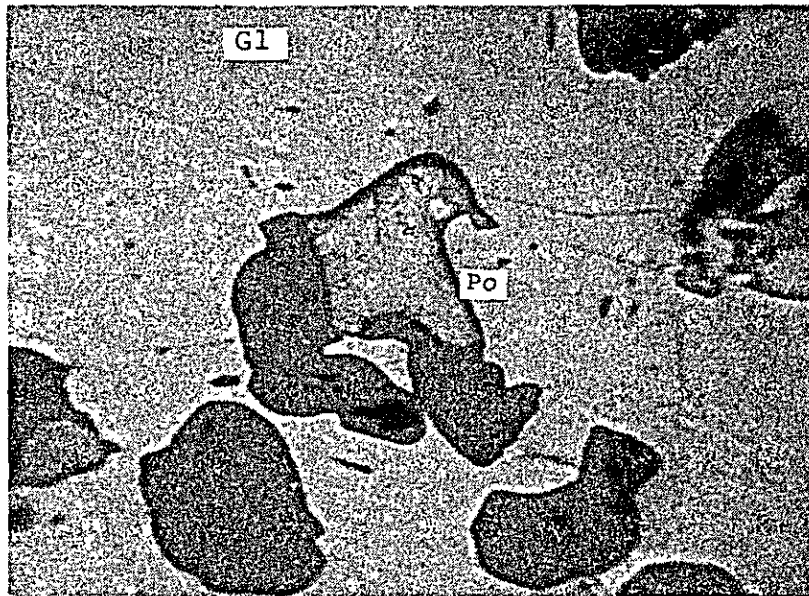


Dissemination of galena is
controlled by the original
structure of rock

(only lower polar)

0.2mm

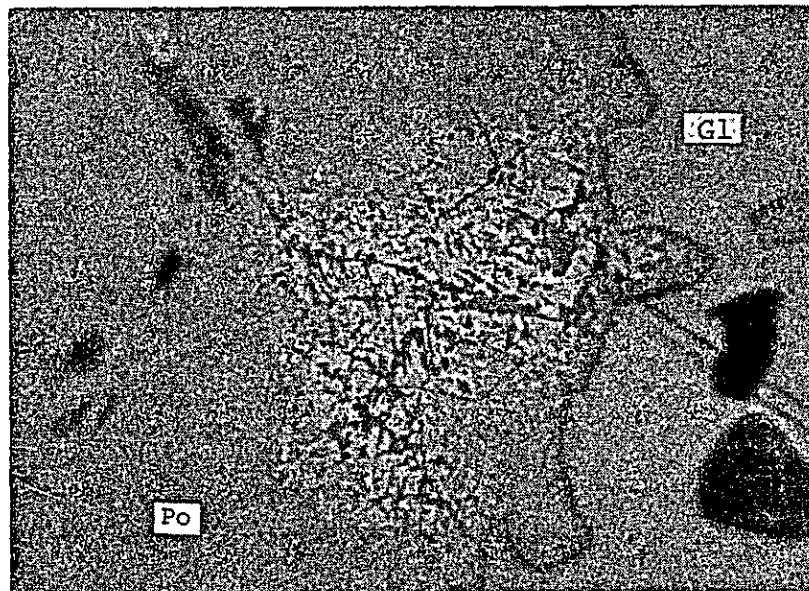
Sample No G2 M-03
Location Perau Mine



Pyrrhotite grain corroded by galena and replaced partly by pyrite

(only lower polar)

