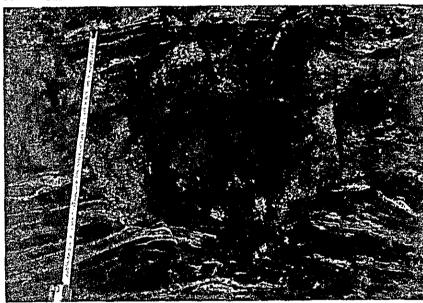
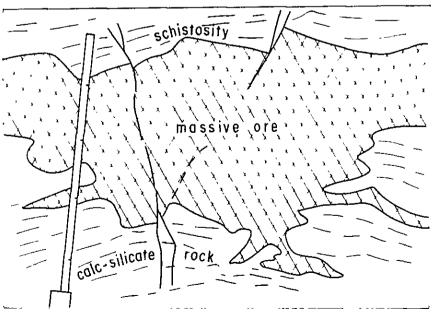


Perau Area Soil sampling for geochemistry

Location



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



Explanation Sketch of above pht

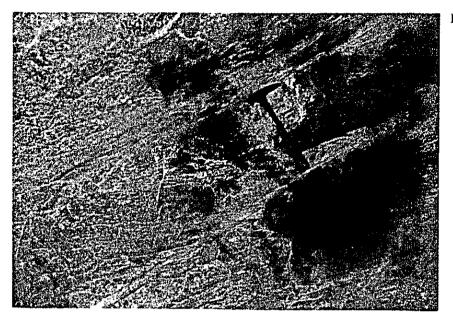




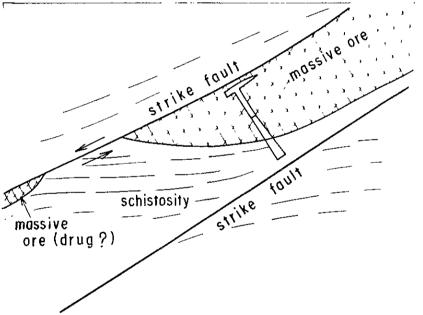
Location . Perau Mine G1L Massive ore bearing fine fragments of host rock



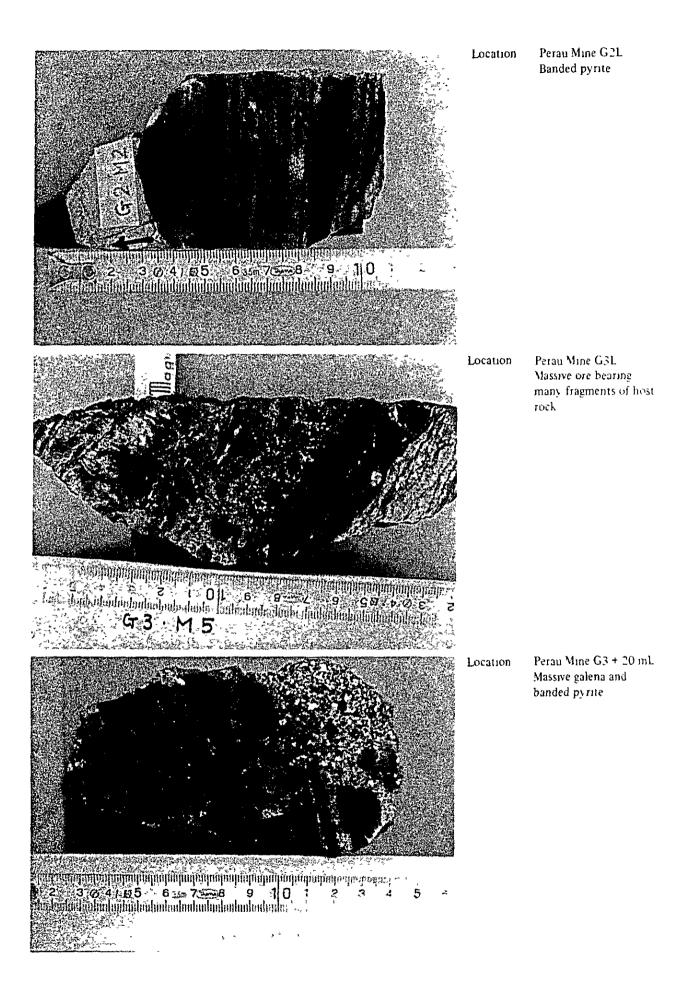
Location Perau Mine G3L Folded massive ore with many cleavages

