

A. III-3 Photomicrographs of Rocks and Ores

Abbreviation

Minerals

Q	: Quartz	Az	: Azurite
F	: Feldspar	Chr	: Chrysocolla
Pl	: Plagioclase	Cv	: Covellite
Cdy	: Calc edony	Fe	: Fe-mineral (oxide, hydro-oxide)
Bt	: Biotite	G	: Gangue Mineral
Mv	: Muscovite	Ht	: Hematite
Hb	: Hornblende	Mal	: Malachite
Gar	: Garnet	St	: Stibnite
Chl	: Chlorite		
Ep	: Epidote		
Mag	: Magnetite		

Others

Py : Pyrite

qt : quartzite
ch : chert

Thin Sections



Sample No.: H001

Rock Name : Epidote-hornblende
rock

Crossed Nicols

0.5 mm

Sample No.: H003

Rock Name : Carbonaceous
tuff breccia

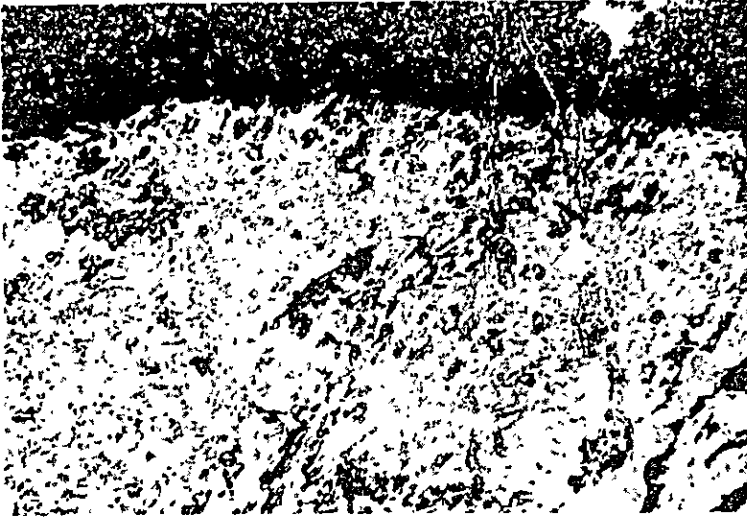


Crossed Nicols

0.5 mm

Sample No.: H002

Rock Name : Rhyolite?



