



# DRILLING LOG BALZAPAMBA AREA

MJE - 1

Coordinate : 9808.14N  
708.00E  
Elevation : +1.652m

Inclination : -90°  
Total depth: 305.40m

Plate II-1-19(2)

Depth (m)	Col	Str	Description	Alt min	Ore min	Analysis												
						CL	Au (%)	Ag (%)	Cu (%)	Pb (%)	Zn (%)	Mo (%)	W (%)					
210	+		bi-hb grdr, coarse, weak alt parity cp-py-chl vlt, diss is poor															
220	+		cp-py weakly diss															
222.20	+		trachyandesite, py weakly diss															
222.60	+		bi-hb grdr															
223.30	+		trachyandesite, py weakly diss															
230	+		bi-hb-grdr, coarse, weak alt cp-py weakly diss in thin vein															
233.30	+		cp-py-chl v w: 2cm															
240	+		cp-py lens in chl v L: 3cm															
245.00	+		barren Q v, drusy															
254.90	+		silicified zone containing chl, 2nd-bt															
256.60	+		silicified zone cp-py-chl v w: 1cm															
258.00	+		drusy bi-Q vlt zone															
259.00	+		silicified bi-hb-grdr, coarse cp-py diss in crack, vein partly Q thin, drusy v															
261.80	+		cp-py-ep-Q v w: 5cm															
266.60	+		calcite v w: 35cm															
273.20	+		cp-py-mi-chl-Q ntwk v w: 40cm															
274.20	+		cp-py-mi-chl ntwk v w: 10cm															
279.70	+		cp-py-sh-ep-chl lens brecciated bi-hb grdr, coarse fine grained cp-py diss partly cp-py-chl lens in vein															
282.20	+		cp-py-ep-Q lenses mi-py-chl-ser Q v w: 5cm															
289.90	+		cp-py-sh-ep-chl-Q ntwk v zone															

Depth (m)	Col	Str	Description	Alt min	Ore min	Analysis												
						CL	Au (%)	Ag (%)	Cu (%)	Pb (%)	Zn (%)	Mo (%)	W (%)					
300	+		cp-py-sh-ep-chl-bi-Q ntwk v zone containing large cp-py lens															
305.40			305.40m															
310																		
320																		
330																		
340																		
350																		
360																		
370																		
380																		
390																		
400																		

### LEGEND

bt : biotite  
 hb : hornblende  
 chl : chlorite  
 ser : sericite  
 sf : silicification  
 Q : quartz  
 ep : epidote  
 cp : chalcopyrite  
 py : pyrite  
 ml : molybdenite  
 pt : pyrrhotite  
 sh : scheelite  
 grdr : granodiorite  
 dr : diorite  
 ntwk : network  
 v : vein  
 diss : dissemination  
 drg : argillization



# DRILLING LOG BALZAPAMBA AREA

## MJE - 2

Coordinate : 9,807.97N  
708.93E  
Elevation : +1.575m

Inclination : -90°  
Total depth : 305.40m

Plate II-1-20(2)

Depth (m)	Col	Str	Description	Alt min	Ore min	Analysis														
						CL	Au (%)	Ag (%)	Cu (%)	Pb (%)	Zn (%)	Mo (%)	W (%)							
202.50	+	+	cp-py-ep-bi-chl vlt in white org rk																	
	+	+	bi-chl(ep)-Q ntwk v containing partly cp-py in v																	
209.60			trachyandesite																	
210			cp-py weakly diss partly cp-py-ep-chl-Q v																	
			cp-py-ep-chl v w: 5cm																	
220			weakly white org																	
230																				
232.60																				
			bi-hb-grdr, coarse																	
			cp-py very weakly diss, partly cp-py-chl-O v																	
240																				
250																				
257.00			diss of cp-py gradually strong																	
260			cp-py diss zone																	
266.20			trachyandesite																	
			cp-py diss weakly																	
270																				
273.40			bi-hb-grdr, coarse																	
			cp-py diss & in thin v partly cp-py-chl thin v																	
276.30																				
280			cp-py diss & thin v zone																	
287.40			gradually changed																	
290			partly cp-py in thin crack																	
300																				

Depth (m)	Col	Str	Description	Alt min	Ore min	Analysis														
						CL	Au (%)	Ag (%)	Cu (%)	Pb (%)	Zn (%)	Mo (%)	W (%)							
300	+	+	bi-hb-grdr, coarse																	
	+	+	cp-py very weakly diss & in thin crack																	
	+	+	305.40m																	
310																				
320																				
330																				
340																				
350																				
360																				
370																				
380																				
390																				
400																				

### LEGEND

bi : biotite	grdr : granodiorite
hb : hornblende	dr : diorite
chl : chlorite	ntwk : network
ser : sericite	v : vein
sl : silicification	diss : dissemination
Q : quartz	org : argillization
ep : epidote	
cp : chalcopyrite	
py : pyrite	
ml : molybdenite	
pl : pyrrhotite	
sh : scheelite	



DRILLING LOG  
BALZAPAMBA AREA

MJE - 3

Coordinate : 9808.05N  
707.74E  
Elevation : +1.647m

Inclination : -90°  
Total depth: 303.30m

Plate II-1-21(2)

Depth (m)	Col	Str	Description	Alt min	Ore min	Analysis											
						CL	Au (%)	Ag (%)	Cu (%)	Pb (%)	Zn (%)	Mo (%)	W (%)				
201.20	+	+	bt-hb-grdr andesite tuff hornfels strongly chloritized grdr partly intrude														
204.40	+	+	cp-py-ep-chl-Q ntwk v grdr trachyandesite cp-py weakly diss														
208.00	+	+	bt-hb-grdr, (fine-grained cp-py diss & in crack with chl)														
210.00	+	+	andesite tuff hornfels, strongly chloritized grdr partly intrude, many v exist cp-py-chl-bt-Q ntwk v zone w: 90cm														
214.40	+	+	ep-py-pl-chl-bt-Q v w: 10cm														
215.60	+	+	cp-py-chl-bt-Q v zone w: 120cm ep-py-pl-chl-bt-Q v w: 30cm														
220	+	+	cp-py-chl-Q v w: 20cm														
224.90	+	+	cp-py-sh-chl-ep-Q v w: 10cm														
225.90	+	+	cp-py-pl-chl-Q v w: 40cm														
226.50	+	+	grdr andesitic tuff														
229.30	+	+	cp-py-sh-chl-ep-bt-Q ntwk v w: 70cm														
230	+	+	grdr														
235.50	+	+	cp-py-pl-chl-bt-Q ntwk v w: 90cm														
236.40	+	+	trachyandesite														
238.30	+	+	cp-py-chl-Q ntwk v w: 100cm														
239.50	+	+	cp-py-sh-chl-bt-Q ntwk v w: 70cm														
240	+	+	trachyandesite andesite														
241.80	+	+	cp-py-sh-chl-bt-Q ntwk v w: 70cm														
242.50	+	+	trachyandesite														
242.70	+	+	andesite														
246.00	+	+	cp-py-chl-bt-Q ntwk v w: 230cm														
248.30	+	+	andesite														
250	+	+	cp-py-chl-Q v zone, large cp-py w: 150cm														
251.50	+	+	py-sh-thl-ser-Q ntwk v zone w: 130cm														
252.00	+	+	cp-py-chl-Q ntwk v w: 30cm														
253.60	+	+	andesitic tuff py-chl-Q ntwk v zone w: 170cm														
254.90	+	+	andesite														
255.70	+	+	cp-py-chl-Q ntwk v w: 30cm														
256.30	+	+	py-chl-Q ntwk v zone w: 170cm														
258.00	+	+	andesite														
260	+	+	trachyandesite, strongly silicified, cutted by ser-chl-Q veinlets cp-py-sh-chl-(ser)-Q v zone w: 370cm														
262.00	+	+	melanocratic dr cp-py weakly diss														
265.70	+	+															
266.60	+	+															
270	+	+	cp-py-chl-bt-Q network v zone in strongly altered rk														
273.00	+	+															
278.80	+	+	bt-hb-grdr, coarse														
280	+	+	trachyandesite, py weakly diss bt-hb-grdr, coarse cp-py diss cp-py-ep-chl lens partly exist														
289.30	+	+	barren Q v w: 15cm														
290	+	+															
300	+	+															

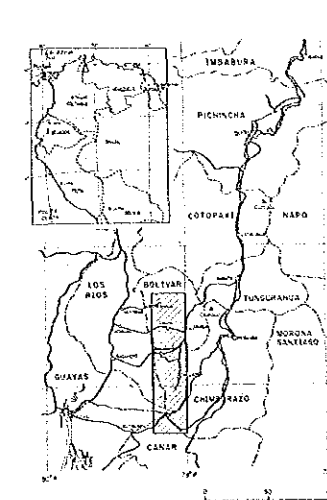
Depth (m)	Col	Str	Description	Alt min	Ore min	Analysis											
						CL	Au (%)	Ag (%)	Cu (%)	Pb (%)	Zn (%)	Mo (%)	W (%)				
300	+	+	bt-hb-grdr, coarse cp-py diss 303.30m														
310																	
320																	
330																	
340																	
350																	
360																	
370																	
380																	
390																	
400																	

LEGEND

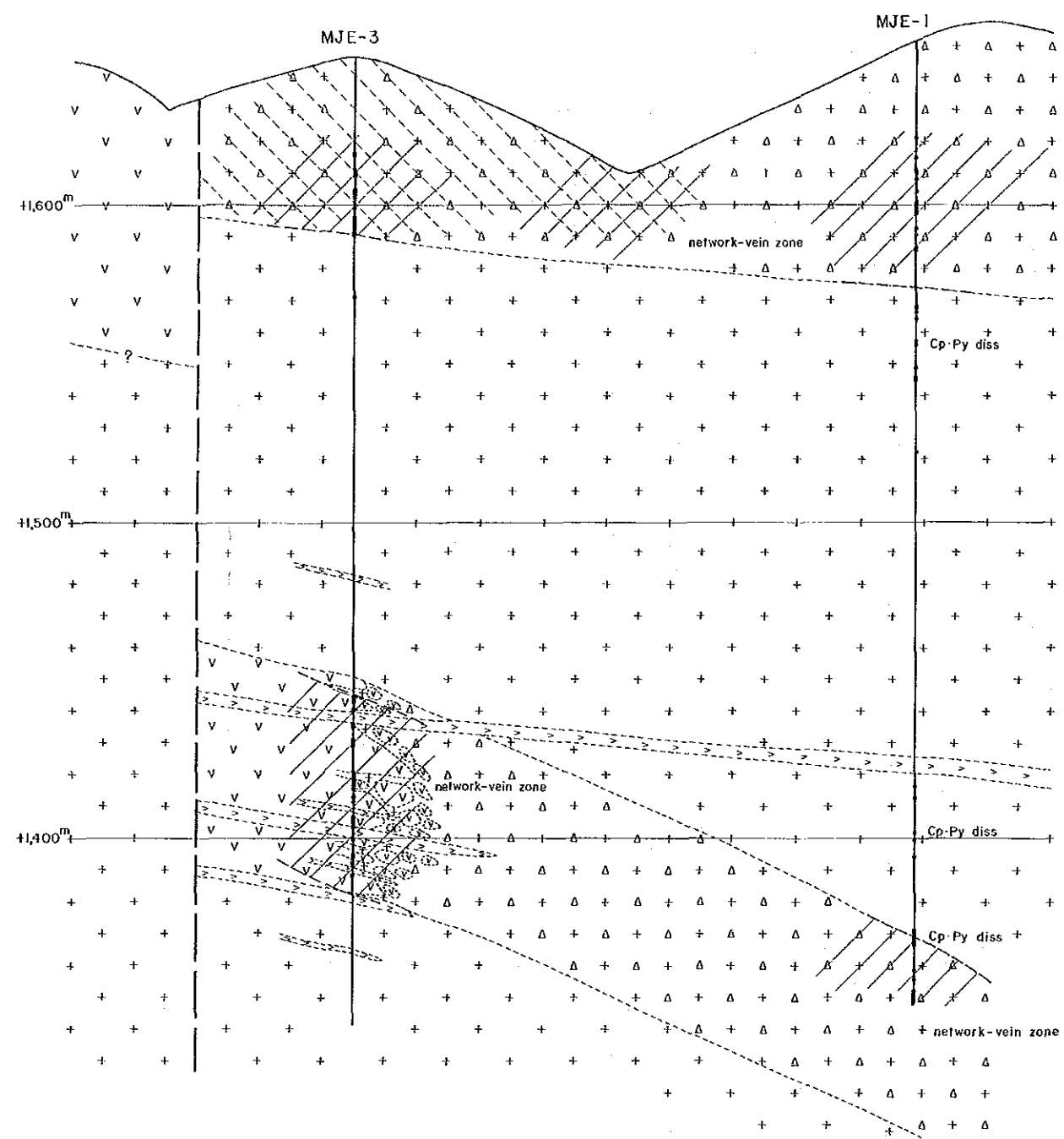
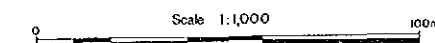
- bt : biotite
- hb : hornblende
- chl : chlorite
- ser : sericite
- sl : silicification
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- ep : epidote
- cp : chalcopyrite
- py : pyrite
- ml : molybdenite
- pl : pyrrhotite
- sh : scheelite
- grdr : granodiorite
- dr : diorite
- ntwk : network
- v : vein
- diss : dissemination
- arg : argillization

REPORT ON THE MINERAL EXPLORATION  
IN  
THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
PHASE I

Geological Section of Drill Holes



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METAL MINING AGENCY OF JAPAN  
FEBRUARY 1989

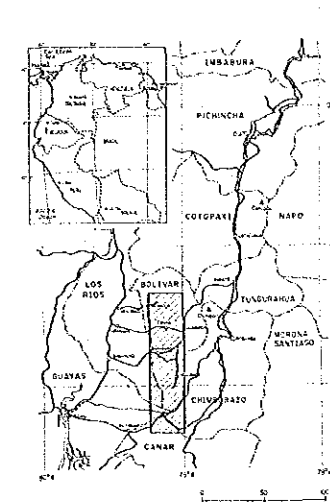


LEGEND

- Granodiorite
- Brecciated granodiorite
- Trachyandesite
- Macuchi formation
- Mineralized zone (network-vein zone)
- Argillized zone
- Fault