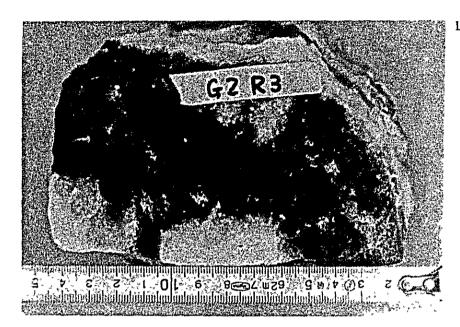


Location Perau Mine G3L Strike faults are observed in both side of massive ore



Explanation sketch of above photo





Location Perau Mine G2L
Massive barite with
galena impregnation

Photo A-2 Microphotograph of Thin Section

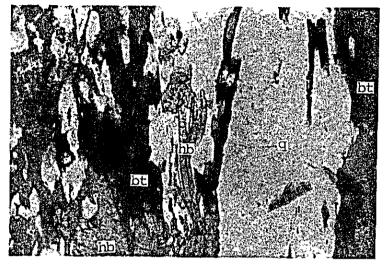
Abbreviations

9	quartz
pl	plagioclase
bt	biotite
mus	muscovite
hb	hornblende
tr	tremolite
gar	garnet
chl	chlorite
cal	calcite
ерх	clinopyrozene
act	actinolite
me)	micocline
o]	olivine
sta	staurolite
hem	hematite

A- 091 Sample No Rock name

Hornblende-biotite-schist (Setuva F)

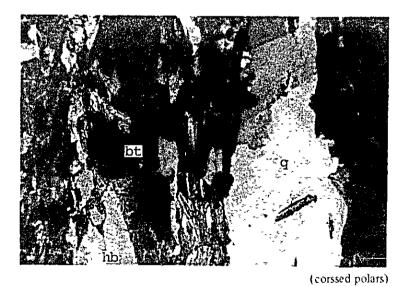
Location



It shows lepidoblastic texture

(only lower polar)

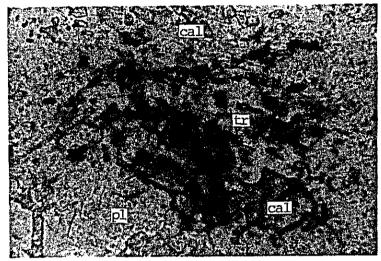
0 5mm



Sample No Rock name

A-063

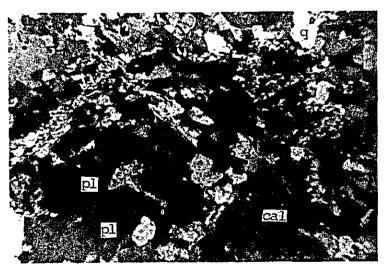
Calc-schist (Açungui IF) Quil Ometro Quarenta Location



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

(only lower polar)

0 5mm

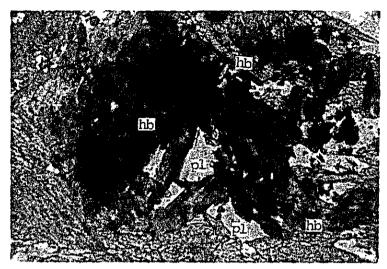


(crossed polars)

A-077 Sample No

Amphibolite (Açungui I F.) Perau Rock name

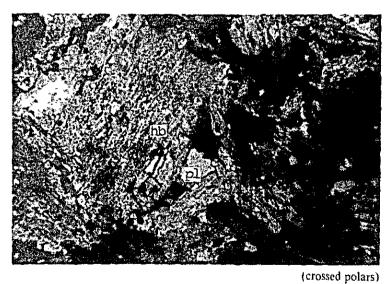
Location



It shows nematoblastic texture

(only lower polar)

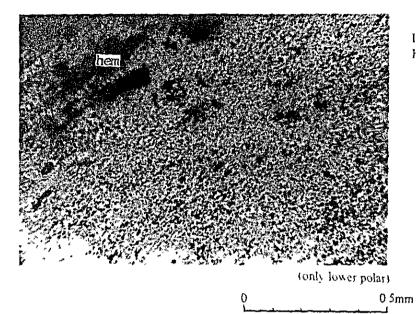
0 5mm



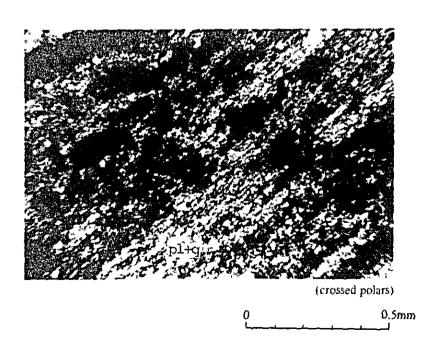
Sample No D - 075

Rock name Sericite-phyllite (Açungui IF)

Location Tunas



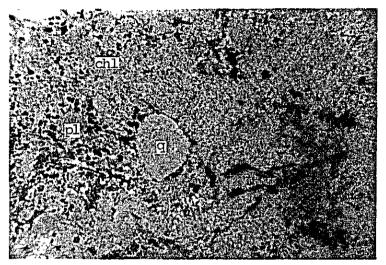
It shows lapidoblastic texture Hematite is intercalated as lens in a matrix



C-068 Sample No

Rock name Chlorite-muscovite-schist (Açungui II.F.) Quil Ometro Quarenta

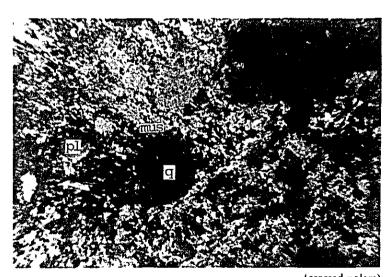
Location



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

(only lower polar)

0 5mm



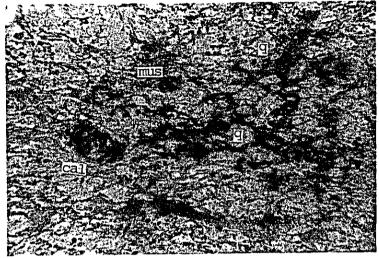
(crossed polars)

0 5mm

Sample No 4 016

Rock name Muscovite schist (Açungui III F.)