0.2mm

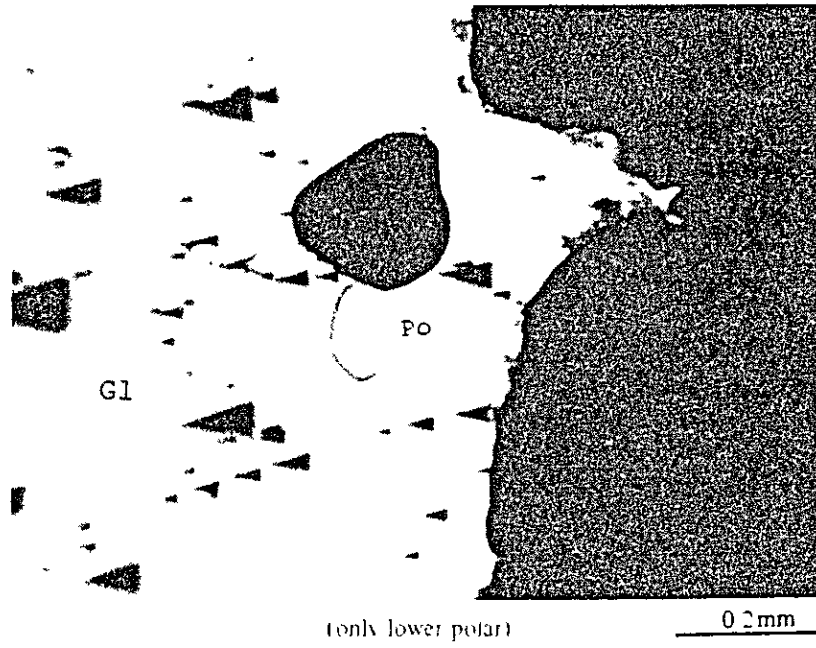


Fine-grained pyrite and gangue replace pyrrhotite along thin cracks

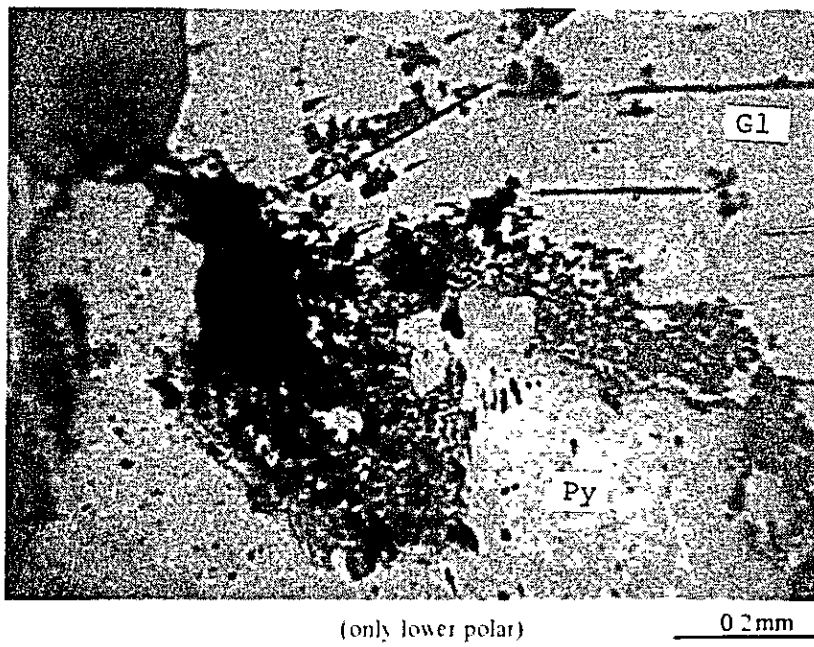
(only lower polar)