Open Nicol

0.5 mm

Sample No.: H002

Rock Name : Rhyolite

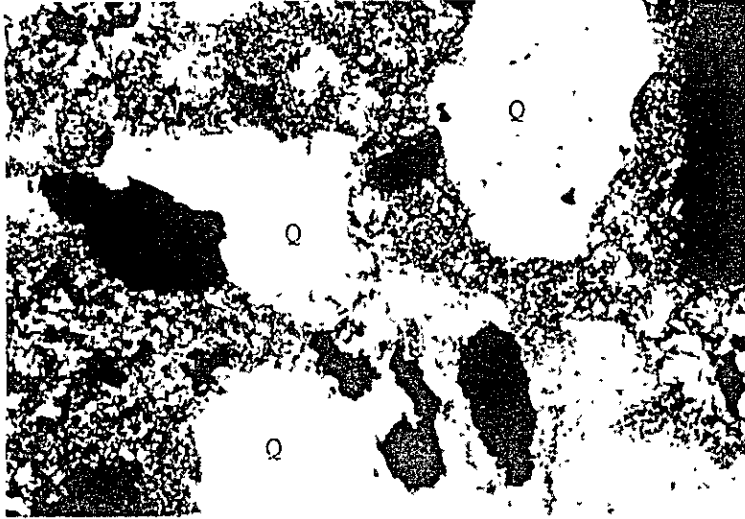


Crossed Nicols

0.5 mm

Sample No.: H004

Rock Name : Lithic greywacke
sandstone

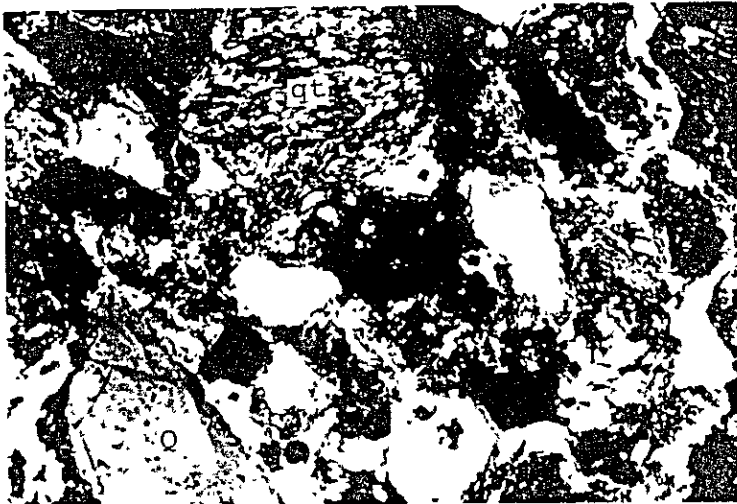


Crossed Nicols

0.5 mm

Sample No.: H008

Rock Name : Dacitic coarse
tuff



Crossed Nicols

0.5 mm

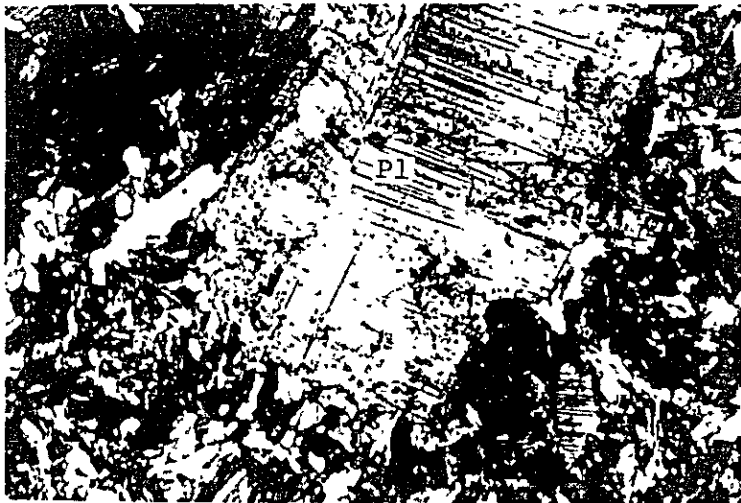


Sample No.: H009

Rock Name : Altered tuff
breccia

Crossed Nicols

0.5 mm



Sample No.: H010

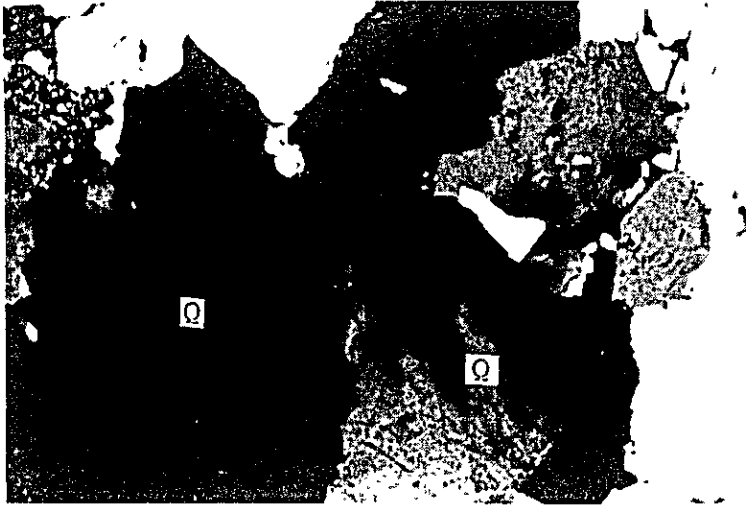
Rock Name : Meta-porphry

Crossed Nicols

0.5 mm

Sample No.: H011

Rock Name : Quartzite



Crossed Nicols

0.5 mm

Sample No.: H025

Rock Name : Garnet-actinolite
skarn

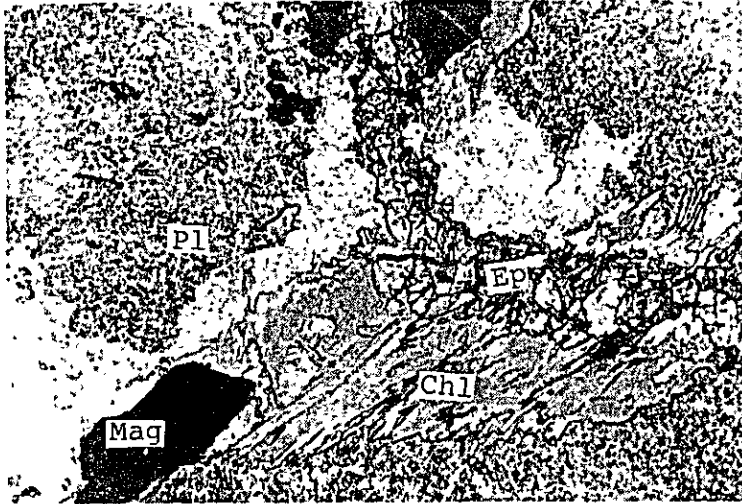


Crossed Nicols

0.5 mm

Sample No.: H012

Rock Name : Meta-diorite

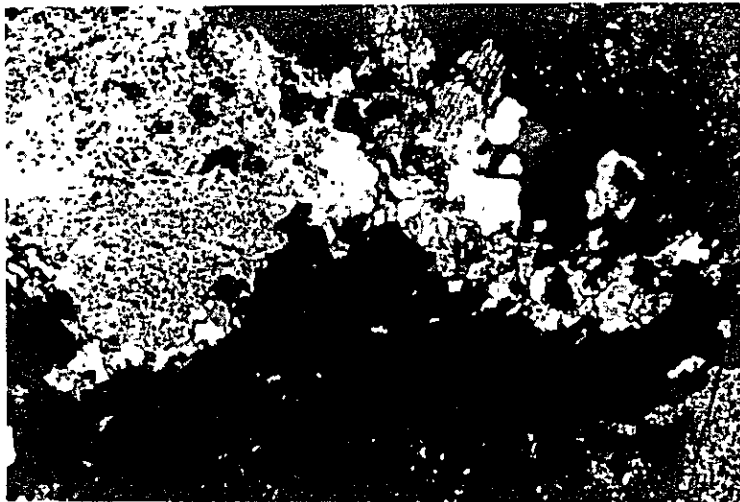


Open Nicol

0.5 mm

Sample No.: H012

Rock Name : Meta-diorite

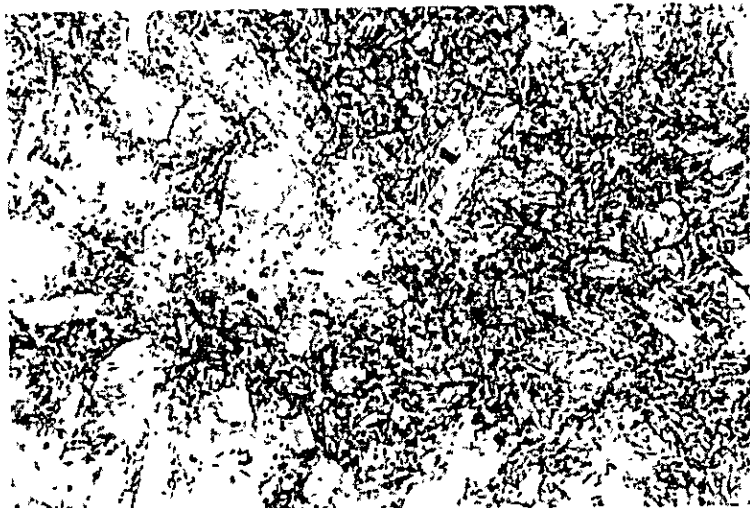


Crossed Nicols

0.5 mm

Sample No.: H020

Rock Name : Meta-andesite

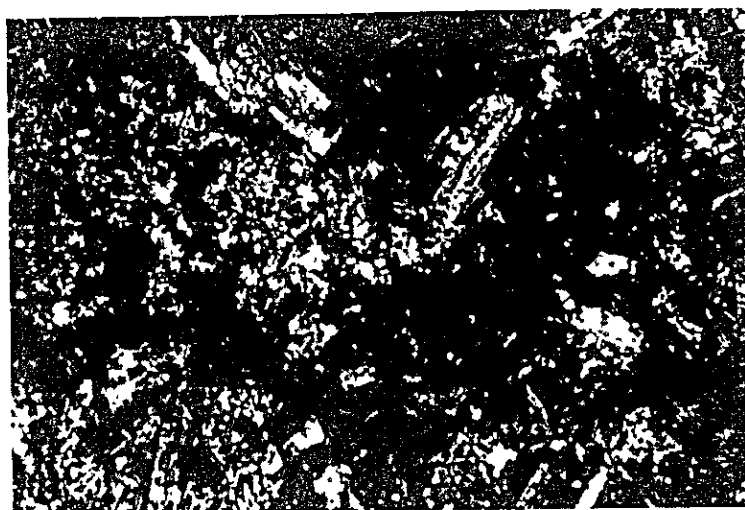


Open Nicol

0.5 mm

Sample No.: H020

Rock Name : Meta-andesite



Crossed Nicols

0.5 mm

Sample No.: H021

Rock Name : (Pyrite-disseminated)
dacite



Open Nicol

0.5 mm



Sample No.: H021

Rock Name : (Pyrite-disseminated)
dacite



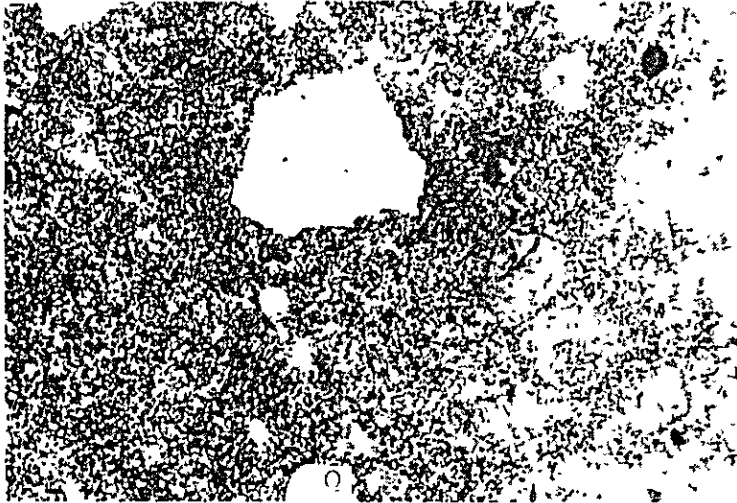
Crossed Nicols

0.5 mm



Sample No.: H027

Rock Name : Quartz-porphry

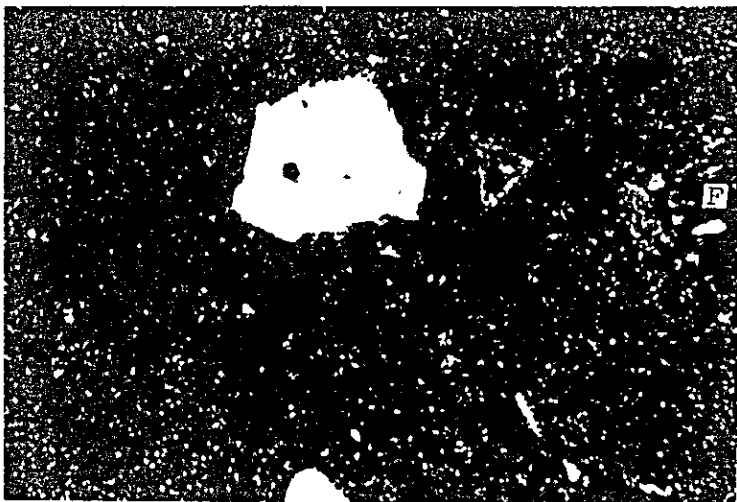


Open Nicol

0.5 mm

Sample No.: H027

Rock Name : Quartz-porphry