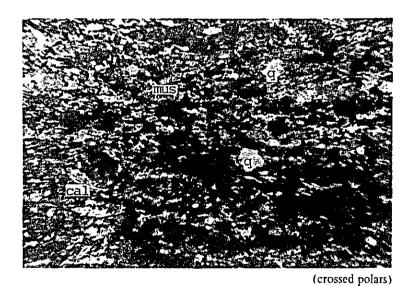
Location Rio Ribeira



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

(only lower polar)

0 0 5mm



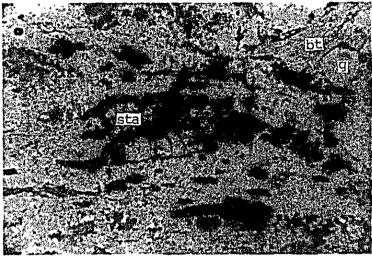
0 0 5mm



Sample No. A-021

Rock name Staurolite-muscovite-biotite-schist (Açungui III F.)

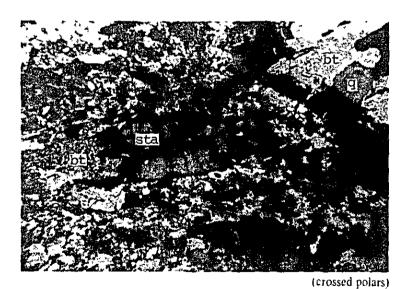
Location



It shows lepidoblastic texture Staurolite is a slender prism in shape

(only lower polar)

0 5mm

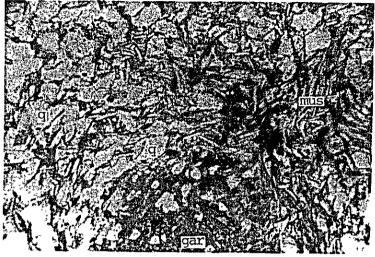


0 5mm ك

Sample No C 004

Rock name Garnet bearing chlorite-biotite-muscovite schist (Açungui III F.)

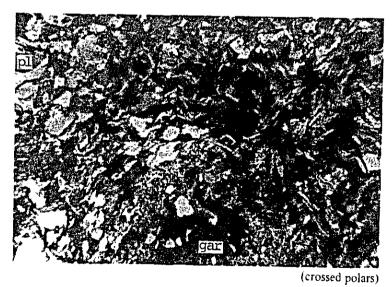
Location Paneras



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

(only lower polar)

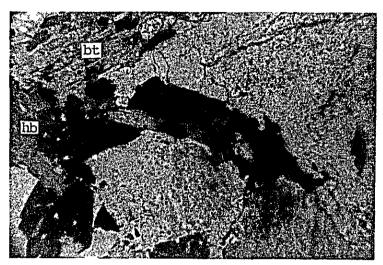
0.5mm



Sample No A-001

Rock name Biotite-hornblende-granodiorite (Intrusive rock)

Location Panelas



It shows porphyritic texture

(only lower polar)

0 0.5mm



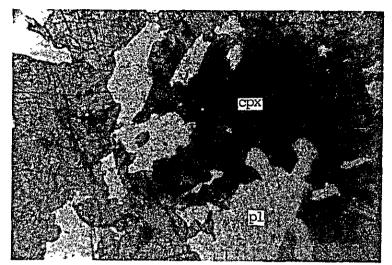
(crossed polars)

0 0.5mm

Sample No A 018 Rock name Hornble

Rock name Hornblende-Gabbro (Intrusive Rock)

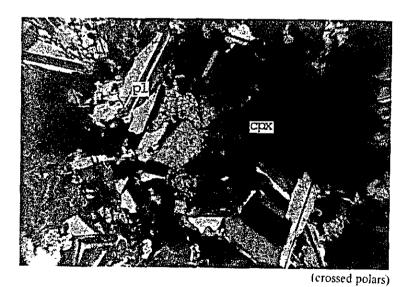
Location Rio Ribeira



It shows ophitic texture

(only lower polar)

0 0.5mm

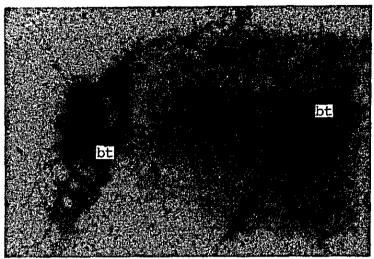


0 0.5mm

B-032 Sample No

Mylonitized biotite-granite (Intrusive rocks) Rock name

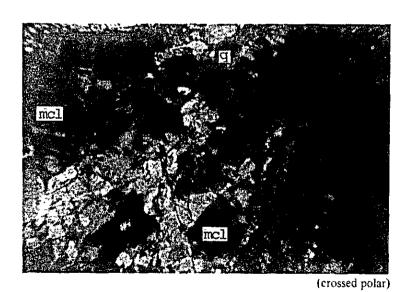
Mato Preto Location



It shows porphyroblastic texture.

