REPORT
ON
THE MINERAL EXPLORATION
IN
THE TSAGAAN TSAKHIR UUL AREA, MONGOLIA

PHASE II

MARCH, 1998

JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

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Preface

In response to the request of the Government of Mongolia, the Japanese government decided to conduct a Mineral Exploration in the Tsagaan Tsakhir Uul Area Project and entrusted the survey to the Japan International Cooperation Agency (JICA) and the Metal Mining Agency of Japan (MMAJ).

The JICA and MMAJ sent to Mongolia a survey team headed by Mr. Yoichi Takeshita from 25 July to 28 September, 1997.

The team exchanged views with the officials concerned of the Government of Mongolia and conducted a field survey in the Tsagaan Tsakhir Uul area. After the team returned to Japan, further studies were made and the present report has been prepared.

We hope that this report will serve the development of the Project and contribute to the promotion of friendly relations between our two countries.

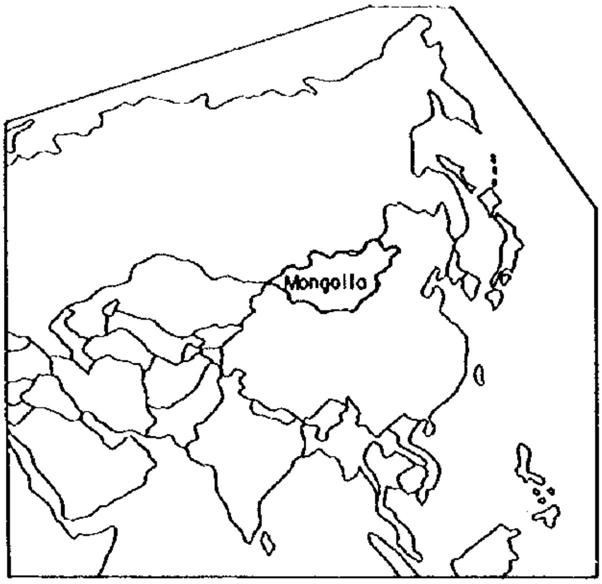
We wish to express our deep appreciation to the officials concerned of the Government of Mongolia for their close cooperation extended to the team.

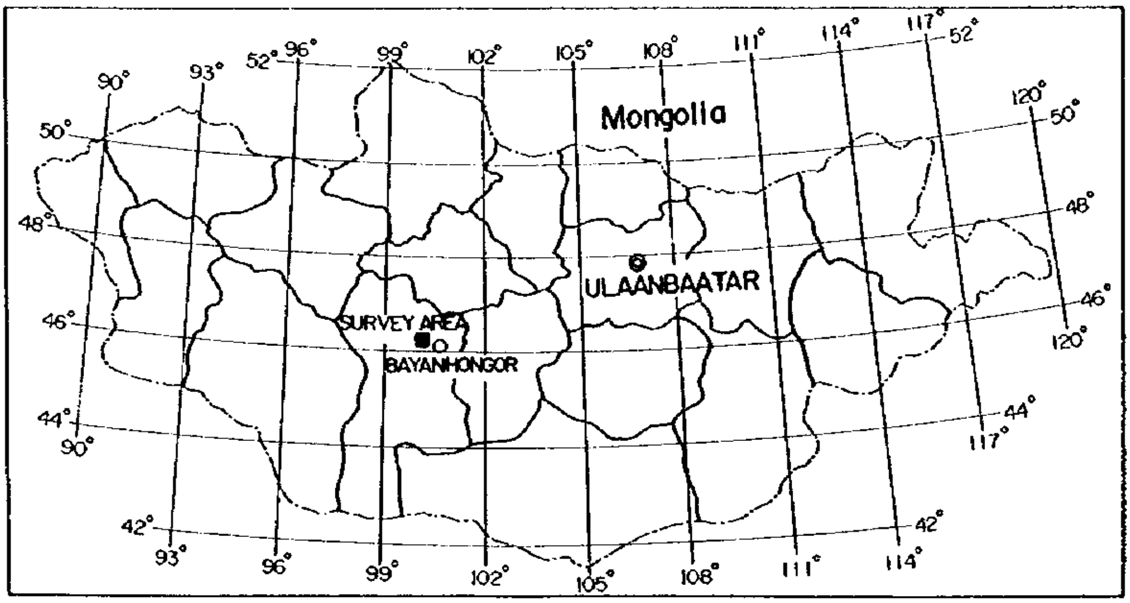
February 1998

Kimio FUJITA
President
Japan International Cooperation Agency

Hiroaki HIYAMA
President
Metal Mining Agency of Japan

Part I GENERAL REMARKS





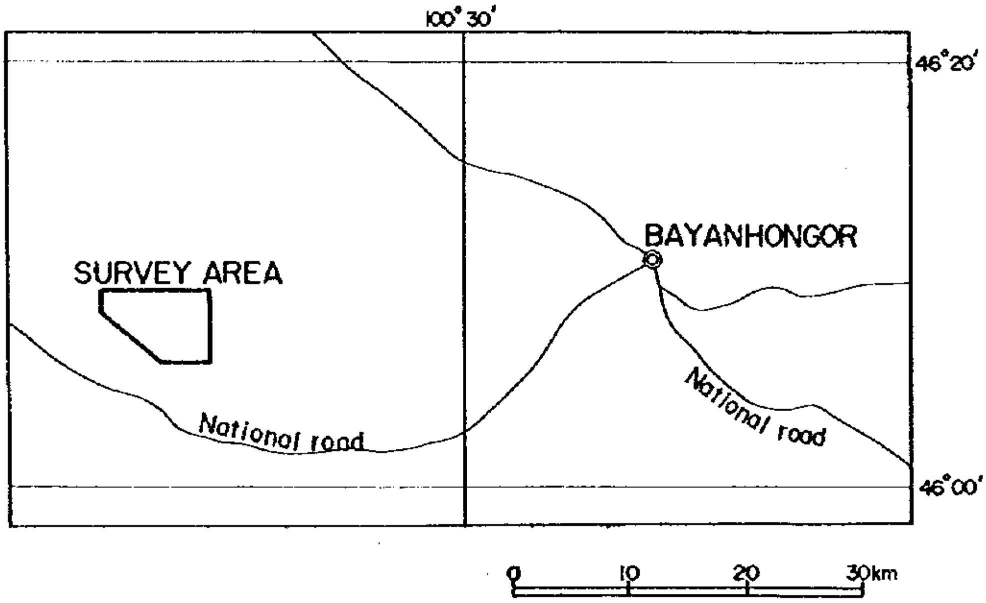


Fig. I-1-1 Location Map of Survey Area

Summary

This survey has been carried out to clarify of the gold-bearing quartz vein ore deposit in Tsagaan-Tsahil-Uul area in Mongolia and to transfer the techniques of Wire-line method to Mongolian engineers.

In this year(Phase II), drilling surveys were conducted 8 holes, a total advance of 904 m for the quartz veins Nos. 1, 2 and 10.

1. Ore Intersection and Gold Grade

Hole No.	Vein No.	Depth (m)	Length (cm)	True width (cm)	Mean grade Au(g/t)	Mean grade(*) Au(g/t)
MLMT-3	1	85.80-86.65	85	85	143.8	148.7
MLMT-4	1	106.80-107.01	21	21	6.4	-
MLMT-5	1	78.32-78.55	23	23	8.2	14.1
MLMT-6	10	75.95-76.55	60	47	4.5	52.1
MLMT-7	10	99.27-100.00	73	55	0.8	2.7
MLMT-8	10	91.65-91.68	3	3	<0.1	-
MLMT-9	1	30.20-30.83	63	58	<0.1	0.3
MLMT-10	2W	60.00-60.52	52	52	1.6	4.7
	2	80.45-80.70	25	25	3.1	5.4

Note) Assayed every about 10 cm of the longitudinal 1/4 split core.
(*) Assayed at the Central Geological Laboratory in Ulaanbaator.

2. Mineralization

1) Gold accumulates at the center of a vein in one case or accumulates at edge in another case. The high-grade ore generally contains galena, chalcopyrite, tetrahedrite and tellurium mineral.
2) It is estimated that centering the vein, there are ① sericite zone ② sericite / smectite / (chlorite) zone and ③laumontite / smectite / calcite / (chlorite) zone.
3) Homogenization temperatures and salinity of fluid inclusion are respectively within the ranges of 113 - 169℃ and 0.05 - 11.55 wt % NaCl and there may be a correlation between them. Homogenization temperature of many of samples containing gold over 5g/t is within the range of 125 - 140℃. The followings is a typical example (MJMT-3, Vein No. 1. True width is 85 cm.) which represents the above relations.

Test sample situations in vein	Gold grade (g/t)	Homogenization temperature (°C)	Salinity (wt % NaCl)
Vein edge	<0.1	157.9	11.5
Middle between edge and center	11.2	153.1	9.70
Center	1910	125.8	0.22

As shown above, all values fluctuate greatly even within one section of a vein. From these facts, it is estimated that when a solution of high temperature and high salinity rose up, the temperature and the salinity fell down due to mixing of circulating under ground water and quartz crystallization and gold precipitation began. It is estimated that the gold precipitation amount became the greatest at conditions of the center of vein.

3. Potential of Ore Reserve

1) The drilling surveys of this ore deposit including those of the first year have been conducted only about part of the whole deposit, therefore. it seems to be too early to discuss the potential, however, it is possible to say at least that mineralization of central district of Vein No. 1 and those of southern district of Vein No. 10 have a tendency to deteriorate around 120 m and 50 to 80 m of the underground extension respectively.

2) Calculation of Ore Reserves

About the veins Nos. 1, 2, 3, 6 and 10 which are the same objects with those of the first year, calculation of gold contents was conducted considering the tendency of continuation of mineralizations.

A comparison of the results with those of the first year, 1996, is shown below. For a gold grade of drilling core, the values of analysis by the Central Geological Laboratory in Ulaanbaatar were employed.

1997 6.552 kg ············ Calculated up to the dip extension 150 m
1998 6,816 kg ············· Calculated up to the dip extension maximum 120 m
(Breakdown: No. 1: 3,545 kg, Nos. 2 & 3: 1,242 kg, No. 6: 95 kg,No. 10: 1,934 kg)

Dip extension for calculation became shorter, but since Vein N0. 1 was acquired as high ore grade vein, and the content resulted in an increase of approx.260 kg. Share of Vein No. 1 is 52 %.

4. Outline of Economic Evaluation

The economic merit of the proposed development of the ore deposit was evaluated as to two possible cases.

1) Premises

An objective vein for the development is limited to Vein No. 1 only and dip extension to be developed up to 80 m. Minable crude ore is 44,250 t (Refuse: 50 %; Gold grade: 44.5 g/t; Gold content: 2,015 kg).

Annual production: 6,000 t; Period of starting operation: 1 year; Period of operation: 7 years. For mining method, "Upward Cut and Fill" and for transportation, a trackless system is applied to both inclined and levels drifts.

Electricity is generated privately.

2) Case 1

For mineral, dressing after primary crushing, refuses are removed manually. Concentrates of 4,000 t are transported to Japan as silica ore. Gold will be electrolyzed recovery from copper concentrate. Real yield is 90 %. A price of gold is 310 US$/toz.

The fund plan (Initial expense + working capital) : 3,100,000US$.

In this case, annual loss of about 180,000$ is predictable.

3) Case 2:

Under the prior conditions of Case 2, the output and mining method are supposed to be the same as those of Case 1. In this case, however, the ore is to be leached at the mining site and the leached ore is to be refined by a subcontractor. In this case, yield rate of 80% is expected.

The fund plan (Initial expense + working capital): 4,100,000US$.

Annual profit is estimated to be about 360,000$.

In this case, the depreciation and interest expenses are estimated to be covered by operated income, and the initial investment is estimated to be recovered in 7 years.

5. Proposals to the Future Activity

The problem of lower limit of mineralization of a part of each vein Nos. 1 and 10 has been understood through the survey of these two years.

For the future works for the present ore deposit, we propose as below.

1) Mineralization of each vein varies largely, so we would like to recommend the Mongolian teams to conduct drilling in wider areas covering the locations of the principal veins so that the estimate of ore reserves can be calculated on more practical basis such as "possible reserves" or "probable reserves."

2) Further, in the future, we expect that the planing of the development will be executed under the prior conditions proposed for Case 2. In promoting the future development projects, the various techniques employed for the Bumbat gold mine may be applicable.

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*: attached to the end of the report

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Part I General Remarks

Part I General Remarks

Chapter 1 Introduction

1-1 Background of the survey

In later half of 1980s, Mongolia changed its economic system from its conventional socialist planned economic system to a new market economy. Although a number of confusions were induced in political and economic climates, in recent years, its economic climate has been turned to a upward trend due to increased assistance in economy from Japan as well as Western countries.

On the other hand, Mongolia has been stockfarming as its main industry such that about 30% (about 700,000 people) of its population engage in it, however this country cannot expect this industry to advance aggressively because of its severe natural condition. Thus, a further development of nonferrous metal resources which occupy the first position for obtaining foreign money is one of the most important measures for advancing the market economic system of this country. A typical development of nonferrous metal resource in Mongolia is Erdenet deposit (copper, molybdenum) which is a porphyry copper ore deposit. Although Mongolia has a geologically high potential of nonferrous metal resources, no sufficient exploration has been conducted and future exploration and development have been much expected.

Under this condition, three projects were conducted as resources development cooperative basic surveys since 1991 and Mongolia related agency requested Japan to conduct resource development survey in Tsagaan Tsakhir Uul area which was reputed highly as a domestic gold producing area. In response to this request, Japan dispatched a survey team to that region which stayed from June 3 to June 15, 1996 and took conference about S/W and M/M of 1996 and made agreement t

1-2 Outline of the survey works of first and second years

Table I-1-1 Outline of survey works,Phase I, II

Phase	Survey	Specification
I	Geological survey	Semi-detailed survey, 43km^2 mapping, 1/10,000 Detailed survey, 10km^2 mapping, 1/2,000
	Geophysical survey	Array type CSAMT method 49.6km line, 496points
	Drilling survey	2 holes, total 602m
	Others	Clay mineral & trench survey, Laboratory works
II	Drilling survey	8 holes, total 904m
	Others	Laboratory works

1-3 Conclusion of the first year survey and proposals

1-3-1 Conclusion of the first year survey

1) The geologic features of the survey area are: a) Metamorphic rocks, b)Biotite adamellite c) Two mica granodiorite, d) Diorite, e) Quartz porphyry, f) Lamprophyre. a) and c) are host rocks of quartz vein groups.

2) The quartz vein consists of several tens of streams and have three systems of NNW-SSE system, NE-SW system and E-W system. Veins in predominant mineralizations and scale belong to NNW-SSE system. The mean features of four veins among them are that the width is 20 to 40 cm, the gold content is 6 to 22 g/t and the extension is 900 to 2,800 m. This extension means a total extended length of a single quartz vein which continues by repeating expansion fold or echelon disposition.

3) Ore minerals include native gold, chalcopyrite, galena, tetrahedrite as well as a small amount of tellurium minerals (sulphide mineral and oxide mineral). The occurrence of these minerals are scattered and neither compositional banding nor zonal distribution are recognized.

4) Mineralization is considered to be related to post igneous action of two mica granodiorite and it is controlled by fissure system formed under wide scale stress conditions.

5) Gold precipitation temperature estimated from the homogenization temperature of fluid inclusion resulted in lower temperature than a general concept.

6) This year's drilling of two holes (Objective Veins were Nos. 1 and 10.) was carried out at 150 m below the earth surface. Except for the trace of sulfide minerals (galena and sphalerite) found in the west vein of Vein No. 10, no mineralization was found. Judging from the features of production of ore minerals in this area, however, there is a possibility that the core fails to hit ore in a mineralized zone.

7) On the mono-dimensional analysis plane of geophysical prospecting (Array CSAMT Method), up to around the depth of 500 meters, there is a specific resistivity structure in the southnorth which harmonizes with the major quartz vein structure. The high specific resistivity zone in District I corresponds to a zone of which distribution density of quartz vein is relatively high.

8) There are several aspects about potential which cannot be evaluated only by the mineralizations of the earth surface and drilling results of two holes, but according to the estimation of ore reserves (assuming that downward extension of a vein to be 150 m) of five veins (Veins Nos. 1, 2, 3, 6 and 10) in dominant mineralizations, amount of gold is 6.5 t.

1-3-2 Proposals to the second year survey

From the results of this year's surveys, it is proposed for next year to carry out drilling surveys of veins in mineralizations on the surface, Veins Nos.1,2,3 and 10.

From the results of this year's drilling, considering that the mineral deposits of this area are small deposits with small continuity to the bottom of mineralized portion, the purpose should be to grasp the continuity in relatively shallow parts of each vein. Objectives of the survey shall be high grade areas (blocks) of each vein. As a principle, pitch between survey points: 100 m; a number of holes at each point: 2 holes (inclined); digging depth: 100- 150 m/hole; ore intersection depth: 50 m and 100 m below the earth surface.

According to the results of these surveys, the area should be evaluated as metalliferous mineral deposits and then, methods, scale and other matters about the future development should be discussed.

1-4 Outline of the second year survey

1-4-1 Area for the survey

The objective areas of this year's survey were the geological detail survey areas I and II of the Survey of the First Year.

1-4-2 Purposes of the survey

This year, only drilling surveys were carried out with a purpose to confirm the continuity of each of dominant minelralizations in the surface of Veins Nos. 1, 2 and 10 to the lower part.

1-4-3 Survey method

In addition to the drilling survey, laboratory tests were carried out. Their details are shown in Tables I-1-2 and I-1-3 respectively.

Table I-1-2 List of drilling survey

Hole No.	Direction	Inclination	Depth	Objective vein
MJMT- 3	N82° E	-35°	100.5m	No. 1 quartz vein
MJMT- 4	N82° E	-75°	141.7m	No. 1 quartz vein
MJMT- 5	N82° E	-35°	100.7m	No. 1 quartz vein
MJMT- 6	N72° E	-40°	100.7m	No.10 quartz vein
MJMT- 7	N72° E	-55°	160.7m	No.10 quartz vein
MJMT- 8	N70° E	-40°	118.5m	No.10 quartz vein
MJMT- 9	N80° E	-65°	80.6m	No. 1 quartz vein
MJMT-10	N80° E	-45°	100.6m	No. 2 quartz vein
Total 8 holes			904.0m	

Table I-1-3 List of laboratory works

Item of test	Quantity
① Rock thin section	10 pcs
② Ore polish section	12 pcs
③ Chemical analysis (ore: 4 elements) elements : Au, Ag, As, Sb	82 pcs
④ X-ray diffraction	44 pcs
⑤ EPMA	10 pcs
⑥ Measurement of homogenization temperature and salinity(NaCl) of fluid inclusion (included 15pcs of 1996 sample)	41 pcs

1-4-4 Members of the survey group

The Members of the Survey Group are as follows:

Name	Duty	Departure	Return
Kenji Nakamura	Duty Coordination (Director of Beijing Office)	July 26	July 30
Koji Hirai	Site Supervision	September 9	September 18
Yoichi Takeshita	Technological Supervision	July 25	September 28
Yoshihiro Yamauchi	Drilling	July 25	September 28
Koichiro Osawa	Drilling	July 25	September 28
Takenori Ikeda	Drilling	July 25	September 18
Shoji Sato	Drilling	July 25	September 18
Tokuji Iwabuchi	Drilling	July 25	September 18
Kenzo Sato	Drilling	July 25	September 18

1-4-5 Terms of the survey

Site survey period was as follows.
From July 31 to September 21, 1997

1-5 Survey flow

Fig. I -1-2 shows the survey flow sheet of first and second year.

1-6 Extraction of promising area

Fig. I -1-3 shows the flow chart of extraction of promising area.