0.05mm

Sample No G2 M-04
Location Perau Mine

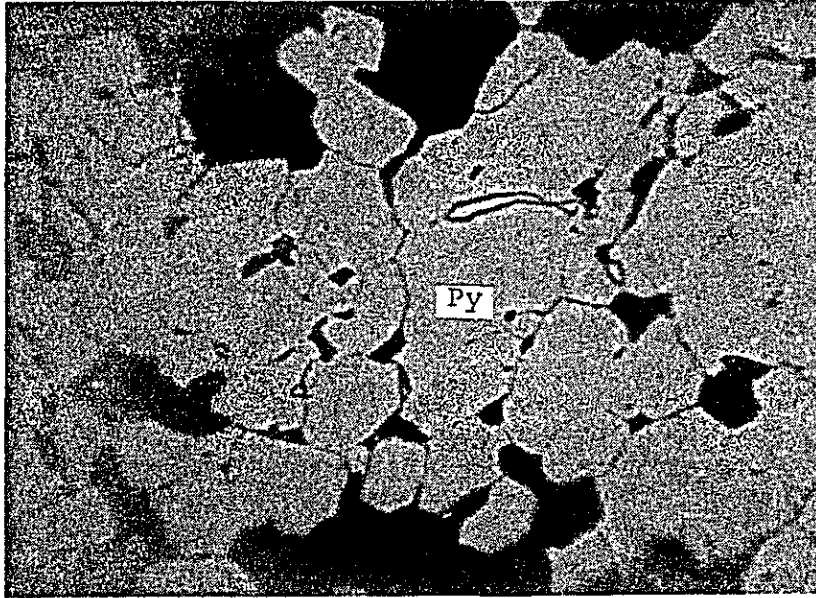


Pyrrhotite grain in galena



Fine-grained gangue mineral replaces a part of galena along boundaries and cleavages

Sample No G3 M-03
Location Perau Mine



Pyrite occurs in a mosaic texture

(only lower polar) 0.2mm

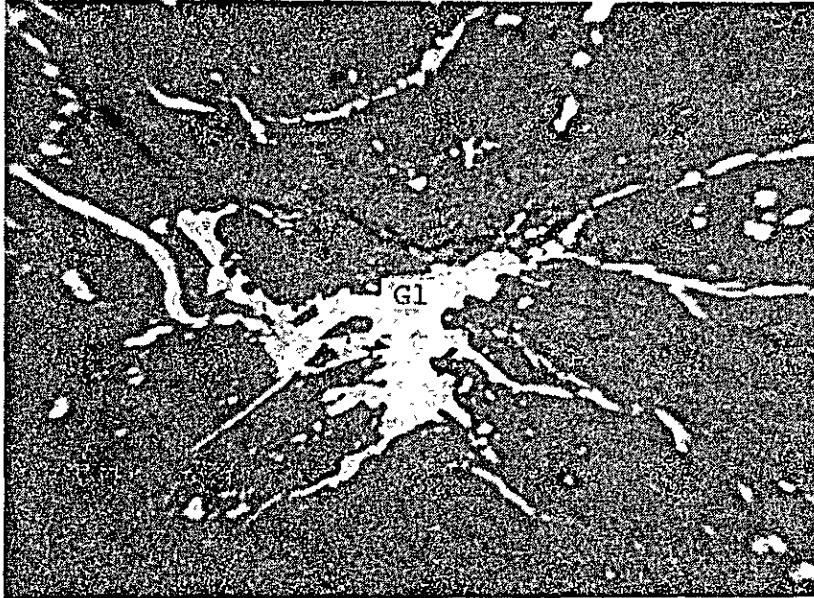
Sample No G3 M-04
Location Perau Mine



Galena fills the interstices of the original structure of rock

(only lower polar) 0.2mm

Sample No G3 + 20 M-01
Location Perau Mine

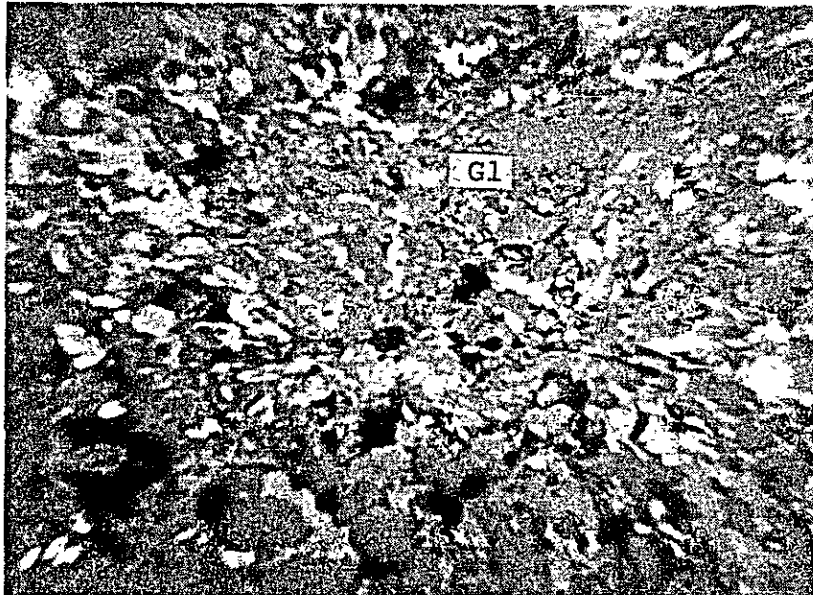


Irregular veinlets filled by galena

(only lower polar)