Microcline forming porphyroblasts frequently shows parthite texture and poikilitically encloses minute crystals of quartz and plagioclase.

(only lower polar)

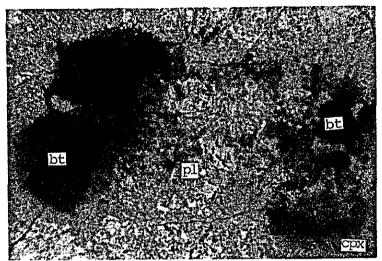


0 5mm

Sample No Rock name C-073

Hornblende-augite-biotite-syenite (Intrusive Rock)

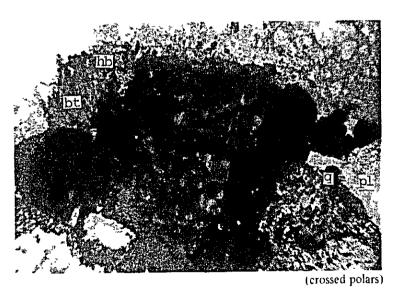
Location



It shows equigranular texture

(only lower polar)

0 5mm



0 5mm

Sample No D-015

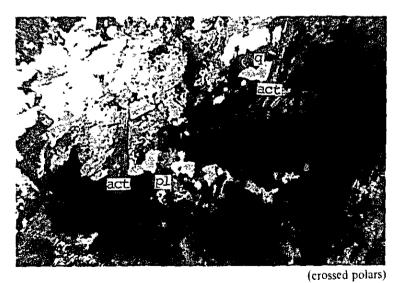
Rock name Meta gabbro (Intrusive Rock)

Location . Rio Ribeira



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

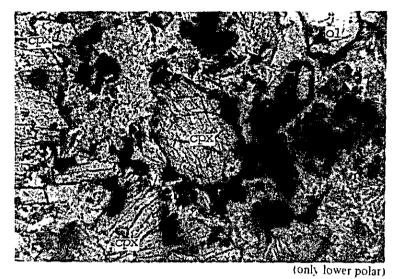
D 0.5mm



D-113

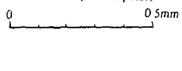
Sample No Rock name Olivine-basalt (Intrusive Rock)

Cneum Location



It shows porphyritic and intergranular

Clinopyroxine showing zoned texture is the main components



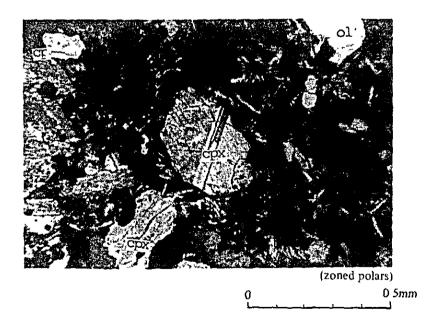


Photo A-3 Microphotograph of Polished Section

Abbreviation

Gl galena

Py pyrite

Tt tetrahedrite

Sp sphalerite

Cp chalcopyrite

Po pyrrhotite

Mc malachite



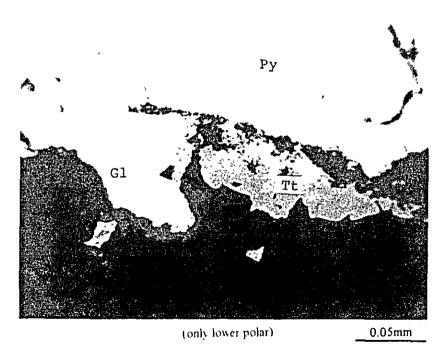
Sample No
Location
Perau Mine

G1

(only lower polar)

0 2 mm

Galena fills the interstices of foliated gangue minerals

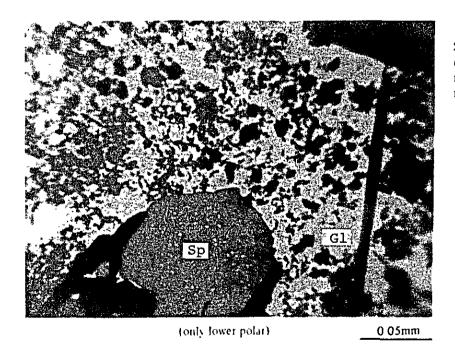


Tetrahedrite occurs intimately associated with galena

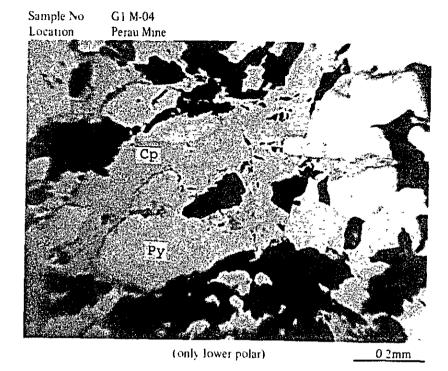
Sample No Perau Mine Location (only lower polar) 0 2 mm