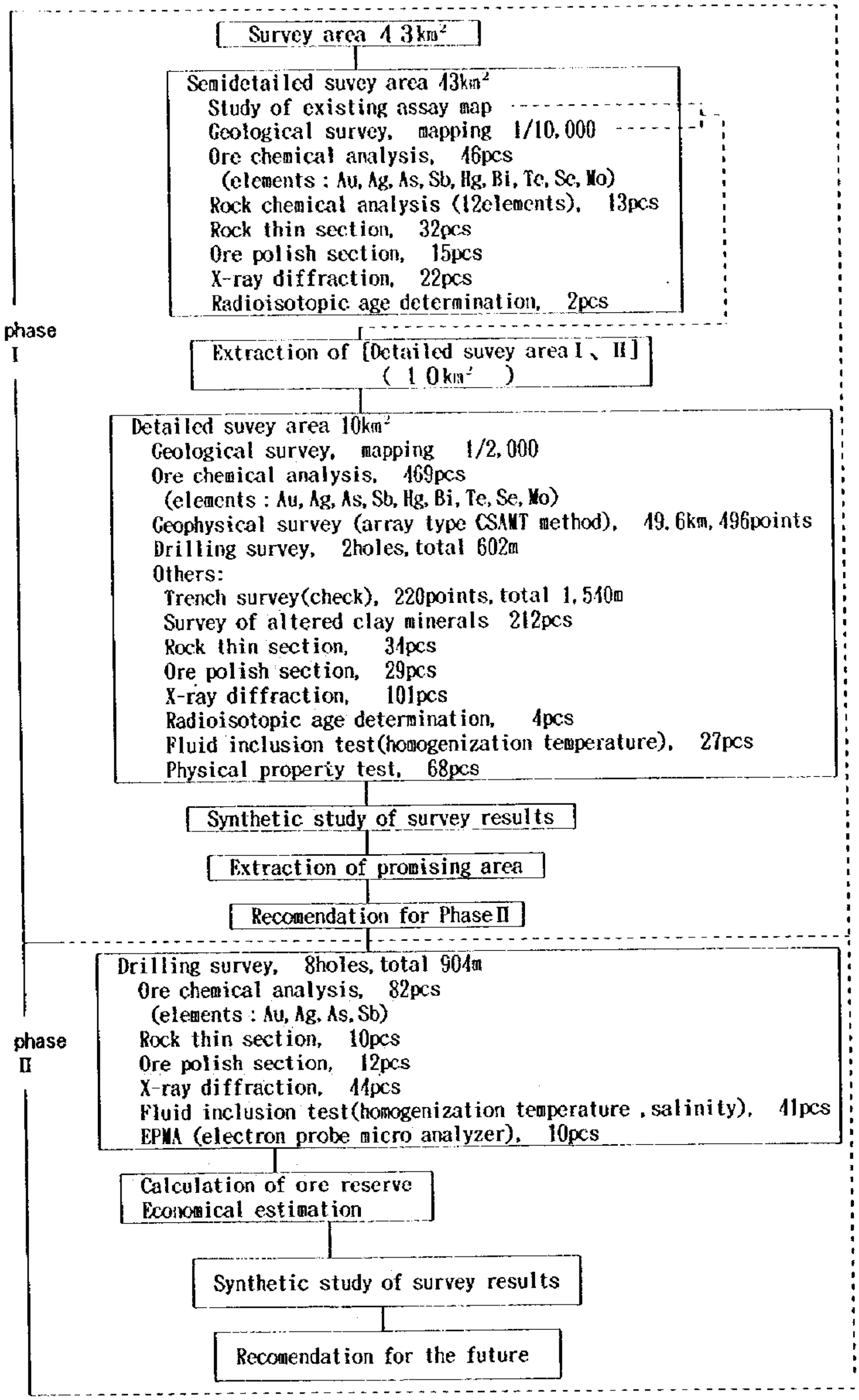


Fig. I-1-2 Survey flow sheet (Tsagaan Tsakhir Uul area)

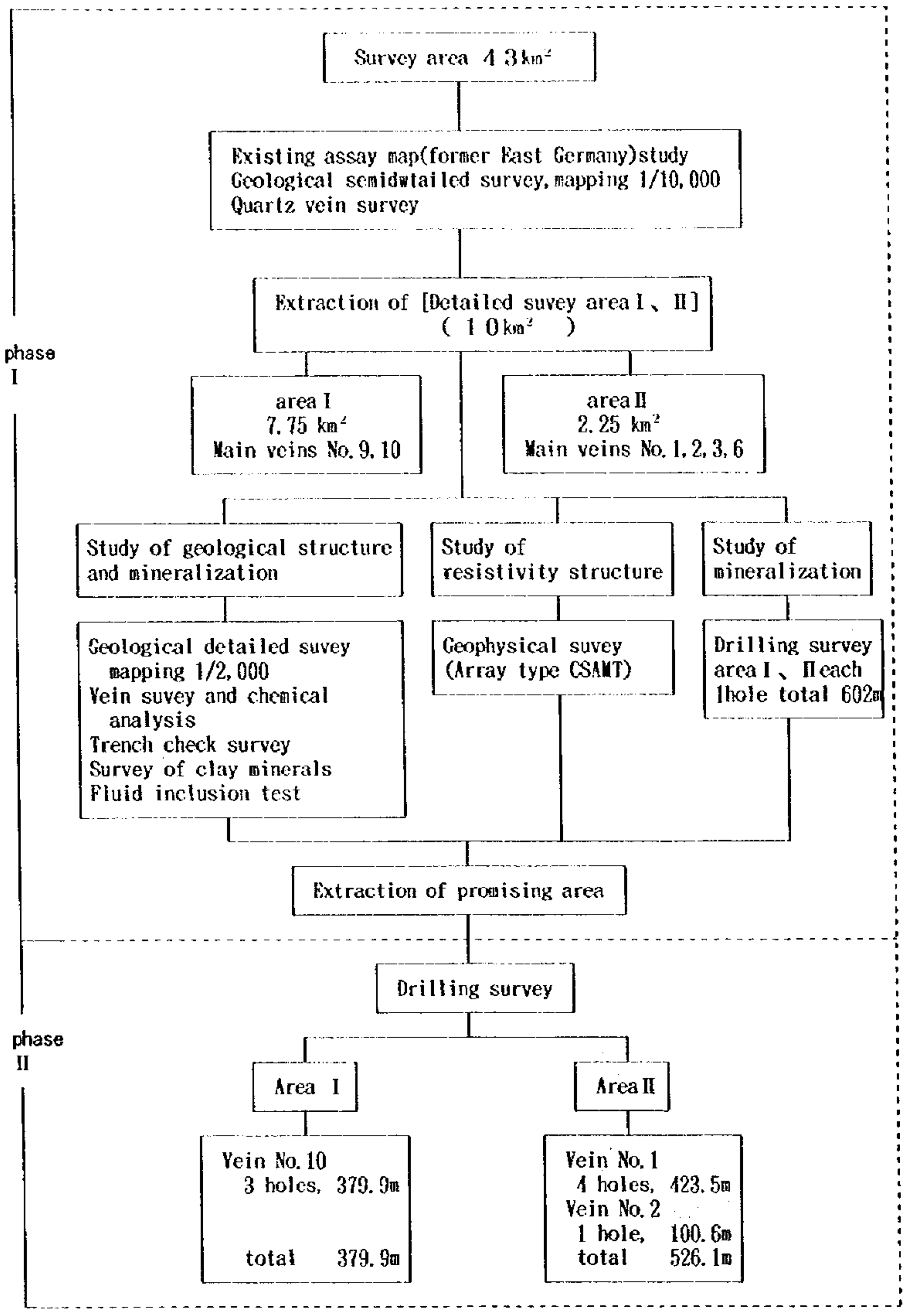


Fig. I-1-3 Flow chert of the extraction of promising area
(Tsagaan Tsakhir Uul area)

Chapter 2 Geographical Feature of the Survey Area

2-1 Location and trafics

Tsagaan Tsakhir Uul Area locates to the west-south-west of the capital Ulaanbaatar. It is 550 km distant from the capital in a straight line. It is just 700 km distant from it by car, and the time required by jeep is about 14 hours and by track about 25 hours.

A national highway to the seat of a prefectural office Bayanhongor which is 640 km distant from Ulaanbaatar consists of a paved road of 450 km and after it, a comparatively level mountain road. The 60 km from Bayanhongor City to the survey area is a comparatively level road which requires one hour and twenty minutes.

Between Ulaanbaatar and Bayanhongor City, there are two air services per week, requiring one hour and twenty minutes. In the survey area, a camp (private rooms which were remodeled containers, ger, dining rooms and toilets and shower rooms) was installed. Most of food, petrol, light oil and others were supplied from Ulaanbaartar and partly from Bayanhongor City. Local workers at Ulaanbaatar and Bayanhongor City were employed.

2-2 Topography and river system

The survey area is a peneplain having an altitude of 1900 m to 2,000 m in which metamorphic rocks and granodiorites were eroded and includes Tsagaan Tsakhir Uul mountains having the highest altitude of 2,104 m in this area. We can climb up to the mountains or travel to any place by jeep except going around in valleys located locally.

Main river system includes a river flowing in the central portion of this area from the north to the south and another river flowing from the north east to the south west and passing through the central portion to the south. A slight flow amount of water is recognized in only the west river in around rainy season, so that the river is dammed up or wells to provide living water. Nomads have wells scattered have and there to ensure living water, etc.

2-3 Climate and vegetation

1. Climate

The climate of this area belongs to steppe climate between forest region of the Hanghai mountains and the Gobi Desert. It is the hottest in July in Bayanhongor while its average temperature is 15.9℃ and the lowest temperature is -18.4℃ on average, in January.

The rainfall is 66.4 mm max. in July and 1.5 mm min. in January while a total amount of the rainfall is 216.3 mm.

The wind in this area is relatively strong and the wind speed is about 3m/sec throughout the year.

Major indices (temperature, rainfall, wind speed) of Bayanhongor and Ulaanbaatar are shown Fig I -2-1 Major climate indices.

1) Mean monthly temperature (℃)

	Jun.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Bayanhongor	-18.4	-16.8	-7.9	1.0	9.3	15.0	15.9	14.4	7.9	-0.8	-10.8	-17.4
Ulaanbaatar	-26.1	-21.7	-10.7	0.5	8.3	14.9	17.0	15.0	7.6	-1.7	13.7	-24.0

2) Mean monthly precipitation (mm)

	Jun.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Bayanhongor	1.9	3.2	4.5	9.3	15.2	33.8	66.4	54.5	16.4	7.1	2.6	1.5
Ulaanbaatar	1.5	1.9	2.2	7.2	15.3	48.8	72.6	47.8	24.4	6.0	3.7	1.6

3) Mean monthly wind velocity (m/sec)

	Jun.	Feb.	March	April.	May.	June.	july.	Aug.	Sept.	Oct.	Nov.	Dec.
Bayanhongor	2.8	2.8	3.0	3.8	3.9	3.1	2.8	2.7	3.0	3.0	3.2	2.9
Ulaanbaatar	0.9	1.4	2.3	3.4	3.7	3.4	2.6	2.4	2.3	1.9	1.3	0.8

2. Vegetation

There are almost no bushes in this area, which is covered entirely with low grass which is feed for cattle.

Chapter 3 General Geological Features

3-1 Geological features and structure of the survey area

1. Geological Features

Figure 1-3-1 shows a geological map, Figure 1-3-2 a geological section and Figure 1-3-3 a geological column of the semi-detail survey area respectively.

The geological features of the survey area mainly consist of metamorphic rocks of the post proterozoic, Adamellite of Devonian period, and two mica granodiorite of Permian period, diorite stocks, and dikes of amphibolite, quartz porphyry and lamprophyre are distribute.

1) Metamorphic Rocks

These rocks distribute in the west, the south and the east of the area and consist of three types of rocks such as psammitic gneiss, crystalline limestone and pelitic gneiss.

The psammitic gneiss is generally gray and has a granular texture consisting of quartz, plagioclase, potassium feldspar, a small amount of augite, muscovite and biotite, so it looks like a holocrystalline acidic igneous rock at a glance. In general, interval of several centimeters to tens centimeters of bedding plains remain and compositional banding approximately parallel to the plains are universally observable. The thickness of the layer is estimated to be over 2,000 m.

The crystalline limestones mainly distribute in the west of the area and a bed of several to 250 meters which is the maximum thickness is often found among psammitic gneiss. They are gray and crystalline limestones or marble.

Pelitic gneiss mainly distributes in the southwest of the area and distributes over the above mentioned two rocks. It is black or dark gray and its bedding plane or schistoity plane are outstanding and is comparatively breakable into plates. The thickness is estimated to be over 700 m.

2) Adamellite

This rock distributes in the northeast of the area and adjacent to two mica granodiorite which will be mentioned below. It is a gray holocrystalline rock and mainly consists of quartz, potassium feldspar and plagioclase and also has a medium amount of biotite and a small amount of muscovite.

In the psammitic gneiss near the border with two mica granodiorite in the east of the area, irregular small dikes of adamellite often intrude and some places look like migmatite.

3) Two mica granodiorite

This rock distributes extensively from the central part to the north of the area and is a host rock of most parts of quartz vein groups. It is a gray, medium to coarse-grained holocrystalline rock and mainly consists of quartz and plagioclase together with a small to medium amount of potassium feldspar, biotite and muscovite. Including the Adamellite , it is difficult to find apparent alteration accompanied with generation of quartz veins in the field, but under microscopic observation, feldspar and others have been altered. According to the results of X-ray diffraction, chlorites are detected evenly in the distribution area, which indicates that alteration has taken place over a wide area.

According to the drilling survey of this fiscal year, alteration with the generation of quartz veins has been confirmed.

4) Diorite

Three rocks in a small stock distribute. The rock in the southeast of the area is the biggest having the maximum width of 0.8 km, extending 2.0 km in the directions of northeast and southwest. A small barren quartz vein is also crossing this rock.

5) Dikes

These dikes include amphibolite, pegmatite, quartz porphyry and lamprophyre.

The amphibolite distributes in metamorphic rocks and develops well particularly in the pelitic gneiss. They are narrow, short and small dikes.

Pegmatite also distributes in metamorphic rocks. They are narrow, short, irregular and small dikes. They are often observed at drilling core.

Quartz porphyry develops through two mica granodiorite in the central part of the area. Several rocks of 2 to 10 m in width continue in a row in the direction of N-S. Sometimes, they are disrupted by small barren quartz veins.

Lamprophyre distributes from the central part to the northeast of the area. Its maximum width is about 10 m and continues in the direction of NE-SW. In the northeast, it branches off into two or three dikes and forms an echelon disposition. It interrupts the series of quartz veins, Nos. 9 and 10.

2. Geologic Structure

1) Structure of Metamorphic Rocks

The metamorphic rocks in the western part to the southern part of the area have NW strike and form a monoclinic structure dipping in 60° to 85° toward SW. On the other hand, the metamorphic rocks in the eastern part of the area have NW strike system and form a folding structure with repetition of anticline and syncline dipping in 65° to 90°.

2) Fault

In the metamorphic rocks of the western area, there is a fault of NE-SW system having several hundreds meters of horizontal transition which can be estimated from the shift of pelitic gneiss distribution. Its location agrees with the topography of the valley. Although there is a possibility that the extension in the northeast of the fault can continue in the direction of the quartz vein No. 5, it is not certain.

The rest of small faults are of all NE-SW systems.

3-2 Quartz veins

Figure 1-3-4 shows the distribution of quartz veins.

Major quartz veins are Nos. 1, 2, 3, 5, 6, 7, 8, 9, 10, 14 and 15. Mean width of a vein is from 20 to 30 cm and the longest veins of Nos. 9 and 10 reach as far as 4 km. The quartz veins have a lot of changes in expansion and contraction and also form an echelon disposition. The extension of single quartz vein is several tens to several hundreds meters. A quartz vein group consists of three systems such as NNW-SSE system (Nos. 1, 2, 3, 6, 7, 9, 10, 14 and 15), NE-SW system (Nos. 5, 8, 52, 53 and 54) and E-W system (Nos. 40, 41 and 42).

Ore minerals consist of native gold, chalcopyrite, galena, sphalerite, pyrite, tetrahedrite, undefinable Tellurium minerals and so forth.

Quartz veins and their extension which have mean gold grade over 1 g/t on the surface are as follows.

Area	Vein No.	Mean Width (cm)	Au Grade (g/t)	Extention (m)
Detail Survey Area II	1	21	22.0	690
Detail Survey Area II	2	19	25.5	920
Detail Survey Area II	3	23	13.3	480
Detail Survey Area II	6	18	4.0	410
Detail Survey Area I	10	41	20.0	910
Detail Survey Area I	15	11	2.4	400