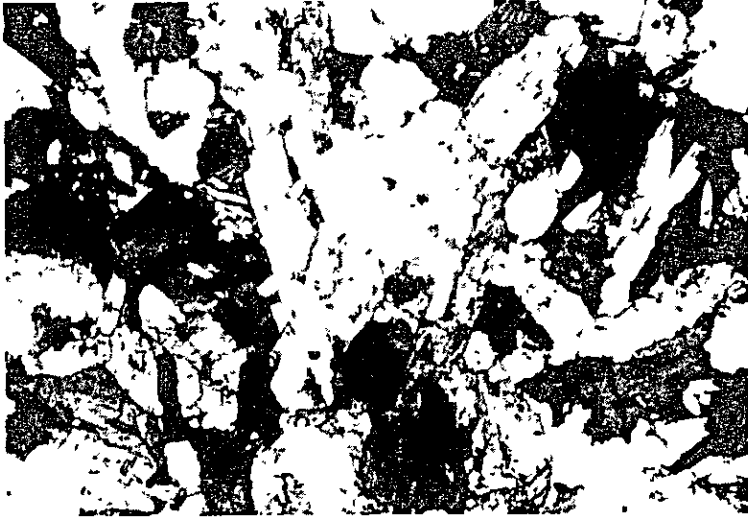


Crossed Nicols

0.5 mm

Sample No.: H028

Rock Name : Epidote actinolite
rock



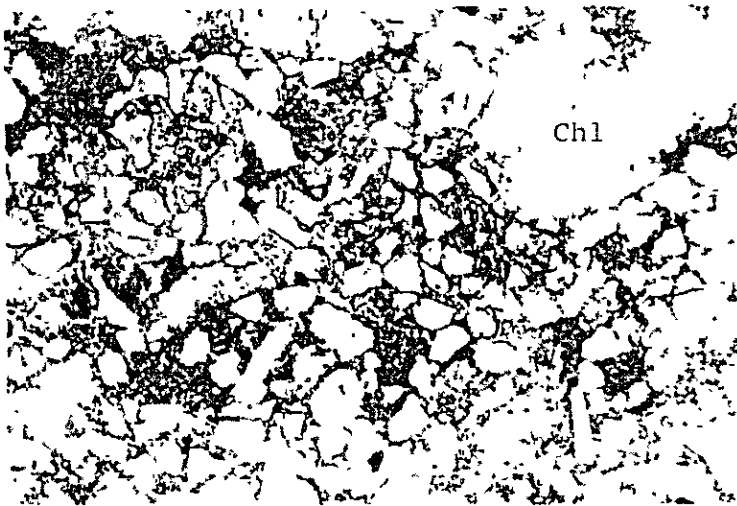
Crossed Nicols

0.5 mm



Sample No.: H038

Rock Name : Fine sandstone



Open Nicol

0.5 mm



Sample No.: H036

Rock Name : Granodiorite with
quartz veins

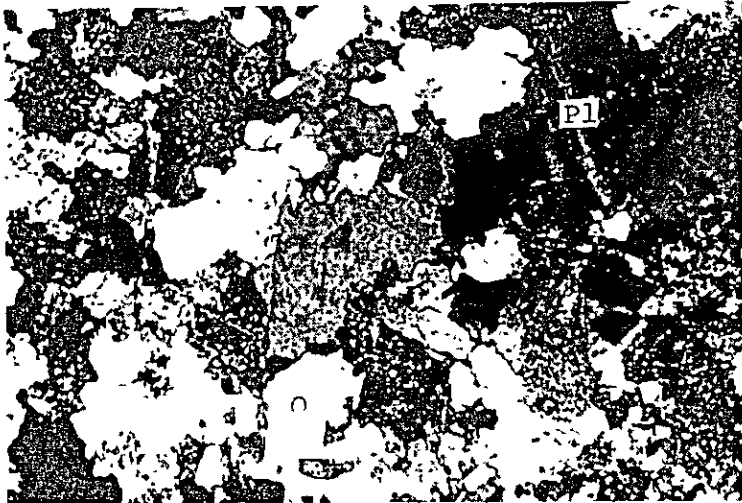


Open Nicol

0.5 mm

Sample No.: H036

Rock Name : Granodiorite with
quartz veins



Crossed Nicols

0.5 mm

Sample No.: H037

Rock Name : Meta-granodiorite

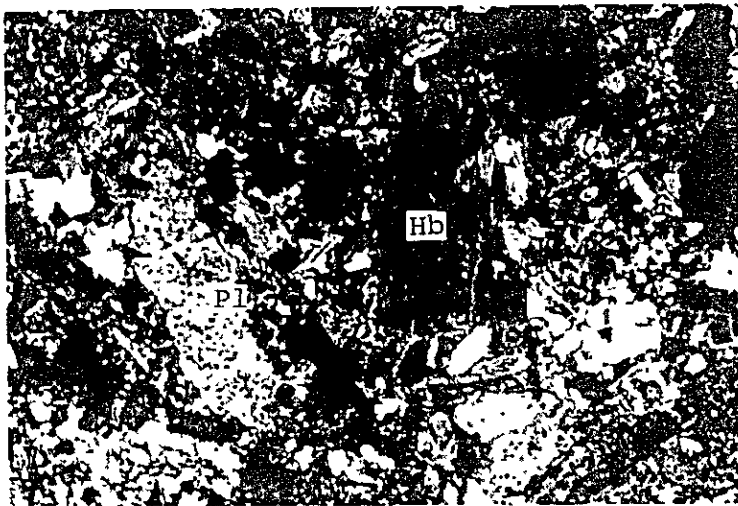


Open Nicol

0.5 mm

Sample No.: H037

Rock Name : Meta-granodiorite



Crossed Nicols

0.5 mm

Sample No.: H040

Rock Name : Silicified lithic
sandstone



Crossed Nicols

0.5 mm

Sample No.: T8159

Rock Name : Meta-dacite
(or welded tuff)

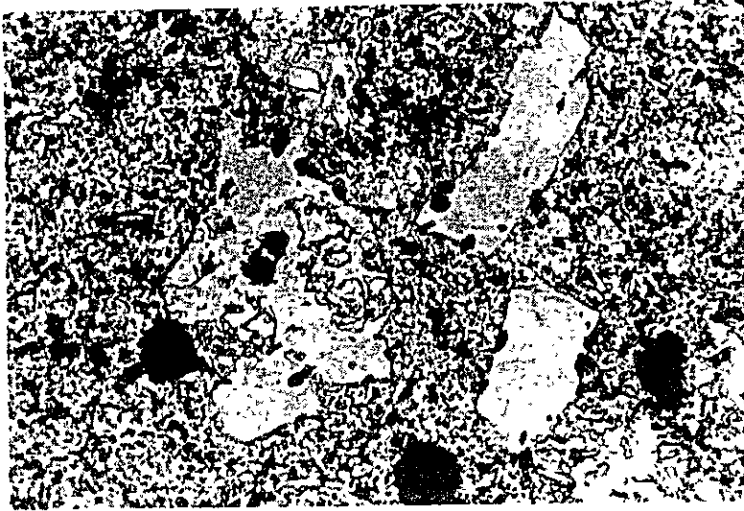


Crossed Nicols

0.5 mm

Sample No.: T8156

Rock Name : Andesite
(Andesite porphyry)



Open Nicol

0.5 mm

Sample No.: T8156

Rock Name : Andesite
(Andesite porphyry)

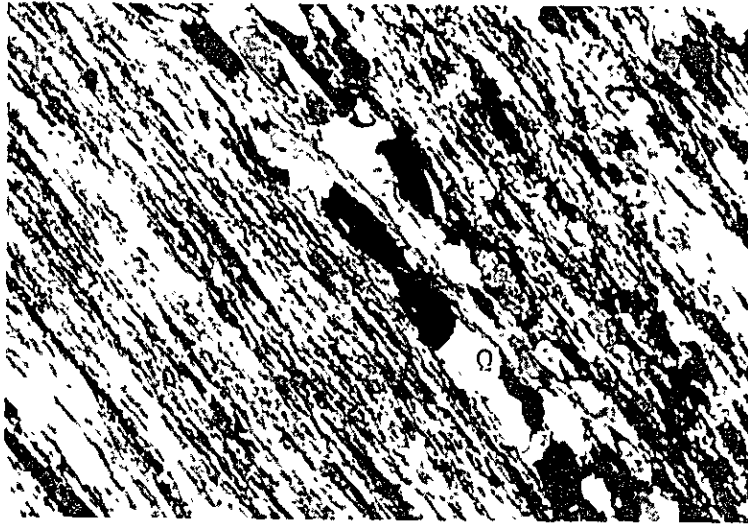


Crossed Nicols

0.5 mm

Sample No.: T81513

Rock Name : Biotite muscovite
quartz schist



Crossed Nicols

0.5 mm

Sample No.: T8282

Rock Name : Meta-andesite

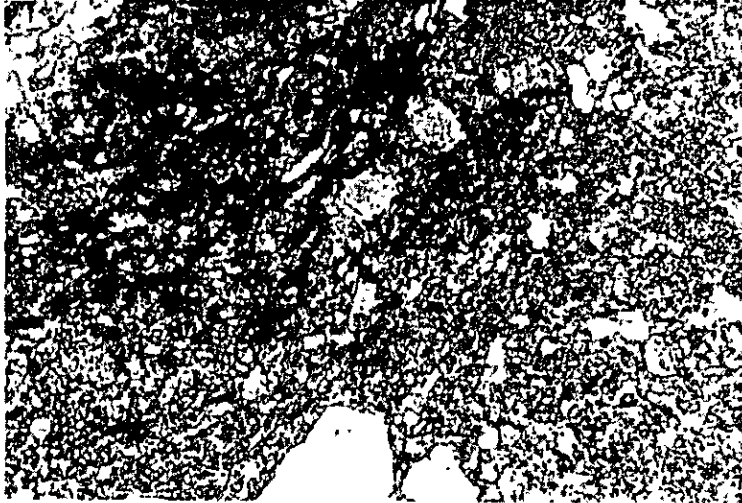


Crossed Nicols

0.5 mm

Sample No.: 72901

Rock Name : Carbonaceous
sandstone
(or siltstone)

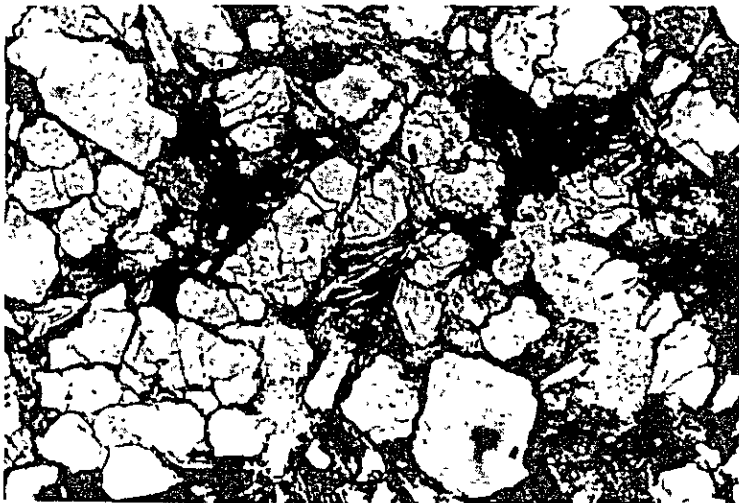


Crossed Nicols

0.5 mm

Sample No.: 72902

Rock Name : Conglomerate
(Quartz conglomerate)