G1 M-08

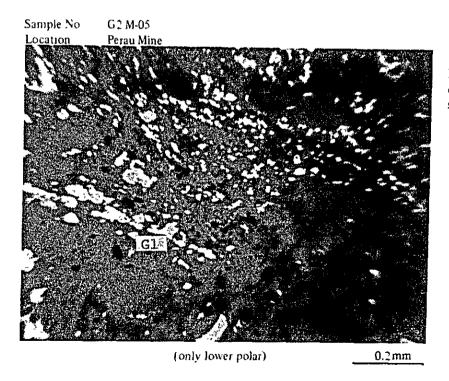
Galena is partly replaced by fine grains of gangue minerals



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

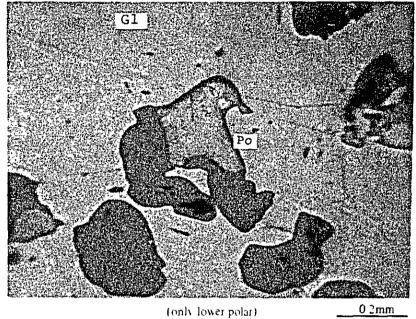


Pyrite is corroded by chalcopyrite Some parts of pyrite are changed to fine-grained pyrite in chalcopyrite

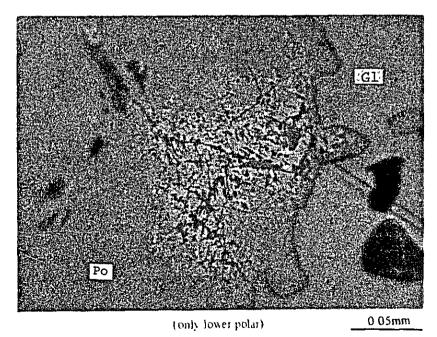


Dissemination of galena is controlled by the original structure of rock

Sample No G2 M-03 Location Perau Mine

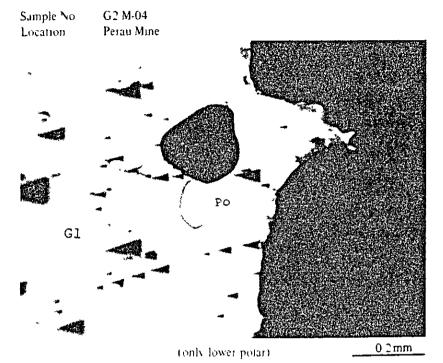


Pyrrhotite grain corroded by galena and replaced partly by pyrite

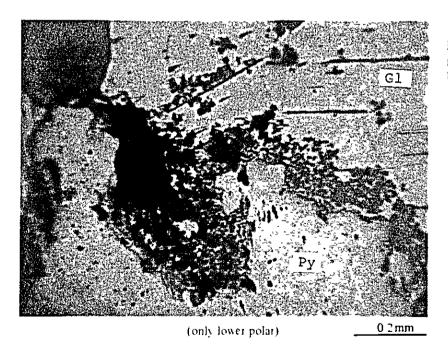


Fine-grained pyrite and gangue replace pyrrhotite along thin cracks





Pyrrhotite grain in galena



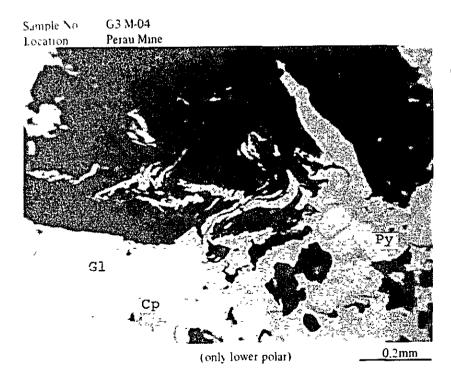
Fine-grained gangue mineral replaces a part of galena along boundaries and cleavages

Sample No Location Perau Mine

Py

(only lower polar) 0.2mm

Pyrite occurs in a mozaic texture



Galena fills the interstices of the original structure of rock



Sample No Location Perau Mine

G3 + 20 M-01
Perau Mine

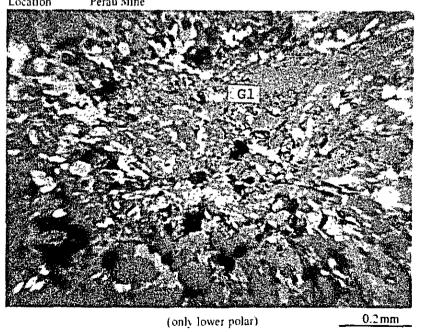
G3 + 20 M-01
Perau Mine

G3 + 20 M-01
Perau Mine

O.2mm

Irregular veinlets filled by galena

Sample No G4 M-02 Location Perau Mine



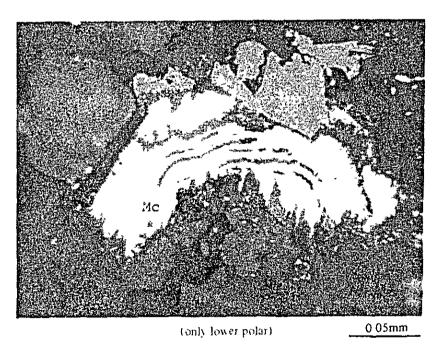
Galena fills the interstices of gangue forming fine and flaky grains