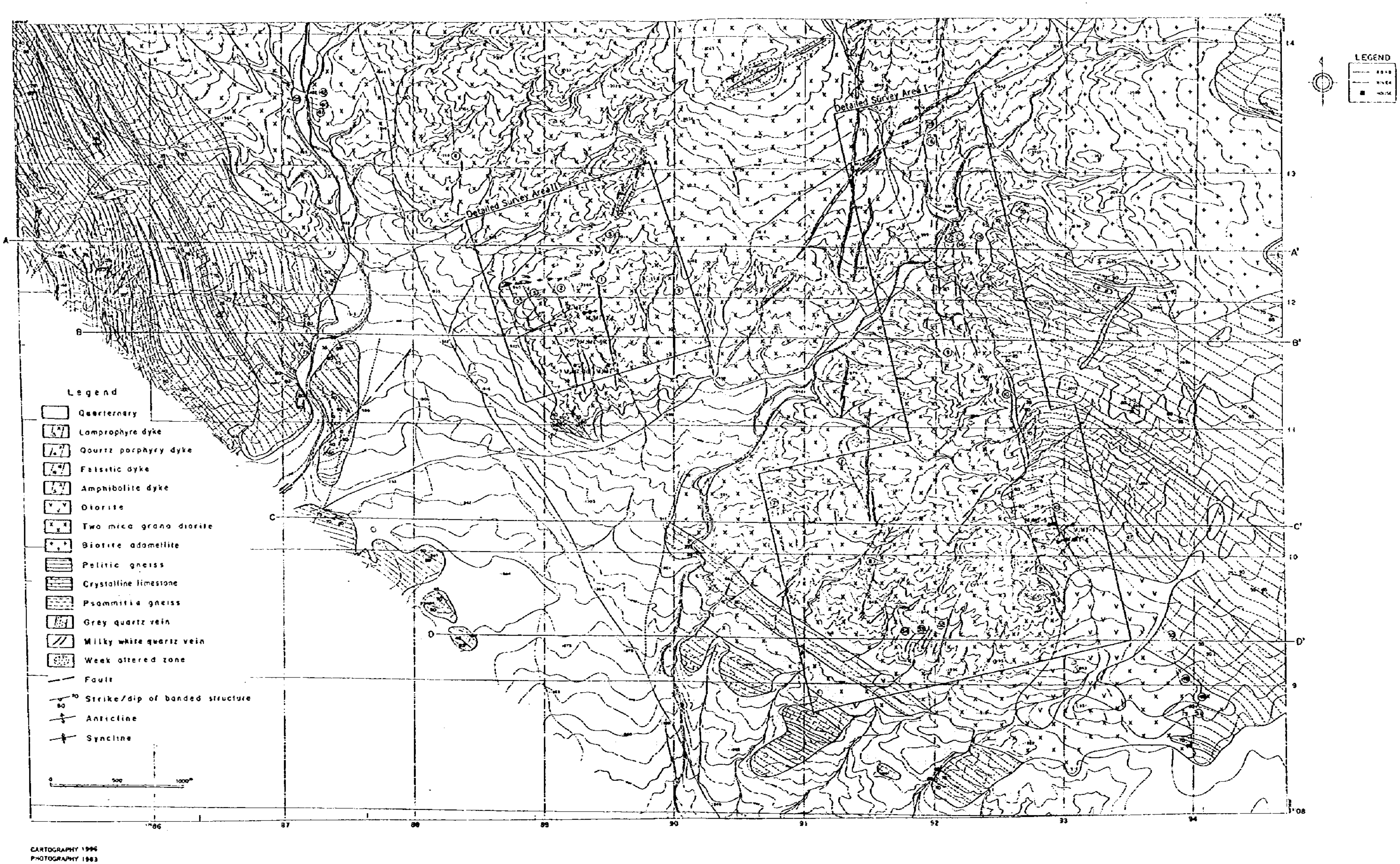


Fig. I-3-1 Geological map of semidetailed area

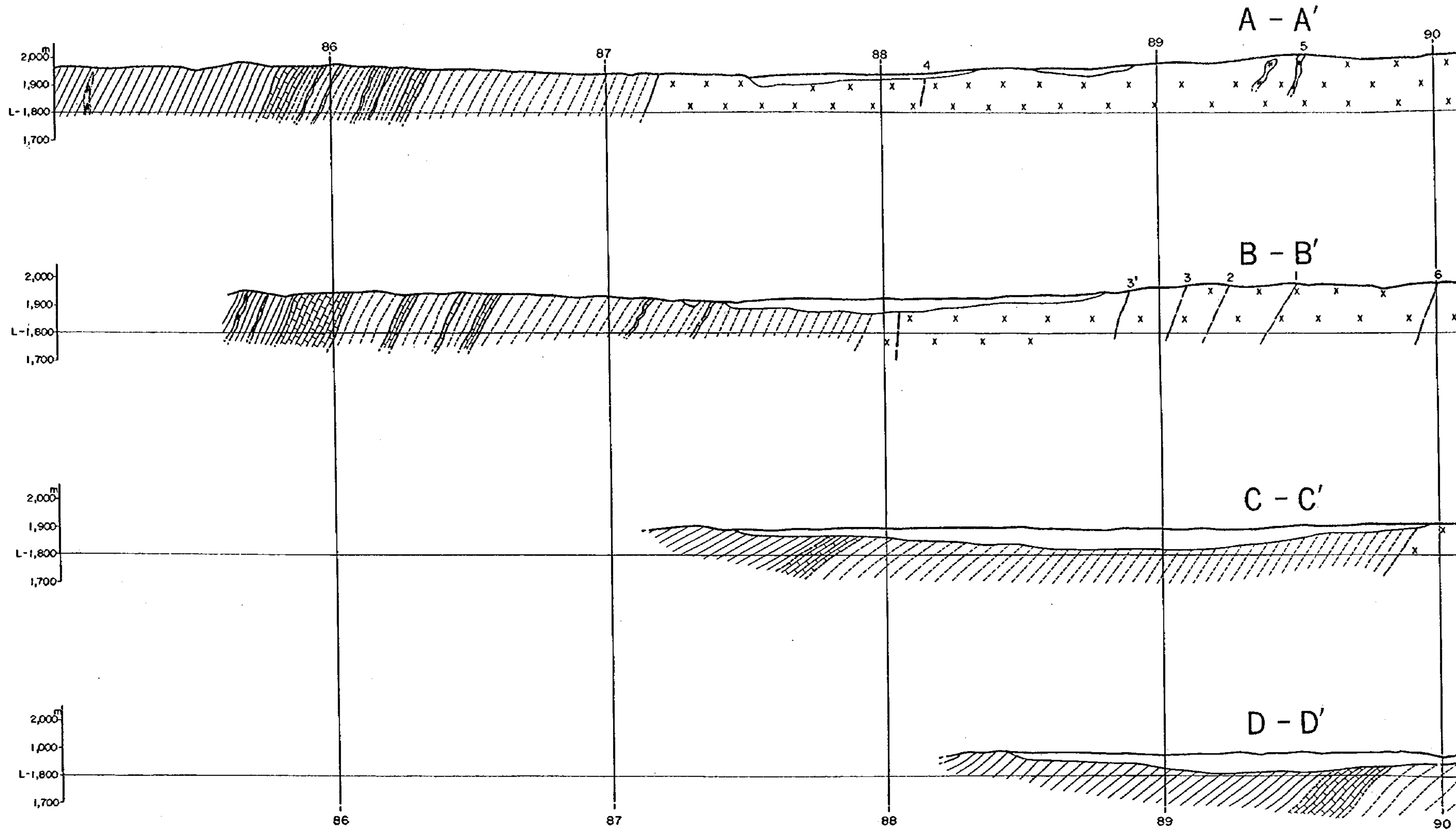


Fig. I -3-2 GEOLOGICAL PRO

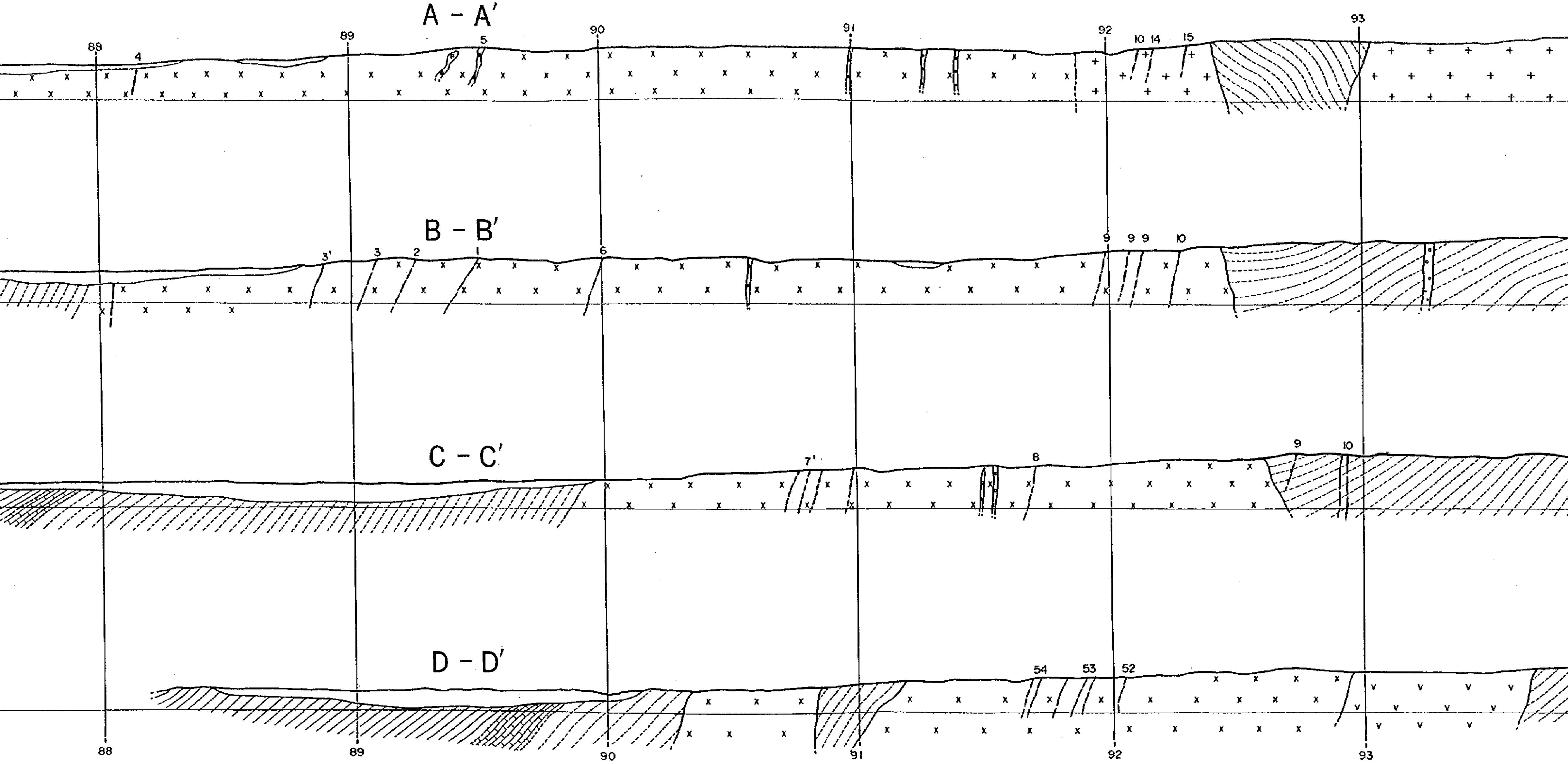
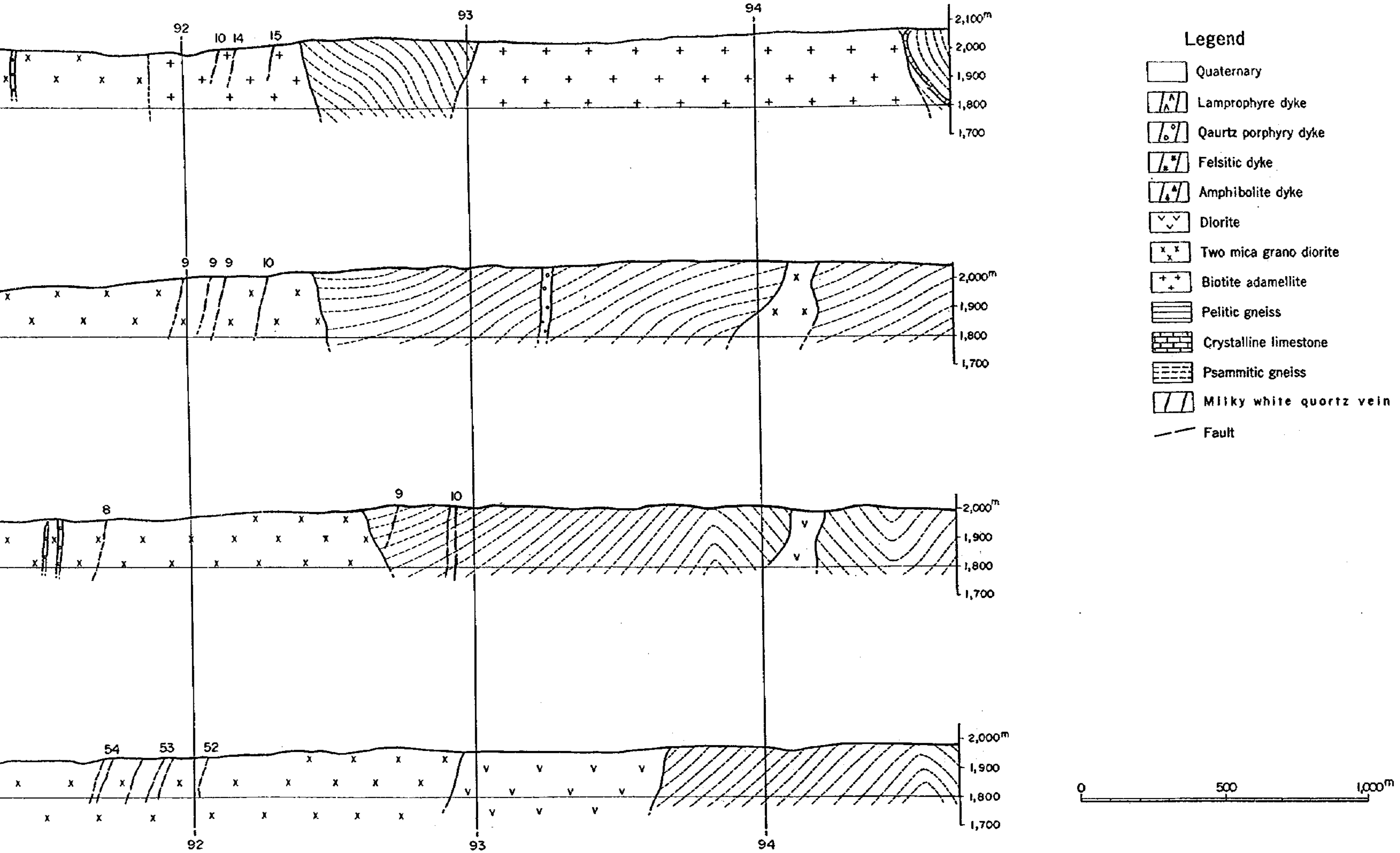
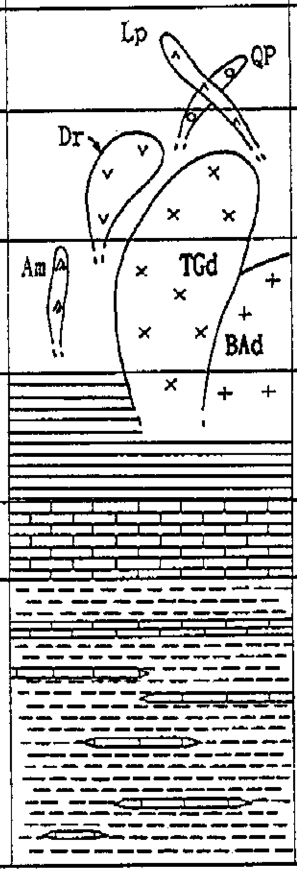


Fig. I-3-2 GEOLOGICAL PROFILE OF SEMI-DETAILED AREA


Legend
Quaternary
Lamprophyre dyke
Qaurtz porphyry dyke
Felsitic dyke
Amphibolite dyke
Diorite
Two mica grano diorite
Biotite adamellite
Pelitic gneiss
Crystalline limestone
Psammitic gneiss
Milky white quortz vein
Fault
0
500
1,000m
92
93
94
2,100m
2,000
1,900
1,800
1,700

AREA

Geological time		Metamorphic rocks	Geological column	Thickn. (m)	Ore mineraliz.	Rock facies	Age determ. by K-Ar. Rb-Sr
Cenozoic	Quarternary			> 50		Gavel. Sand. Silt	
	Tertiary						
Mesozoic	-100×10[6] y. -200		Lp, QP				Cl of Q. V.: 225.8～234.4 ±4.9
Upper paleaozoic	-300		Dr				Dr:250.4 ±85.7 TGd:268.1±5.6
Middle～Lower paleaozoic	-400 -500		Am, TGd, BAd				BAd:384.7±7.8
Late Proterozoic		Pelitic gneiss		> 700		Layered 、Schistose ～gneissose st. occured chlorite, muscovite, biotite, garnet	
		Crystalline limestone		max250		Saccharoidal structure	
		Psammitic gneiss		>2,000		Gneissose structure occured muscovite, biotite, augite, garnet localy folded intercalated crystalline limestone	

QP:Quartz porphyry Lp:Lamprophyer Am:Amphibolite Dr:Diorite BAd:Biotite adamellite TGd:Two mica granodiorite
Cl:Clay st.:structure Thickn.:Thickness determ.:determination

Fig. I -3-3 Schimatic geological column

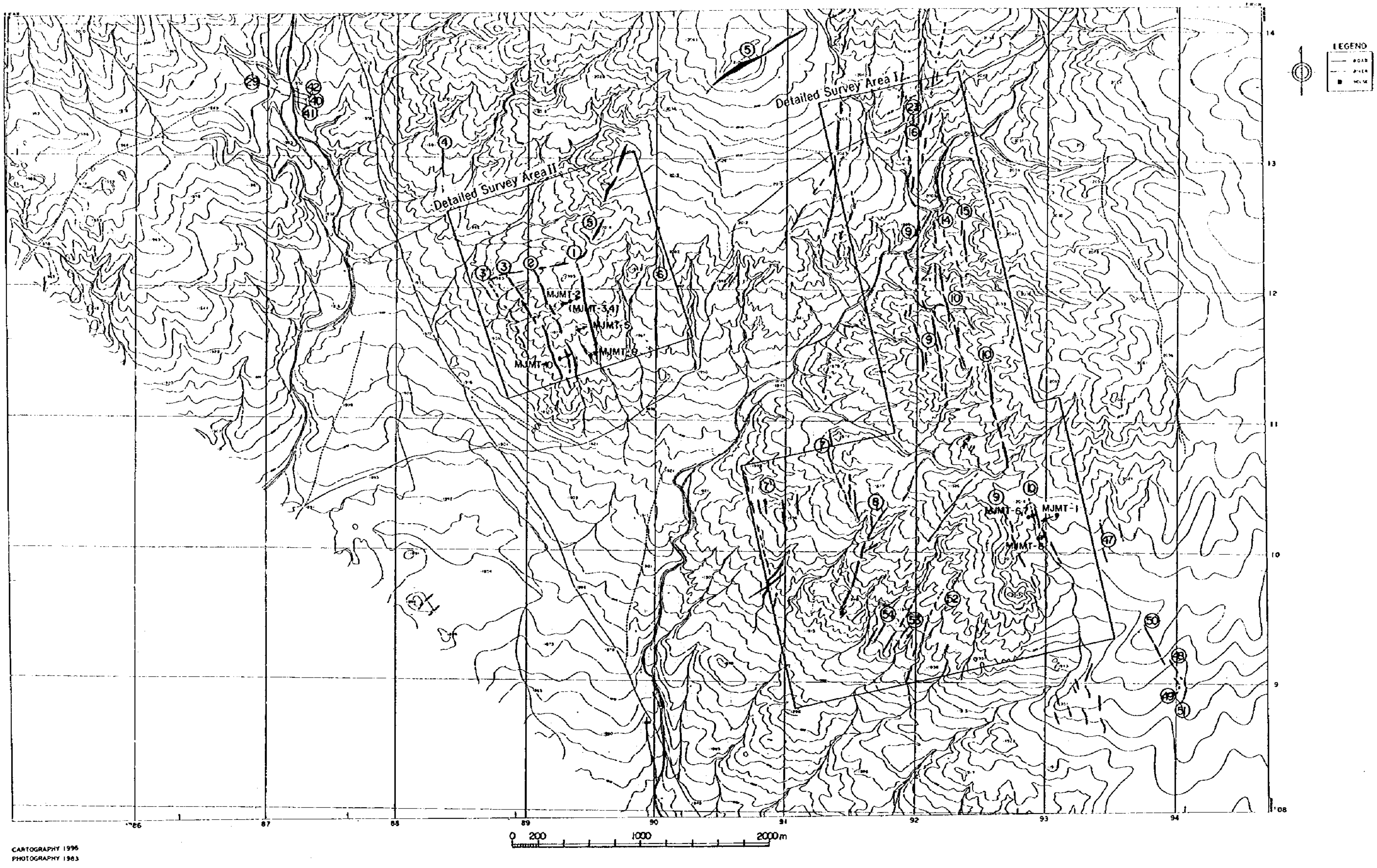


Fig. I -3-4 Location map of quartz vein

Chapter 4 General Discussion of Survey Results

4-1 Features of geological structure and mineralization and controls of mineralization

1. Geological Structure and Veins Structure

Among the rocks in this area, the structure of gneiss is NW-SE system. There are two directions for the intrusion of diorites: NW-SE system and NE-SW system. Quartz porphyry is N-S system and lamprophyre is NE-SW system. Fault structure is NE-SW system.

On the other hand, quartz veins are classified into three directions of NNW-SSE system, NE-SW system and E-W system. Major quartz veins belong to NNW-SSE system and incline 40° to 90° to the west.

Judging from the chronological bvaluation of igneous rocks and alteration clay of quartz veins as well as the relation between quartz veins and each igneous rock by field observation, the chronological age of generation of igneous rocks and quartz veins is estimated as follows:

Lamprophyre	········· Permian Period or later	
Diorite	········· Permian Period	Quartz Vein (Mineralization)
Quartz porphyry	········· Permian Period	
Granodiorite	········· Permian Period	
Adamellite	········· Devonian Period	

In other words, it may be understood that rocks and quartz veins excluding adamellite and lamprophyre were formed around the same period.