REPORT ON THE MINERAL EXPLORATION  
IN  
THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
PHASE I








Geological Section of Drill Holes

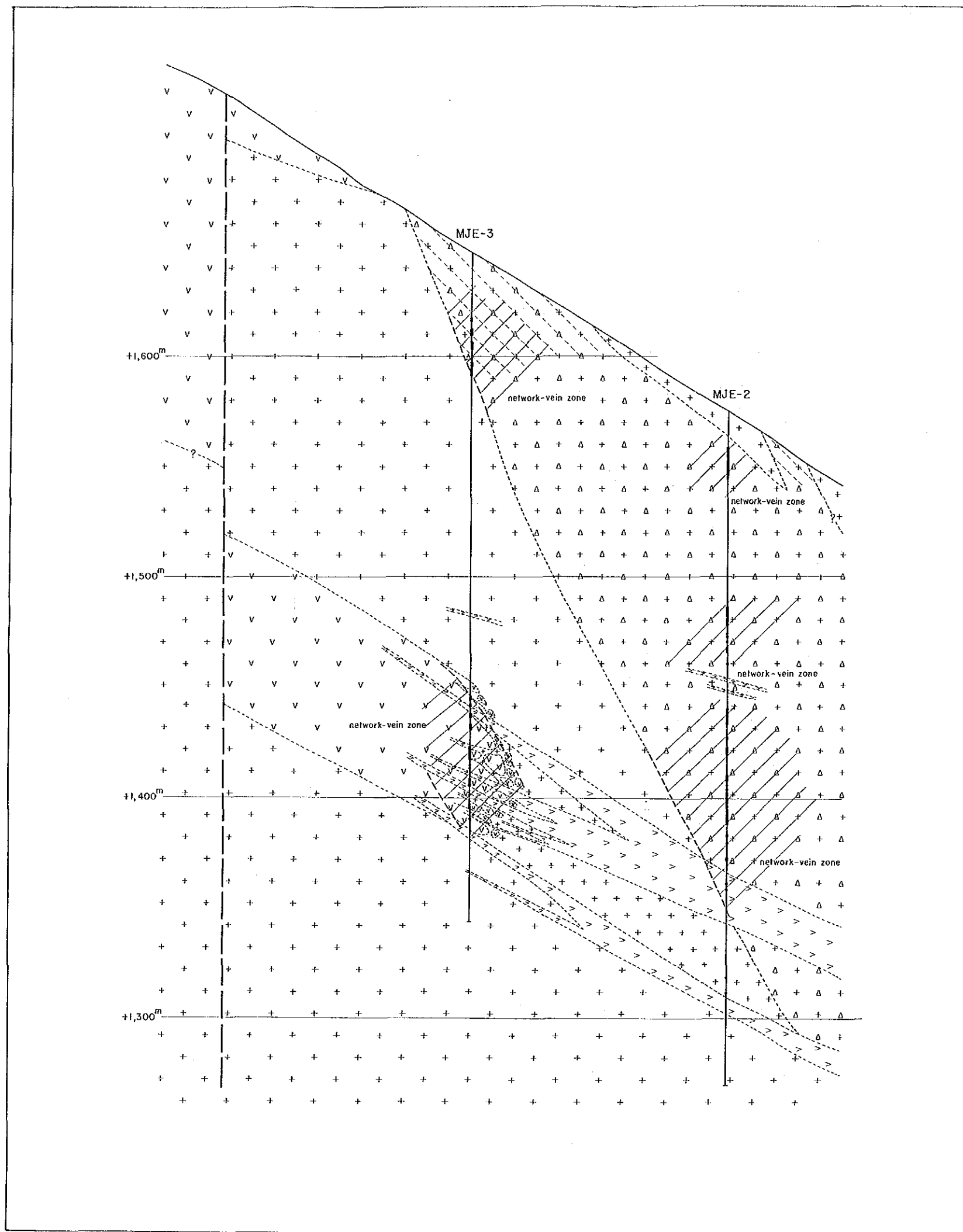


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Scale 1:1,000 100m

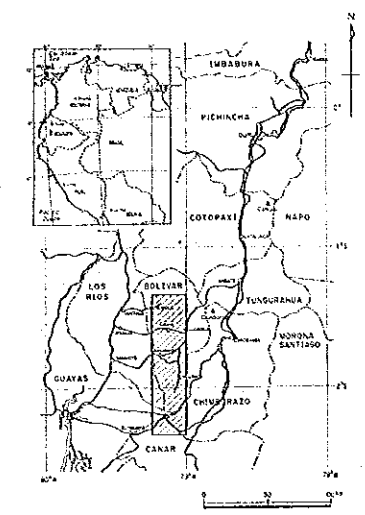
LEGEND

-  Granodiorite
-  Brecciated granodiorite
-  Trachyandesite
-  Macuchi formation
-  Mineralized zone (network-vein zone)
-  Argillized zone
-  Fault

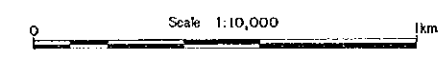




REPORT ON THE MINERAL EXPLORATION  
 IN  
 THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
 PHASE I  
 Geological Map and Geological Profile  
 of the Chaso Juan Area

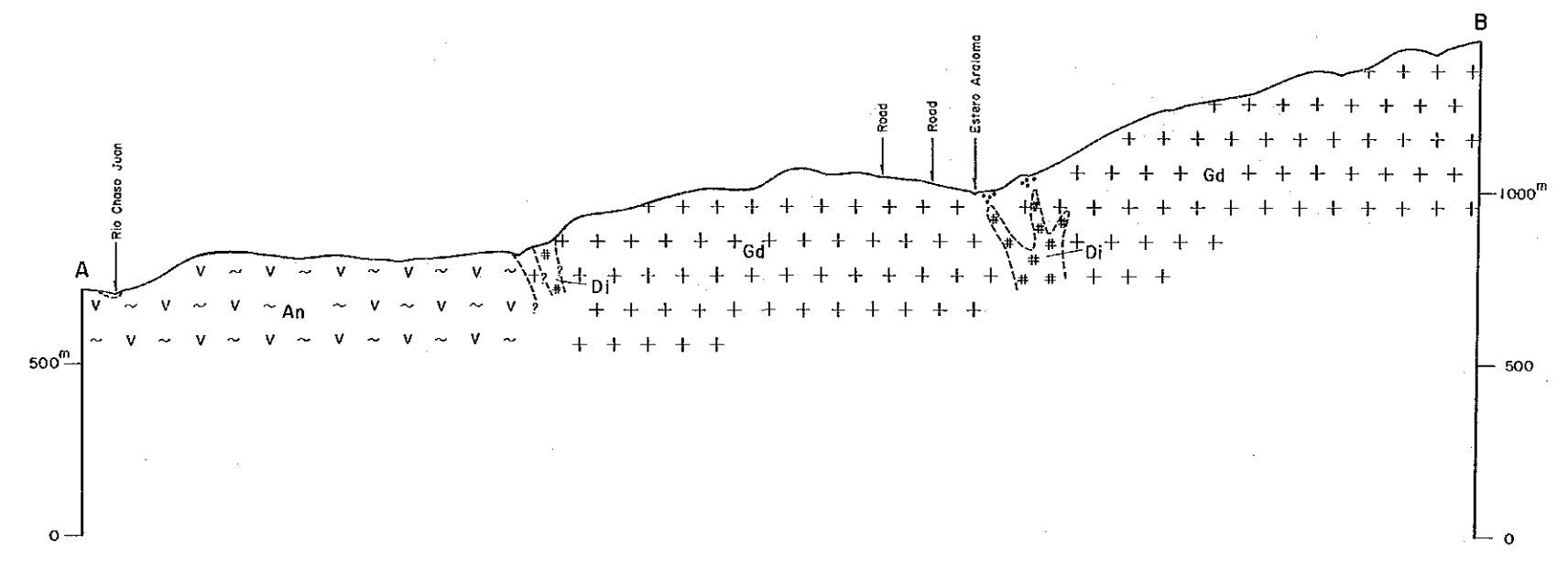
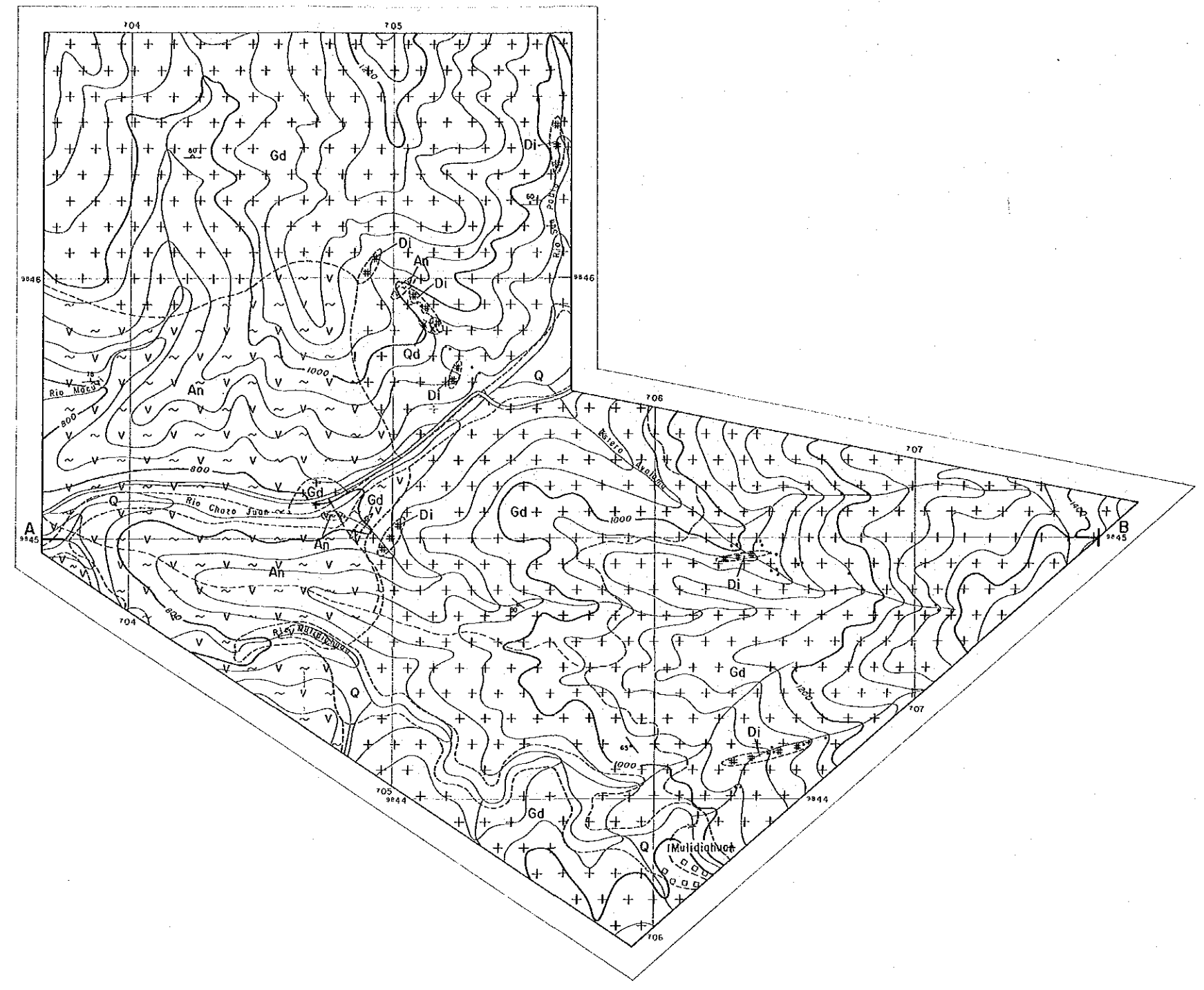


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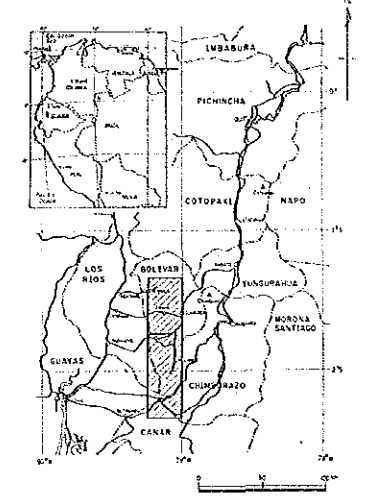


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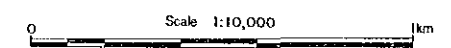
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		An	Hornfels (andesitic)
Intrusive Rocks	{	Gd	Granodiorite
		Di	Metacrotic diorite
		Qd	Quartz diorite
		20	Dip and strike of bedding plane
		—	Geological boundary
		•••••	Mineralized zone
		—	Vein
		A — B	Section line



REPORT ON THE MINERAL EXPLORATION  
 IN  
 THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
 PHASE I  
 Geological Map and Geological Profile  
 of the La Industria - Yatubi Area

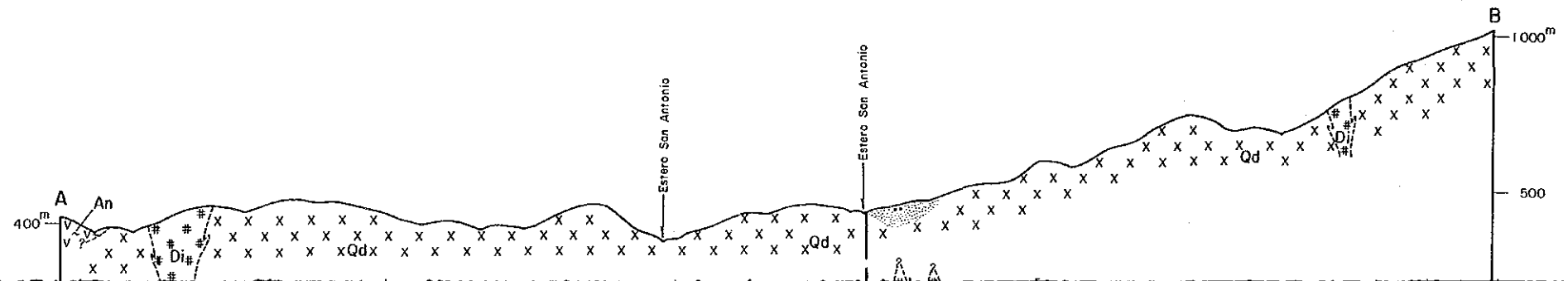
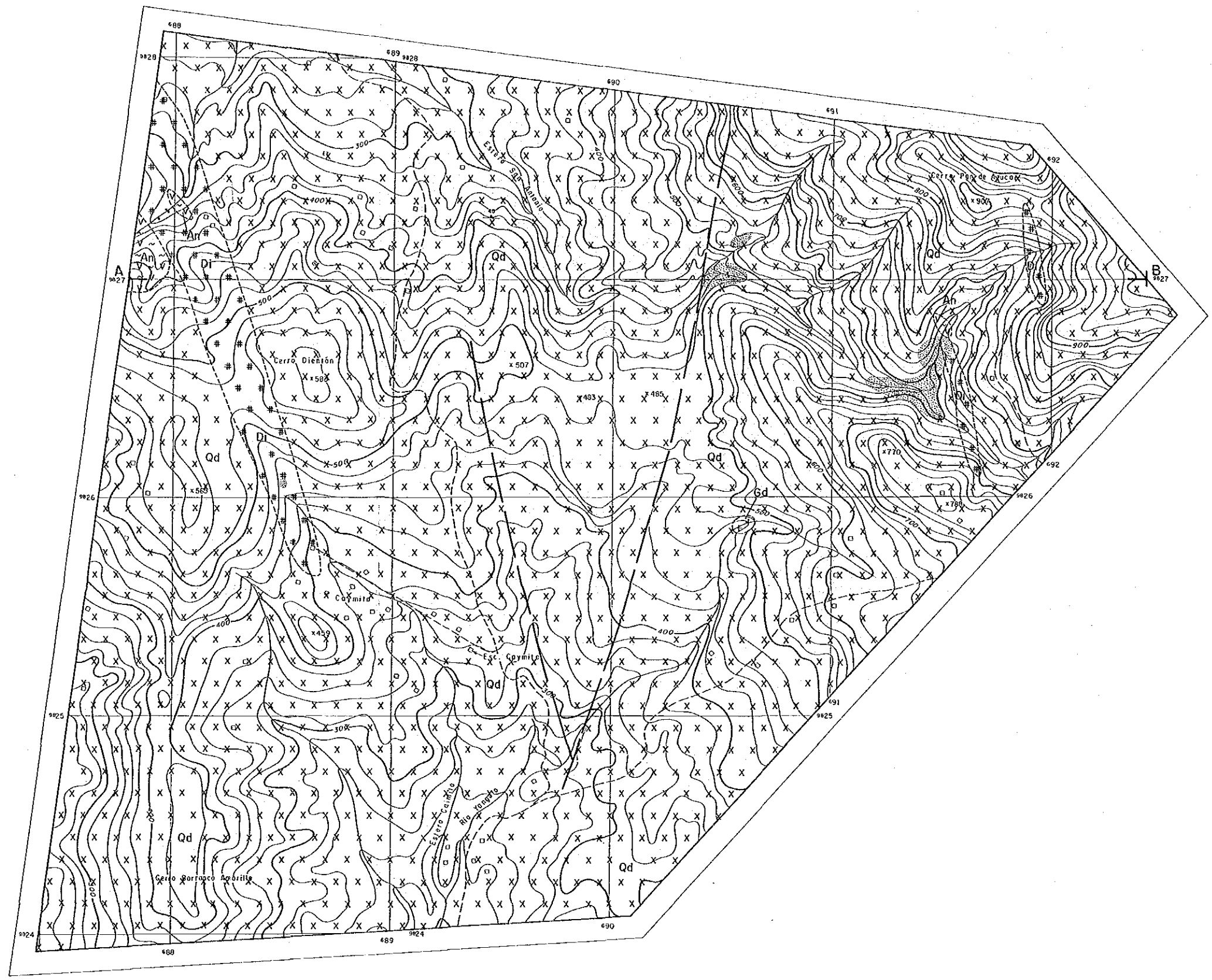