Sample No G4 M-02
Location Perau Mine

Sp

(only lower polar) 0 05mm

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



Concentric texture found in a marcasite grain

No	Name of Drilling	Location of Drilling set		Dip of Drilling	Length of Drilling
<u> </u>	Diffilling	Diffing ser		<u> </u>	<u> </u>
	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	o°	83 00 m
5	I - 141	308 mL	N 40°W	0°	70.80 m
6	I - 142	308 mL	N74°E	o°	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
	I - 130	480 mL	N 90°W	0°	11750 m

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

No. I I-112(1) Strike S 68°W Dip : Horizontal

<u>Dip : Horizontal</u>	308 mL
Depth Core Description	Depth Core Description
altn of cal Dol > dol Ls cal Dol . white, mda dol Ls light grey fo white fng) D2 Dol, light grey, massive, fng	Doi, light grey ~ grey, indg, massive, with intercalation of cal - Doi.
intercoletion of calc - Dol	
600 7 7	
7 <u>,7</u> 7 <u>0,2</u>	
10 - 777	60 - 77
$\begin{array}{c c} II 90 \\ \hline & V \\ V \\ I3.40 \\ \hline \end{array}$	62 00 Intercalation of dol - Ls , mdg ~ fng , light grey ,
Dol > cal - Dol, mdg ~ fng,	cracky
7D2 7-7	67 00
19 10 7 altn of cal Dol > Dol	70 - 11 beded
21 00 J Db, black~dark grey, mdg.	
cal - Dol . light grey ~ grey ,	
mdg, massive, with	75 20~75.30 sheared zone
	79 30 77 77
30 - 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1	Ls, light grey~white, mdg
	84 30 Dol light grey, mdg, massive
	partly cracky
40- 77	90 - 7,7
	7 / -P2,
45.00 Dol. light grey, mdg, bedded.	
777 47 00 ~ 51 00 cracky	
50 7 A - S	100 7,7

No.1 1-112 (2)

Strike: S 68°W
Dip : Horizontal

Depth Core Log Description Depth Core Log Description Depth Log Description Depth Core Log Description		DIP Horizontal		 	3U8ML
Dol, light grey, mdg, massive partly cracky 110- 120- 121	Depth Core (m) Log	Description	Depth (m)	Core Log	Description
	110- 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Description Dol, light grey, mdg, massive partly cracky alin of Ls > dol - Ls (Ls: grey mdg dol-Ls: grey ~ dark grey)	Depth (m)	Core	Description

No. 2 I – 12 2

Strike N76°E
Dip Horizontal

Dip : Horizontal		308 mL
Depth Core Description	Depth Co (m) Lo	pre Description
cal-Dol, grey to dark grey, massive, with interculation of Dol, bedded. galena vein 2mm, massive. cal-Dol, dark grey, massive.		cal-Dol, grey, mdg, massive.
10 - 10.70	61.50	Db. dark grey, fng
20 - 21 20~22 00 Intercalation of	70 -	b
De Dol, massive, dark grey. dol-Ls, bedded. 2550 2600 2660 2700 pyrite diss	75.00	Cal-Dol, grey, mdg Z massive.
do! - Ls, massive.	80- II	工 工 工 工 工
cal-Dol, grey, mdg, massive.	90 -90.00	
	97.00	ser-schist with interclation of Dol, dark grey, bedded.
50 T,T	100 Sa	
A -	3 / _{103.70}	103.70 End

No. 3 I-124(1)