From the above, it is possible to regard that the above mentioned structure of rocks and quartz veins were also controlled by a fissure system formed by the same stress field.

It is considered that in this area, stress acted in the eastwest direction at the time of intrusion of granodiorite or immediately after it and shear fracture of NE-SW system and tension fracture of NNW-SSE and E-W systems were formed.

The quartz vein No. 5 having the maximum vein width of 50 m represents one which was controlled by the shear fracture. The microscopic observation of this vein indicates that fractured granodiorite can be an alteration vein strongly silicificated and indicates existing of shear zone.

Quartz porphyry and quartz veins excluding NO. 5 were controlled by tension fracture. There are no traces of shear on their structures and general echelon disposition shows their features.

2. Features of Mineralization

1. Characteristics of Quartz Vein

The quartz veins can be classified into three systems as mentioned above. Their continuity ranges from several hundreds meters to four kilometers. They continue with expansion and contraction of a single quartz vein and echelon disposition.

2. Characteristics of Mineralization

Mineralization of gold in this area can be observed with naked eye as native gold in general. Therefore, outcrops of high grade of all veins were already digged several centuries ago.

If any gold grains are found in remaining digging wastes, chalcopyrite and galena are often found in the neighboring site. In all veins, both gold grains and sulfide minerals are only scattered. In the field, compositional banding or zonal distribution are not found usually, but at the time of drilling of this year, compositional banding was found at the high ore grade zone of Au 1,900 g/t.

Ore minerals confirmed by microscopic observation by the first year survey were the primary minerals such as native gold, chalcopyrite, galena, sphalerite, pyrite, tetrahedrite and altaite and the secondary minerals such as covelline and geothite. In addition to these, sulfide mineral and mineral oxide of Tellurium are also confirmed.

Ordinarily, an diameter of the native gold is 0.01 to 0.05 mm and the maximum size is 1.0×0.3 mm. The shape of the native gold is irregular and it can be found alone among quartz grains in most cases. It also can be found sometimes among cracks of quartz or contained in chalcopyrite. Sometimes it exists with tetrahedrite.

3. Mean Ore Grade

Mean ore grades, scale, vein direction and others of major quartz veins are shown below.

Vein No.	Vein Direction	Mean Vein Width (cm)	Mean Au Grade (g/t)	Total Extension (m)
1	NNW-SSE	20.7	21.97	900
2	NNW-SSE	18.9	7.78	1,000
3	NNW-SSE	23.6	6.15	1,000
6	NNW-SSE	26.5	2.55	800
10	NNW-SSE	42.3	10.01	2,800

The gold grades of the above fluctuate greatly by section (several tens meters to several hundreds meters = almost single vein).

4-2 Relations between drilling survey results and mineralization

1. Mineralization by Core Observation of this Year

The color of quartz vein in which native gold can be found by naked eye (over several 10g/t according to an analysis result) is generally gray or dark gray. The veins in which gold is not found after analysis is generally light gray or white.

Width of quartz vein is generally the same or over a value estimated by an outcrop (fragments of quartz vein after digging), but some of them can be smaller sometimes. In other words, there are many expansion and contraction.

Accumulation of native gold (width 5 cm, Au 1,370 to 1,910 g/t) of Vein No. 1 (true width is 85 cm) which is an ore intersected by MJMT-3 locates at the center of vein and gold grains with a trace amount of sulfide minerals are in compositional banding. Near the places where gold grains are found, almost without exception, a trace amount of galena, chalcopyrite, mineral oxide and others are scattered.

Both edges of the quartz vein in general have 1 to 20 cm of alteration clay or their host rock alteration is strong. A single clay vein which is 1 to 2 cm wide is sometimes found near or far from the vein.

2. Mineralization Surveyed by Chemical Analysis

Chemical analysis was carried out for Au, Ag, As and Sb. Au of major veins was also analyzed at the Central Geological Laboratory in Ulaanbaatar.

In some veins (MJMT-3, Vein No. 1, MJMT-6, Vein No. 10, MJMT-10, Vein No. 2W), gold accumulates in the center of a quartz vein and ore grade degrades toward the vein edges. And in some veins (MJMT-5, Vein No. 1, Vein No. 10, MJMT-7, MJMT-10, Vein No. 2), gold accumulates at the vein edges. Thus, gold is never contained uniformly in the whole vein.

A ratio of silver to gold of a sample containing over 10 g/t of Au is 1:6. (Last year, the ratio of a field sample was 1:5.)

Arsenic (As) and antimony (Sb) are related to mineralization of gold. Arsenic (As) has, however, a tendency to accumulate more in alteration clay of vein edges than with gold. Antimony (Sb) has a correlation with a gold grade. The alteration clay of an edge which is high in gold grade contains some g/t of gold.

From the results of chemical analysis of cores together with those of the first year, a fact was found about the lower limit of mineralization. A deteriorating tendency of ore conditions was observed at about 120 m of extension under the earth's surface in the Vein No. 1 and about 50 m to 80 m in the Vein No. 10.

3. Ore Mineral

1) Evaluation by Polished Section

Ore mineralizations are native gold (electrum), chalcopyrite, galena, sphalerite pyrite, tetrahedrite, chalocite, covelline and five kinds of unknown mineral. Size of these minerals are generally maximum 2mm of diameter.

2) Evaluation by EPMA

A ratio of gold to silver of electrum are 90:10~85:15, and contains small amount of bismuth. Five kinds of unknown mineral mentioned above are presumed:

a) Chalocite and another cupper oxide.

b) Lead-Antimony oxide contained small amount of silver.

c) Tetrahedrite, and in which a part of cupper is substituted by silver.

d) Assemblage of sphalerite and zinc oxide.

e) Assemblage of oxide minerals of cupper, lead, antimony and arsenic individual.

4. Alteration

An alteration mineral of clay or alteration wall rocks contacting with a quartz vein is sericite and contains sometimes a trace amount of smectite, chlorite or calcite. Clay or alteration wall rocks outside of the alteration wall rocks contacting with the quartz vein mainly consist of sericite and smectite containing a trace of chlorite or calcite.

A smaller vein of alteration clay which is apart from a vein consists of a combination of one to four minerals such as laumontite, smectite, calcite, sericite, chlorite and others.

An alteration granodiorite apart from a vein consists of two to three minerals such as sericite, smectite and calcite.

An alteration fault zone consists of sericite, smectite, calcite and chlorite.

There are also smaller veins of calcite crossing a quartz vein.

From the above results, as alteration minerals which are related to generation and mineralization of a quartz vein, it is possible to estimate the following zonings centering a quartz vein: ①sericite zone ②sericite / smectite / (chlorite) zone and ③ laumontite / smectite /calcite / (chlorite). However, the zone ③can be one in a later period than mineralization.

Judging from the existence of sericite actions in alterated granodiorite and an alterated fault zone which are apart from a vein and a calcite vein which crosses a quartz vein, it is estimated that alterations were repeated on the whole.

5. Homogenization Temperatures and Salinity of Fluid Inclusion

Homogenization temperatures and salinity of the fluid inclusion of 41 samples of the quartz vein of drilling cores and outcrops were measured.

The homogenization temperatures were within the range from 112.5 to 168.9℃ (exception: 254.0℃; Quartz Vein No. 1 outcrop). The mode interval was from 140 to 150℃ (in 10 samples). These values were even lower than those of an epithermal deposit. 254℃ which was an exception only corresponding to the value of mesothermal deposit.

As for 4 samples of outcrops and 2 samples of cores (MJMT-1, 160 m and 240 m under the earth's surface), boiling phenomena were observed.

Salinity (wt % NaCl) was within the range from 0.03 to 11.55 wt % and the mode interval was from 0.1 to 1.0 wt % (28 samples). Salinity can be correlated with homogenization temperatures.

In the section of a quartz vein, like the following two examples, there was a distinctive relation among gold grade, homogenization temperature and salinity.

Example 1) MJMT-3, Quartz Vein No. 1

(Ore intersection length: true width 85 cm)

	Au Grade (g/t)	Homogeneization Temperature(°C)	Salinity (wt % NaCl)
Vein Edge	<0.1(8.1)	157.9	11.5
Middle between Edge and cente	11.2(14.7)	153.1	9.70
Center of Vein	1910(1373)	125.8	0.22

Example 2) MJMT-6, Quartz Vein No. 10

(Ore intersection length: true width 47 cm)

	Au Grade (g/t)	Homogenization Temperature(°C)	Salinity (wt % NaCl)
Vein Edge	0.8(0.8)	127.3	0.09
Center of Vein	29.1(395)	125.6	0.15
Vein Edge	1.4(1.5)	164.1	0.07

( ) : Analysis at Ulaanbaatar

Thus, the grades, the temperatures and the salinity in the center and the edge are quite different even if the vein width is several ten centimeters.(Example 1).

Judging from these results, it was estimated that when hydrothermal solution of a high temperature and high salinity went upward, circulating subsurface water mixed and then, both of the temperature and the salinity lowered and crystallization of quartz and gold began, and when the homogenization temperature became around 125℃ and the salinity became around 0.1 to 0.2 %, the most amount of gold precipitated.

For further information, among samples of which homogenization temperature and salinity were measured, 4 out of 6 samples having the gold grade over 4 g/t showed the homogenization temperature, 125 to 129℃, and salinity, 0.15 to 0.87, (excluding the analysis values at Ulaanbaatar).

However, even if the values were nearly the same, there were many test samples which showed below 1 g/t of Au; therefore, these conditions could not be regarded absolute.

4-3 Potential of ore-reserve

1. The Lower Limit of Mineralization

Through fluid inclusion tests, chemical analyses, X-ray diffraction and others, various conditions of mineralization of gold and an outline of alteration became clear, but the lower limit of mineralization remains as an issue of survey in the future. As objectives of the survey, ingredients of hydrothermal solution which created an individual vein, pressures at the creation and behaviors of circulating subsurface water will be included.

If objective veins are limited to the Vein No. 1 and a part of the Vein No. 10, the following information have been obtained about the lower limit of mineral conditions by the surveys of these two years. In the following districts, a tendency of deterioration of mineralizations was observed:

Central district of Vein No. 1 --- About 120 m of extension under the earth's surface
Southern district of VeinNo.10---About 50 to 80 m under the earth's surface

2. Calculation of Ore Reserves

Ore reserves of Au of the same objective veins with those of the first survey year of Nos. 1, 2, 3, 6 and 10 were calculated. In the first year, objective extension was set to 150 m under the earth's surface for each vein. But this year, considering the lowering tendency of the limit of the mineralizations, up to the maximum 120 m extension under the earth's surface was an objective. For the Vein No. 10, the extension was made lower than this.

For analysis values of cores of the major veins, those obtained at Ulaanbaatar were used.

For each vein, calculation was conducted by ore block of grade. Figures showing locations of ore blocks, sections of ore blocks and others are shown in the Section II.

Comparison of gold contents with those of the first year is shown below.

Vein No.	This Year	The First Year	Difference
1	3,545.2kg(52.0%)	1,244.7kg(19.0%)	2,300.5kg
2	787.9(11.6)	1,746.3(26.6)	-958.4
3	567.4(8.7)	454.2(6.7)	-113.2
6	94.8(1.4)	118.5(1.8)	-23.7
10	1,934.0(28.4)	2,875.0(43.9)	-941.0
Total	6,816.1kg	6,551.9kg	264.2

This year, the extension of veins became shorter on calculation. But due to a high grade vein which was hit in the Vein No. 1, the result was an increase of 264 kg. The Vein No. 1 itself is an increase of 2,300 kg.

4-4 Outline of Economic Evaluation

The economic merit of the proposed development of the ore deposit was evaluated as to two possible cases.

1) Premises

An objective vein for the development is limited to Vein No.1 only and dip extension to be developed up to 80m. Minable crude ore is 44,250 t (Refuse: 50%; Gold grade: 44.5 g/t; Gold content: 2,015 kg).

Annual production: 6,000 t; Period of starting operation: 1 year; Period of operation: 7 years. For mining method, "Upward Cut and Fill" and for transportation, a trackless system is applied to both inclined and levels drifts.

Electricity is generated privately.

2) Case 1

For mineral, dressing after primary crushing, refuses are removed manually. Concentrates of 4,000 t are transported to Japan as silica ore. Gold will be electrolyzed recovery from copper concentrate. Real yield is 90%. A price of gold is 310 US$/toz.

The fund plan (Initial expense + working capital): 3,100,000US$.

In this case, annual loss of about 180,000$ is predictable.

3) Case 2

Under the prior conditions of Case 2, the output and mining method are supposed to be the same as those of Case 1. In this case, however, the ore is to be leached at the mining site and the leached ore is to be refined by a subcontractor. In this case, yield rate of 80% is expected.

The fund plan (Initial expense + working capital): 4,100,oooUS$.

Annual profit is estimated to be about 360,000$.

Chapter 5 Conclusions and Proposals

5-1 Conclusions

1) Characteristics of Mineralization

① Natural gold accumulates in the center or the edges of the vein and coexists with chalcopyrite, galena, Tellurium minerals and others.

② Alteration centers on a vein and at least two zonings of sericite and sericite/smectite zones are recognized.

③ Homogenization temperatures and salinity of the fluid inclusions varies greatly even within one section of a vein. The most suitable conditions for gold precipitation are estimated to be 125 to 130℃ and 0.1 to 1.0 wt % NaCl respectively.

④ Due to big fluctuations in mineralizations, an ore intersection grade of only one hole can affect the estimated gold content of the whole vein.

(Example: Since a high grade vein was hit in the vein No. 1, itsestimated gold content was an increase of 2,300 kg over the first survey year.)

2) The Deepest Limit of Mineralization

As far as the central district of the vein No. 1 and the southern district of the vein No. 10 are concerned, mineralizations have deterioration tendencies in about 120 m or 50 to 80 m respectively along the veins under the surface.

3) Calculation of Ore Reserves

Objective veins are the same with those of the first survey year. According to the result of calculation of the ore blocks of each vein which were made smaller than those of the first year, the ore reserves were 284,000 t and the gold contents were 6,800 kg or the gold reserves were an increase of 260 kg over the first year. But these differences are below the reliability of "possible reserves."

4) Economic Evaluation

a) Case 1

In Case 1, it is estimated that only No. 1 vein with gold content of 3,500 kg will be developed, and the silica ore of 4,000 t / years will be transported to Japan.

In this case, it is roughly estimated that an annual loss of about 180,000$ will be incurred. However, under the present circumstances, significant improvement in the productivity cannot be expected. Furthermore, as long as insisting on the plan for transporting the low grade silica ore to Japan, any market improvement in the profitability cannot be expected even if the present market price changes for the better.

b) Case 2

In Case 2, it is assumed that the mining method and production scale are the same as those Case 1. In this case, however, ore will be leached at the mining site, and the refining will be undertaken by the refining subcontractor.

In this case, annual profit of about 360,000$ can be expected after covering operation cost, expense for refining, interest, royalty, taxes and one seventh of initial investment, thereby indicating the future possibility of profitable operation. However, this Case 2 is based on the assumption that the construction work and operation will be executed on the initiative of the Mongolian teams, so that the Mongolian teams is supposed to conduct a prior study of the feasibility for the development.

5-2 Proposals for the future

① Since changes of mineralizations of each vein are great, in order to raise the reliability of ore reserves up to "possible reserves" or "probable reserves", Mongolian teams are advised to conduct drilling in wider areas of major veins additionally.

②Further, in the future, we expect that the ore deposit development will be executed under the prior conditions proposed for Case 2. In promoting the future development projects, the various techniques employed for the Bumbat gold mine may be applicable.

Part II Details of the Survey

Part II Details

Chapter 1 Drilling survey

1-1 Survey method

1-1-1 Purpose and outline of survey

The present survey was carried out with a purpose of exploring the lower parts of the promising area of the quartz vein. Since the drilling result of the first survey year revealed a high possibility that the continuity of the promising area may not reach to 150 m or more below the surface, it is assumed that the vein reaching depth is, as a rule, 50 to 100 m below the surface.

The target survey veins are Veins No. 1 and 2 in detailed geological survey area II and Vein No. 10 in the said area I of the first survey year. The drilling location map is shown in Figs. II-1-1 (1) and (2).

The core observation results are summarized in a geological column on a scale of 1 to 200.

Cores in the vein reaching are divided vertically into quarters with a cutter for chemical analysis by every 5 to 15 cm. They are also used for making a polishing piece and for the fluid inclusion test. The remaining cores are kept in a core box. Among the chemical analysis components, we requested the Central Geological Laboratory in Ulaanbaatar to analyze Au and made a quick report to Japan on the results in order to compare them with the analysis results in Japan. The said Laboratory first made an analysis of cores by atomic absorption spectrophotometry, then analyzed cores indicating a value of 20 g/t or more by a dry method once again.

In addition, samples for preparation of rock thin sections and for powder X ray diffraction are collected from the cores. All the cores were transported to Ulaanbaatar and stored in Mongolian Geological Group Co., Ltd. (MGG), a counterpart entrusted company.

The contents of survey and test and quantity were as shown in Table I-1-1, 2.

1-1-2 Method and machinery used

The wire-line method was adopted for the drilling survey. Total three sets of machinery, two sets transported from Japan and one set donated to Mongolia, were used. All of them were L-38. Three sets of bits, various types of mud, fats and oils, etc. except light oil and cement were transported from Japan.

The machinery used, consumables, and bits are shown in Table II-1-1, Table II-1-2, and Table II-1-3, respectively.