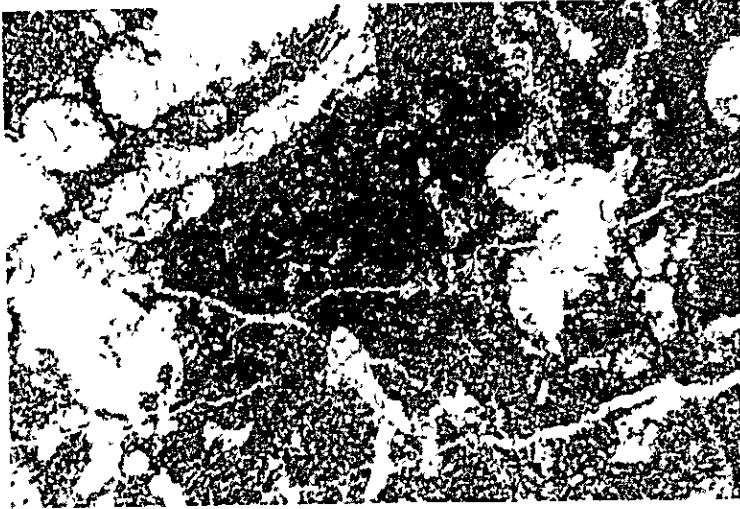


Open Nicol

0.5 mm

Sample No.: 72903

Rock Name : Limestone

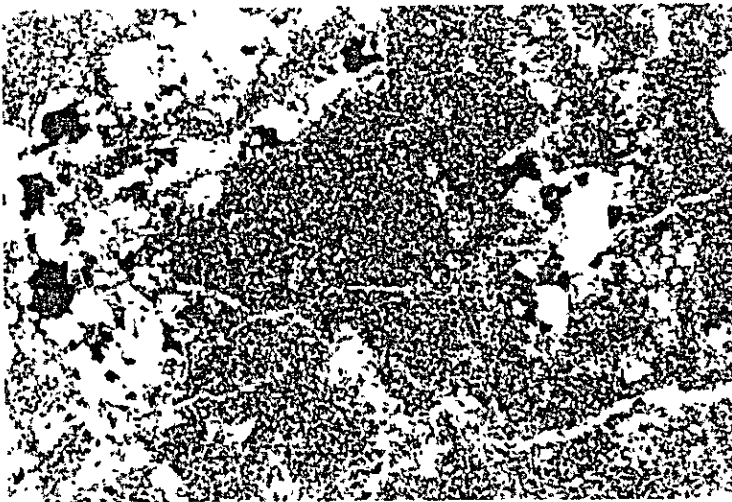


Open Nicol

0.5 mm

Sample No.: 72903

Rock Name : Limestone

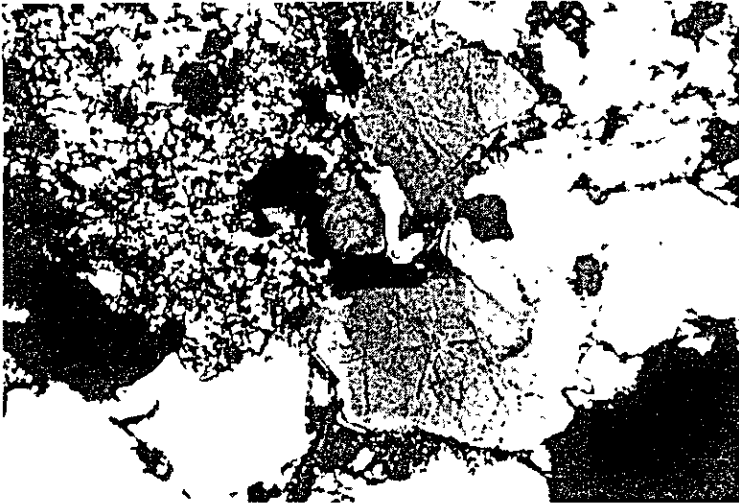


Crossed Nicols

0.5 mm

Sample No.: 72904

Rock Name : Quartz conglomerate



Crossed Nicols

0.5 mm

Sample No.: 73001

Rock Name : Granodiorite

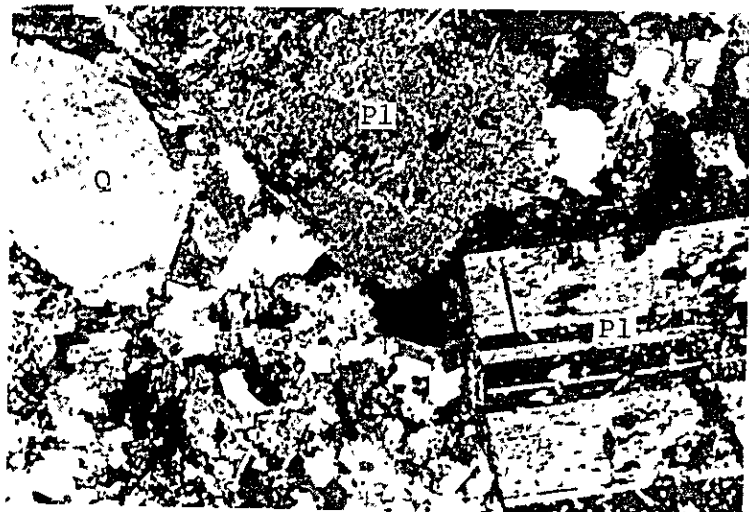


Crossed Nicols

0.5 mm

Sample No.: 73002

Rock Name : Quartz feldspar
porphyry



Crossed Nicols

0.5 mm

Sample No.: 73003

Rock Name : Granodiorite porphyry



Crossed Nicols

0.5 mm

Sample No.: 73102

Rock Name : Muscovite schist



Crossed Nicols

0.5 mm

Sample No.: 73104

Rock Name : Quartz diorite



Crossed Nicols

0.5 mm

Sample No.: 80101

Rock Name : Polymictic
conglomerate



Open Nicol

0.5 mm



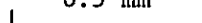
Sample No.: 80101

Rock Name : Polymictic
conglomerate



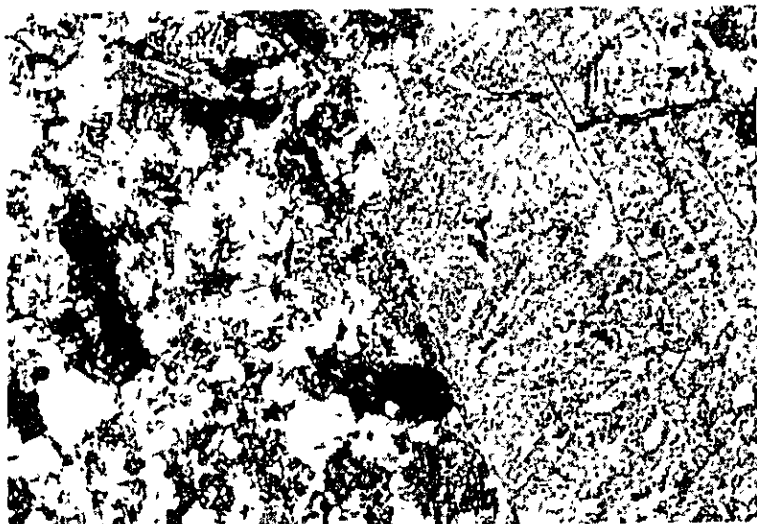
Crossed Nicols

0.5 mm



Sample No.: 80102

Rock Name : Altered quartz
porphyry



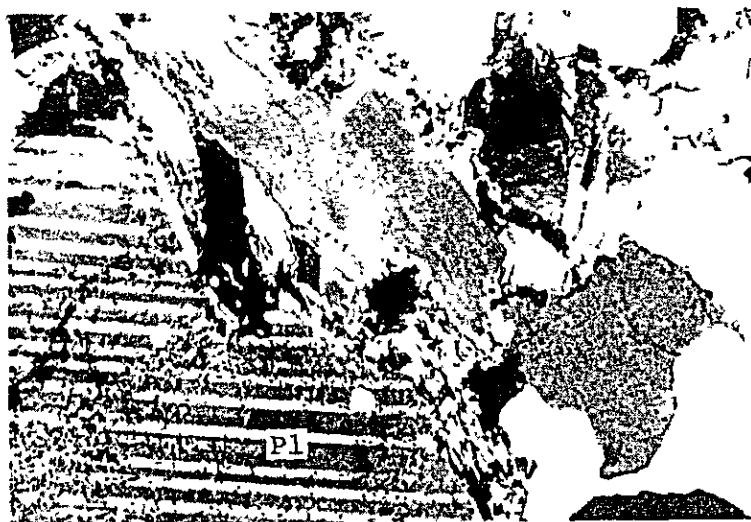
Crossed Nicols

0.5 mm



Sample No.: 80104A

Rock Name : Granodiorite



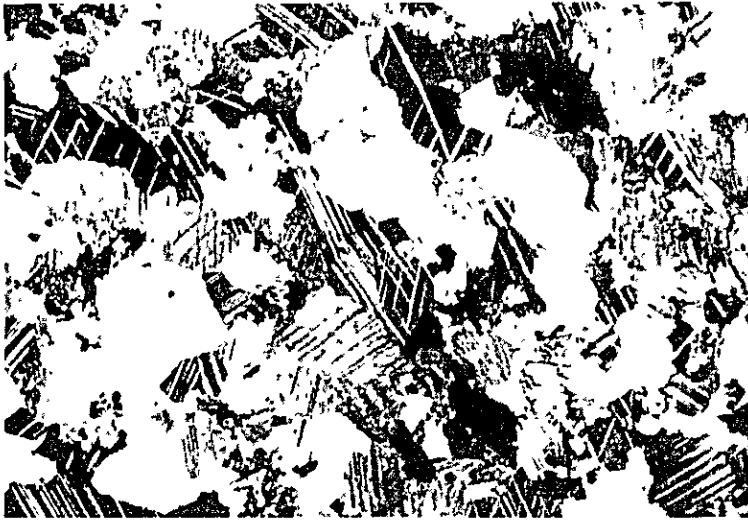
Crossed Nicols

0.5 mm



Sample No.: 80104B

Rock Name : Meta limestone
(Marble)