0.2 mm

Sample No G4 M-02
Location Perau Mine

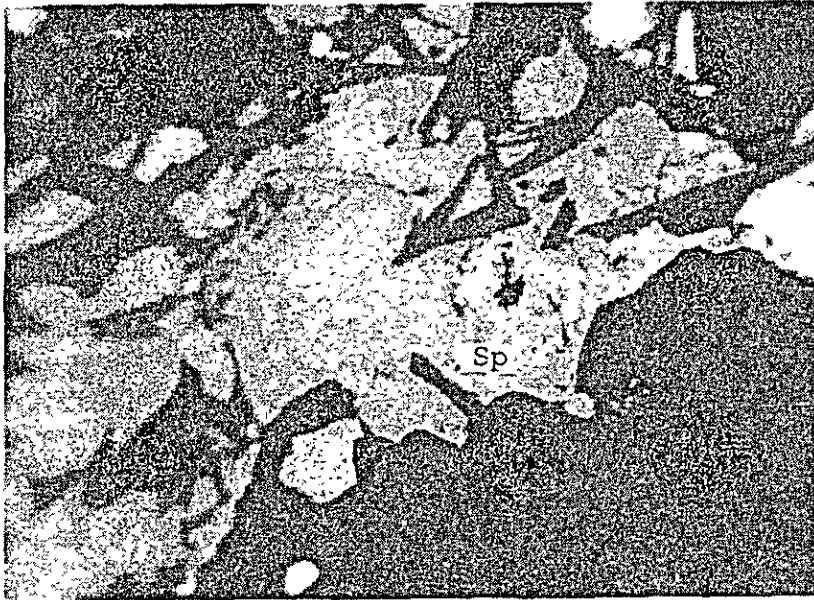


Galena fills the interstices of gangue forming fine and flake grains

(only lower polar)

0.2 mm

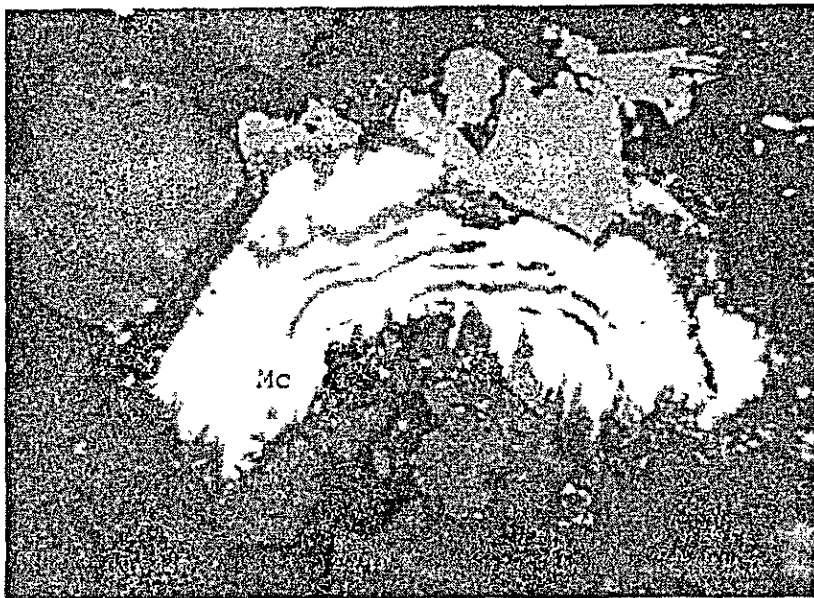
Sample No G4 M-02
Location Perau Mine



Concentric texture of a sphalerite grain. The texture is shown by the arrangement of fine grains of gangue minerals