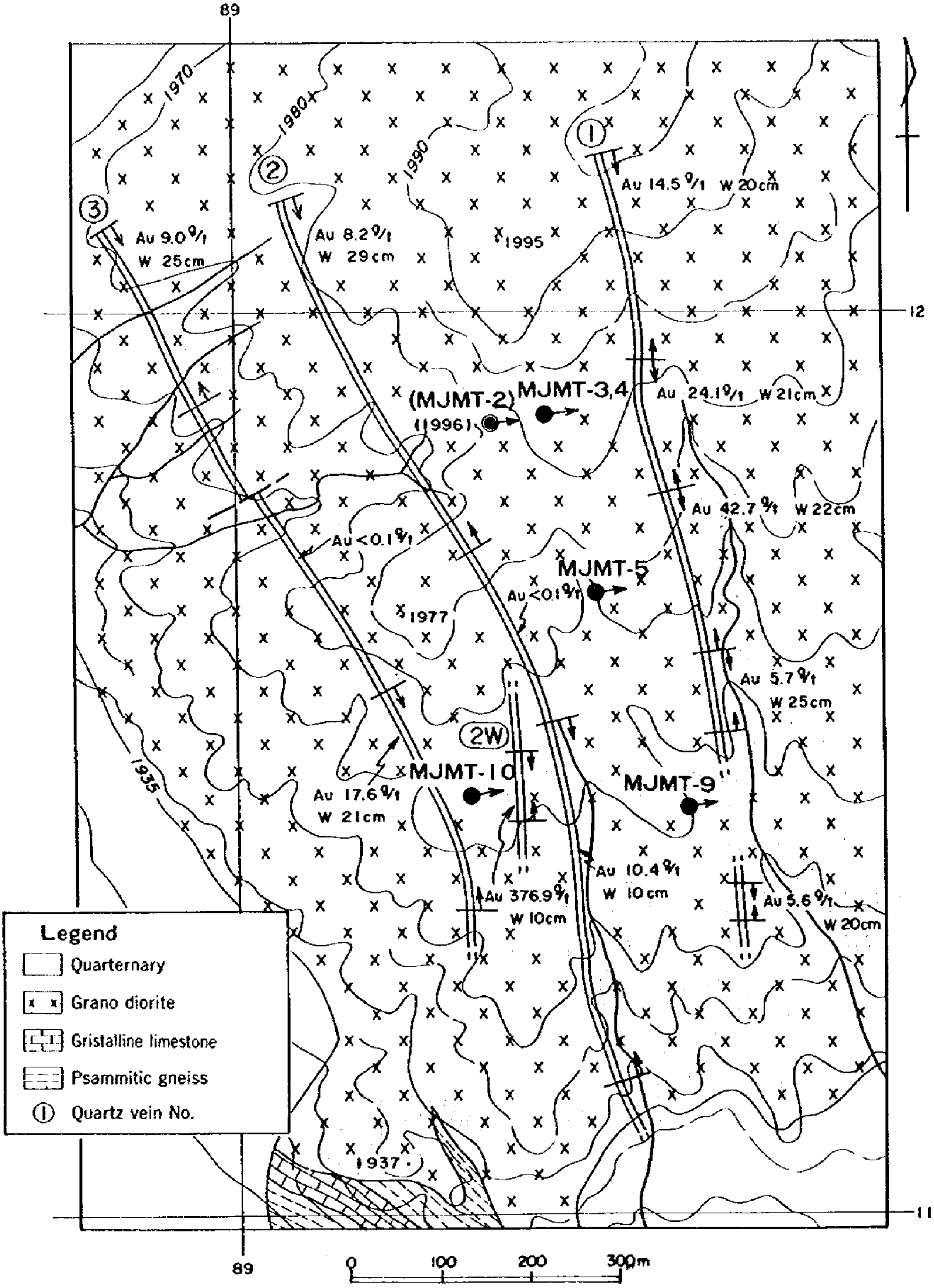


Fig. II-1-1 Location map of drilling holes (1)

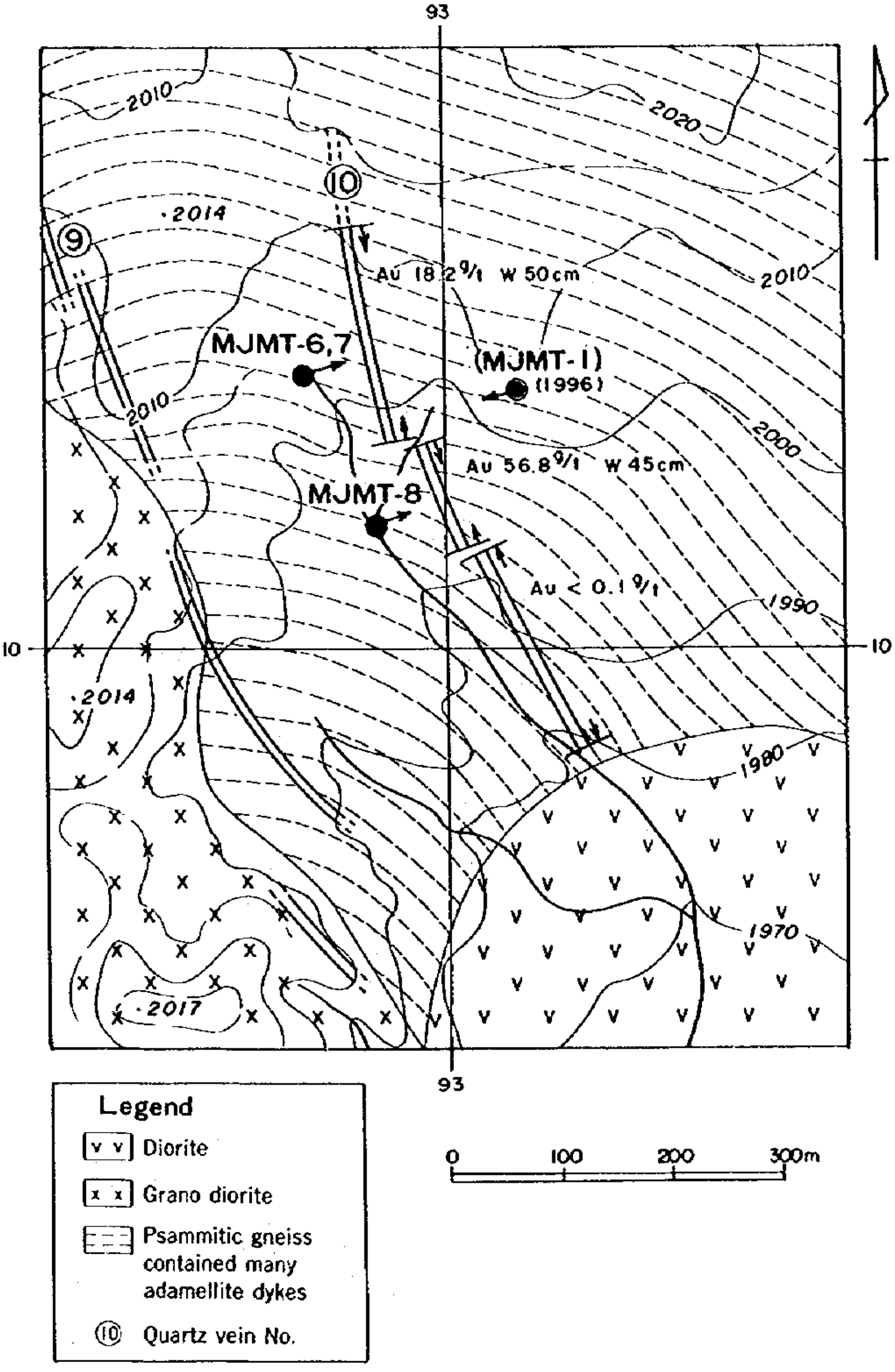


Fig. II-1-1 Location map of drilling holes (2)

Table Ⅱ-1-1 List of equipment used

Iitem	Specification	Quantity
Donated drilling machine	Longyear 38	1set
Drilling machine	Longyear 38	2pcs
Ddrilling mast		2pcs
Generator	DCA-90SPH	2pcs
Mud pomp	NAS-3 ×2,	2pcs
Mixer		2pcs
Wire line hoist		2sets
Core barrel assembly	NQ	2sets
Core barrel assembly	BQ	2sets
Inner tube assembly	NQ	2sets
Inner tube assembly	BQ	2sets
Drilling rod	NQ-WL 159 x 3m	477m
Drilling rod	BQ-WL 240 x 3m	720m
Casing pipe	114.3mm 10 x 3m	30m
Casing pipe	88.9mm 30 x 3m	90m
Casing pipe	73.0mm 140 x 3m	420m

Table Ⅱ-1-2 List of suplies and consumables

Item	Specification	Quantity
Diamond bit	NQ (impregnated)	12pcs
Diamond bit	BQ (impregnated)	1pc
Reaming shell	NQ	15pcs
Reaming shell	BQ	1pc
Bentnite	125 x 25kg	3,125kg
Telcerose	TE-D 4 x 20kg	80kg
Polimer	TK-60B 5 x 20kg	100kg
Libonite	14x 20kg	280kg
Cement	40x 40kg	160kg
Diesel		4,280ℓ
Engine oil		125ℓ

Table Ⅱ-1-3 List of diamond bits and reaming shells consumed

No. of drilling hole	Specification	Maker	Quantity
MJMT-3	Bit (impregnated) NQ(V-15)	Norton	1 pc
(100.5m)	Reamer NQ	〃	1 pc
MJMT-4	Bit (impregnated) NQ(V-15)	Norton	3 pcs
(141.7m)	Reamer NQ	〃	3 pcs
MJMT-5	Bit (impregnated) NQ(V-15)	Norton	1 pc
(100.7m)	Reamer NQ	〃	3 pcs
MJMT-6	Bit (impregnated) NQ(S-9)	Long year	1 pc
(100.7m)	Reamer NQ	〃	2 pcs
MJMT-7	Bit (impregnated) NQ(S-9)	Long year	1 pc
(160.7m)	BQ(S-9)	〃	1 pc
	Reamer NQ	〃	1 pc
	BQ	〃	1 pc
MJMT-8	Bit (impregnated) NQ(W-05)	Norton	2 pcs
(118.8m)	Reamer NQ	〃	2 pcs
MJMT-9	Bit (impregnated) NQ(W-05)	Norton	1 pc
(80.6m)	Reamer NQ	〃	1 pc
MJMT-10	Bit (impregnated) NQ(V-15)	Norton	1 pc
(100.6m)	Reamer NQ	〃	2 pcs.

1-1-3 Drilling work

1. Configuration of work

The work time is 8 hours/shift. The construction and withdrawal work is one shift/day. For the heading work, both 2 shifts/day and 3 shifts/day were used together.

The heading work system consists of 6 groups and one group is made up of 6 persons (one Japanese engineer and five local laborers).

2. Construction work

Two sets of machinery transported from Japan have been stored in gher No. 2 and other places in the on-site camp since the end of the first survey year. The donated machinery has been left packed in the camp. Each piece of the machinery was transported 1 to 4 km by two 5-ton trucks and one crane truck to the drilling site which had been leveled in advance and assembled there.

3. Withdrawal work

The disassembled machinery was transported to the camp by vehicles by reversing the construction work procedure and stored in gher No. 3 and other places. Then, we requested two neighboring nomad families to move into the camp and have the disassembled machinery in their custody.

4. Drilling water

Drilling water was transported from a river 21 km away from the camp to each drilling site by two 6 ton tank cars. Since the river was flowing low and the tank car pump did not have sufficient capacity, it took four hours to get there and back.

Incidentally, domestic water is transported by a tank car from a well of the nomads 6 km away from the camp.

5. Drilling work

The drilling process in each hole and the achievements of drilling are shown in Table II-1-4 (1) (2) (at the end of the book) and Table II-1-5 (1)-(4) (at the end of the book), respectively.

NQ size drilling was carried out in each hole, but BQ size is also used in some holes. Casing pipes with a diameter of 114.3 mm and 88.3 mm were inserted 0 to 4 m and 2 m to 6 m from the opening, respectively.

Also, mud such as bentonite, telcelose, polymer, and ribonite was used to protect the hole wall of a fracture zone, a development zone of weathering cracks, an argillic alteration zone, etc. and to control the specific gravity of drilling water.

The core recovery factor was almost 100% except near the opening.

1-2 Geology around drilling area

As shown in the drilling location map in Figs. II-1-1 (1) and (2), the MJMT-3, 4, 5, 9, and 10 implementation areas belong to the detailed geological survey area II shown in Fig. I-1-3, and the drilling survey area is geologically composed of granodiorite for the most part. In the southwestern area psammitic gneiss and crystalline limestone are partially distributed. Also, Veins Nos. 1, 2, 3, 3', 6 , etc. are distributed. The MJMT-6, 7, and 8 implementation areas belong to the detailed geological survey area I and are composed of diorite, granodiorite, and psammitic gneiss accompanied by a lot of irregular small dikes of adamellite. Veins Nos. 9 and 10 are distributed.

1-3 Survey result

1-3-1 Geology in holes

The geology of each hole is summarized below. The geologic columnar diagram of each hole shown in Figs. II-1-2 to 9 (at the end of the book) and the geologic profile is shown in Fig. II-1-10 to 15.

1. MJMT-3

Exploration of No. 1 vein: Geologically, this point is all composed of two mica granodiorite except a quartz vein. First the petrography is given and quartz veins are described in summary. The same applies to the following holes

2.6～ 12.5 m: Brown cracks contaminated by iron oxide develop and crushed cores are collected.

12.5 ～ 30.5 m: Brown cracks decrease.

30.5 ～ 100.5 m: There are few brown cracks. Granodiorite is holocrystalline of medium to coarse grain, light gray and is composed mainly of quartz and plagioclase accompanied by muscovite and biotite. Alteration is hardly observed except that accompanied by a quartz vein.

85.5 ～ 86.65 m: Intersection of Vein No. 1 is observed . The vein intersection length is 85 cm (= true width). It is dark gray. At the depths of 86.35 to 86.40 m (5 cm) near the central area, galena, chalcopyrite, coveline, etc. as well as a lot of natural gold are arranged in the form of a band. The chemical analysis result described later revealed that the Au grade tends to be high in the central area and to become low toward the edges of the vein. Also, 20 cm wide (85.60 to 85.80 m) and 45 cm wide (86.65 to 87.10 m) argillic alteration zones are observed before and after the vein.

In addition, two quartz veinlets (1.5 cm and 6 cm wide) are observed.

Analysis results

	Au(g/t)	Au(g/t)(*)
Vein No. 1: 85.8 to 86.65 m (average of 8 samples with a true width of 85cm)	143.8	148.7
(Maximum value)	1910.0	1373.0
(Minimum value)	<0.1	1.2
Average of outcrops on the surface (Estimated vein width: 21cm)	18.2	-

(*) Analytical value obtained at the Central Geological Laboratory in Ulaanbaatar. The same applies to the following pages.

2. MJMT-4

In this hole a lower part exploration of Vein No. 1 hit at MJMT-3 is conducted. This point is geologically composed of two mica granodiorite.

The microscopic observation shows a medium and uniform grain structure which is mainly composed of quartz, potassium feldspar, and plagioclase accompanied by a small amount of biotite and muscovite. The mineral combination shows adamellite (quartz monzonite). A large part of slightly altered biotite began to decompose into sericite and other minerals.

2.0 ~ 13.4 m: Brown cracks contaminated by iron oxide develop and crushed cores are collected.
13.4 ~ 38.3 m: Relatively fresh.
38.3 ~ 67.8 m: A weak compositional banding similar to a gneissose structure is observed.
67.8 ~ 103.8 m: Relatively fresh.
103.8 ~ 135.8 m: Brown cracks develop remarkably once again and crushed cores are collected.
114.0 ~ 114.1 m(10 cm) and 126.5 to 127.4 m (90 cm): A fault breccia zone exists.
135.8 ~ 141.7 m: Relatively fresh. A compositional banding similar to the above is observed.
106.8 ~ 107.01m: Intersection of Vein No. 1 is observed. Ore intersection length of 21 cm (= true width). The quartz vein area is fractured by a strike fault and is composed of fragments of a quartz vein, fine-grained host rock, and clay. Fragments of a quartz vein account for 60 to 70% of the whole. The whole rocks are oxidized and look light brown. Before and after the quartz vein 3 cm wide (106.77 to 106.80 m) and 4 cm wide (107.01 to 107.05 m) gray clay is observed. (See the sketch of the columnar diagram.)

Through all the depths, about ten 1 to 2 cm wide quartz veins are observed.

Analysis result

	Au(g/t)
No.1 vein:106.8 to 107.01 m (average of 3 samples with a true width of 21cm)	6.4
(Maximum value)	41.5
(Minimum value)	0.4
Average of outcrops(Estimated vein width: 21cm)	24.1

3. MJMT-5

Exploration of Vein No. 1 . Geologically, this point is all composed of two mica granodiorite except a quartz vein.

0.0 ～ 59.0 m: Relatively fresh. Brown cracks develop locally.

59.0 ～ 73.3 m: Brown cracks develop ubiquitously.

73.3 ～ 79.6 m: Brown cracks develop remarkably and a weak argillic alteration is observed on the whole. Crushed cores are collected. A quartz vein described later exists in this section.

79.6 ～ 100.7 m: Relatively fresh.

78.32 ～ 78.55 m: Intersection of Vein No. 1 is observed. The ore intersection length is 23 cm (= true width). It is dark gray. Four grains of natural gold and a trace of chalcopyrite are observed. A host rock underwent a strong argillization at a width of 8 cm (78.24 to 78.32 m) before ore intersection.

Through all the depths, about ten 1 to 2 cm wide quartz veins are observed in four places.

Analysis result

	Au(g/t)	Au(g/t)(*)
No. 1 vein: 78.32 to 78.55 (average of 2 samples with a true width of 23cm)	8.2	14.1
Average of outcrops(Estimated vein width: 50cm)	42.7	-

4. MJMT-6

Exploration of Veins Nos. 10 and 10 W (west). Psammitic gneiss is distributed at this point. adamellite frequently intrude neighboring rocks in the form of irregular dike or stock.

5.2 ～ 37.9 m: Consists of psammitic gneiss and adamellite in the form of alternated strata like at intervals of 2 to 5 m. The former is of medium grain and leucocratic, composed of metamorphic minerals such as a large amount of biotite and a small amount of garnet as well as quartz and plagioclase. The compositional banding is remarkable. The latter is of medium grain and light gray, composed of quartz, plagioclase, and potassium feldspar accompanied by a small amount of biotite.

37.9 ~ 44.2 m: Adamellite.
44.53 ~ 91.7 m: Adamellite. It is considered to be a stock.
91.7 ~100.7 m: Consists of psammitic gneiss and adamellite.

In addition to these rocks, part of psammitic gneiss is accompanied by basic gneiss. It is mostly composed of amphibole and considered to originate from basic tuff. It is accompanied by a compositional banding.

The microscopic observation shows gneiss originated from the basic igneous rock, indicating a gneissose structure. Usually, it is mainly composed of amphibole and plagioclase accompanied by a medium amount of iron ore, a small amount of biotite, quartz and apatite. The degree of alteration is slightly high, and biotite and plagioclase are almost altered.

Also, a relatively large amount of maximum 2.5 m wide pegmatite dikes is observed. This rock is composed of huge quartz, plagioclase, and potassium feldspar.

44.2 ~ 44.53 m: Intersection of Vein No. 10W is observed. The ore intersection length is 33 cm (true width of 26 cm). It is light grayish white. Natural gold, sulfide mineral, argillic alteration are not observed.

75.95 ~ 76.55 m: Intersection of Vein No. 10 is observed. The ore intersection length is 60 cm (true width of 47 cm). It is light gray. Although natural gold is not observed, a trace of galena and chalcopyrite is observed near a depth of 76.25 m in the central area and the Au grade is higher than in other places. Gray clay of 2 cm wide is observed before and after each vein.

Throughout the depths, only four quartz veinlets are observed.

Analysis results

	Au(g/t)	Au(g/t)(*)
Vein No.1 10 W: 44.2 to 45.53m (Average of 2 samples with a true width of 26cm)	0.2	0.2
Vein No.1 10 : 77.95 to 76.55m (Average of 5 samples with a true width of 47cm)	4.5	52.1
(Maximum value)	29.1	395
(Minimum value)	0.3	
Average of outcrops	18.2	-

5. MJMT-7

This hole is for exploring a lower part of Veins No.10 and 10 W hit at MJMT-6.

5.0 ~ 16.0 m: Mainly consists of basic gneiss accompanied by adamellite and psammitic gneiss.

16.0 ~ 47.2 m: Mainly consists of adamellite.

47.2 ~ 81.3 m: Mainly consists of psammitic gneiss. A large part of psammitic gneiss in this section has a fine to coarse grain and takes its origin from turbidite indicating a graded bedding. The microscopic observation reveals that this section is composed of quartz and plagioclase accompanied by a small amount of muscovite and a trace of biotite, opaque minerals, and sphene. Muscovite has partially a compositional banding. Plagioclase is all altered into sericite and clay mineral and biotite is altered into chlorite.

81.3 ~ 160.7 m: Mainly consists of psammitic gneiss and adamellite accompanied by basic gneiss.

58.25 ~ 58.30 m: Intersection of Vein No. 10 W is observed. The ore intersection length is 5 cm (= true width).

58.90 ~ 58.95 m: The same as above. It is thought to be a branch of No. 10 W.

99.27 ~ 100.0 m: Intersection of Vein No. 10 is observed. The ore intersection length is 73 cm (true width of 55 cm). It is light grayish white. Although natural gold is not observed, extremely fine-grain galena is scattered.

Throughout all depths, only seven quartz veinlets are observed. Also, segregated quartz veins are often observed in psammitic gneiss and its maximum width is 20 cm.