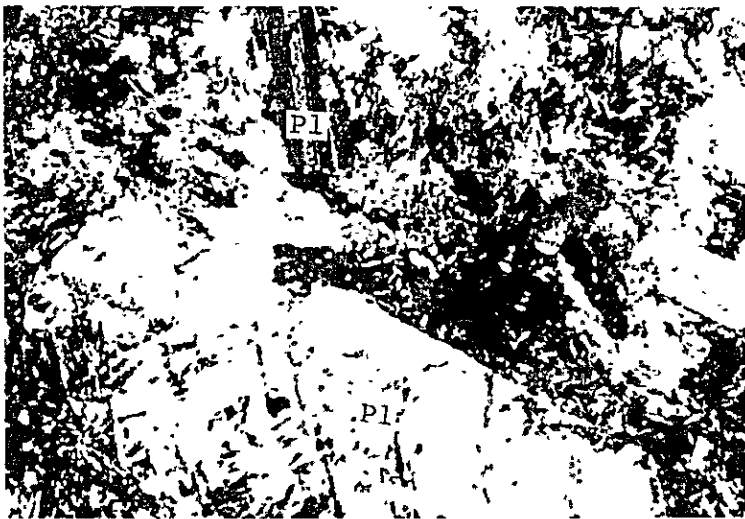
Crossed Nicols

0.5 mm



Sample No.: 80106

Rock Name : Meta-andesite



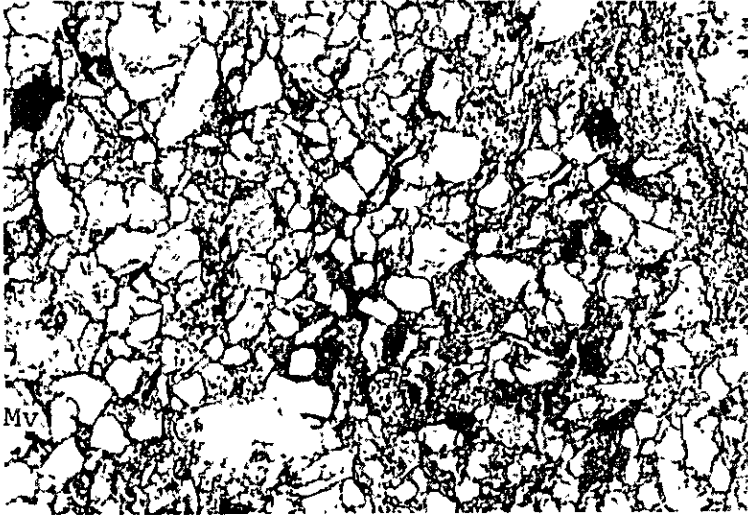
Crossed Nicols

0.5 mm



Sample No.: 80108

Rock Name : Silty sandstone

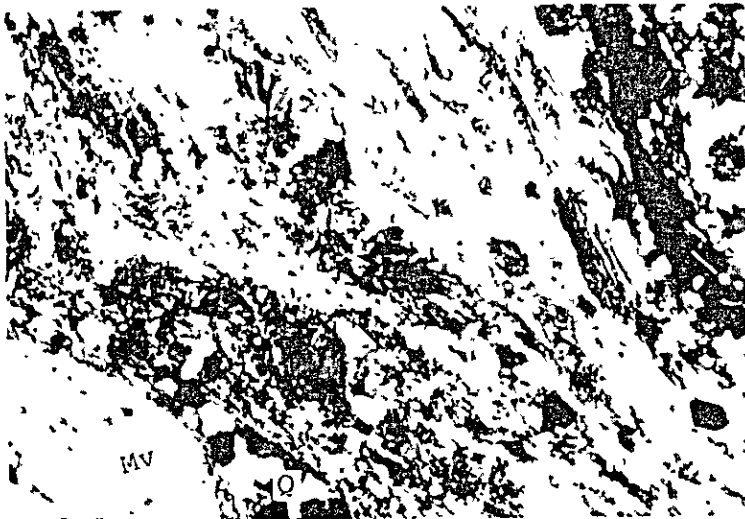


Open Nicol

0.5 mm

Sample No.: 80204

Rock Name : Pelitic schist

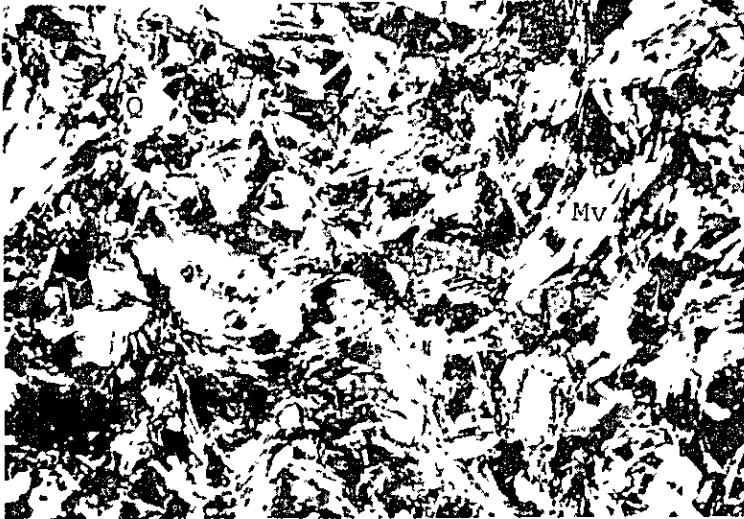


Crossed Nicols

0.5 mm

Sample No.: 80205

Rock Name : Muscovite biotite
Schist

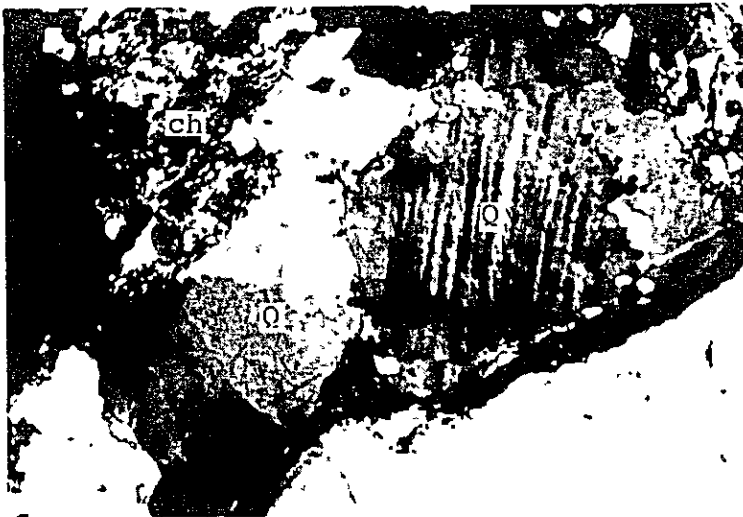


Crossed Nicols

0.5 mm

Sample No.: 80401

Rock Name : Quartz conglomerate

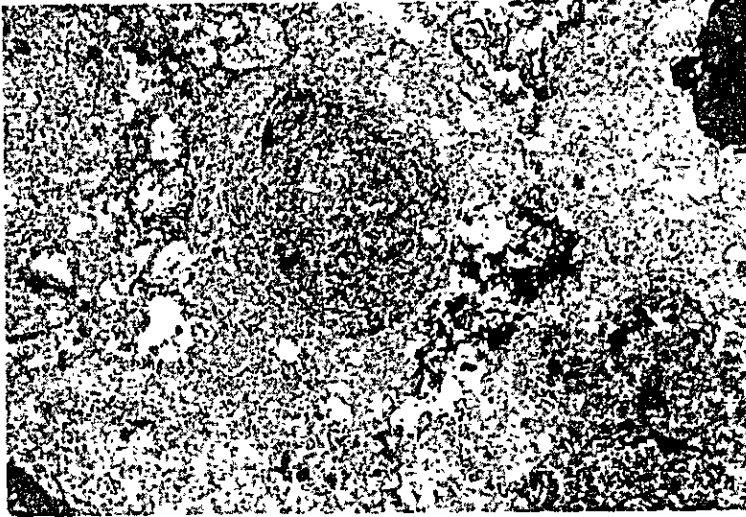


Crossed Nicols

0.5 mm

Sample No.: 80403

Rock Name : Pelleted limestone



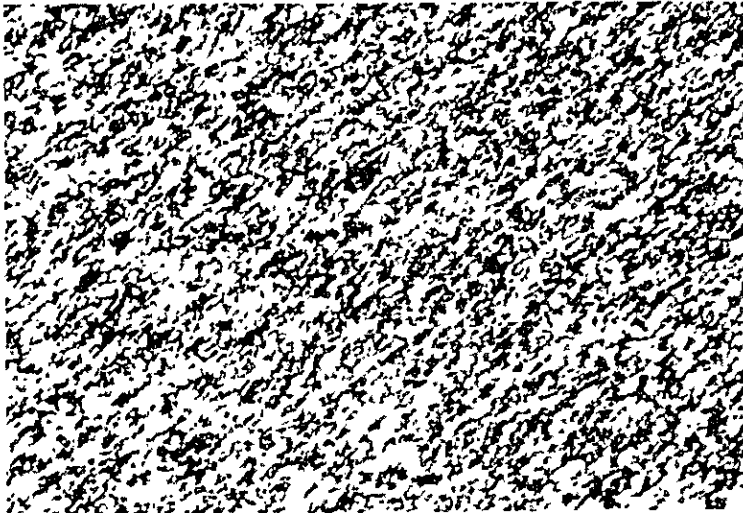
Open Nicol

0.5 mm



Sample No.: 80604

Rock Name : Quartz muscovite
schist



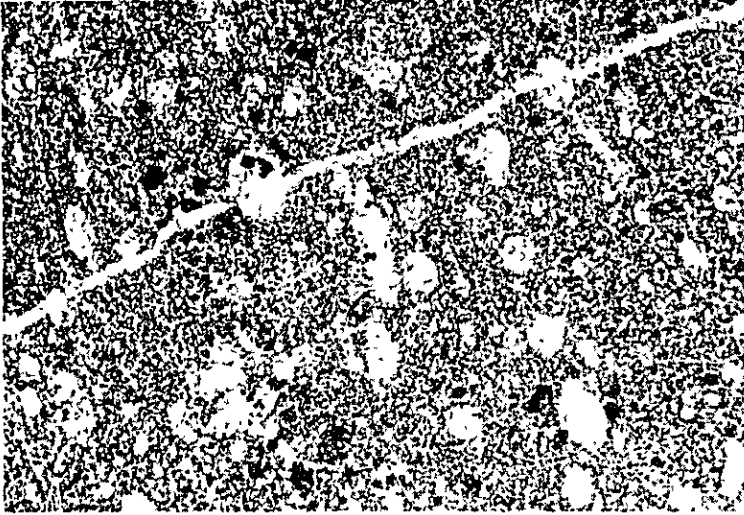
Cross Nicols

0.5 mm



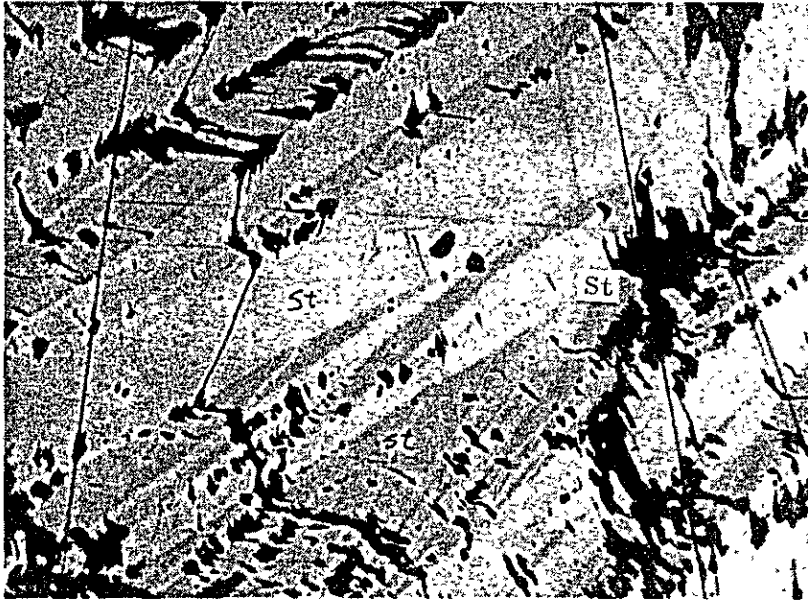
Sample No.: 80404

Rock Name : Dolomitic limestone



0.5 mm

Polished Sections

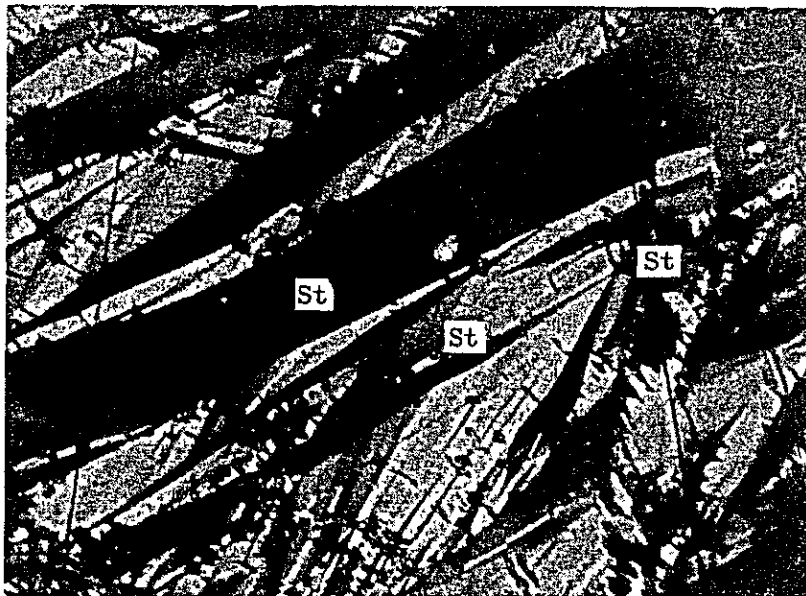


Sample No.: H006

o stibnite vein

Open Nicol

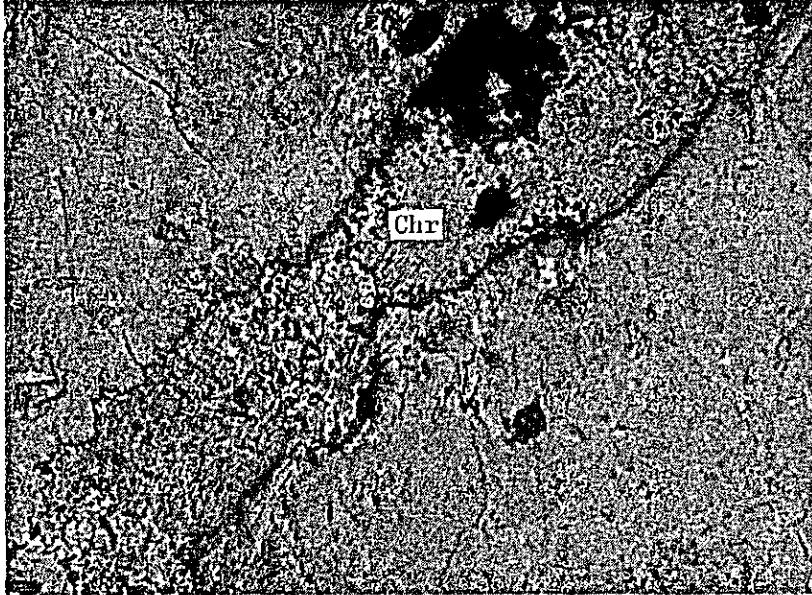
0.2 mm



Sample No.: H006