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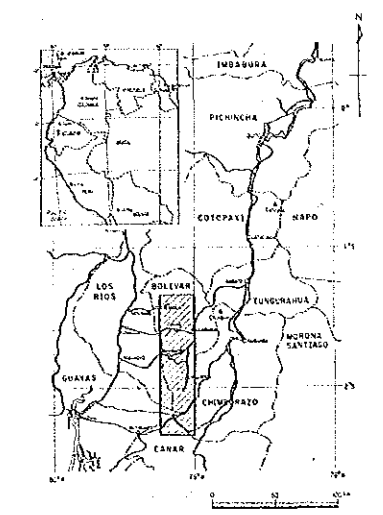


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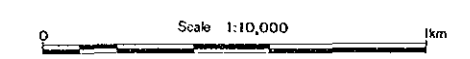
- |                                   |   |    |       |   |
|-----------------------------------|---|----|-------|---|
| Cretaceous<br>Mauchi<br>Formation | { | An | v-v   | Hornfels (andesitic)                          |
|                                   |   |    | ~v~   |   |
| Intrusive<br>Rocks                | { | Qd | x x   | Quartz diorite with<br>altered quartz diorite |
|                                   |   | Di | # #   | Metacrotic diorite                            |
|                                   |   | Gd | + +   | Granodiorite                                  |
|                                   |   |    | - - - | Geological boundary                           |
|                                   |   |    | —     | Fault   |
|                                   |   |    | •••   | Mineralized zone                              |
|                                   |   |    | —     | Vein  |
|                                   |   |    | •••   | Alteration zone                               |
|                                   |   | A  | B     | Section line                                  |



THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
 PHASE I  
 Geological Map and Geological Profile  
 of the La Industria - Yatubi Area

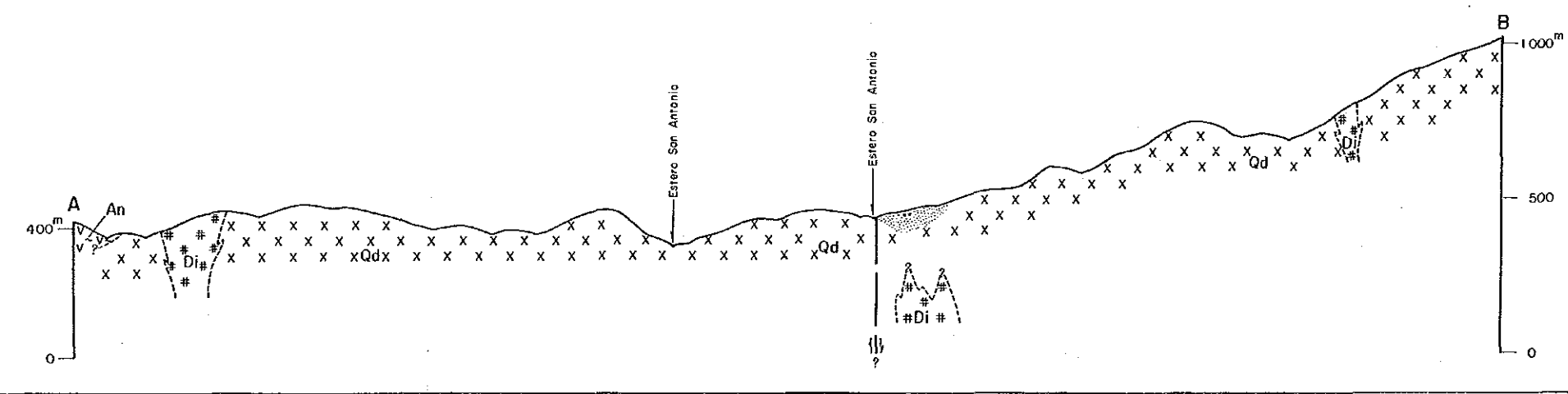
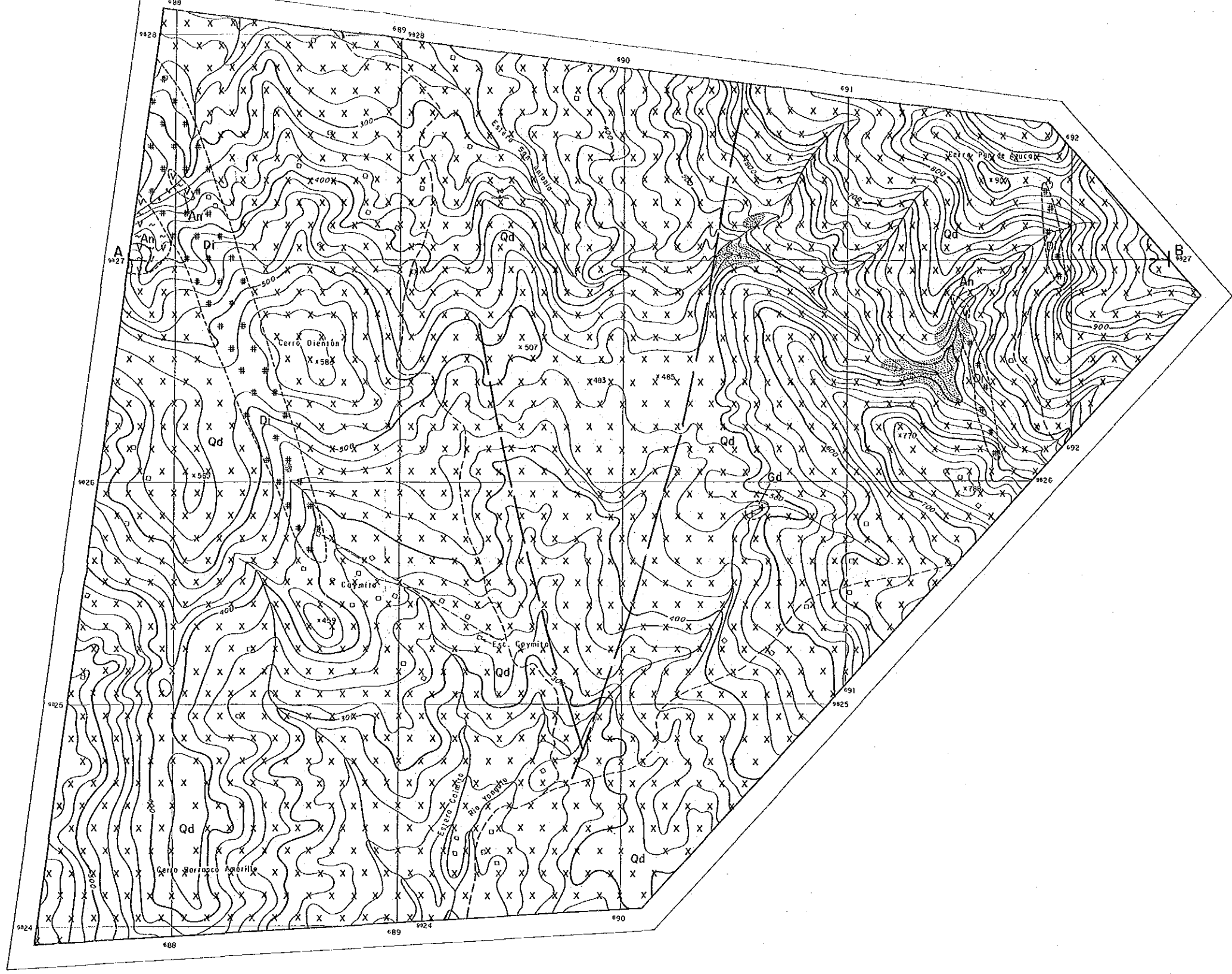


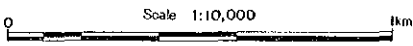
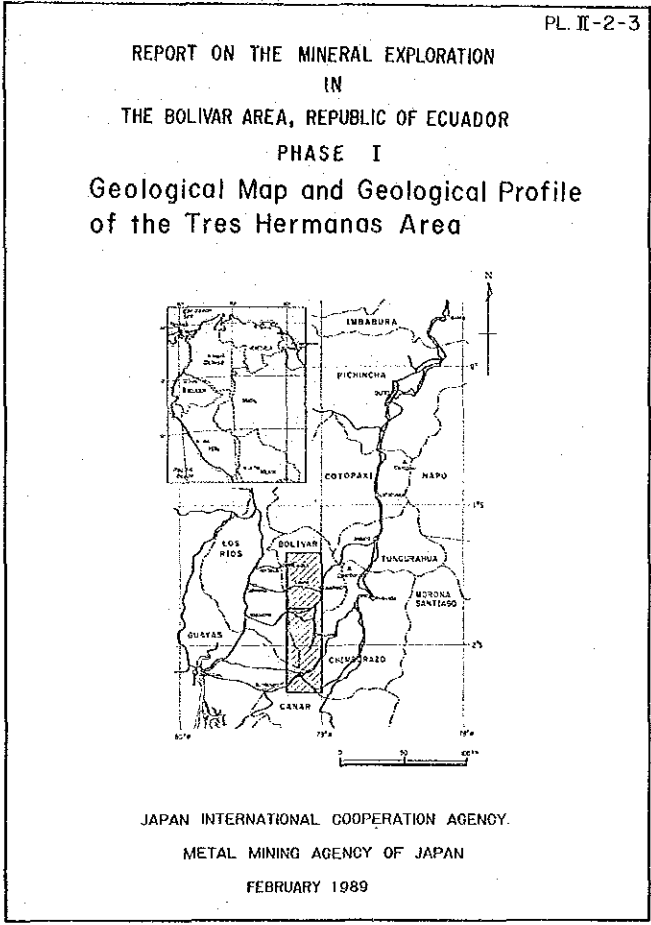
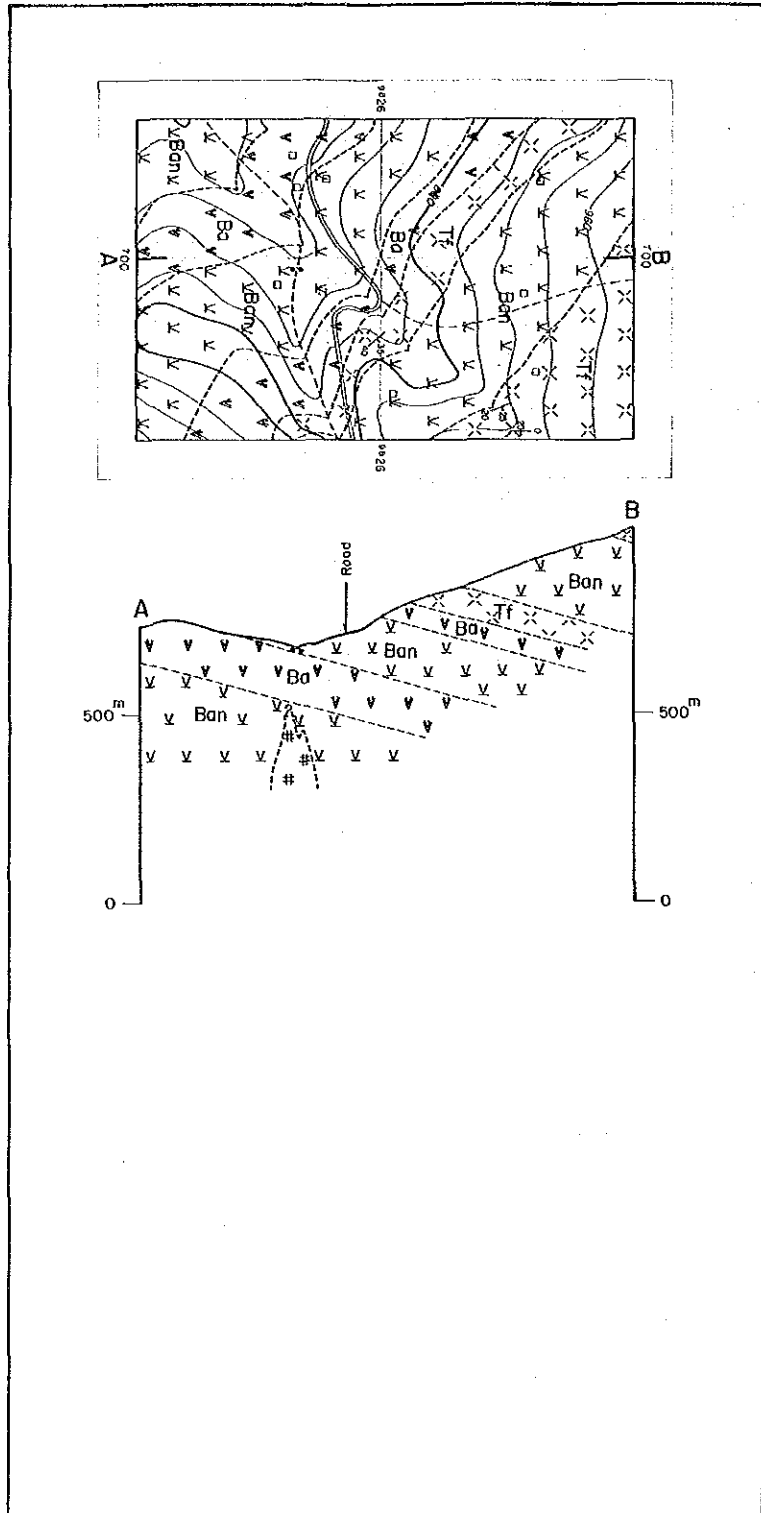
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LEGEND

Cretaceous Macuchi Formation	{	An	v - v	Horafels (andesitic)	
		Qd	x x x	Quartz diorite with altered quartz diorite	
		Di	# # #	Melanocratic diorite	
Intrusive Rocks	{	Gd	+ + +	Granodiorite	
		~ ~ ~			Geological boundary
		- - -			Fault
				• • •	Mineralized zone
				—	Vein
				• • •	Alteration zone
				A — B	Section line