Analysis results

	Au(g/t)	Au(g/t)(*)
Vein No.1 10 W: (Average of 2 samples with a true width of 5cm)	5.3	-
Vein No.1 10 : 99.27 to 100.0m (Average of 6 samples with a true width of 55cm)	0.8	207
(Maximum value)	4.4	14.5
(Minimum value)	<0.1	<0.1
Average of outcrops(Estimated vein width: 50cm)	18.2	-

6. MJMT-8

Exploration of Vein No. 10 .

0.5 ~ 68.5 m: Mainly consists of psammitic gneiss and adamellite relatively often accompanied by pegmatite with a maximum width of 1.5 m. The microscopic observation reveals that psammitic gneiss may be composed of arkosie psammite and has a gneissiose structure. It is mainly composed of quartz, potassium feldspar, and plagioclase accompanied by a small amount of garnet, biotite, and muscovite.

68.5 ~ 74.1 m: Pelitie gneiss. This rock is not observed at ground surface in the neighborhood. It is dark gray to black and accompanied by a lot of grayish white segregated quartz veins and has a black and white compositional banding.

74.1~ 92.4 m: Consists of amphibolite and adamellite. Both of them are occurred alternately forming a 1 m to 5 m wide dike. The microscopic observation reveals that amphibolite has a schistose structure and is composed of a large amount of amphibole (70 to 80%) and a medium amount of plagioclase and opaque minerals accompanied by a small amount or a trace of biotite, quartz, sphene, etc. Plagioclase and biotite are altered.

92.4 ~ 118.8 m: Consists mainly amphibolite dike accompanied psammitic gneiss, pegmatite, and adamellite.

91.65~ 91.68 m: Intersection of Vein No.10 is observed. The ore intersection length is 3 cm (= true width).

Throughout all depths, there are only two veins except Vein No. 10 observing quartz veinlets .

Since the Vein No. 10 in this hole is narrow, a project for exploring this lower part extension was given up.

Analysis results

	Au(g/t)	Au(g/t)(*)
Vein No.10: 91.65 to 91.68 m(true width of 3 cm)	<0.1	-
Average of outcrop(Estimated vein width: 45 cm)	56.8	-

7. MJMT-9

Exploration of Vein No. 1 . Geologically, this point all consists of two mica granodiorite except the quartz vein.

0.4 ～ 5.3 m: Relatively fresh.

5.3～ 14.8 m: Brown fissures develop remarkably and finely crushed cores are collected.

14.8～ 23.3 m: Development of brown fissures is universal and there are a few cores collected in the form of bar.

23.3 ～ 80.6 m: Fresh rock body.

8.9 ～ 9.2 m: Intersection of a parallel vein of Vein No. 1 is observed. The ore intersection length is 30 cm (true width of 27 cm).

11.5 ～ 11. 7 m: Intersection of a parallel vein of Vein No. 1 is observed. The ore intersection length is 20 cm (true width of 18 cm)

13.85 ～ 14.08 m: Intersection of a parallel vein of Vein No. 1 is observed. The ore intersection length is 23 cm (true width of 20 cm). These three veins are located in a section where fissures develop and finely crushed cores are collected in each of them. The reliability of an ore intersection length is low. Each vein is grayish white. Also, an approx. 5 cm wide continuous vein of 4 to 5 m is observed on the extension surface of these veins.

30.2 ～ 30.83 m: Intersection of Vein No. 1 is observed. The ore intersection length is 63 cm (true width of 58 cm). It is grayish white. The host rock is strongly altered and argillized in a section of 35 cm before the ore intersection. The host rock is also strongly argillized in a section of 2 cm after the ore intersection.

Throughout all depths, there is only one quartz veinlet other than the above. In addition to these veins, four 1 to 2 cm clay veins are observed independently of the quartz veins.

Analysis results

	Au(g/t)	Au(g/t)(*)
Parallel vein of Vein No.1: 8.9 to 9.2m(true width of 27cm)	1.3	-
Parallel vein of Vein No.1: 11.5 to 11.7m(true width of 18cm)	0.9	-
Parallel vein of Vein No.1: 13.85 to 14.08(true width of 20cm)	1.1	-
Vein No.1: 30.2 to 30.83 m(true width of 58cm)	<0.1	0.3
Outcrop(The vein width and grade are unknown.)	-	-

8. MJMT-10

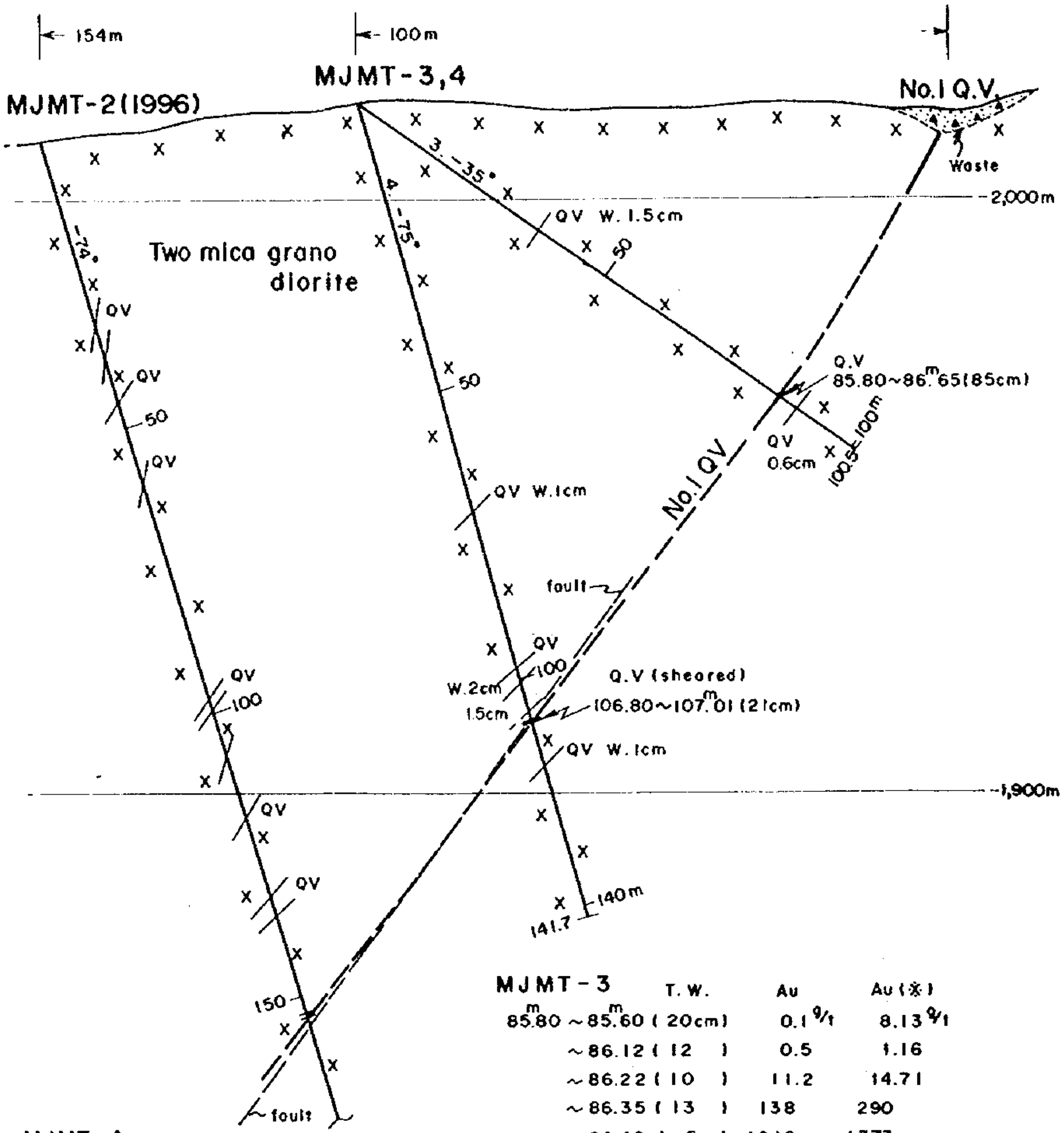
Exploration of Veins No. 2 and 2W(branch vein of No.2). Geologically, this point consists of two mica granodiorite except quartz veins.

0.0 ~ 31.0 m: Brown fissures develop universally.
31.1 ~ 42.8 m: This section has hardly any brown fissures and is relatively fresh.
42.8 ~ 67.0 m: Brown fissures develop universally.
67.0 ~ 76.0 m: This section has a few brown fissures and is relatively fresh.
76.0 ~100.6 m: Brown fissures develop universally.
60.0 ~ 60.52 m: Intersection of Vein No. 2W. The ore intersection length is 52 cm (= true width). Although it looks gray, no mineralization is observed.
80.45 ~ 80.70 m: Intersection of Vein No. 2 is observed. The ore intersection length is 25 cm (= true width). Although it looks gray, no mineralization is observed.

Throughout all depths, 10 quartz veinlets are observed except the above. Among them, one veinlet is high-grade as shown below.

Analysis results

	Au(g/t)	Au(g/t)(*)
Parallel vein: 20.75 to 20.775m(true width of 2.5cm)	41.0	-
Vein No.2W: 60.0 to 60.52m (Average of 5 samples of true width of 52cm)	1.6	4.7
(Maximum value)	4.2	18.4
(Minimum value)	<0.1	<0.1
Average of outcrop(Estimated vein width: 10cm)	376.9	-
Vein No.2: 80.45 to 80.70 m (Average of 2 samples of true width of 25cm)	3.1	5.4
(Maximum value)	6.1	10.5
(Minimum value)	0.4	0.7
Average of outcrop(Estimated vein width: 10cm)	0.4	-



MJMT-4

	T.W.	Au
106.80~106.88m	(8cm)	0.8 g/t
~106.98	(10)	0.4
~107.01	(3)	41.5
	21cm	6.4 g/t

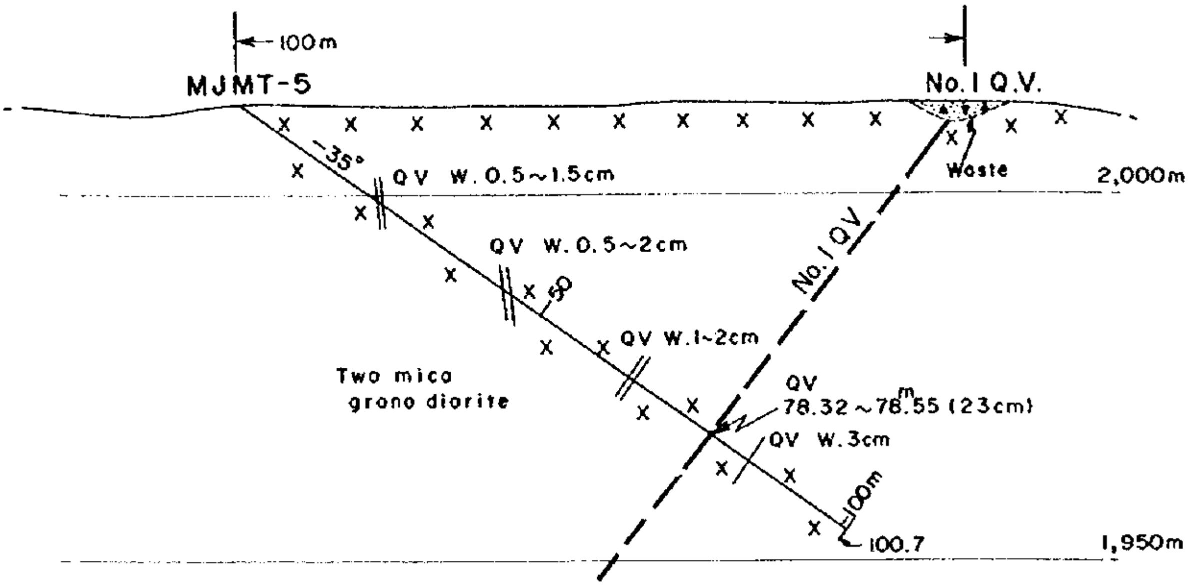
MJMT-3

	T.W.	Au	Au (※)
85.80m ~ 85.60m	(20cm)	0.1 g/t	8.13 g/t
~86.12	(12)	0.5	1.16
~86.22	(10)	11.2	14.71
~86.35	(13)	138	290
~86.40	(5)	1910	1373
~86.48	(8)	1.6	119
~86.55	(7)	123	103
~86.65	(10)	8.2	8.20
	85cm	143.8 g/t	148.7 g/t

(※) assayed in Ulaan baartar

S 1 : 1,000

Fig.II-1-10 Geological profile of MJMT-3,4

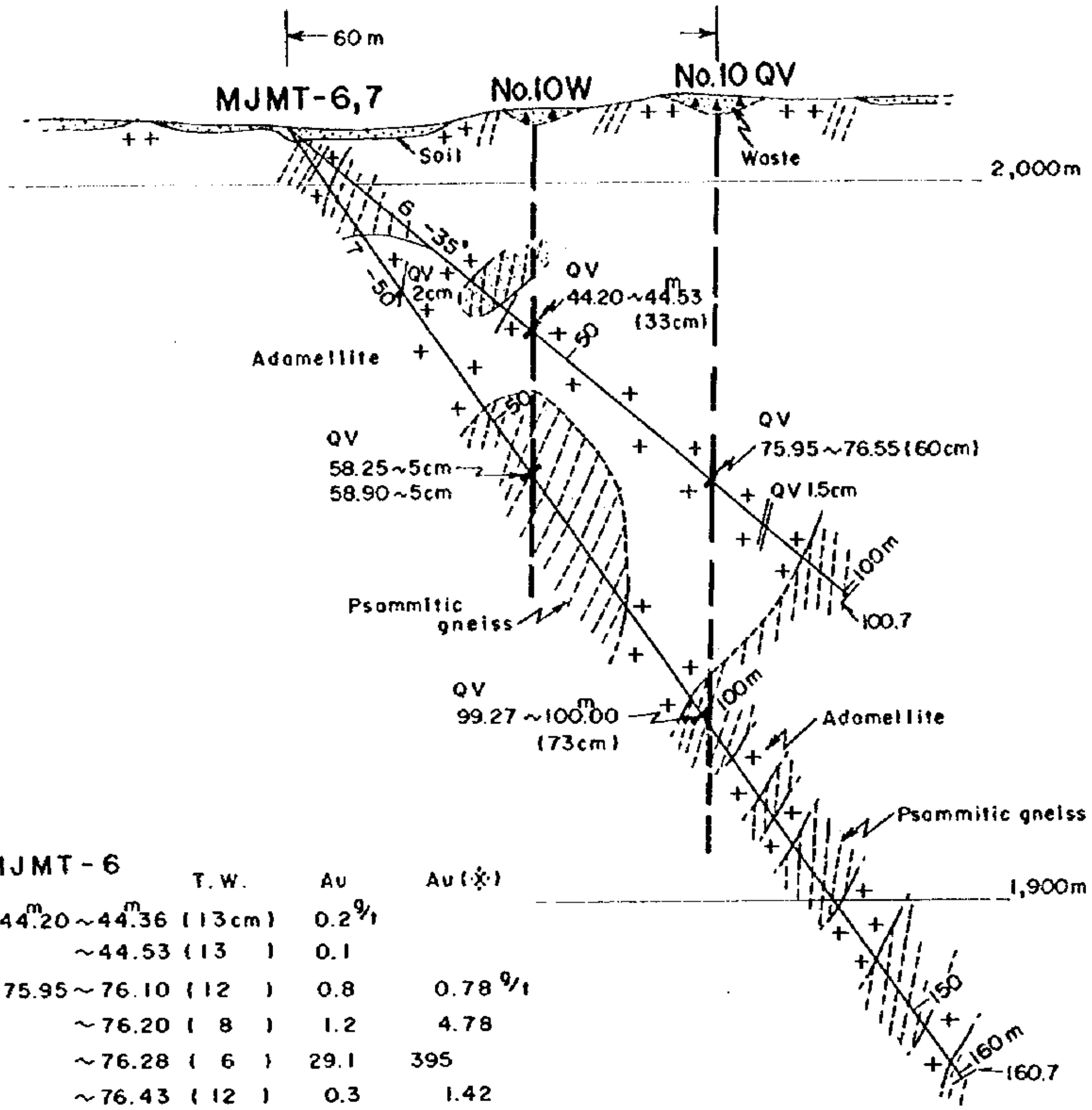


	T.W.	Au	Au(※)
78.32m ~ 78.42m	(10cm)	2.8 g/t	9.79 g/t
~ 78.55	(13)	11.3	17.44
	23cm	8.2 g/t	14.11 g/t

(※) assayed in Ulaan baatar

S 1 : 1,000

Fig. II-1-11 Geological profile of MJMT-5



MJMT-6

		T.W.	Au	Au(※)
No. 10W	44.20 ~ 44.36	(13cm)	0.2 g/t	
	~44.53	(13)	0.1	
No.10 QV	75.95 ~ 76.10	(12)	0.8	0.78 g/t
	~76.20	(8)	1.2	4.78
	~76.28	(6)	29.1	395
	~76.43	(12)	0.3	1.42
	~76.55	(9)	1.4	1.49
		47cm	4.5 g/t	52.09 g/t

(※) assayed in Ulaan baatar

MJMT-7

		T.W.	Au	Au(※)
No. 10W	56.25 56.30	(5cm)	9.5 g/t	
	58.90 58.95	(5)	1.1	
No.10 QV	99.27~99.40	(10)	4.4	14.48 g/t
	~99.49	(7)	0.2	0.1
	~99.64	(11)	<0.1	<0.1
	~99.79	(11)	<0.1	<0.1
	~99.91	(9)	<0.1	<0.1
	~100.00	(7)	<0.1	0.1
		55cm	0.8 g/t	2.66 g/t