Crossed Nicols

0.2 mm

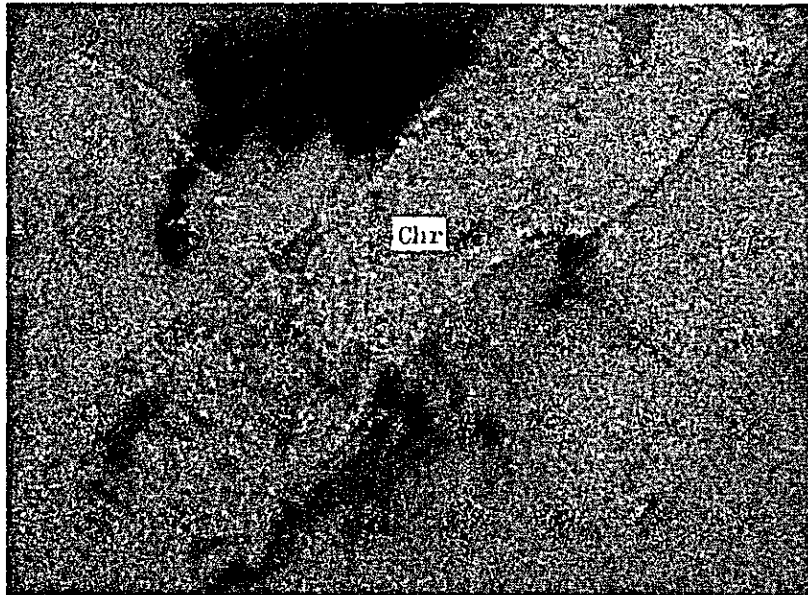


Sample No.: H015

o chrysocolla in
granodiorite

Open Nicol

0.2 mm

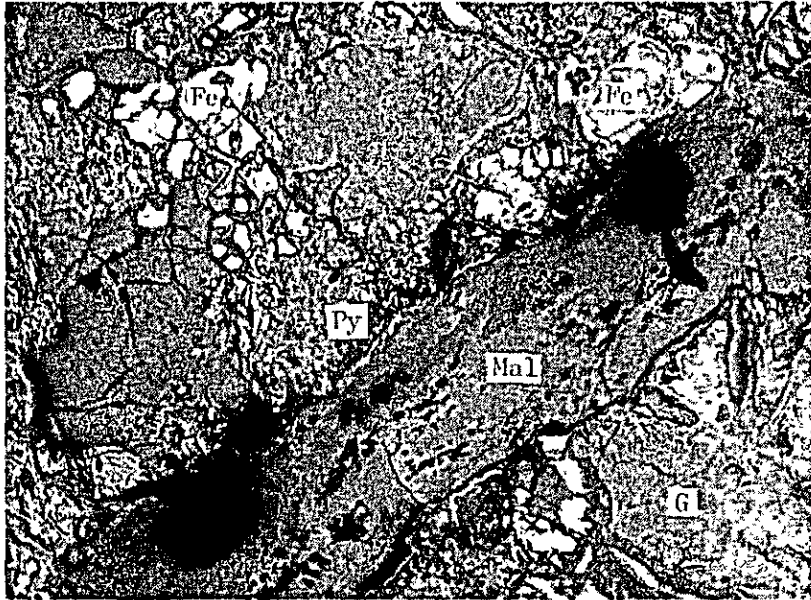


Sample No.: H015

Crossed Nicols

0.2 mm



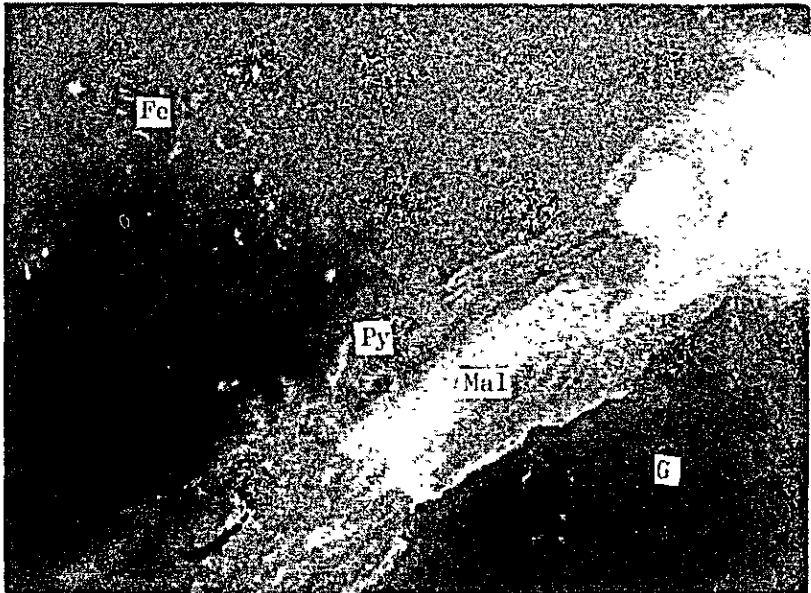


Sample No.: H023

o malachite in
altered rock

Open Nicol

0.2 mm



Sample No.: H023

Crossed Nicols

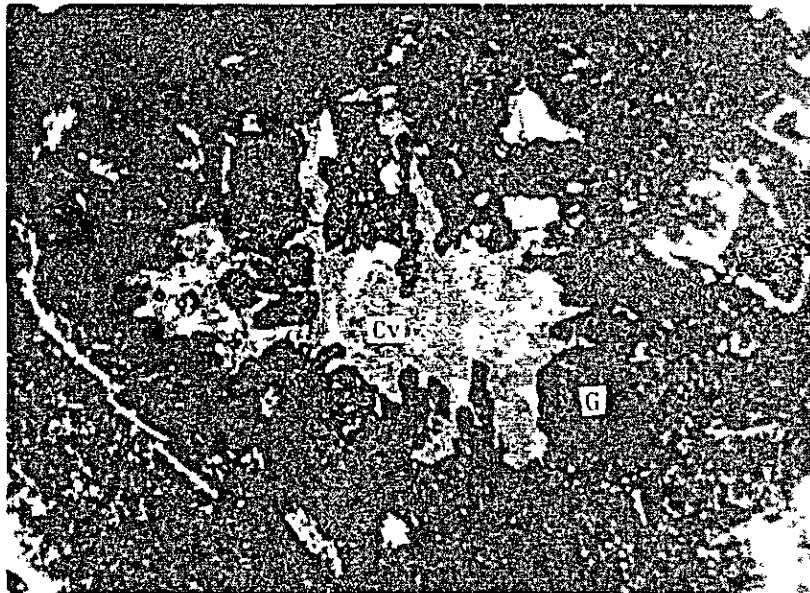
0.2 mm



Sample No.: H043
o high grade Cu-ore

Open Nicol

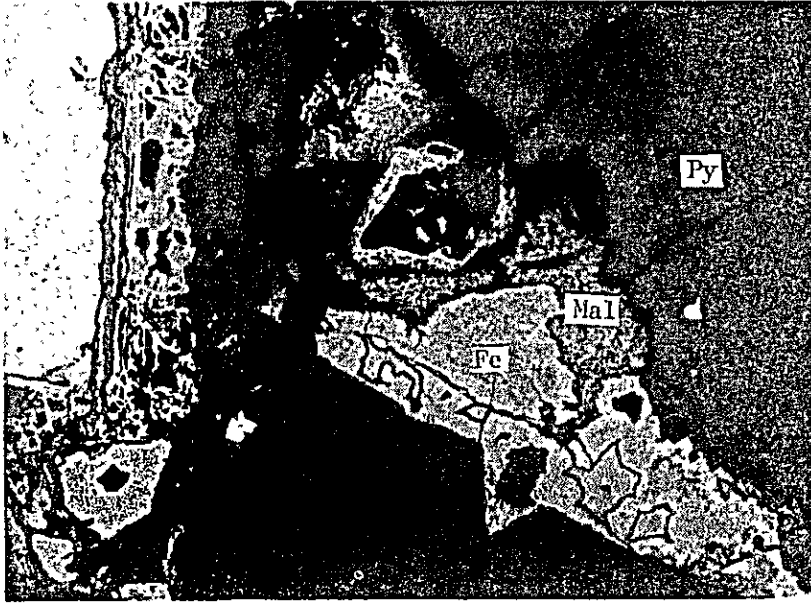
0.2 mm



Sample No.: H043

Open Nicol

0.05 mm

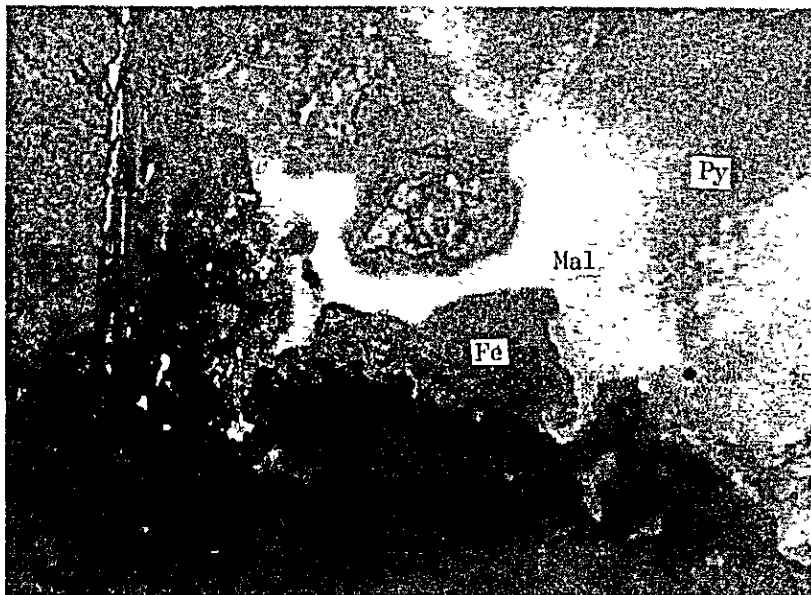


Sample No.: S100

o malachite and
pyrite ores

Open Nicol

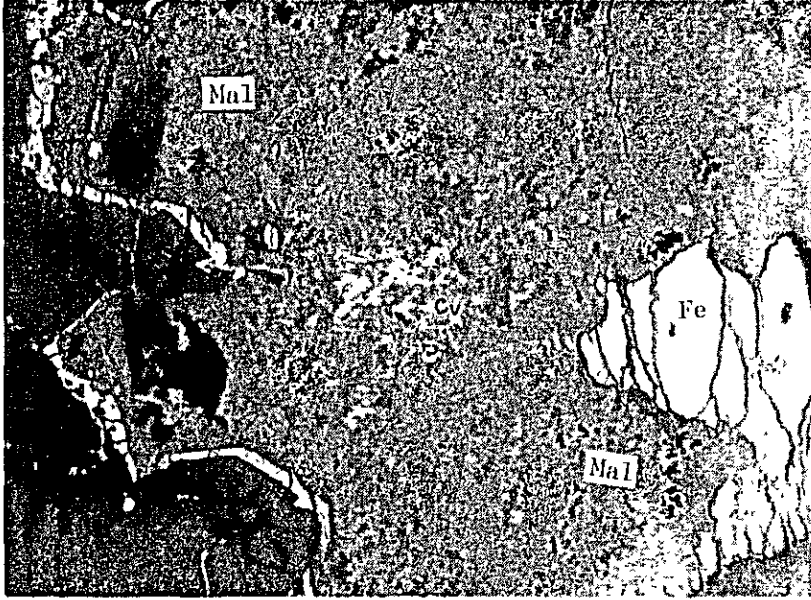
0.2 mm



Sample No.: S100

Crossed Nicols

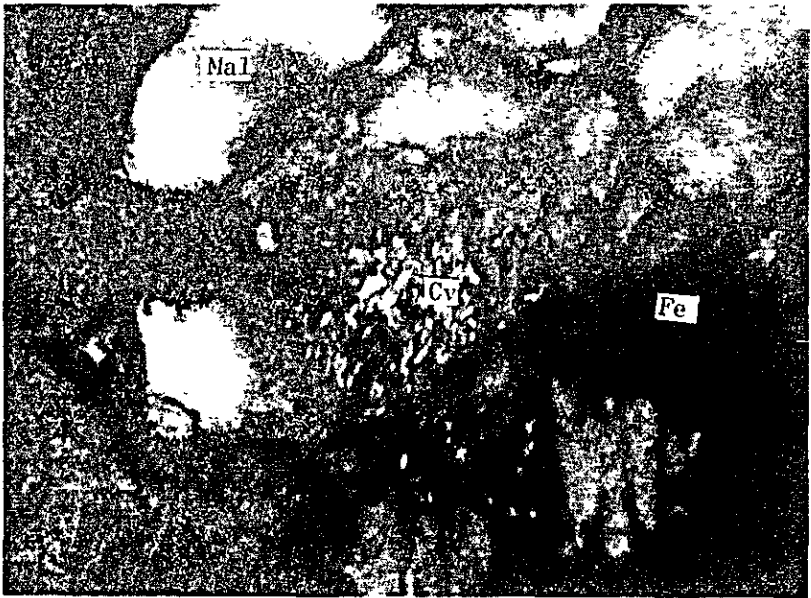
0.2 mm



Sample No.: S101
o malachite and
other Cu-oxides

Open Nicol

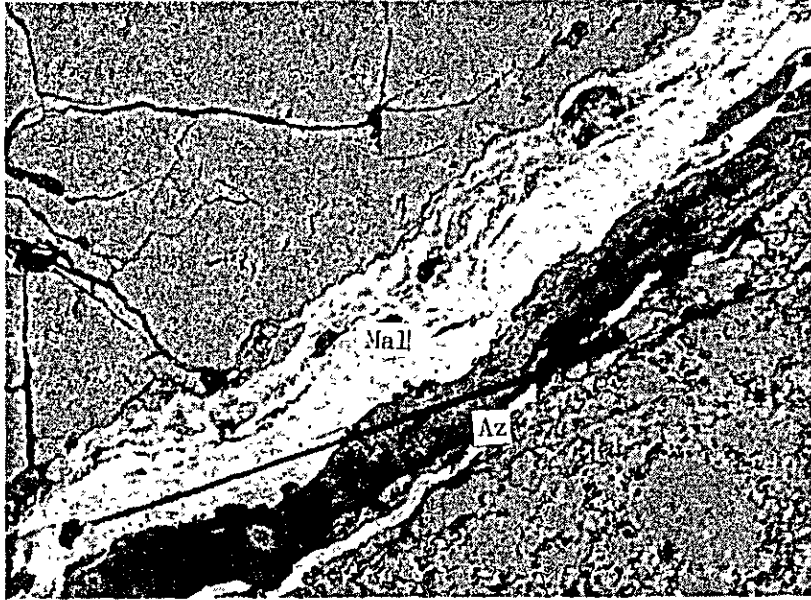
0.2 mm



Sample No.: S101

Crossed Nicols

0.2 mm

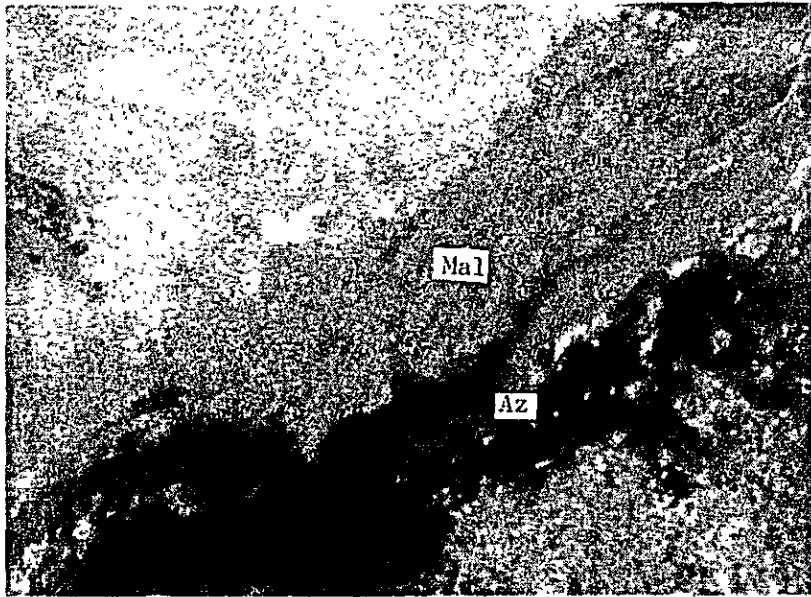


Sample No.: S102

o azurite and
malachite ores

Open Nicol

0.2 mm



Sample No.: S102

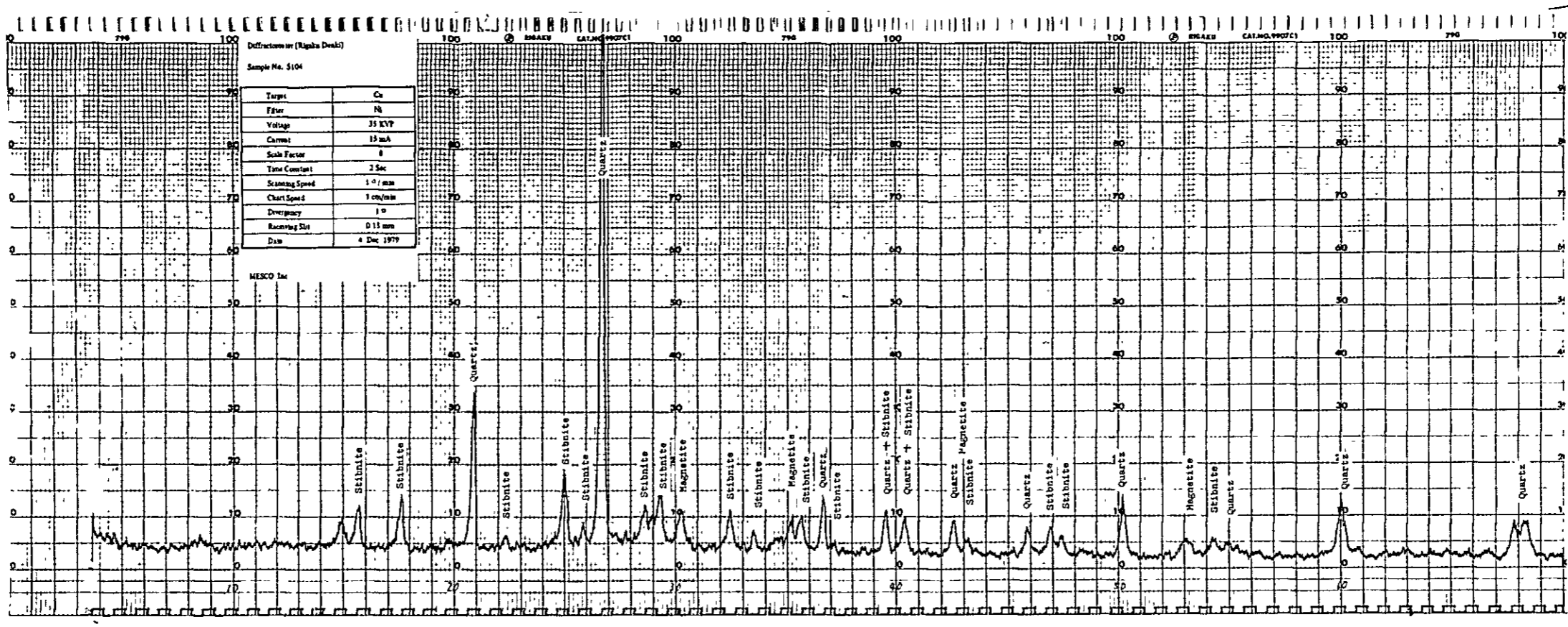
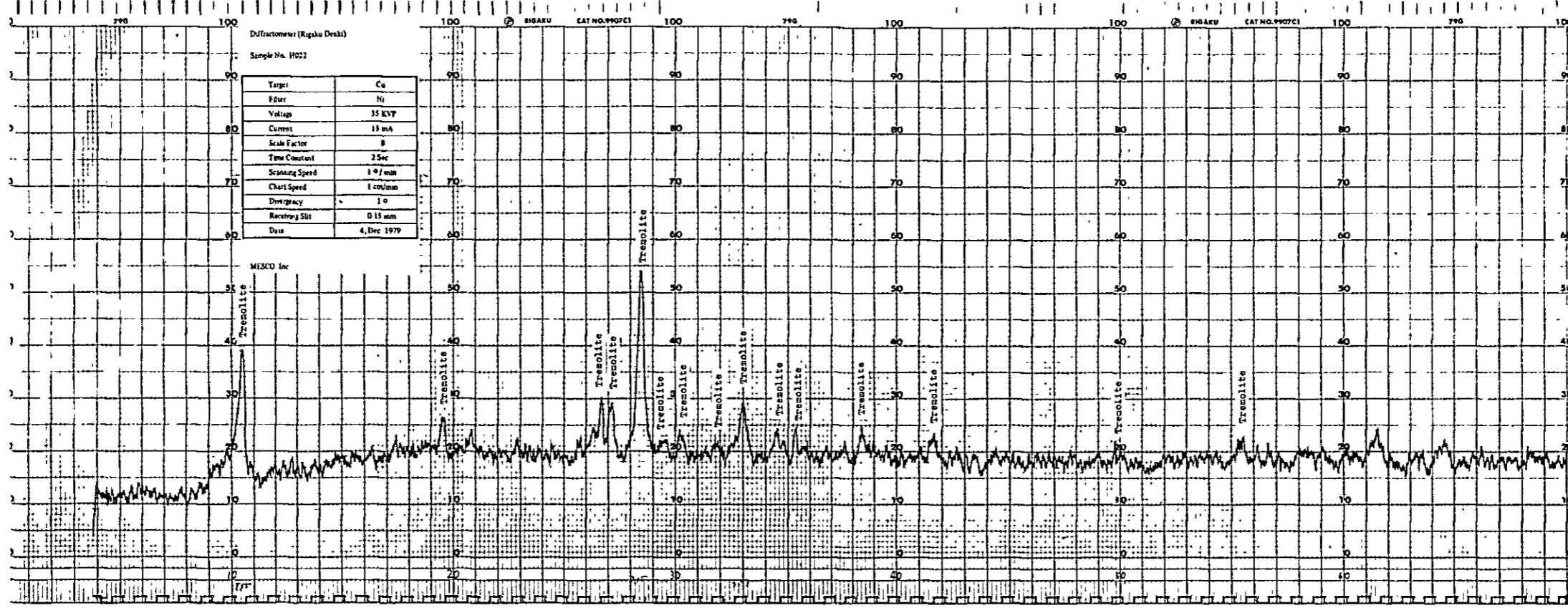