(only lower polar)

0.05mm



Concentric texture found in a marcasite grain

(only lower polar)

0.05mm

No	Name of Drilling	Location of Drilling set	Strike of Drilling	Dip of Drilling	Length of Drilling
1	I - 112	308 mL	S 68°W	0°	126.10 m
2	I - 122	308 mL	N 76°E	0°	103.70 m
3	I - 124	308 mL	S 68°W	0°	141.00 m
4	I - 139	308 mL	S 78°W	0°	83.00 m
5	I - 141	308 mL	N 40°W	0°	70.80 m
6	I - 142	308 mL	N 74°E	0°	120.00 m
7	I - 95	403 mL	N 40°W	0°	104.00 m
8	I - 113	403 mL	S 76°E	0°	82.30 m
9	I - 125	403 mL	N 50°W	0°	103.50 m
10	I - 129	403 mL	N 68°E	0°	90.00 m
11	I - 130	480 mL	N 90°W	0°	117.50 m

Fig. A-1 Columnar Section of Core Logs in Rocha Mine

No. 1
I-112(1)

Strike . S68°W
Dip : Horizontal

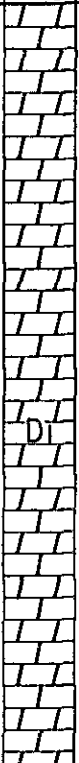
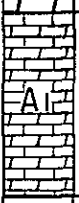
Rocha Mine
308 mL

Depth (m)	Core Log	Description	Depth (m)	Core Log	Description
200	D2	altn of cal Dol > dol Ls cal Dol . white, mdg (dol Ls light grey to white fng)			Dol, light grey ~ grey, mdg, massive, with intercalation of cal - Dol.
5.50					
600		4 pyrite veinlets			
10	D2		60		
11 90	v Db v	Db, black ~ dark grey, mdg ~ fng, massive	62 00		intercalation of dol - Ls, mdg ~ fng, light grey, cracky
13 40	D2	Dol > cal - Dol, mdg ~ fng, cracky	67 00		Dol, fng, grey ~ light grey beded
19 10		altn of cal Dol > Dol	70		
21 00					
21 40		Db, black ~ dark grey, mdg.			
		cal - Dol . light grey ~ grey, mdg, massive, with intercalation of Dol	75 20-75.30		sheared zone
30	D1		79 30	L	Ls, light grey ~ white, mdg
			84 30		Dol light grey, mdg, massive partly cracky
45 00		Dol. light grey, mdg, bedded. 47 00 ~ 51 00 cracky	90	D2	
50			100		

No. 1
I-112 (2)

Strike : S 68° W
Dip : Horizontal

Rocha Mine
308mL

Depth (m)	Core Log	Description	Depth (m)	Core Log	Description
110		Dol, light grey, mdg, massive partly cracky			
120					
121 00		alin of Ls > dol - Ls (Ls : grey mdg dol - Ls : grey ~ dark grey)			
126 10		126 10 End			

No. 2
I-122

Strike N76°E
Dip : Horizontal

Rocha Mine
308 mL

Depth (m)	Core Log	Description	Depth (m)	Core Log	Description
330		cal-Dol, grey to dark grey, massive, with intercalation of Dol, bedded. galena vein 2mm, massive.			cal-Dol, grey, mdg, massive.
	D ₂	cal-Dol, dark grey, massive.	60	D ₂	
10	10.70	pyrite, diss, 20cm.	61.50		Db. dark grey, fng
	10.90	pyrite, diss, 2mm.			
	12.50	cal-Dol, massive, grey, mdg.		Db	
	16.00	dol-Ls, bedded.	70		
20		2120~2200 intercalation of Dol, massive, dark grey. dol-Ls, bedded.	75.00		cal-Dol, grey, mdg massive.
	25.50	galena diss and massive.		D ₂	
	26.00	pyrite diss	80		
	26.60				
	27.00	dol-Ls, massive.	90	90.00	ser-schist with interclation of Dol, dark grey, bedded.
30					
	34.00	cal-Dol, grey, mdg, massive.	97.00		ser-sch, grey
40	D ₂			S ₂	
50			100	S ₂	