S 1 : 1,000

Fig.II-1-12 Geological profile of MJMT-6,7

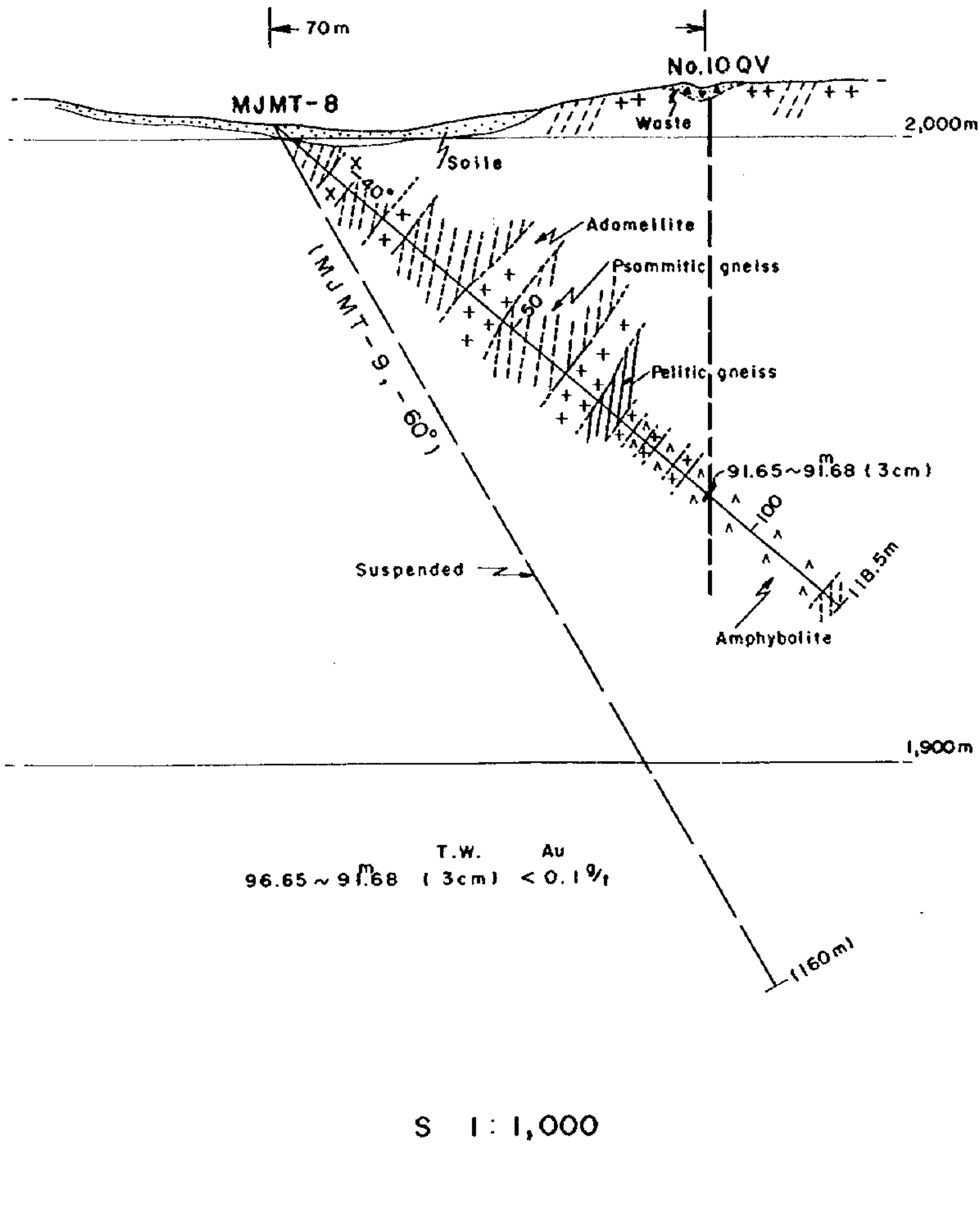
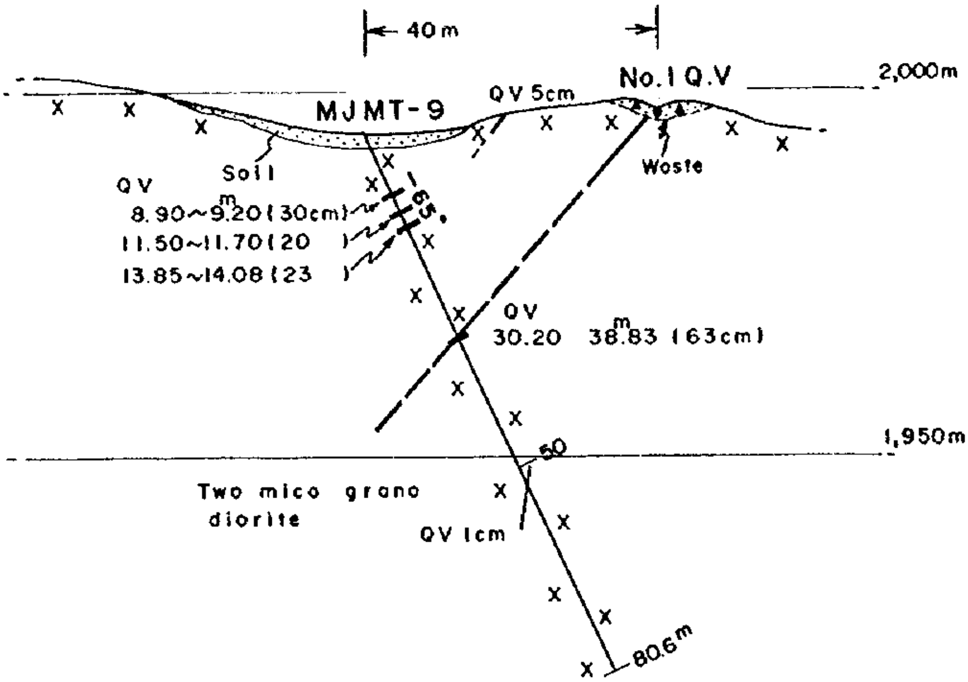


Fig.II-1-13 Geological profile of MJMT-8



	T.W.	Au
8.90~9.00m	(9cm)	1.7g/t
~9.10	(9)	1.5
~9.20	(9)	0.8
	27cm	1.5g/t

	T.W.	Au
11.50~11.60m	(9)	0.9
~11.70	(9)	0.8
	18cm	0.9g/t

	T.W.	Au
13.85~14.00	(13)	1.1
~14.08	(7)	1.0
	20cm	2.1g/t

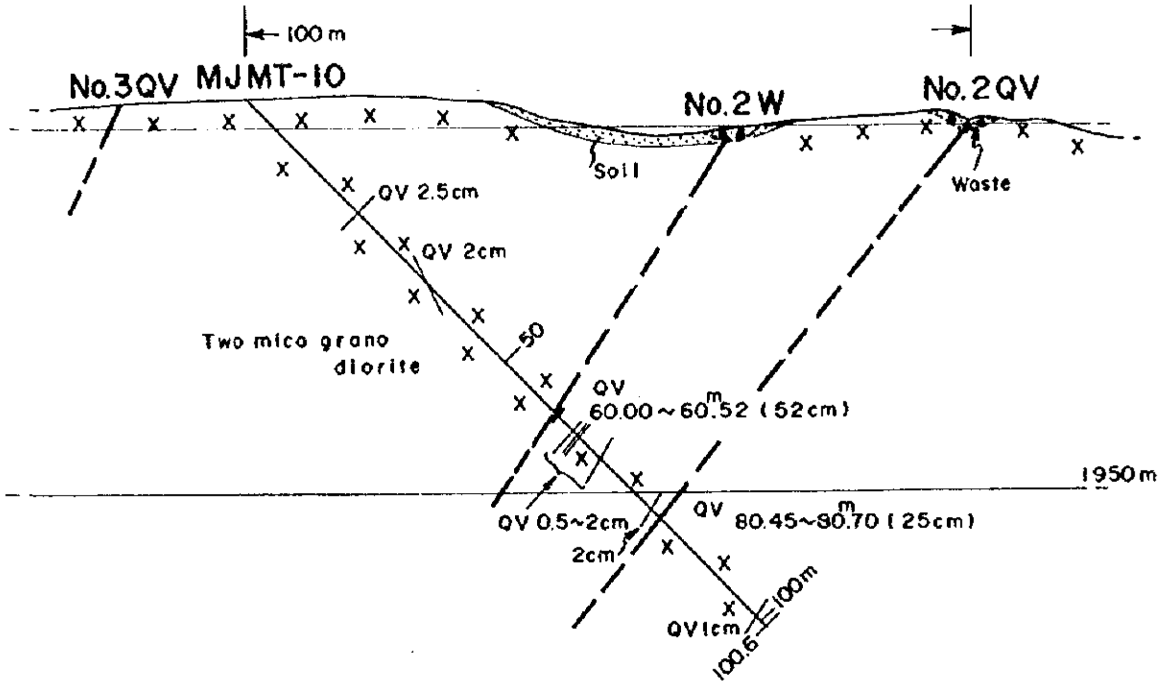
No.1 QV

	T.W.	Au	Au(※)
30.20~30.35m	(13cm)	0.1g/t	<0.1g/t
~30.51	(15)	<0.1	0.14
~30.87	(15)	<0.1	0.11
~30.83	(15)	0.2	1.08
	58cm	<0.1g/t	0.34g/t

(※) assayed in Ulaan baatar

S 1 : 1,000

Fig. II-1-14 Geological profile of MJMT-9



No. 2 W

	T.W	Au	Au(※)
60.00~60.10	(10cm)	0.4 g/t	0.54 g/t
~60.20	(10)	<0.1	0.28
~60.30	(10)	4.2	1.45
~60.40	(10)	3.0	<0.1
~60.52	(12)	0.7	18.44
	52cm	1.6 g/t	4.69 g/t

No. 2 QV

	T.W	Au	Au(※)
80.45~80.57	(12cm)	6.1 g/t	10.45 g/t
~80.70	(13)	0.4	0.65
	25cm	3.1 g/t	5.35 g/t

(※) assayed in Ulaan baatar

S 1 : 1,000

Fig. II-1-15 Geological profile of MJMT-10

1-3-2 Analyses and tests

The analyses and tests on drilling cores were conducted on the following items as shown in Table I-1-2.

*Preparation of thin rock section
*Chemical analysis
*Preparation of polished ore section
*EPMA
*Powder X ray diffraction
*Fluid inclusion homogenization temperature and salinity concentration measurement

The details are shown in Table II-1-6. The result on each item is described below.

1. Preparation of thin rock section

The analysis results of 10 thin sections are shown in Table II-1-7. The results are omitted because they have been already described in the section of "geology in the hole." However, since there is a possibility that Vein No. 5 on which thin sections were not prepared in the first survey year and many small dikes (the rock name in the first survey year is felsic rock) arranged parallel and intermittently may consist of silicified rocks, the preparation of thin sections was added. The results
(Sample No. 10) were described below.

The thin sections were aphyric rhyolite containing a trace of small idiomorphic plagioclase as phenocryst. Plagioclase phenocryst isalinityered into sericite and albite. The groundmass consists of a micro aggregate of quartz, sericite, and feldspar. Feldspar isalinityered. The "felsic rock" is also adopted as its rock name in the present survey year.

2. Chemical analysis

We carried out an analysis on 82 samples including quartz veins hit at each hole and their accompanying altered clay to survey the existence of Au, Ag, As, and Sb. The correlation of these four elements was confirmed in the first survey year. The Central Geological Laboratory in Ulaanbaatar also made an analysis on Au in the major vein. The said laboratory used the atomic absorption analysis and made a reanalysis on samples containing 20 g/t or more by the dry method.

The analysis results are shown in Table II-1-8. The grade of the major vein, altered clay, etc. is as shown below.

Hole No.	Vein No.	Depth	True Width	Au (ppm)			Ag (ppm)	As (ppm)	Sb (ppm)	Au(*) (ppm)		
		(m)	(cm)	max.	min.	avg.	avg.	avg.	avg.	max.	min.	avg.
MJMT-3	1	85.80-	85	1,910	<0.1	143.8	16.6	29	57	1373	1.2	148.7
	clay	86.65-	5	-	-	8.2	1.1	361	22	-	-	-
	clay	86.70-	20			5.6	1.1	456	5	-	-	-
MJMT-4	1	106.80-	21	41.5	0.4	6.4	1.3	155	4	-	-	-
	clay	106.7-	3			3.9	0.8	188	3	-	-	-
	clay	107.1-	4			0.9	0.7	271	2	-	-	-
MJMT-5	1	78.32-	23	11.3	2.8	8.2	4.0	28	<1	9.8	17.4	14.1
MJMT-6	10W	44.20-	26	0.2	0.1	0.2	0.7	17	<1	0.1	0.2	0.2
	10	75.95-	47	29.1	0.3	4.5	1.7	10	6	395	0.8	52.1
MJMT-7	10W	58.25-	10	9.5	1.1	5.3	3.4	292	12	-	-	-
	10	99.27-	55	4.4	<0.1	0.8	2.6	23	5	14.5	<0.1	2.7
MJMT-8	10	91.65-	3			<0.1	0.4	<1	<1	-	-	-
MJMT-9	10	30.20-	58	0.2	<0.1	<0.1	0.9	20	3	1.1	<0.1	0.3
MJMT-10	2W	60.00-	52	4.2	<0.1	1.6	1.0	18	<1	18.4	<0.1	4.7
	2	80.45-	25	6.1	0.4	3.1	1.1	7	<1	10.5	0.7	5.4

Au(*): Assayed in Ulaanbaatar

In addition to these veins, 1 to 2 cm wide quartz veinlets may also contain 6 to 41 g/t of Au. The ratio of Ag/Au in samples containing 5 g/t or more of Au is almost 1/6 (1/5 in the field sample of the first survey year). As and Sb are related to mineralization. As tends to concentrate in altered clay at the edges of the vein and Sb has correlation with Au.

4. Ore polished section

We prepared 10 polished sections for all the ore minerals (MJMT-3, 5 = Vein No. 1 , MJMT-6, 7 = Vein No. 10) visible to the naked eye. The results of microscopic observation are shown in Table II-1-9.

Ore minerals are composed of natural gold, chalcopyrite, galena, sphalerite, pyrite, tetrahedrite, covelline, chalcocite, and unknown minerals 1, 2, 3, 4, and 5.

Natural gold has an irregular form and its size is 0.001 mm or less to maximum 0.4 x 0.5 mm, usually 0.03 to 0.1 mm. Natural gold is most frequently occurred singly in quartz veins, often forming a coexists with unknown minerals 1, 4, and 5.

Chalcopyrite and galena often exist paragenetically and they may be accompanied by tetrahedrite, sphalerite, and secondary minerals such as covelline and chalcocite. Natural gold exists near these minerals (within several centimeters to several tens of centimeters by observation with the naked eye).

Unknown mineral 1 is white and bright, slightly tinged with blue. Seemingly, it is similar to galena.

Unknown mineral 2 is light gray.

Unknown mineral 3 is cream-colored.
Unknown mineral 4 is pink · violet · gray.
Unknown mineral 5 is gray and similar to sphalerite.

These minerals are occurred singly. In some cases two or three types of these minerals also exist paragenetically or form a coexistence with natural gold. They may be accompanied by covelline.

5. EPMA

11 points selected from ore polished sections were conducted plain analysis. These analytical conditions and image maps are shown at the end of the report respectively. The general analytical conditions are as follows.

Accelerating voltage	:	25.0 KV
Probe current	:	2×10^{-7}A
Pixel size	:	3μm
Dwell time	:	25.0 m sec
Analytical elements	:	Au, Ag, Cu, S, Fe, Zn, Sb, As, Pb, Bi, Te

The outline of the result is as follows.

1) Ore minerals : electrum, galena, sphalerite, tetrahedrite, chalcocite, altaite (inclued in electrum), pyrite, zinkenite, tetrahedrite-tennantite and follow 2) minerals.

2) Five kinds of unknown mineral mentioned above are estimated to:
   a) Chalocite and another cupper oxide.
   b) Lead-Antimony oxide contained small amount of silver.
   c) Tetrahedrite, and in which a part of cupper is substituted by silver.
   d) Assemblage of sphalerite and zinc oxide.
   e) Assemblage of oxide minerals of cupper, lead, antimony and arsenic individual.

6. Powder X ray diffraction

The analysis results are shown in Table II-1-11. The outline of the results is as follows:

An altered mineral of altered clay or altered host rock adjacent to the main quartz veins is sericite and may be sometimes accompanied by a trace of smectite, chlorite, and calcite. Its outer altered clay or altered host rock mainly consists of sericite, often accompanied by smectite and a trace of chlorite and calcite.

A combination of veinlets of altered clay away from a vein is laumontite/calcite, smectite, chlorite/sericite/smectite/calcite, chlorite/sericite, laumontite/calcite/sericite, etc.

Also, some calcite veins cross a quartz vein, and a combination of sericite / smectite / calcite / chlorite is observed in an altered fault breccia zone.

Among these minerals, only a trace or a small amount of chlorite is observed, and there is some possibility that kaoline may exist.

7. **Fluid inclusion homogenization temperature and salinity concentration measurement**

The homogenization temperature of gas-liquid 2 phase fluid inclusion and salinity concentration were measured on total 41 samples of quartz veins, that is, 18 samples of drilling cores, 8 samples of quartz vein outcrops in the drilling direction, and 15 samples of outcrops in each vein where the homogenization temperature was measured in the first survey year.

A microscope heating apparatus TH-600 manufactured by Lincom Inc. was used to make measurements. The homogenization temperature was measured at the final warming rate of 1.0 to 0.1 ℃/minute, and Benzanilide (163℃) and Sodiumnitrate (305 ℃) were used for temperature correction. After an inclusion was cooled down to -60 ℃ with liquid nitrogen to be frozen, the temperature at which it is melted by heating was measured to find a wt% salinity concentration equivalent to NaCl from the analytical curve of a standard sample.

The measurement results are shown in Tables II-1-12 (1) to (7) and the table supplemented by sampling positions and gold grade are shown in Tables II-1-13 (1) to (3).

1) Homogenization temperature measurement

A measurement was made on 20 inclusions per sample. The inclusions vary in size up to 30.0 mμ. Most of them have a size of 2.5 to 10.0 mμ. There are 8 samples in which boiling can be anticipated. In most cases, the ratio of gas phase to liquid phase is 2 to 5%.

The histogram of the measurement results indicates a normal distribution or similar form.

An average of the homogenization temperature of each inclusion is within a range between 112.5 and 168.9℃, and there is an exception where the average is 254.0℃ . The highest frequency section is 140 to 150 ℃ (10 samples). No correlation is confirmed between sample recovery depth (outcrop sample and core sample) and homogenization temperature.

The homogenization temperature in the central part (Au 1910 g/t) of a high-grade vein (Vein No. 1, ore intersection length of 85 cm) at MJMT-3 is 125.8 ℃, that in the center and in the middle part of the edges of the vein (Au 11.2 g/t) is 153.1 ℃, and that at the edges of the vein (Au <0.1 g/t) is 157.9 ℃. The similar phenomenon can be also observed at MJMT-6 (Vein No. 10). The average in the center of the vein (Au 29.1 g/t) is 125.6 ℃, and that at the edges of the vein on both sides (Au 0.8 g/t) (Au 1.4 g/t) is

127.3 ℃ and 164.4 ℃ respectively.

As mentioned above, there is a difference of 20 to 30 ℃ in the homogenization temperature even in one cross section of the vein.

As for the relationship between homogenization temperature and gold content, the homogenization temperature of three samples out of four measured samples indicating 10 g/t or more is 125 to 130 ℃ and that of the other sample is 153.1 ℃. That of four samples indicating 1 to 10 g/t is within a range of 129 to 164 ℃. That of 18 samples indicating 1 g/t or less ranges from 112 to 164 ℃ (that of one sample is 254 ℃).

The homogenization temperature of 8 samples (6 in outcrop and 2 in MJMT-1 core) where boiling is assumed ranges from 143 to 164 ℃ (that of one sample is 124 ℃). The boiling is overwhelmingly remarkable in the outcrop samples.

Two samples of core (No. 10 and 10W veins) were collected 150 and 240 m each below the surface and they are the deepest cores. It follows from the above that the boiling was observed at the point of both extremities in terms of depth.

2) Measurement of salinity concentration

The salinity concentration is within a range of 0.03 to 11.55 wt% and the measurement results correlate with the homogenization temperature. In particular, it is 0.22% in the central part (Au 1910 g/t, 125.8 ℃) of the Vein No. 1 at the above-mentioned MJMT-3, 9.70% in the central part and the middle part of the edges of the vein (Au 11.2 g/t, 153.1 ℃), and 11.55% at the edges of the vein (Au <0.1 g/t, 157.9 ℃). Like the homogenization temperature, the salinity concentration greatly fluctuates even in one cross section.

The correlation of the above-mentioned salinity concentration, homogenization temperature, and gold grade is show in Fig. II -1-16.

There is a fluid inclusion in the assumed segregated quartz vein in psammitic gneiss and its homogenization temperature is 164.0 ℃ and the salinity concentration is 10.36%.

1-4 Consideration

The fluid inclusion test results, gold grade, and clay mineral are summarized in Tables II-1-14 (1) to (3).

a) It is assumed that altered clay minerals are zoned in terms of quartz vein as follows:

(1) Sericite zone, (2) Sericite/smectite/(chlorite) zone,

(3) Laumontite/smectite/calcite/(chlorite) zone. However, the zone (3) is a clay vein apart from a vein and there is a possibility that it is posterior to the mineralization.