Crossed Nicols

0.2 mm

A. III-4 Chemical Analysis for Igneous Rocks

		H012	H036	H037	73001	73104	80102	
Chemical Composition	SiO ₂	64.26%	80.29%	60.62%	68.93%	55.60%	73.96%	
	TiO ₂	0.45	0.31	0.50	0.55	2.06	0.18	
	Al ₂ O ₃	15.25	10.44	16.39	15.17	14.92	12.73	
	Fe ₂ O ₃	1.48	0.36	1.04	1.37	3.67	3.04	
	FeO	4.81	0.86	2.95	2.29	6.40	0.57	
	MnO	0.11	0.01	0.03	0.09	0.14	0.02	
	MgO	2.09	0.40	4.52	1.06	2.61	0.08	
	CaO	2.71	0.31	7.21	3.12	5.96	0.21	
	Na ₂ O	5.68	4.72	4.54	3.19	3.68	1.99	
	K ₂ O	0.25	0.29	0.33	2.20	1.15	5.66	
	P ₂ O ₅	0.12	0.06	0.11	0.16	0.93	0.03	
	H ₂ O+	2.15	1.22	1.33	0.45	0.99	0.35	
	H ₂ O-	0.20	0.28	0.08	0.45	0.64	0.23	
	Total	99.56	99.55	99.65	99.03	98.75	99.05	
CIPW Normative Minerals	Q	18.99%	51.28%	12.09%	33.71%	14.21%	40.87%	
	C	1.02	1.98	-	2.29	-	3.07	
	Or	1.52	1.75	1.98	13.25	7.00	33.97	
	Ab	49.44	40.73	39.10	27.51	32.06	17.10	
	An	13.02	1.17	23.79	14.71	21.41	0.86	
	Salic Total	84.00	96.91	76.96	91.47	74.68	95.86	
	Di	Wo	-	-	4.96	-	1.16	-
		En	-	-	3.42	-	0.61	-
	Hy	Fs	-	-	1.15	-	0.52	-
		En	5.35	1.02	8.04	2.69	6.09	0.20
		Fs	7.27	0.80	2.71	2.38	5.22	-
		Mt	2.21	0.53	1.53	2.02	5.48	1.40
		Hm	-	-	-	-	-	2.12
		Il	0.88	0.60	0.97	1.06	4.03	0.35