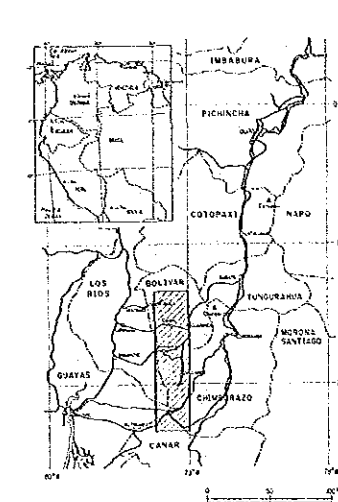




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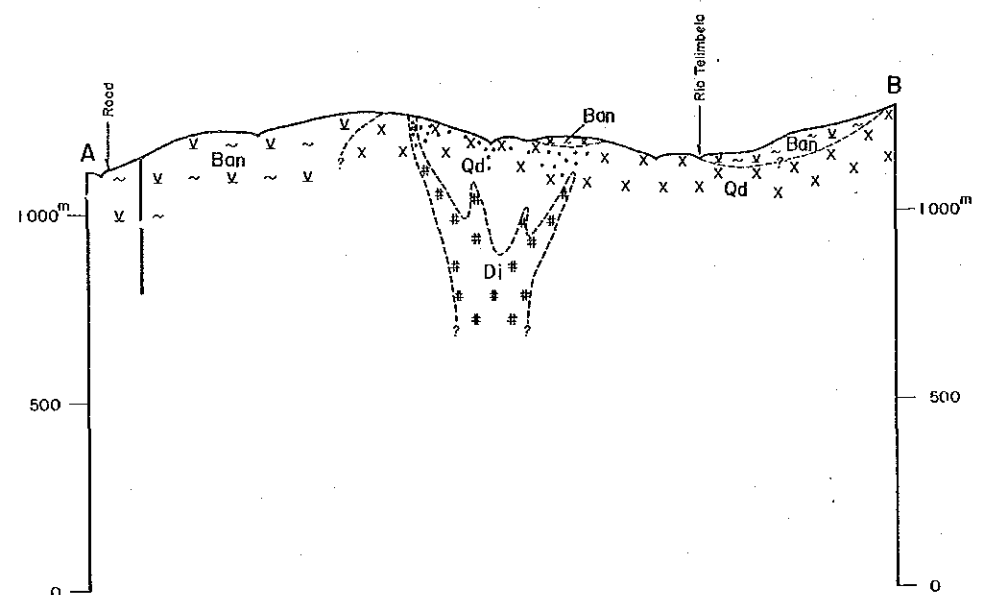
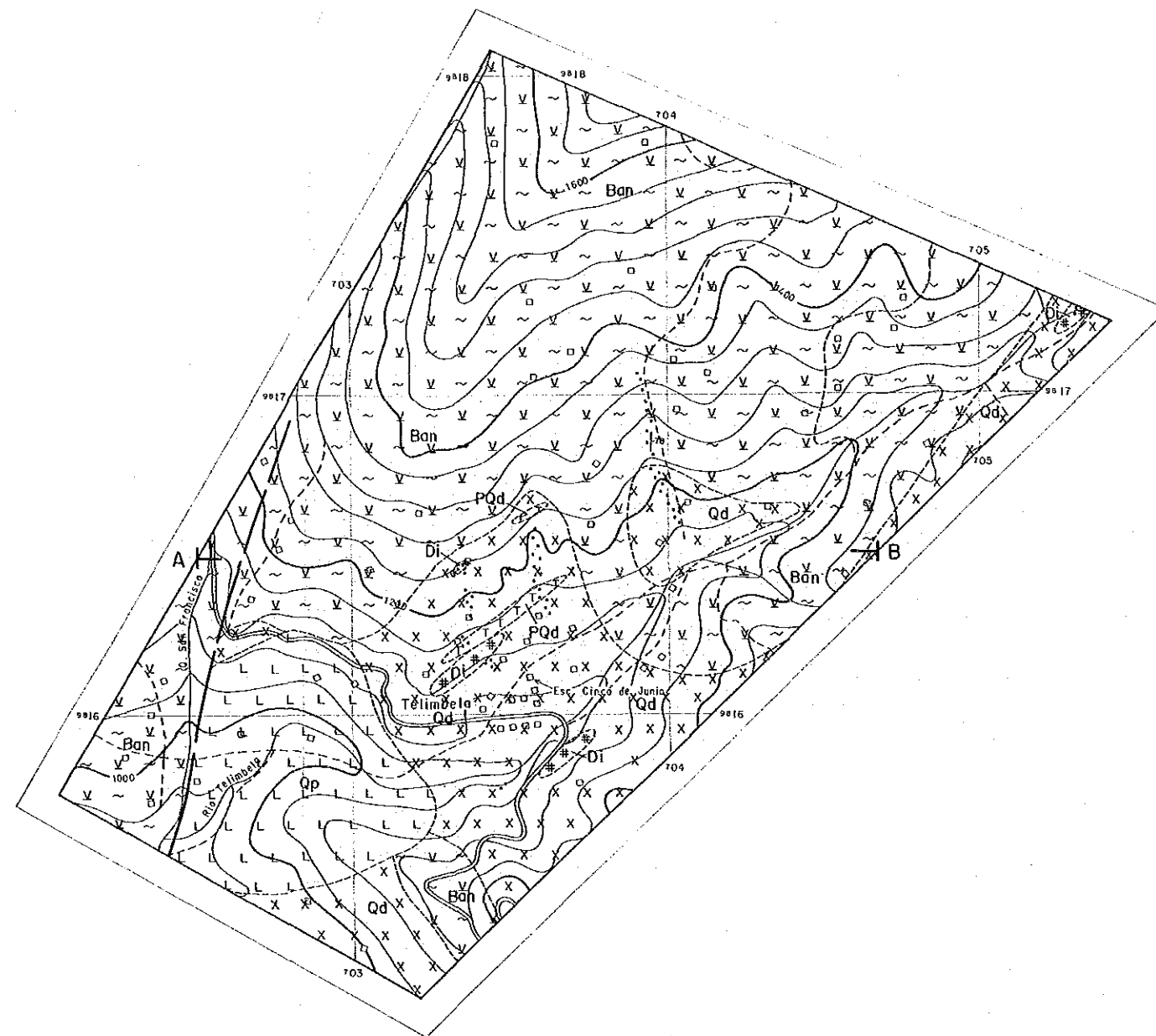
- |                                    |     |     |                                 |
|------------------------------------|-----|-----|---------------------------------|
| Cretaceous<br>Macuchi<br>Formation | Tf  | x x | Fine tuff                       |
|                                    | Ban | x x | Basaltic andesite lava          |
|                                    | Ba  | v v | Basalt lava                     |
|                                    |     | 20  | Dip and strike of bedding plane |
|                                    |     | ~   | Geological boundary             |
|                                    |     | ••• | Mineralized zone                |
|                                    | A   | B   | Section line                    |

REPORT ON THE MINERAL EXPLORATION  
 IN  
 THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
 PHASE I  
 Geological Map and Geological Profile  
 of the Telimbela Area



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 FEBRUARY 1989

Scale 1:10,000 Km



LEGEND

- |                              |   |     |     |   |
|------------------------------|---|-----|-----|---|
| Cretaceous Macuchi Formation | { | Ban |     | Hornfels (basaltic andesite ~ andesite) |
| Intrusive Rocks              | { | Qd  |     | Quartz diorite                          |
|                              |   | Qp  |     | Quartz porphyry                         |
|                              |   | Di  |     | Melanocratic diorite                    |
|                              |   | PQd |     | Porphyritic quartz diorite              |
|                              |   |     |     | Dip and strike of bedding plane         |
|                              |   |     |     | Geological boundary                     |
|                              |   |     |     | Fault                                   |
|                              |   |     |     | Mineralized zone                        |
|                              |   |     | A B | Section line                            |

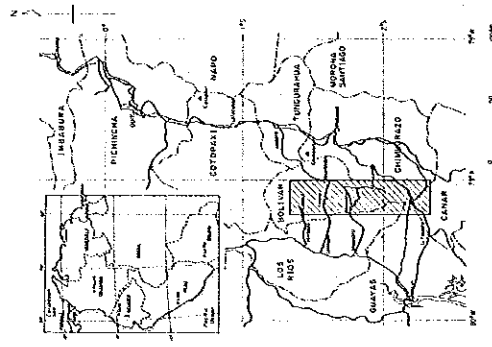
PL II-2-5

REPORT ON THE MINERAL EXPLORATION  
IN

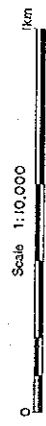
THE BOLIVAR AREA, REPUBLIC OF ECUADOR

PHASE I

Geological Map and Geological Profile  
of the San Miguel Area

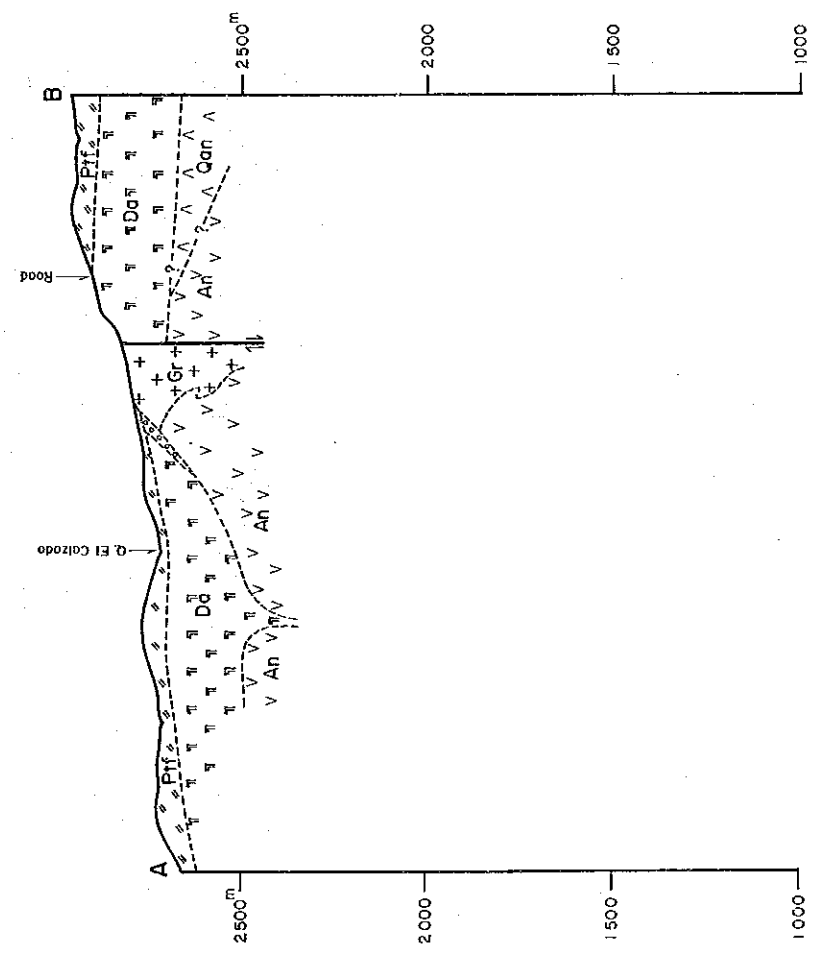
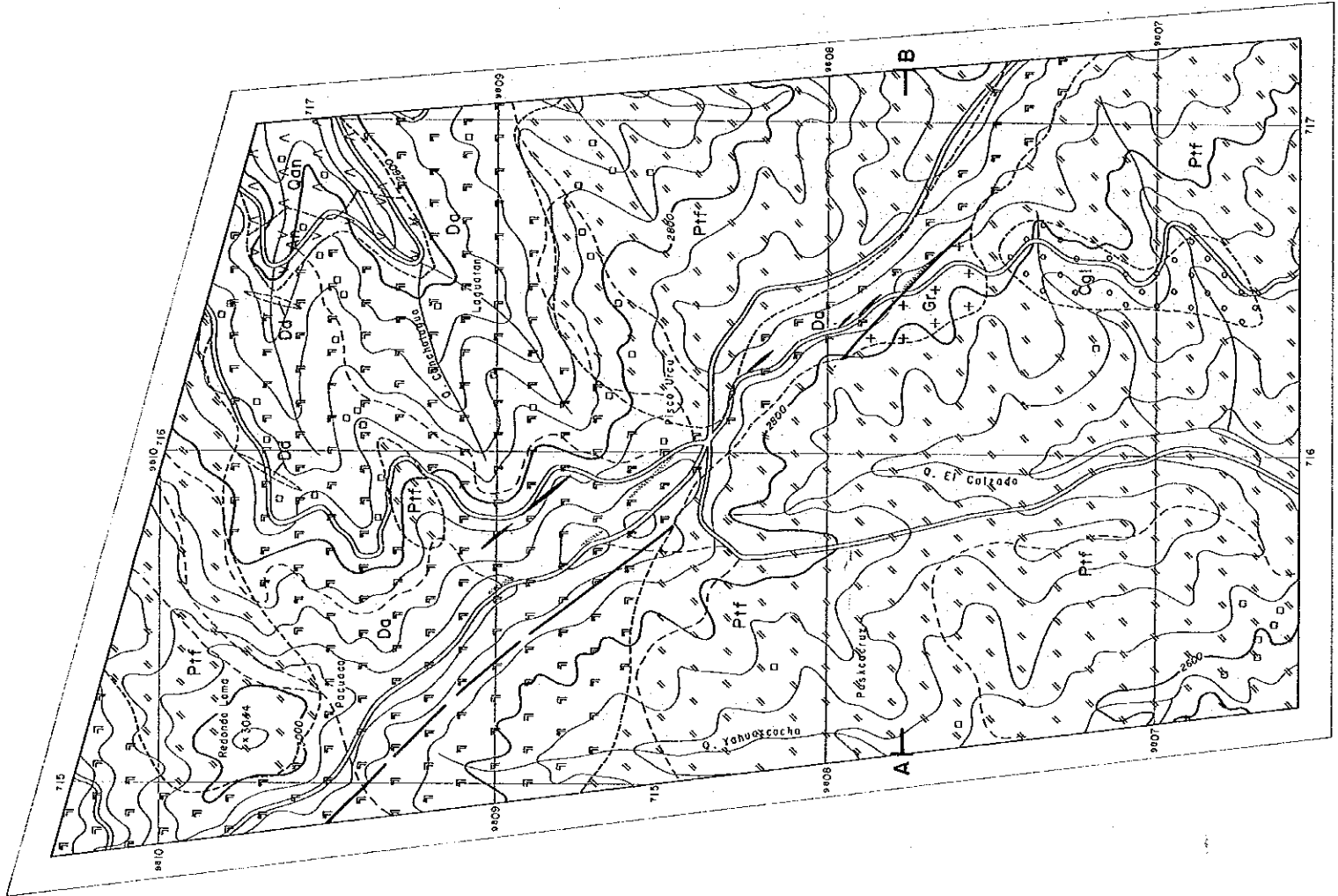


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METAL MINING AGENCY OF JAPAN  
FEBRUARY 1989

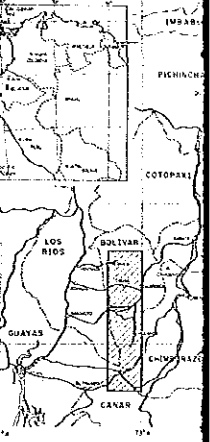


LEGEND

Georanda Vol.	Ptf	Pumice tuff
Quaternary	Da	Ocific lava with its pyroclastics
	Cgl	Conglomerate
Pliocene	Qan	Quartz-bg. andesite lava
	An	Andesite lava
Intrusive Rocks	Gr	Granitic rock
	Dd	Dacite dyke
		Geological boundary
		Fault
		Vein
		Alteration zone
		Section line



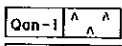
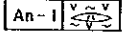
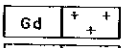
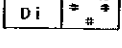
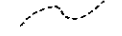
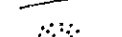
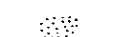


REPORT ON THE MINERAL  
IN  
THE BOLIVAR AREA, REPUBLIC  
PHASE I  
Geological Map and Ge  
of the Las Guardias