No. 3
I-124(1)

Strike : S 68°W
Dip : Horizontal

Rocha Mine
308 mL

Depth (m)	Core Log	Description	Depth (m)	Core Log	Description
		Dol, dark grey, (massive) mdg	50.90		
	D ₂		51.00		galena, width 10cm, diss.
				D ₂	
			53.81		Dol, light grey, massive
			53.91		pyrite, galena, diss.
5.50					
	D ₂	<40° altn of Dol > dol Ls bedded mdg	56.00		cal-Dol, light grey, mdg.
7.50					
7.80		pyrite vein let			
10					
	D ₂	Dol, light grey, massive, cracky	60		
			65.20		altn of dol - Ls > Dol.
17.01					
17.02		galena, diss			
20			70	A ₂	71.50~72.50 partly Dol, bedded.
	D ₂	Dol, light grey massive, cracky			
			78.00		Dol, white, massive, cracky
23.07					
23.30		galena, veinlet			
	D ₂	altn of Dol > dol - Ls Dol. grey, mdg, (bedded)	80		
			81.90		Dol, white, massive, cracky.
32.00					
		Dol, light grey, massive	82.10		galena, pyrite, disse.
				D ₁	Dol, massive
			86.50		galena, pyrite, diss.
			86.55		
			87.70		galena, diss w/ pyrite
			87.90		
	D ₂		90	D ₁	Dol, white, massive, cracky.
			92.00		galena, diss.
			92.10		
			96.00		altn of dol - Ls > Dol, bedded.
				A ₂	
50			100		

No. 3
I-124(2)

Strike: S 68°W
Dip: Horizontal

Rocha Mine
308mL

Depth (m)	Core Log	Description	Depth (m)	Core Log	Description
		dol-Ls, grey, massive			
	A2				
104.20					
104.30		galena, diss with pyrite			
		104.30 ~ 124.50 Ls. light grey, massive.			
110					
	L				
120					
		124.50			
		Ls, grey ~ white and black, bedded.			
130					
140		141.00 End			
141.00					
150					

No. 4
I-139

Strike : S 78°W
Dip : Horizontal

Rocha Mine
308 mL

Depth (m)	Core Log	Description	Depth (m)	Core Log	Description
300	D2	Dol, grey to dark grey mdg partly calcite and dolomite veinlet			Dol light grey
10		Ls grey to light grey, mdg	60	D1	pyrite diss
1150		intercalation of cal - Dol grey to light grey, mdg 2.5m ~ 1.5m			pyrite diss
1800		Ls grey and light grey, fng to mdg, bedded	6700		aln of Ls > cal - Dol
20		light grey Ls with grey bands of Dol	6750	Db	Db, fng, greenish black
2800		Dol grey massive	70		aln of Ls > cal - Dol light grey
30	D1		7030	A1	
3180	Db	Db, fng, black	7250		Ls, light grey, massive
3420		Dol. light grey > grey mdg to fng.		L	
40	Dv		80		
			8300		8300 End
50			90		
			100		

No. 5
I-141

Strike: N40°W
Dip: Horizontal

Rocha Mine
308 mL

Depth (m)	Core Log	Description	Depth (m)	Core Log	Description
		altn of Ls > Dol Ls : 50 ~ 60 cm Dol. 20 ~ 30 cm			Ls, light grey ~ grey, fng ~ mdg
7.00			62 10		
10		Ls, light grey, fng ~ mdg	60	63 30	altn of Dol > Ls dark grey
11.00		altn of Ls > dol - Ls Ls : black, fng ~ mdg dol - Ls : grey, mdg. cracky			62 50 Ls with flourite grey ~ light grey, fng ~ mdg
17.80					
20		Ls, light grey, fng ~ mdg	70	70 80	70 80 End
29 10					
30		altn of Ls > dol - Ls, folding	80		
3000		Ls, grey, massive			
40			90		
		Ls, grey, massive			
50			100		