Strike: S 68°W
Dip : Horizontal

Depth Core (m) Log Description (m) Log Descrip	Dip : Horizontal	308 mL
mdg The part of t		
mdg 172 174 550 1750 1750 1760 17750	Dol. dark grey, (massive)	50 90 77
5.50 DOZ 44° aith of Dol > dol Ls		51 00 galena, width 10cm, diss.
5.50 DOS Ado alin of Dol > dol Ls bedded mdg Pyrite vein let Tol Dol, light grey, massive, cracky Dol, light grey massive, altn of Dol > dol - Ls Dol Jiph grey massive, cracky Dol, massive, cracky	102 mag	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
550 DOZ 240 alin of Dol' dol Ls bedded mdg 750 7 pyrite vein let 77 Dol, light grey, massive, cracky Dol, light grey massive, cracky 20 Dol galena, diss 17 Dol, light grey massive, cracky 2307 2530 galena, veinlet alth of Dol' dol' - Ls Dol' grey, mdg, (bedded) 30 Dol, light grey, massive 17 Dol, white, massive, cracky 80 Dol, white, massive, cracky 18 Dol, massive 80 Dol, massive 80 Dol, white, massive, cracky 90 Dol, white, massive, cracky 17 Dol, white, massive 80 Dol, massive 80 Dol, white, massive, cracky 90 Dol, white, massive, cracky 91 Dol, white, massive, cracky 92 Dol, white, massive, cracky 91 Dol, white, massive, cracky 92 Dol, white, massive, cracky 91 Dol, white, massive, cracky 92 Dol, white, massive, cracky 93 Dol, white, massive, cracky 94 Dol, white, massive, cracky		
750 of all in of poly dol Ls bedded mag pyrite vein let	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
755 bedded mdg 7780 7 pyrife vein let 7780 7 pol, light grey, massive, 7880 7 cracky 7880 7 pol, light grey massive, 7880 7 pol, light grey massive, 7880 7 pol, white, massive, cracky 7880 7 pol, white, massive, cracky 7880 80 pol, white, massive, cracky 7880 80 pol, massive 80 pol, white, massive, cracky 80 pol, massive 80 po	5.50 1	5600
700 pyrite vain let 770 pyrite vain let 770 pol, light grey, massive, 70 cracky 20 galena, diss 70 pol, light grey massive, 70 pol, light grey massive, 70 pol, light grey massive, 70 pol, white, massive, 71 pol, white, ma	hedded mdg	
Dol, light grey, massive, cracky 20 - Dol, light grey massive, cracky 2307	750 peoded midg	cal-Dol, light grey, mag.
20 - 17 01	pyrite vein let	
20 - 17 01		
17 01	10- Dol, light grey, massive,	60 - 1 - 1
17 01		
20 - 1701 1702 1 galena, diss 70 - 6520 11 11 12 12 13 14 15 15 15 15 15 15 15		\ \ \ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
20 - 1701 1702 1 galena, diss 70 - 6520 11 11 12 12 13 14 15 15 15 15 15 15 15	1 1.02-1	
altn of dol-Ls > Dol. Tol		
altn of dol-Ls > Dol. Tol		
20 - 17 02		65 20
20 - 17 02		1 1 1 <u>1 7 1</u> 1
20 - 1702 galena, diss 70 - 1702 7150-72.50 partly Dol, bedded. 7800	1701	
20	1702 / / galena, diss	
20		
2307 2330 galena, veinlet altn of Dol > dol - Ls Dol, grey, mdg, (bedded) Dol, light grey, massive Bob Bob Bob Bob Bob Bob Bob Bo	Dol, light grey massive,	
2307 2330 galena , veinlet altin of Dol > dol - Ls Dol , grey , mdg , (bedded) 7800 7800 7800 Dol , white, massive, cracky 80- 81.90 82.10 Dol , massive Dol , massive 1	20 - J _{D.2} cracky	70 -
2307 2330 galena , veinlet altn of Dol > dol - Ls Dol . grey, mdg, (bedded) 7800 80- 100, light grey, massive Dol , light grey, massive Dol , light grey, massive 8650 8650 90- 100 90- 100 90- 90- 90- 90	 	7150-72 50 partin pol hoddod
2330		7 7 7 11 304 12.30 painty por, beaded.
altn of Dol > dol - Ls Dol . grey, mdg, (bedded) 80- 80- 80- 80- 80- Bl.90 81.90 82.10 Dol, white, massive, cracky Dol, massive 86.50 86.50 86.50 87.70 Galena, pyrite, disse. Dol, white, massive 90- 90- 90- 10- 10- 10- 10- 10-	2307	
30 - 32 00 7	2330 galena, veinlet	
30 - 32 00 7		
30 - 32 00 7	altn of Dol > dol - Ls	
30 - 32 00		
30 - 32 00	Daz Doi . grey, mag, (bedded)	
30 - 32 00		
32 00 Dol, light grey, massive		Dol, white, massive, cracky
32 00 Dol, light grey, massive	30	80-
Dol, light grey, massive		
Dol, light grey, massive	32 00 777	81.90
Di		8210 / / galena, pyrite, disse.
86.50 Galena, pyrite, diss. Respectively Resp	Dol, light grey, massive	
86.50 Galena, pyrite, diss. Respectively Resp		Di- Dol. massive
90- DI Dol, white, massive, cracky. 92.00		
90- DI Dol, white, massive, cracky. 92.00	77	8650
90- DI Dol, white, massive, cracky. 92.00	1 ''- 	8655 2 galena, pyrite, diss.
90- DI Dol, white, massive, cracky. 92.00		87.70 / golena diss w/ nyrite
92.00	 / 	dateuri and al bline
92.00		Dal Libita massing aggregation
9210 galena, diss. 96.00 aitn of dol - Ls > Dol, A27 bedded.	4º 7 1 U2	90 DIT DOI, WAITE, Massive, cracky.
9210 galena, diss. 96.00 aitn of dol - Ls > Dol, A27 bedded.		
96.00 aitn of dol - Ls > Dol, A2- Dedded.	77	92.00 / dulend diss
aitn of dol - Ls > Dol, A21 Dedded.	'/-	32 10 7 90101104 0103.
aitn of dol - Ls > Dol, A21 Dedded.		
aitn of dol - Ls > Dol, A21 Dedded.		
aitn of dol - Ls > Dol, A21 Dedded.		
TAZI Dedded.	<i>\tau_t</i>	
		