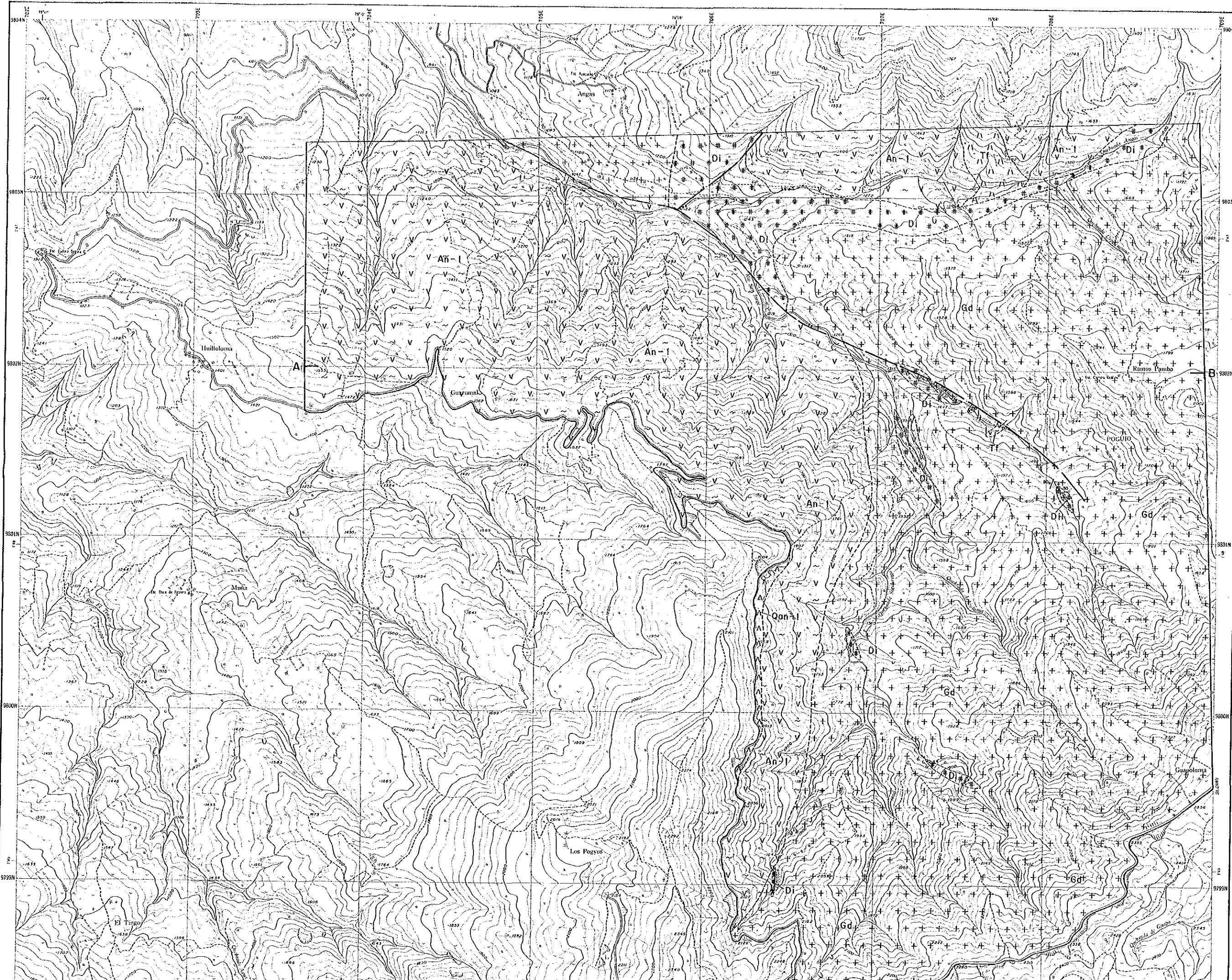


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FEBRUARY 1989

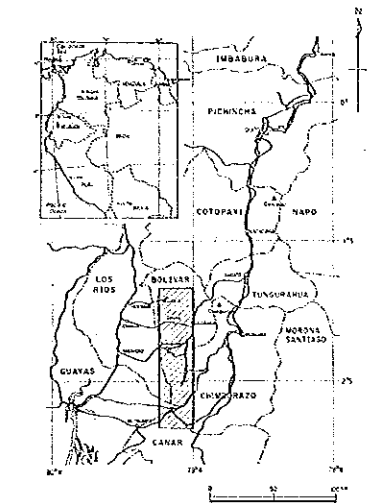
Scale 1:10,000

LEGEND

- |                                    |   |                               |
|------------------------------------|---|-------------------------------|
| Cretaceous<br>Macuchi<br>Formation |  | Quartz-bg. o                  |
|                                    |  | Andesitic hor<br>and sediment |
| Intrusive<br>Rocks                 |  | Granodiorite                  |
|                                    |  | Metacratite                   |
|                                    |  | Geological                    |
|                                    |  | Fault                         |
|                                    |  | Mineralized                   |
|                                    |  | Alteration zone               |
|                                    |  | Section line                  |



REPORT ON THE MINERAL EXPLORATION  
 IN  
 THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
 PHASE I  
 Geological Map and Geological Profile  
 of the Las Guardias Area

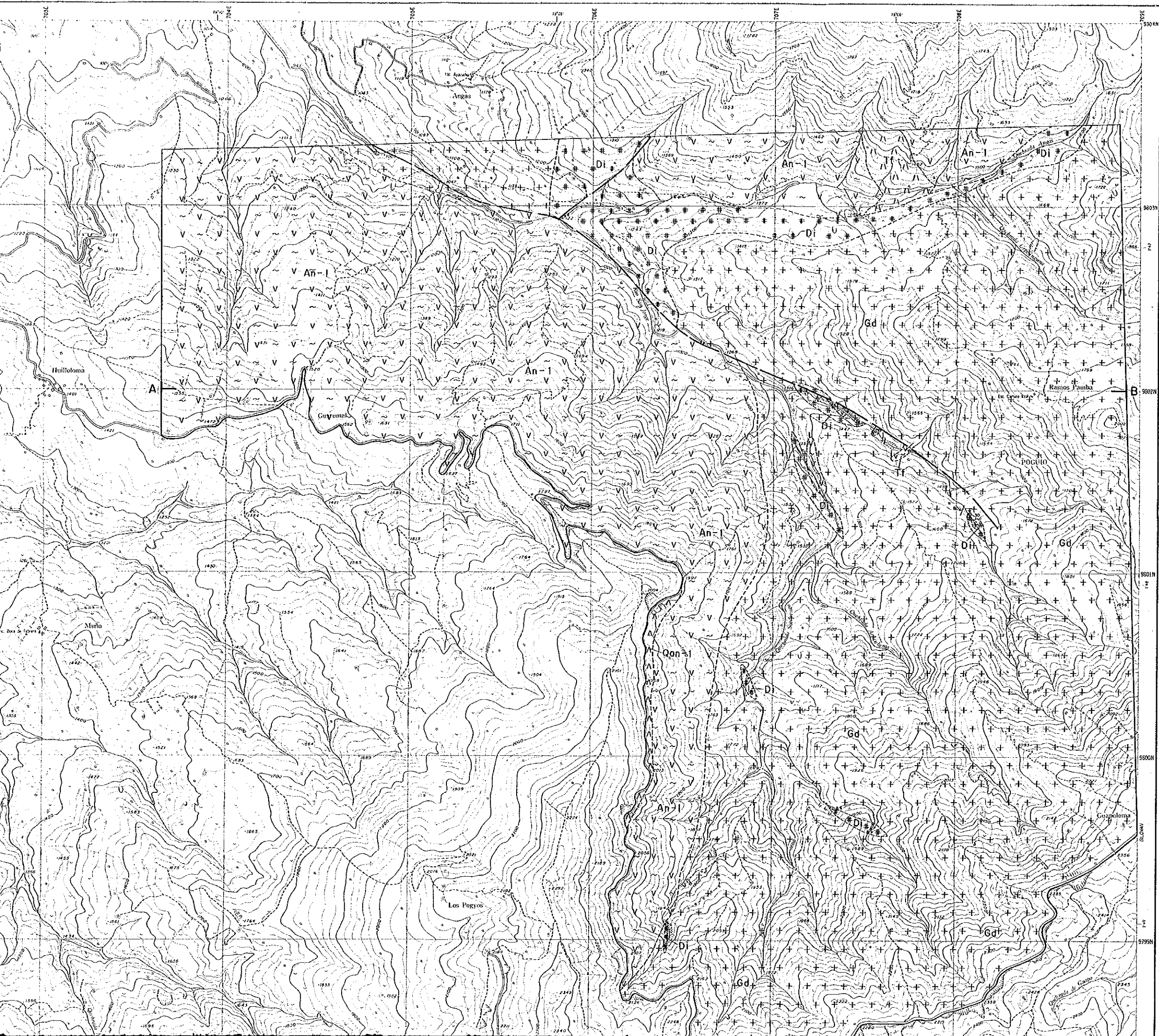


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 METAL MINING AGENCY OF JAPAN  
 FEBRUARY 1989

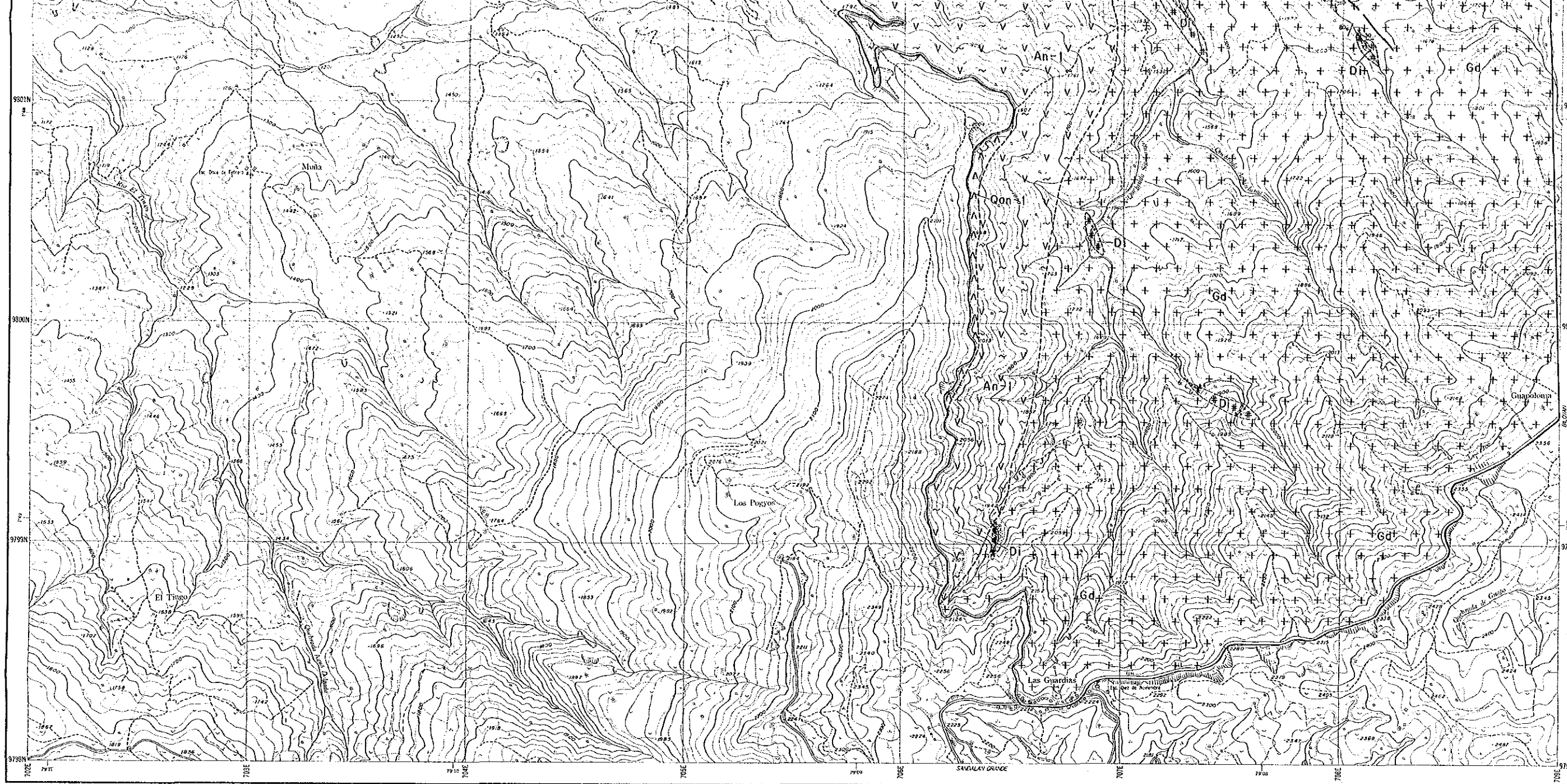
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LEGEND

- |                                    |  |                     |    |      |    |   |
|------------------------------------|--|---------------------|----|------|----|---|
| Cretaceous<br>Macuchi<br>Formation | <table border="1"> <tr> <td>Qan-1</td> <td>▲▲</td> </tr> <tr> <td>An-1</td> <td>▽▽</td> </tr> </table> | Qan-1               | ▲▲ | An-1 | ▽▽ | <p>Quartz-bq. andesite lava (B Member)</p> <p>Andesitic hornfels with pyroclastics and sediment (Tf) (A Member)</p> |
|                                    |  | Qan-1               | ▲▲ |      |    |   |
| An-1                               | ▽▽   |                     |    |      |    |   |
| Intrusive<br>Rocks                 | <table border="1"> <tr> <td>Gd</td> <td>++</td> </tr> <tr> <td>Di</td> <td>##</td> </tr> </table>      | Gd                  | ++ | Di   | ## | <p>Granodiorite</p> <p>Metacrotic diorite</p>   |
|                                    |  | Gd                  | ++ |      |    |   |
| Di                                 | ##   |                     |    |      |    |   |
|                                    |  | Geological boundary |    |      |    |   |
|                                    |  | Fault               |    |      |    |   |
|                                    |  | Mineralized zone    |    |      |    |   |
|                                    |  | Alteration zone     |    |      |    |   |
|                                    |  | Section line        |    |      |    |   |



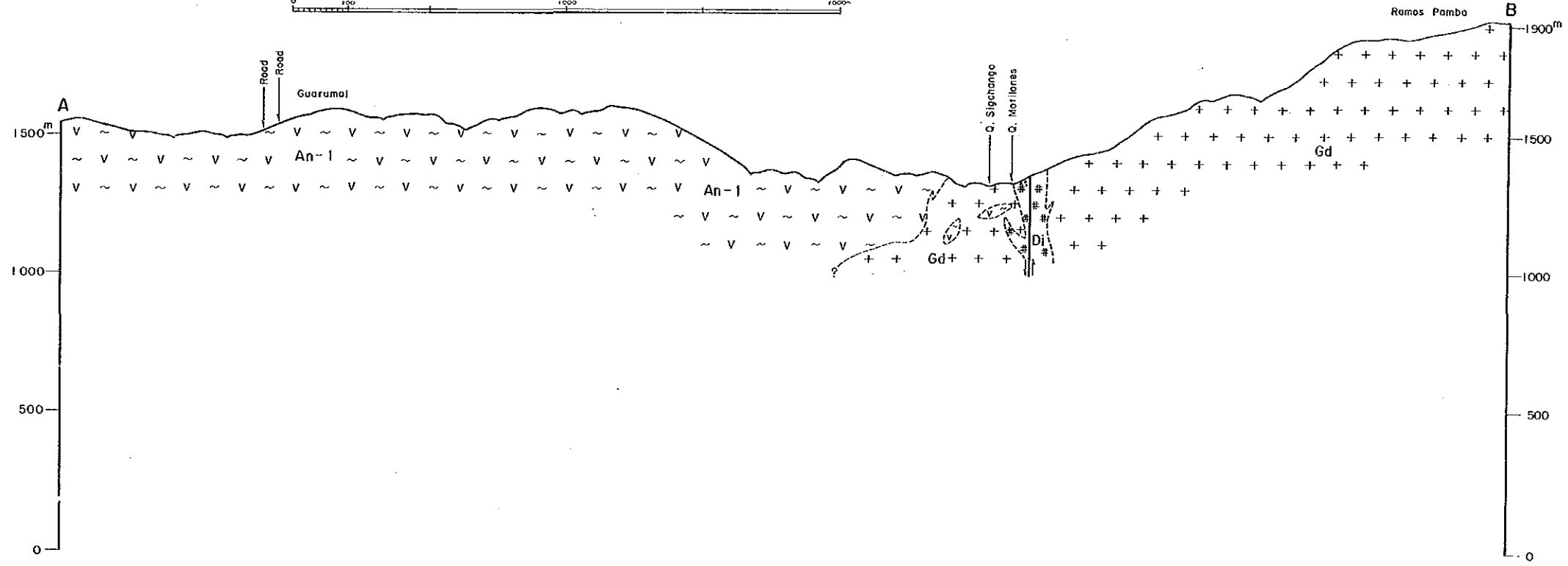
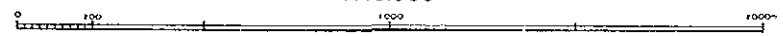