	Ap	0.29	0.14	0.26	0.38	2.22	0.07	
Femic Total	16.00	3.09	23.04	8.53	25.32	4.14		

A. III-5 Charts of X-ray Diffraction Test



A. III--6 Chemical Analysis of Ore Samples

Sample No.	Location		Name of Mineralized Zone	Occurrence and Name of Ore	Au g/t	Ag g/t	Cu %	Pb %	Zn %	Sb %	As %
	X	Y									
H006	28.3	63.1	La Union	Tata Angel	-	0.0	0.00	-	-	23.9	0.01
H007	20.8	67.6	Mangulile	Lupe	0.0	0.0	-	-	-	-	-
H015	34.2	17.2	Campamento	Concordia	-	-	1.30	-	-	-	-
H016	33.1	58.8	La Union	Chica Leona	-	-	1.20	-	-	-	-
H017	20.8	67.8	Mangulile	La Lola	0.1	0.0	-	-	-	-	-
H018	18.5	67.0	Mangulile	California	0.0	0.0	-	-	-	-	-
H019	18.9	67.1	Mangulile	Lupe	0.0	0.0	-	-	-	-	-
H023	22.5	30.9	Orica-Guayape	La Conce	-	-	3.83	-	-	-	-
H025	22.4	30.9	Orica-Guayape	La Conce	-	-	0.55	-	-	-	-
H026	22.6	30.7	Orica-Guayape	La Conce	0.00	<1	0.00	0.00	0.03	-	-
H031	22.5	29.8	Orica-Guayape	La Conce	0.00	<1	0.04	<1	0.03	-	-
H032	22.5	29.9	Orica-Guayape	La Conce	0.00	<1	0.00	<1	0.04	-	-
H041	16.0	36.2	Orica-Guayape	Suyapita	-	-	3.43	-	-	-	-
H043	16.0	36.2	Orica-Guayape	Suyapita	-	-	14.20	-	-	-	-
80104C	49.1	91.4	Esquipulas del Norte	Perico	-	-	0.01	-	-	-	-

613
66.1
MP
LIBRARY