50 77		ρedded.
50	 '-,'-	
A - 38		

 $\begin{array}{c} \text{No.3} \\ I-124(2) & \underline{\text{Strike: S 68}^\circ\text{W}} \\ \hline \text{Dip} & \underline{\text{Horizontal}} \end{array}$

130 - Ls, grey ~ white and black, bedded.			12.	DIP HOHZOMU				308mL
dol-Ls, grey, massive A22 Co220 God 30 God no. 124 50 Ls. light grey, massive. Ls. light grey, massive. Ls. deded. 110 120 141 00 End	De (r	pth n)	Core Log	Description	Dep (m	t h)	Core Log	Description
100 141 00 141 00 End 141 00 End 150 161 1				dol-Ls, grey, massive				
110 - 141 00 End			ZA25		1			
110 - 141 00 End							ļ	
110 - 141 00 End	ļ	104.20 104.30	7-1-7	galeng, diss with pyrite				
Ls, grey ~ white and black, bedded. 130- 14100 End								
120- 12450 Ls, grey ~ white and black, bedded.			1	Ls . light grey, massive.	1			
120-12450 Ls, grey ~ white and black, bedded. 130-14100 End	İ		111					
120- 12450 Ls, gray ~ white and black, bedded. 130- 140- 14100 End	110 -							
130 - Ls, grey ~ white and black, bedded. 14100 End								
130 - Ls, grey ~ white and black, bedded. 14100 End					}			
130 - Ls, grey ~ white and black, bedded. 14100 End			⊥Ļ ⊥					
130 - Ls, grey ~ white and black, bedded. 14100 End			 			į		
130 - Ls, grey ~ white and black, bedded. 14100 End			┸┰┹ ╌┰┈┰═				ĺ	
130 - Ls, grey ~ white and black, bedded. 14100 End								
130 - Ls, grey ~ white and black, bedded. 14100 End								
Ls, grey ~ white and black, bedded.	120-				-			
Ls, grey ~ white and black, bedded.				<u> </u>				
Ls, grey ~ white and black, bedded.			1,1					
Ls, grey ~ white and black, bedded.		124 50						
130- 140- 141 00 End	ļi	12430		Ls, grey ~ white and black,		1		
141 00 End								
141 00 End				•				
141 00 End			1					
141 00 End	130-		- 					
141 00 End			- 					
141 00 End						ĺ		
141 00 End						ļ		
141 00 End	,			į		}		
141 00 End				į		ļ		
141 00 End								
141 00 End	140					ļ		
150		141 00		141 00 End]		
150		,					j	
150						ļ		
150							ļ	
150						}	ļ	
150						,		
150 t	IF A							
A - 39	150	L		A -	39			

No. 4 I - 139

Strike: S 78°W Dip : Horizontal

		7	— Dip Horizontal			,	308 ML
De _l	pth 1)	Core Log	Description	De (pth n)	Core Log	Description
	300	7 7 D2 7 7	Dol, grey to dark grey mdg partly calcite and dolomite veinlet			7	Dol light grey
	300		Ls grey to light grey, mdg				pyrite diss
10 -	1150			60 -			
	1150		intercalation of cal - Dol grey to light grey, mdg 25m ~ 1.5m				pyrite diss
	18 00		Ls grey and light grey,		6700 6750		aith of Ls > cal - Dol Db, fng, greenish black
20-			fng to mdg, beded	70 -	70 30 72 50		altn of Ls > cal - Dol light grey
			light grey Ls with grey bands of Dol				Ls, light grey, massive
30-	2800		Dol grey massive	80 –			
	31 80 34.20	Db	Db, fng, black		8300		83 00 End
		分子	Dol. light grey > grey mdg to fng.				
40-		7/ 7/ 1/ 70 70 7		90-			
50		7'7' 7'7	A -	100 40			



No. 5 I - 141

Strike N40°W
Dip Horizontal

	Dip Horizontal			308 mL
Depth Core (m) Log	Description	Depth (m)	Core Log	Description
A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	altn of Ls > Dol Ls : 50 ~ 60 cm Dol . 20 ~ 30 cm			Ls, light grey ~ grey, fng ~ mdg
7.00	Ls, light grey, fng~mdg	62 10 60 - 63 30	1 1 1	alth of Dol > Ls dark grey
	altn of Ls > dol - Ls Ls : black, fng ~ mdg dol - Ls . grey, mdg. cracky			6250 Ls with flourite grey~light grey, fng~mdg
20-	Ls, light grey, fng∼ mdg	70 -		70 80 End
29 10	altn of Ls > dol - Ls, folding	90		
30 - 3000	Ls, grey, massive			
40~	Ls, grey, massive	90 -		•
50	Α -	100		