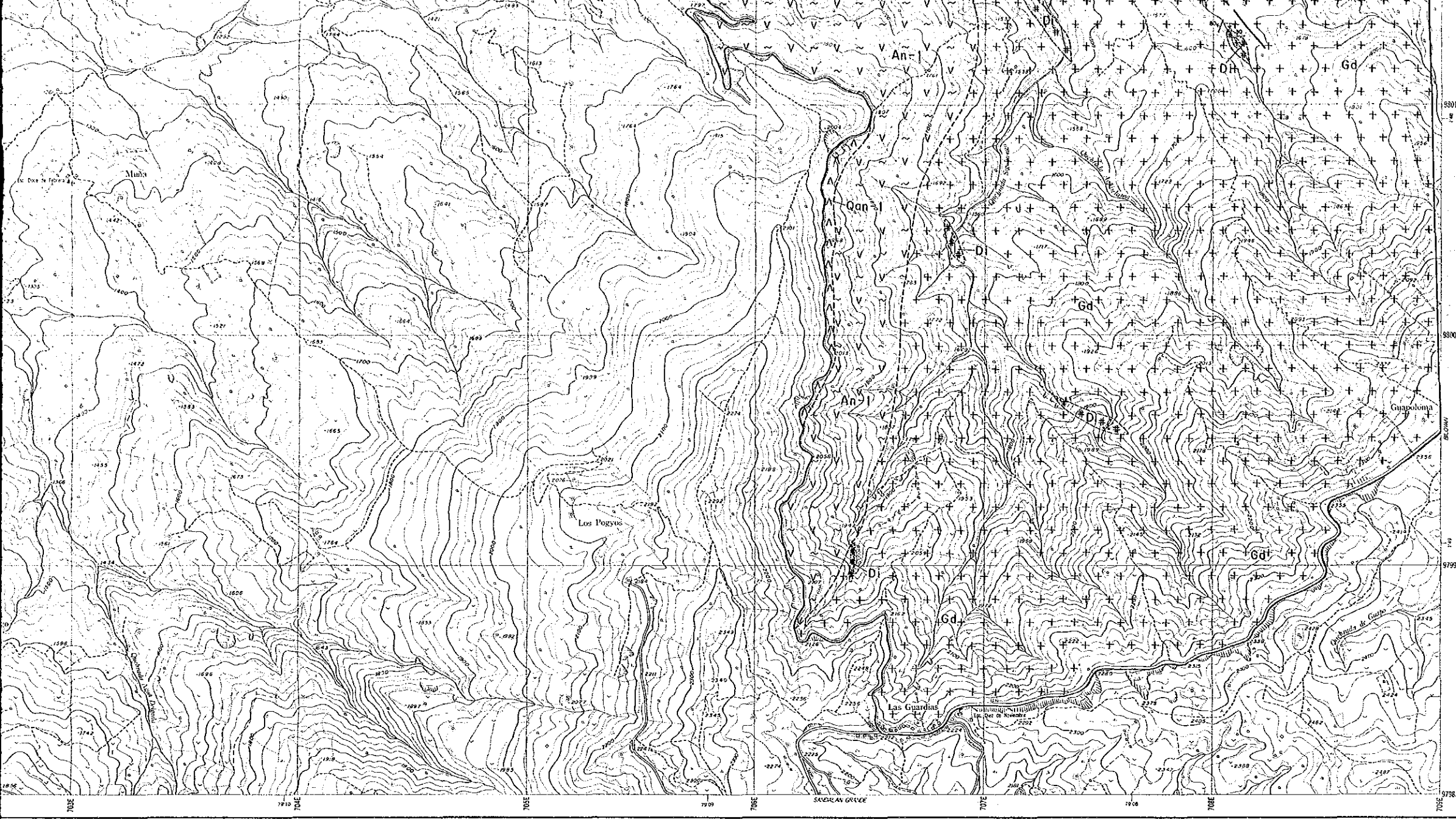


LEGEND

- |                                    |  |                               |      |              |      |       |                               |
|------------------------------------|--|-------------------------------|------|--------------|------|-------|-------------------------------|
| Cretaceous<br>Macuchi<br>Formation | <table border="1"> <tr> <td>Qon-1</td> <td>▲▲▲</td> <td>Quartz-bg. c</td> </tr> <tr> <td>An-1</td> <td>~ ~ ~</td> <td>Andesitic hor<br/>and sediment</td> </tr> </table> | Qon-1                         | ▲▲▲  | Quartz-bg. c | An-1 | ~ ~ ~ | Andesitic hor<br>and sediment |
|                                    |  | Qon-1                         | ▲▲▲  | Quartz-bg. c |      |       |                               |
| An-1                               | ~ ~ ~  | Andesitic hor<br>and sediment |      |              |      |       |                               |
| Intrusive<br>Rocks                 | <table border="1"> <tr> <td>Gd</td> <td>++++</td> <td>Granodiorit</td> </tr> <tr> <td>Di</td> <td>##</td> <td>Metenocroli</td> </tr> </table>                            | Gd                            | ++++ | Granodiorit  | Di   | ##    | Metenocroli                   |
|                                    |  | Gd                            | ++++ | Granodiorit  |      |       |                               |
| Di                                 | ##   | Metenocroli                   |      |              |      |       |                               |
|                                    |  | Geological                    |      |              |      |       |                               |
|                                    |  | Fault                         |      |              |      |       |                               |
|                                    |  | Mineralized                   |      |              |      |       |                               |
|                                    |  | Alteration z                  |      |              |      |       |                               |
|                                    |  | Section line                  |      |              |      |       |                               |

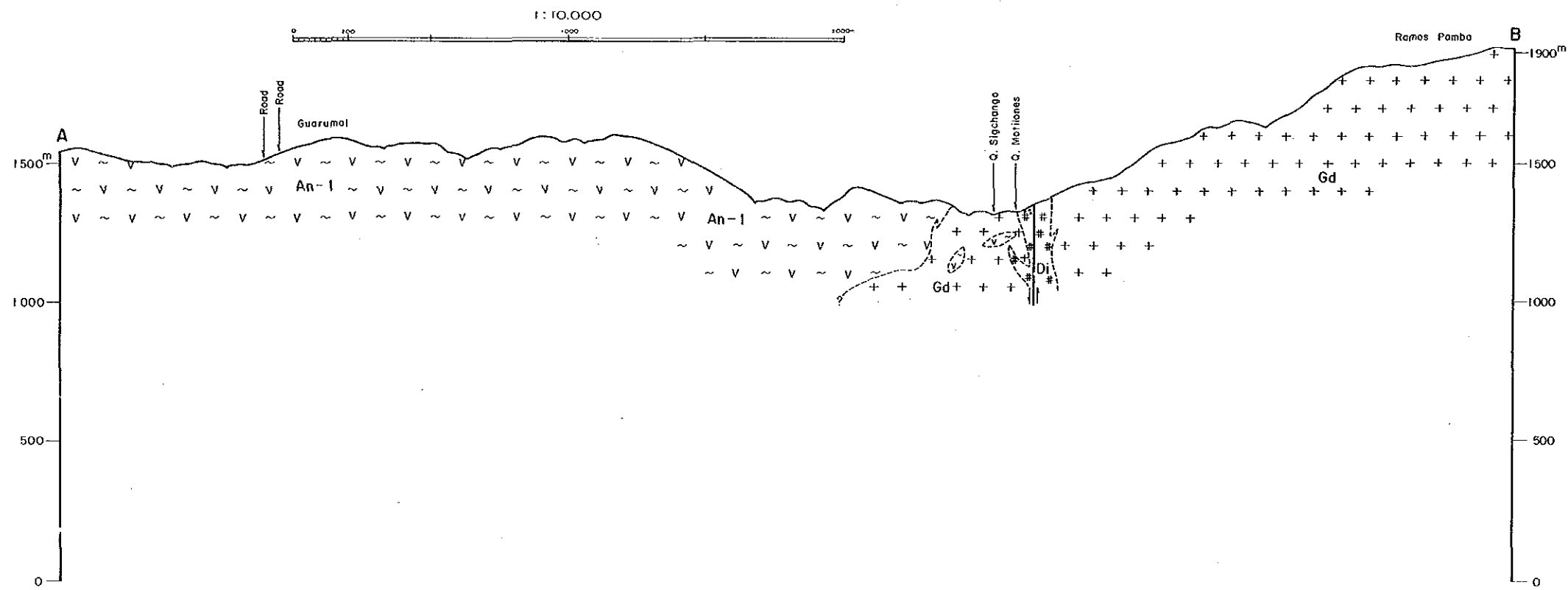
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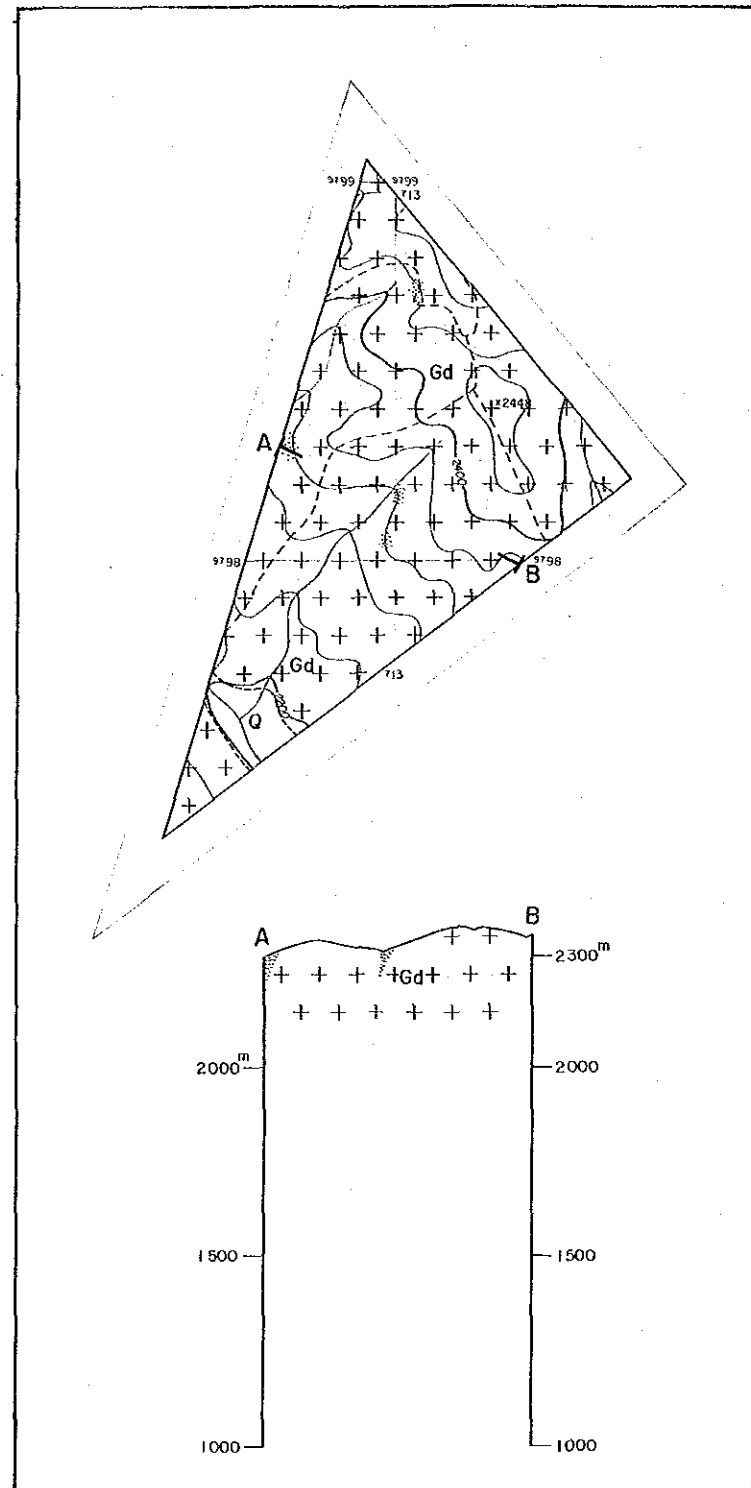




LEGEND

- |                                    |  |   |     |      |     |                                     |
|------------------------------------|--|---|-----|------|-----|-------------------------------------|
| Cretaceous<br>Macuchi<br>Formation | <table border="1"> <tr> <td>Qan-1</td> <td>▲ ▲</td> </tr> <tr> <td>An-1</td> <td>∇ ∇</td> </tr> </table> | Qan-1   | ▲ ▲ | An-1 | ∇ ∇ | Quartz-bg. andesite lava (B Member) |
|                                    |  | Qan-1   | ▲ ▲ |      |     |                                     |
| An-1                               | ∇ ∇  |   |     |      |     |                                     |
|                                    |  | Andesitic hornfels with pyroclastics and sediment (Tf) (A Member) |     |      |     |                                     |
| Intrusive<br>Rocks                 | <table border="1"> <tr> <td>Gd</td> <td>+</td> </tr> <tr> <td>DI</td> <td>*</td> </tr> </table>          | Gd  | +   | DI   | *   | Granodiorite                        |
|                                    |  | Gd  | +   |      |     |                                     |
| DI                                 | *  |   |     |      |     |                                     |
|                                    |  | Melanocratic diorite  |     |      |     |                                     |
|                                    |  | Geological boundary   |     |      |     |                                     |
|                                    |  | Fault   |     |      |     |                                     |
|                                    |  | Mineralized zone  |     |      |     |                                     |
|                                    |  | Alteration zone   |     |      |     |                                     |
|                                    |  | Section line  |     |      |     |                                     |





PL. II-2-7

REPORT ON THE MINERAL EXPLORATION  
IN  
THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
PHASE I  
Geological Map and Geological Profile  
of the Sicota Area

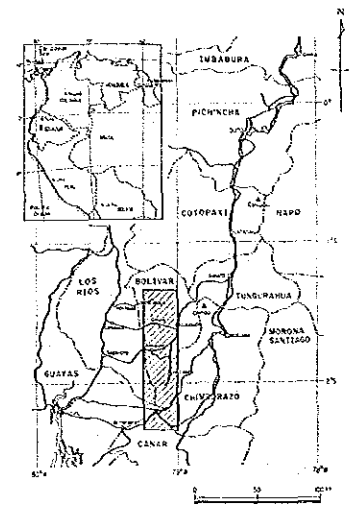
JAPAN INTERNATIONAL COOPERATION AGENCY  
METAL MINING AGENCY OF JAPAN  
FEBRUARY 1989

Scale 1:10,000 1km

LEGEND

- |                      |        |                      |
|----------------------|--------|----------------------|
| Quaternary {         | Q      | Gravel, sand, clay   |
| Intrusive<br>Rocks { | Gd + + | Altered granodiorite |
|                      | •••••  | Alteration zone      |
|                      | A — B  | Section line         |

REPORT ON THE MINERAL EXPLORATION  
 IN  
 THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
 PHASE I  
 Geological Map and Geological Profile  
 of the Tambillo Area

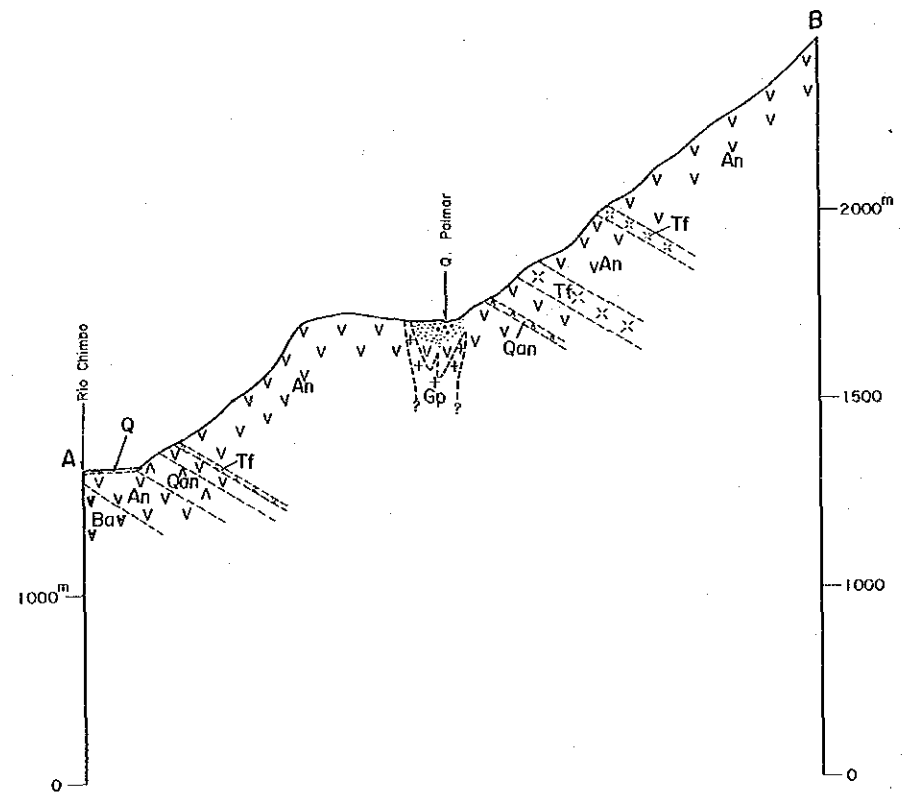
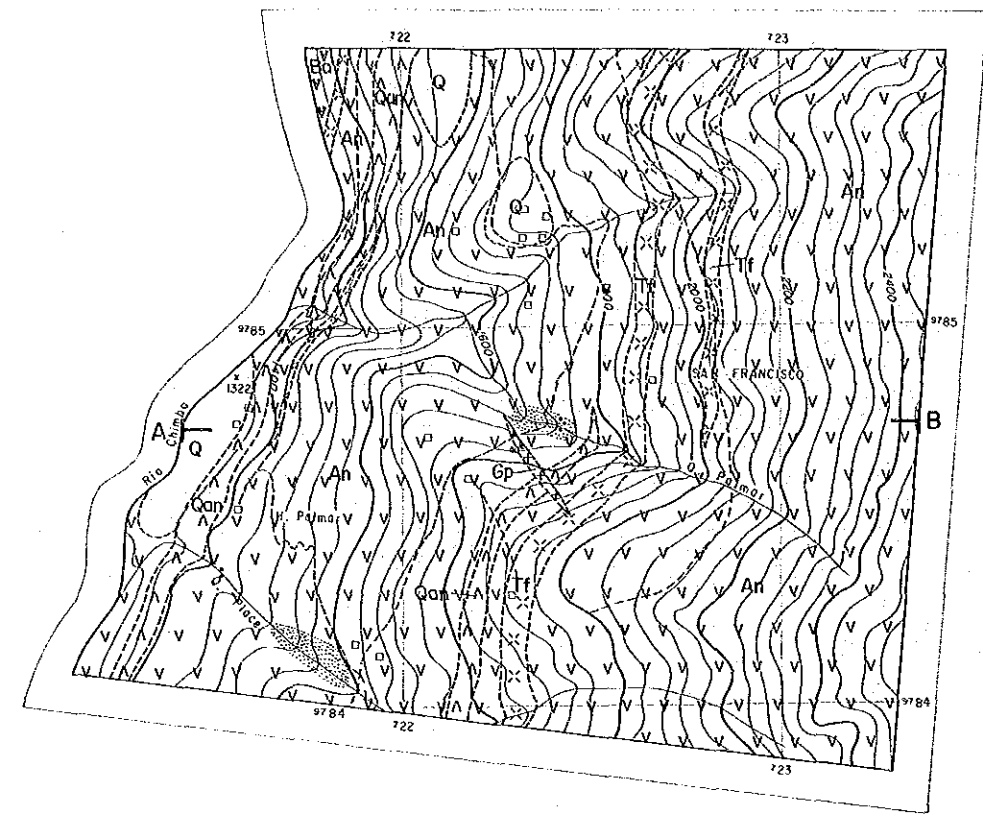


JAPAN INTERNATIONAL COOPERATION AGENCY  
 METAL MINING AGENCY OF JAPAN  
 FEBRUARY 1989

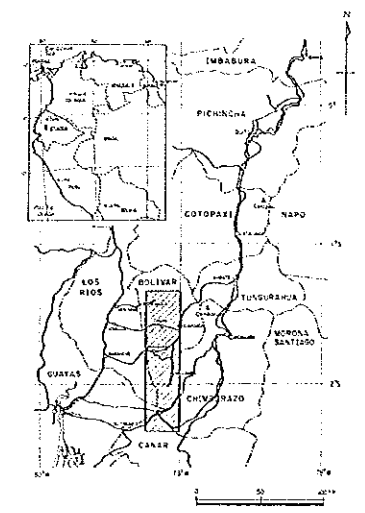
Scale 1:10,000 1km

LEGEND

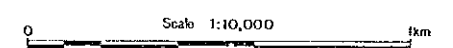
Quaternary	{	Q	Terrace deposit
		Qan	Quartz-bq. andesite lava
		An	Andesite lava
		Tf	Pyroclastics (basaltic to andesitic)
Cretaceous Macuchi Formation	{	Ba	Basaltic pillow lava
		Gp	Granite porphyry
Intrusive Rocks	{	Gp	Granite porphyry
			Geological boundary
			Mineralized zone
			Alteration zone
		A — B	Section line



REPORT ON THE MINERAL EXPLORATION  
IN  
THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
PHASE I  
Geological Map and Geological Profile  
of the Tablas Pamba Area

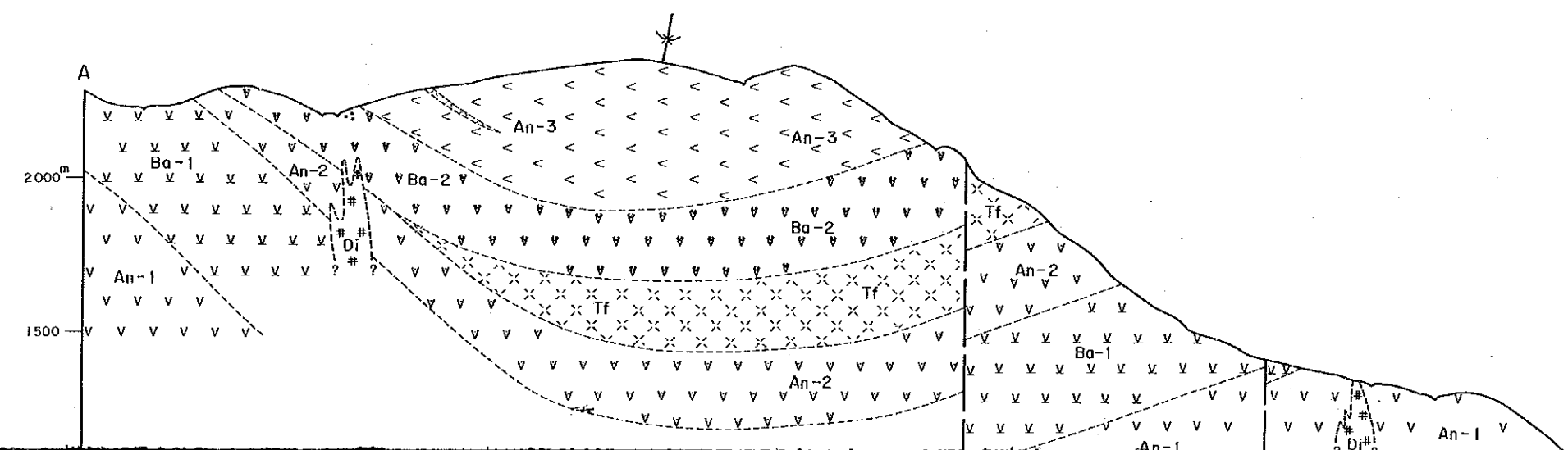
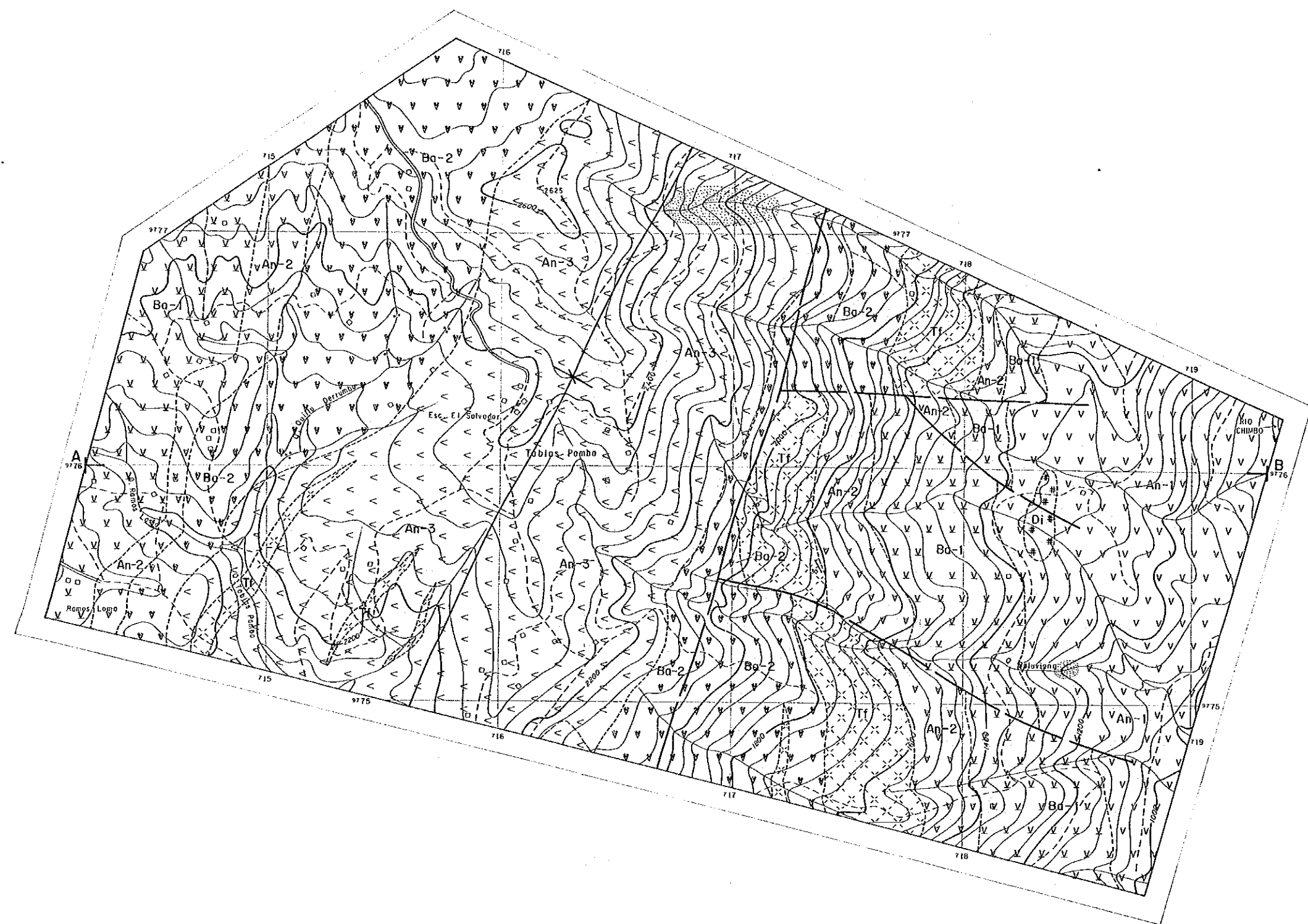


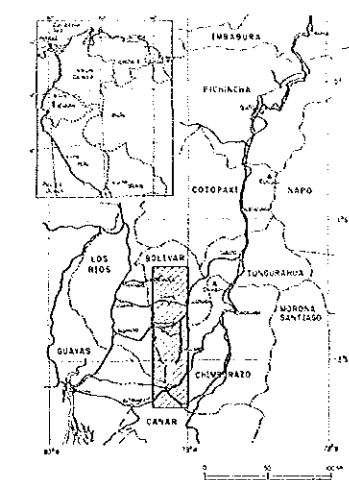
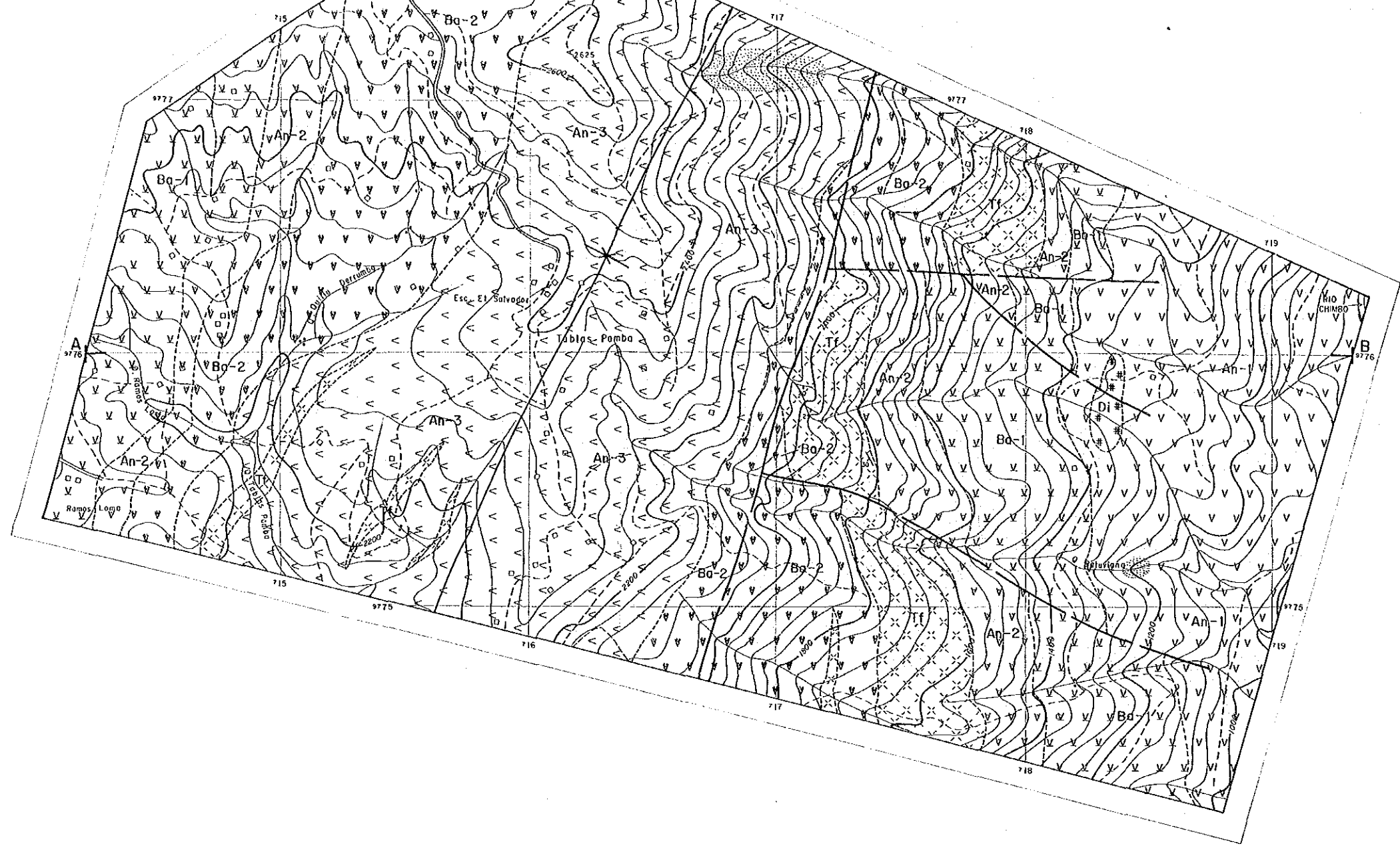
JAPAN INTERNATIONAL COOPERATION AGENCY  
METAL MINING AGENCY OF JAPAN  
FEBRUARY 1989



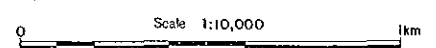
LEGEND

Cretaceous Mecuchi Formation	An-3	Andesite lava with its pyroclastics
	Ba-2	East: basalt lava with its pyroclastics West: basaltic hornfels and basaltic andesite lava
	Tf	Andesitic fine to coarse tuff
	An-2	Andesite lava
	Ba-1	Brecciated basaltic andesite lava with basalt lava
	An-1	Andesite lava with basaltic andesite lava
Intrusive Rocks	Di	Melanocratic diorite
	↘ ↙	Dip and strike of bedding plane
	— — —	Geological boundary
	— — —	Fault
	* * *	Synclinal axis
	• • •	Minerotized zone
	A — B	Section line

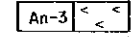
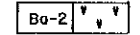
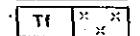
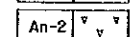
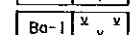

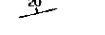



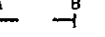



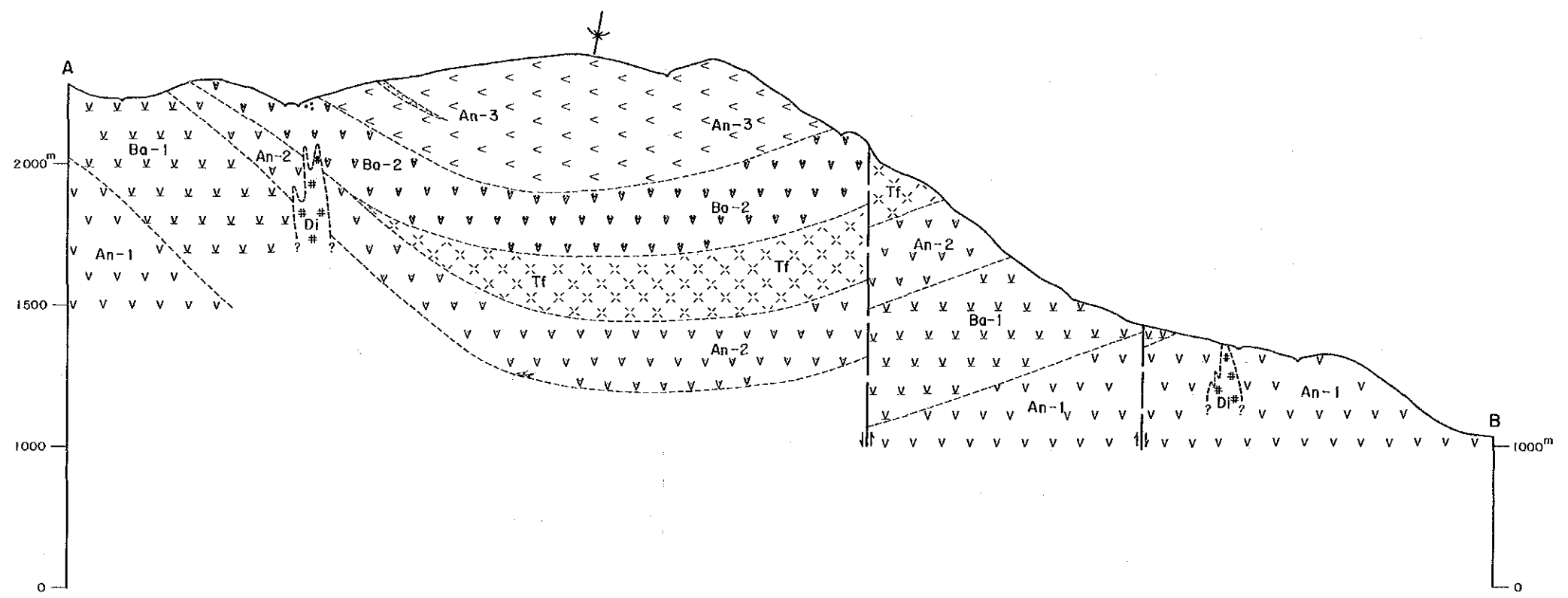


JAPAN INTERNATIONAL COOPERATION AGENCY  
 METAL MINING AGENCY OF JAPAN  
 FEBRUARY 1989

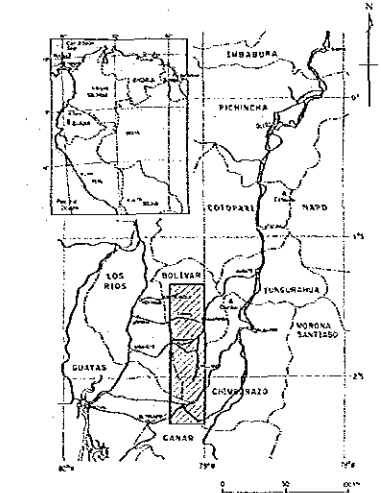


LEGEND

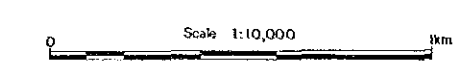
- |                                 |   |   |
|---------------------------------|---|---|
| Cretaceous<br>Nacuchi Formation |    | Andesite lava with its pyroclastics   |
|                                 |    | East: basalt lava with its pyroclastics<br>West: basaltic hornfels and basaltic andesite lava |
|                                 |    | Andesitic fine to coarse tuff   |
|                                 |    | Andesite lava   |
|                                 |    | Brecciated basaltic andesite lava with basalt lava  |
| Intrusive<br>Rocks              |  | Metacretatic diorite  |
|                                 |  | Dip and strike of bedding plane   |
|                                 |  | Geological boundary   |
|                                 |  | Fault   |
|                                 |  | Synclinal axis  |
|                                 |  | Mineralized zone  |
|                                 |  | Section line  |



REPORT ON THE MINERAL EXPLORATION  
 IN  
 THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
 PHASE I  
 Geological Map and Geological Profile  
 of the Bolaron Area

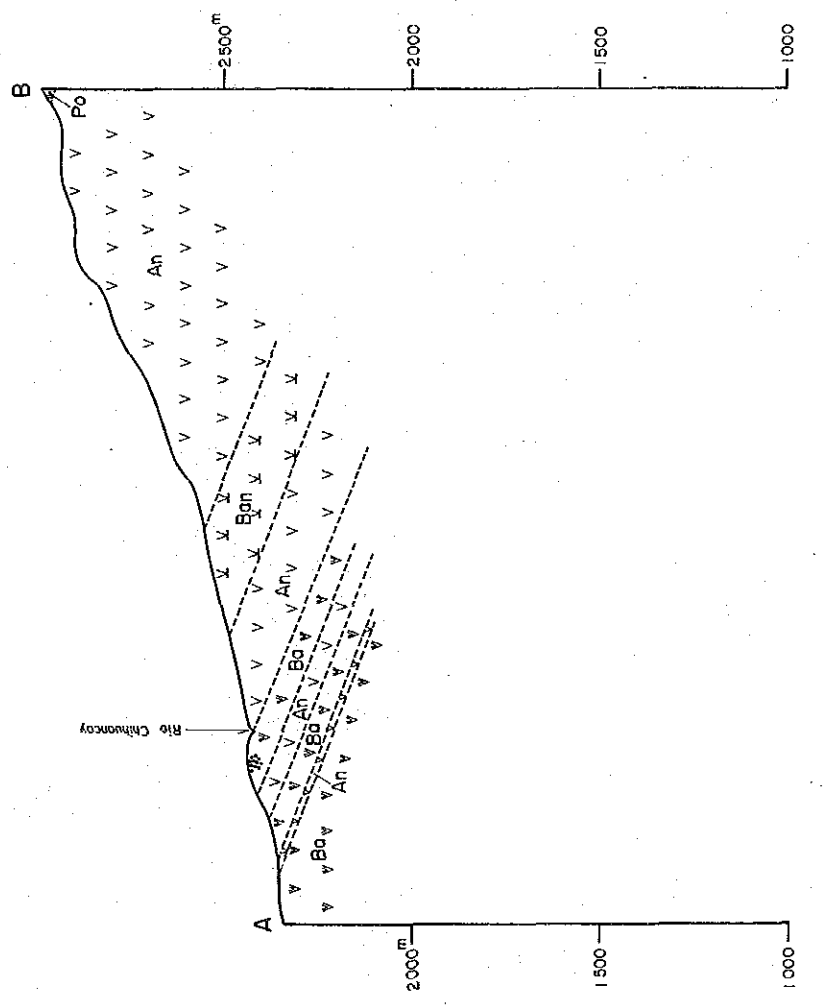
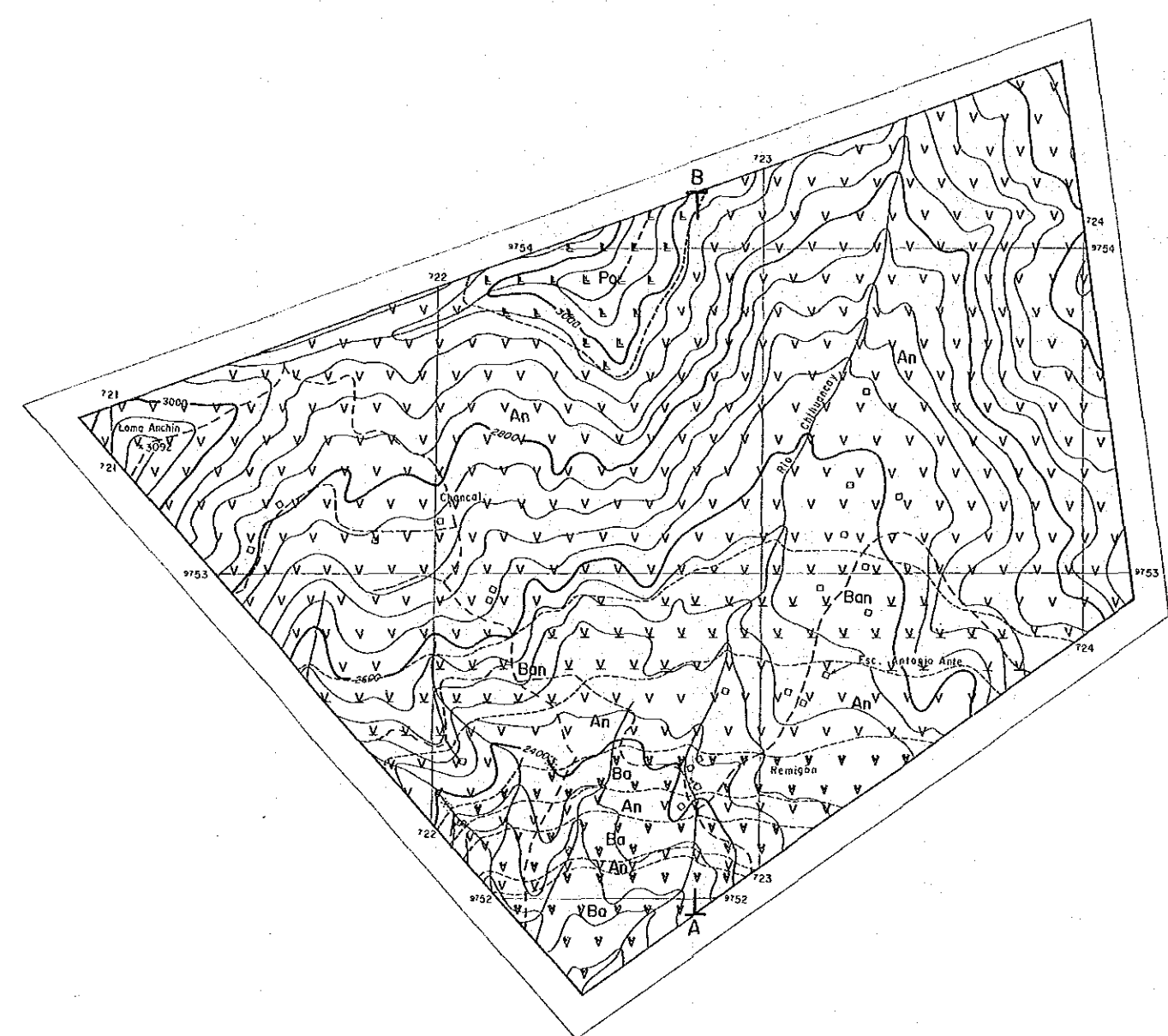


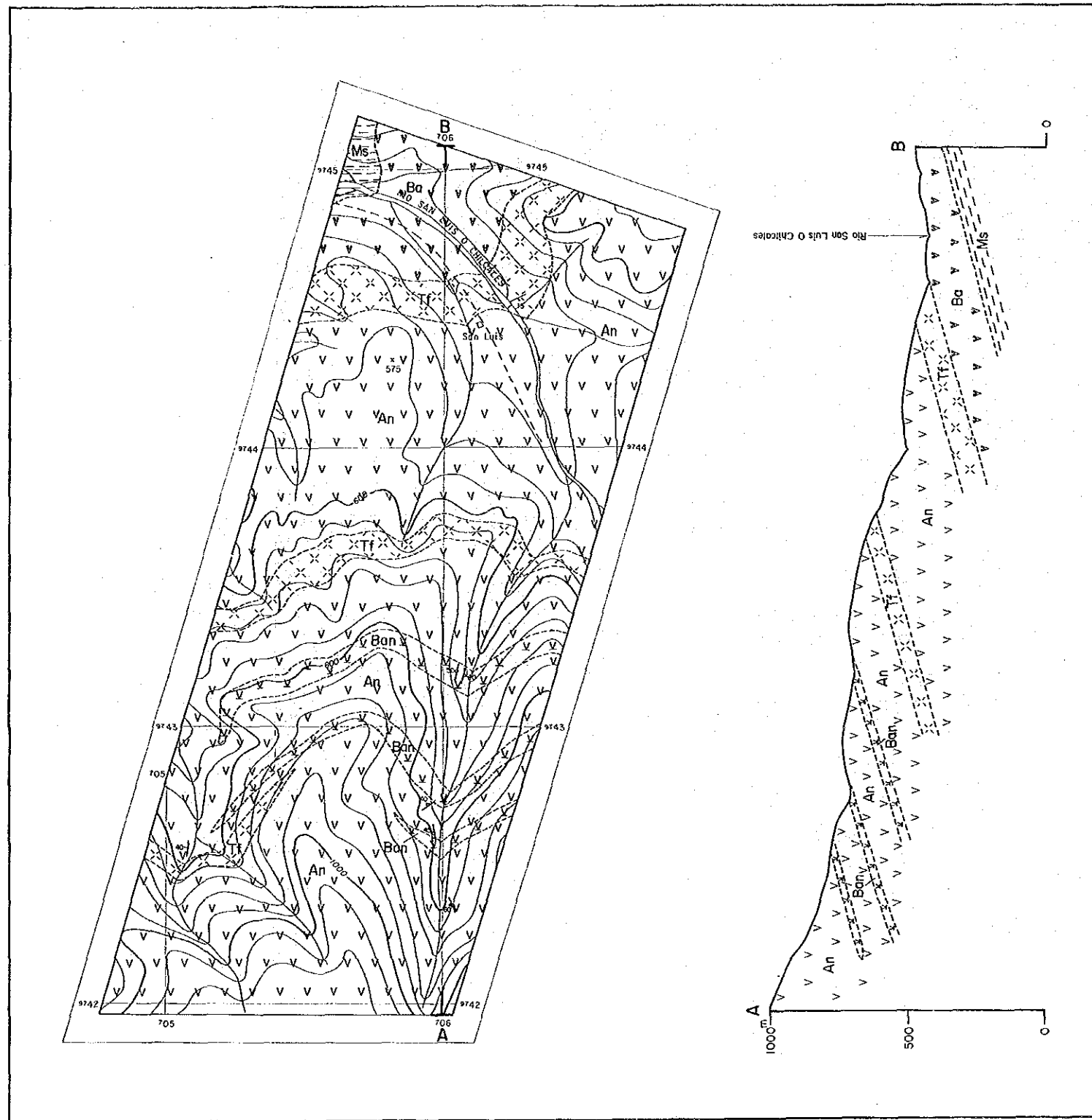
JAPAN INTERNATIONAL COOPERATION AGENCY  
 METAL MINING AGENCY OF JAPAN  
 FEBRUARY 1989



LEGEND

Paleogene Alausi F.	}	Po	Porphyritic andesite lava
		An	Andesitic lava
		Ban	Basaltic andesite lava
		Ba	Basalt lava
Cretaceous Macuchi Formation	}	(Symbol)	Geological boundary
		(Symbol)	Mineralized zone
		(Symbol)	Vein
		(Symbol)	Alteration zone
		A — B	Section line





PL. II-2-11

REPORT ON THE MINERAL EXPLORATION  
IN  
THE BOLIVAR AREA, REPUBLIC OF ECUADOR  
PHASE I  
Geological Map and Geological Profile  
of the Chilcales Alto Area

JAPAN INTERNATIONAL COOPERATION AGENCY  
METAL MINING AGENCY OF JAPAN  
FEBRUARY 1989

Scale 1:10,000

LEGEND

- |                                 |     |     |                          |
|---------------------------------|-----|-----|--------------------------|
| Cretaceous<br>Mesuchi Formation | Bon | v v | Basaltic andesite lava   |
|                                 | An  | v v | Brecciated andesite lava |
|                                 | Tf  | x x | Andesitic tuff           |
|                                 | Ba  | v v | Basalt lava              |
|                                 | Ms  | — — | Mudstone                 |
- 
- |         |         |                                 |
|---------|---------|---------------------------------|
| 20      | ↘       | Dip and strike of bedding plane |
| — — — — | — — — — | Geological boundary             |
| — — — — | — — — — | Vein                            |
| A — B   | — — — — | Section line                    |