Also, judging from the existence of altered granodiorite apart from a vein, sericitization found in an alteration fault zone, and calcite vein crossing a quartz vein, it is assumed that an alteration is repeated several times on the whole.

b) The homogenization temperature is lower than a value of an epithermal deposit (180 to 240 ℃), and only that of 254 ℃ in one sample is equivalent to a value of a mesothermal deposit. Supposing that rocks are generated at a depth of 2,000 m below the surface of the earth, the correction value is 30 ℃ although a pressure correction is made.

(c) In an example where there is a correlation among the salinity concentration, homogenization temperature, and gold grade, the temperature and salinity concentration sharply decrease due to infiltration of circulating subsurface water in a process where the high-temperature and high-salinity concentration liquid rises and quartz, sulfide mineral, gold, etc. started crystallizing out. It is thought that the optimum homogenization temperature and salinity concentration for precipitation of gold are 125 to 130 ℃ and 0.1 to 1.0 wt%, respectively.

However, since four samples (MJMT-9 Vein No. 1 , MJMT-7 Vein No. 10 W , MJMT-6 Vein No. 10 , and Vein No. 10 outcrop) contain 1 g/t or less of Au even under the same conditions as the above, these values do not seem to be the absolute condition.

d) It is assumed that a high-temperature hydrothermal process affected the generation of the segregated quartz vein under the high-pressure environment.

Table II-1-6 Sample List of Laboratory Test

Chemical analysis

smpl No.	hole No. and depth(m)	width (cm)	rock name	remark
	MJMT-3			
A 1	85.60- 85.70	10	clay	brw-gry
A 2	- 85.80	10	〃	〃
A 3	- 86.00	20	Q.V.	No.1V.Gn
A 4	- 86.12	12	〃	〃 Gn
A 5	- 86.22	10	〃	〃 Gn
A 6	- 86.35	13	〃	〃Au,gn
A 7	- 86.40	5	〃	〃Au,gn,Cp
A 8	- 86.48	8	〃	〃
A 9	- 86.55	7	〃	〃Au,gn
A10	- 86.65	10	〃	〃
A11	- 86.70	5	clay	gry-brw
A12	- 86.90	20	〃	〃
A13	89.04- 89.10	6	Q.V.	
	MJMT-4			
A14	98.50- 98.515	1.5	Q.V.	
A15	105.90-105.913	1.2	〃	
A16	106.80-106.83	3	clay	gry
A17	106.80-106.88	8	Q+cly	Q.V.shered
A18	-106.98	10	〃	〃
A19	-107.01	3	Q.V.	〃fragment
A20	-107.05	4	clay	dark gry
A21	107.60-107.63	3	Q.V.	whtish
	MJMT-5			
A22	44.90- 44.925	2.5	Q.V.	
A23	65.80- 65.82	2	〃	
A24	78.32- 78.40	8	〃	No.1V.
A25	- 78.55	15	〃	〃 Au,(Cp)
A26	85.40- 85.43	3	〃	whtish
	MJMT-6			
A27	44.20- 44.36	16	Q.V.	No.10W V.
A28	- 44.53	17	〃	〃 whtish
A29	49.65- 49.67	2	〃	
A30	75.95- 76.10	15	〃	No.10 V.
A31	- 76.20	10	〃	〃 whtish
A32	- 76.28	8	〃	〃 Cp,Gn
A33	- 76.43	15	〃	〃 whtish
A34	- 76.55	12	〃	〃 〃
A35	84.70- 84.715	1.5	〃	
	MJMT-7			
A36	45.80-45.82	2	Q.V.	
A37	58.25-58.30	5	〃	
A38	58.90-58.95	5	〃	
A39	70.30-70.35	5	〃	
A40	70.60-70.72	12	〃	sgrg. Q.V.
A41	78.15-78.23	8	〃	〃
A42	-78.35	12	〃	〃
A43	90.00-90.04	4	〃	〃
A44	99.27-99.40	13	〃	No.10 V.wht
A45	-99.49	9	〃	〃
A46	-99.64	15	〃	〃
A47	-99.79	15	〃	〃
	MJMT-7			
A48	99.79- 99.91	12	Q.V.	No.10 V.
A49	-100.00	9	〃	〃
A50	157.70-157.78	8	〃	sgrg.Q.
A51	159.00-159.13	13	〃	〃
	MJMT-8			
A52	91.65- 91.68	3	Q.V.	No.10V.
	MJMT-9			
A53	8.90- 9.00	10	Q.V.	gry
A54	- 9.10	10	〃	〃
A55	- 9.20	10	〃	〃
A56	11.50- 11.60	10	〃	〃
A57	- 11.70	10	〃	〃
A58	13.85- 14.00	15	〃	〃
A59	- 14.08	8	〃	〃
A60	30.20- 30.35	15	〃	No.1V.
A61	- 30.51	16	〃	〃
A62	- 30.67	16	〃	〃
A63	- 30.83	16	〃	〃
	MJMT-10			
A64	20.75- 20.775	2.5	Q.V.	
A65	34.00- 34.02	2	〃	
A66	60.00- 60.10	10	〃	No.2W V.
A67	- 60.20	10	〃	〃
A68	- 60.30	10	〃	〃
A69	- 60.40	10	〃	〃
A70	- 60.52	12	〃	〃
A71	68.35- 68.37	2	〃	
A72	77.80- 77.82	2	〃	
A73	80.45- 80.57	12	〃	No.2V.
A74	- 80.70	13	〃	〃

Samples of fluid inclusion test

smpl No.	
I19	outcrop of No.1V. (MJMT-3,4 site)
I20	〃 (MJMT-5 〃)
I21	〃 No.10WV.(MJMT-6,7 〃)
I22	〃 No.10V. (〃)
I23	〃 〃 (MJMT-8 〃)
I24	〃 No.1 V. (MJMT-9 〃)
I25	〃 No.2W V.(MJMT-10 〃)
I26	〃 No.2 V.(〃)

Polish section

smpl No.	hole No. and depth(m)	width (cm)	rock name
	MJMT-3		
P 1	85.80- 85.82	2	Q.V.
P 2	86.22- 86.25	3	〃
P 3	86.35- 86.40	5	〃
P 4	〃	〃	〃
P 5	〃	〃	〃
P 6	〃	〃	〃
P 7	〃	〃	〃
P 8	〃	〃	〃
P 9	〃	〃	〃
	MJMT-5		
P10	78.43-78.46	3	Q.V.
	MJMT-6		
P11	76.20-76.23	3	Q.V.
	MJMT-7		
P12	99.27-99.30	3	Q.V.

E P M A

smpl No.	hole No. and depth(m)	width (cm)	rock name
	MJMT-3		
E 1	85.80-85.82	2	Q.V.
E 2	86.22-86.25	3	〃
E 3	86.35-86.40(2)	5	〃
E 4	〃 〃(3)	〃	〃
E 5	〃 〃(3)	〃	〃
E 6	〃 〃(4)	〃	〃
E 7	〃 〃(5)	〃	〃
E 8	〃 〃(6)	〃	〃
E 9	〃 〃(7)	〃	〃
	MJMT-6		
E10	76.20-76.23	3	Q.V.

X-ray diffraction (2)

smpl No.	remark (O.C.sampl of each vein)	
X40	MJMT-3,4	No.1V.argil-R
X41	〃 -5	〃
X42	〃 -5	〃,cly cut Q.V
X43	〃 -6,7	No.10V.argil-R
X44	〃 -8	No.10V.argil-R & cly cut Q.V.

X-ray diffraction (1)

smpl No.	hole No. and depth(m)	width (cm)	rock name	remark
	MJMT-3			
X 1	85.60- 85.70	10	argil-R	
X 2	- 85.80	10	〃	
X 3	86.65- 86.66	1	〃	
X 4	- 86.70	4	〃	
X 5	- 86.90	20	〃	
X 6	88.98- 88.99	1	cly	brw
	MJMT-4			
X 7	95.50- 95.52	2	cly.	gry
X 8	96.30- 96.40	10	argil-R	
X 9	103.00-103.01	1	〃	
X10	106.40-106.41	1	cly V.	gry
X11	106.77-106.80	3	cly	gry
X12	106.80-106.98	18	cly & Q.	gry
X13	107.01-107.05	4	cly	gry
X14	107.60-107.63	3	Q.,cly.	gry
X15	114.00-114.10	10	falt brc	argil
X16	126.50-127.40	90	〃	〃
	MJMT-5			
X17	76.10- 76.15	5	falt cly	
X18	78.24- 78.32	8	argil-R	
	MJMT-6			
X19	44.19- 44.20	1	argil-R	
X20	75.93- 75.95	2	cly	
X21	76.55- 76.57	2	cly	
X22	96.40- 96.52	12	argil-R	gry
X23	96.52- 96.62	10	〃	〃
	MJMT-7			
X24	9.90- 9.91	1	cly V.	gry
X25	99.26- 99.27	1	cly	〃
X26	100.00-100.03	3	cly V.	gry
X27	135.07-135.10	3	〃	gry
X28	138.70-138.90	20	argil-R	〃
	MJMT-8			
X29	92.90- 92.92	2	cly V.	gry
	MJMT-9			
X30	5.90- 5.92	2	cly V.	
X31	22.05- 22.30	25	falt brc	argil
X32	29.85- 30.20	35	argil-R	brw
X33	30.83- 30.85	2	〃	〃
X34	47.60- 47.61	1	cly V.	gry
X35	62.70- 62.71	1	〃	gry
X36	76.18- 76.20	2	〃	wht
	MJMT-10			
X37	7.45- 7.50	5	argil-R	
X38	59.98- 60.00	2	〃	
X39	80.44- 80.45	1	〃	

Fluid inclusion

smpl No.	hole No. and depth(m)
	MJMT-3
I 1	85.85- 85.87
I 2	86.15- 86.18
I 3	86.35- 86.40
	MJMT-4
I 4	107.60-107.63
	MJMT-5
I 5	65.80- 65.82
I 6	78.44- 78.46
	MJMT-6
I 7	44.35- 44.37
I 8	75.95- 75.97
I 9	76.25- 76.28
I10	76.53- 76.55
	MJMT-7
I11	70.32- 70.35
I12	99.64- 99.66
I13	157.73-157.75
	MJMT-8
I14	91.65- 91.67
	MJMT-9
I15	13.98- 14.00
I16	30.65- 30.67
	MJMT-10
I17	60.24- 60.26
I18	80.55- 80.57
	Outcrop vein
I19	MJMT-3,4 No.1V.
I20	MJMT-5 〃
I21	MJMT-6,7 No.10WV.
I22	〃 No.10V.
I23	MJMT-8 〃
I24	MJMT-9 No.1 V.
I25	MJMT-10 No.2W V.
I26	〃 No.2 V.
I27	960806002 No.5V.
I28	960813038 No.5V.
I29	960826041 No.3V.
I30	960827011 No.1V.
I31	960827019 No.1V.
I32	960830041 No.2V.
I33	960830044 No.2V.
I34	960903064 No.10V
I35	960907008 No.7V.
I36	960901012 No.6V.
I37	960912032 No.9V.
I38	960912062 No.9V.
I39	MJMT-2 152.95m No.1V.
I40	MJMT-1 202.78m No.10V.
I41	MJMT-1 298.84m No.10WV

Thin section

smpl No.	hole No. depth(m)	rock name (determined)
	MJMT-4	
T 1	57.65-	gr-dr
	MJMT-6	
T 2	36.70-	basic gnis
	MJMT-7	
T 3	78.40-	psmtic gnis
T 4	93.80-	admlt
	MJMT-8	
T 5	32.60-	pelitic gnis
T 6	54.00-	psmtic gnis
T 7	55.10-	〃
T 8	91.00-	ampblt
	MJMT-9	
T 9	68.50-	gr-dr
T10	Ground surface	aphyric-rhy parallel to No.5 Q.V.

[Abbreviations] smpl:sample Q.V.:quartz vein wht:white gry:grey brw:brown V.:vein Gn:galena Au:gold Cp:chalcopyryte whtish:whitish W:west sgrg:segregation argil:argillized R:rock cly:clay Q.:quartz falt:fault brc:breccia smpl:sample O.C.:out crop gr-dr:grano diorite gnis:gneiss psmtic:psammitic admlt:adamellite ampblt:amphybolite rhy:rhyolite

Table Ⅱ-1-7 Result of microscopic observation of rock thin section

No.	Drilling No.	Depth (m)	Rock name (determined)	Mineral assemblages Qz	Pl	Kf	Bi	Ms	Ho	Au	Hy	Ol	Cc	Ser	Chl	Ep	Gt	Sph	Apt	Opq	Texture	Alteration
1	MJMT-4	57.65	Bi-Ms adamellite	◎	◎	◎	△	△					·	·	·						medium grain equigranular	—: Argillization
2	MJMT-6	36.70	Basic gneiss	△	◎		△		◎		·		·	·	·				△	○	gneissose	+: Argillization
3	MJMT-7	78.40	Psammitic gneiss	◎	◎	·	△	△					·	·	·			△		△	gneissose	+: Argillization
4	MJMT-7	93.80	Bi adamellite	◎	◎	◎	△													△	coarse grain equigranular	±: Argillization
5	MJMT-8	32.60	Pelitic gneiss	◎	○	○	◎	○						·	·			△			gneissose	—: Argillization
6	MJMT-8	54.00	Psammitic gneiss	◎	◎	○	△	△									△				gneissose	
7	MJMT-8	55.10	Psammitic gneiss	◎	◎	◎	△	△									△				gneissose	
8	MJMT-8	91.00	Amphybolite	△	○		△		◎									△		○	gneissose	—: Argillization
9	MJMT-9	68.50	Ms-Bi adamellite	◎	◎	◎	△	△					·	·	·						medium grain equigranular	—: Argillization
10	ground surface	(*)	Aphyric rhyolite		△															△	glassy	Contact metamorphism ?

(*) distributed parallel to No.5 quartz vein

◎: abundance ○: common △: minor ·: rare +: strong ±: medium —: weak

Bi:biotite Ms:muscovite Qz:quartz Gt:garnet Au:augite Hy:hypersthene Pl:plagioclase Kf:potassium feldspar Ho:hornblende Ol:olivine Cc:calcite
Ser:sericite Chl:chlorite Ep:epidote Sph:sphene Apt:apatite Opq:opaque mineral metam.:metamorphism

Table II-1-8 Result of Chemical Analysis (1)

Hole No.	Objective Vein	Depth (m)	Width (cm)	True W. (cm)	Rock Name	Remark	Chemical Analysis No.	Au (ppm)	Ag (ppm)	As (ppm)	Sb (ppm)	Au UB Lab (ppm)
MJMT-3	No. 1 V.											
		85.60- 85.70	10	10	clay	brw-gry	1	1.5	0.7	526	7	
		- 85.80	10	10	"	"	2	1.0	0.7	780	12	
	No. 1 V.	- 86.00	20	20	Q.V.	cont.Gn	3	< 0.1	0.7	20	6	8.13
	"	- 86.12	12	12	"	" Gn	4	0.5	0.8	13	10	1.16
	"	- 86.22	10	10	"	" Gn	5	11.2	2.9	30	25	14.71
	"	- 86.35	13	13	"	" Au, Gn	6	138	30.0	17	51	290
	"	- 86.40	5	5	"	" Au, Gn, Cp	7	1910	169	191	673	1373
	"	- 86.48	8	8	"		8	1.6	1.0	4	24	119
	"	- 86.55	7	7	"	" Au, Gn	9	123	12.5	19	14	103
	"	- 86.65	10	10	"		10	8.2	2.7	26	7	8.2
		No. 1 V. Total	85	85				143.8	16.6	28.9	57.4	148.7
		86.65- 86.70	5	5	clay	gry-brw	11	8.2	1.1	361	22	
		- 86.90	20	20	"	"	12	5.6	1.1	456	5	
		89.04- 89.10	6	6	Q.V.		13	2.1	0.6	51	2	
MJMT-4	No. 1 V.											
		98.50- 98.515	1.5	1.5	Q.V.		14	0.3	3.0	21	2	
		105.90-105.913	1.3	1.3	"		15	5.9	7.6	74	3	
		106.77-106.80	3	3	clay	gry	16	3.9	0.8	188	3	
	No. 1 V.	106.80-106.88	8	8	Q.V.	Q.V. shored	17	0.8	0.7	273	5	
	"	-106.98	10	10	"	"	18	0.4	0.5	74	3	
	"	-107.01	3	3	"	Q. fragment	19	41.5	5.6	108	2	
		No. 1 V. Total	21	21				6.4	1.3	154.7	3.6	
		-107.05	4	4	clay	d-gry	20	0.9	0.7	271	2	
		107.60-107.63	3	3	Q.V.		21	0.7	0.6	60	2	
MJMT-5	No. 1 V.											
		44.90- 44.925	2.5	2.5	Q.V.		22	<0.1	0.5	7	< 1	
		65.80- 65.82	2	2	"		23	0.3	0.7	10	< 1	
	No. 1 V.	78.32- 78.40	8	8	"		24	2.8	1.8	10	1	9.79
	"	- 78.55	15	15	"	Au, (Cp)	25	11.3	5.2	37	< 1	17.44
		No. 1 V. Total	23	23				8.2	4.0	27.6	< 1	14.11
		85.40- 85.43	3	3	"		26	10.1	7.3	13	1	
MJMT-6	No. 10V.	:										
		44.20- 44.36	16	13	Q.V.	No. 10W V.	27	0.2	0.6	18	< 1	0.13
		- 44.53	17	13	"	"	28	0.1	0.8	15	< 1	0.20
		49.65- 76.67	2	2	"		29	18.5	2.7	22	1	
	No. 10V.	75.95- 76.10	15	12	"		30	0.8	1.3	14	2	0.78
	"	- 76.20	10	8	"		31	1.2	1.2	5	3	4.78
	"	- 76.28	8	6	"	Cp, Gn	32	29.1	5.4	14	33	395
	"	- 76.43	15	12	"		33	0.3	1.1	7	1	1.42
	"	- 76.55	12	9	"		34	1.4	1.2	11	1	1.49
		No. 10V. Total	60	47				4.5	1.7	10.1	5.7	52.09
		84.70- 84.715	1.5	1.5			35	<0.1	0.4	52	5	
MJMT-7	No. 10V.											
		45.80- 45.82	2	2	Q.V.		36	0.1	2.2	2	< 1	
	No. 10WV.	58.25- 58.30	5	5	"	No. 10W V.	37	9.5	5.7	136	21	
	"	58.90- 58.95	5	5	"	"	38	1.1	0.6	448	3	
		NO. 10WV. Total	10	10				5.3	3.4	292.0	12.0	
		70.30- 70.35	5	5	"		39	0.2	0.4	6	< 1	
		70.60- 70.72	12	9	"	segrg.V.	40	<0.1	0.4	8	< 1	
		78.15-78.23	8	6	"	"	41	<0.1	0.3	2	< 1	
		- 78.35	12	9	"	"	42	<0.1	0.3	5	< 1	
		90.00- 90.04	4	4	"	"	43	<0.1	0.4	3	< 1	
	No. 10V.	99.27- 99.40	13	10	"		44	4.4	9.5	29	8	14.48
	"	- 99.49	9	7	"		45	0.2	2.0	107	16	0.1
	"	- 99.64	15	11	"		46	<0.1	1.7	8	2	< 0.1
	"	- 99.79	15	11	"		47	<0.1	0.7	2	1	< 0.1
	"	- 99.91	12	9	"		48	<0.1	0.6	2	1	< 0.1
	"	-100.00	9	7	"		49	<0.1	0.7	11	2	0.1
		No. 10V. Total	73	55				0.8	2.6	22.6	4.5	2.66
		157.70-157.78	8	6	Q.V.	segrg.V.	50	<0.1	0.4	< 1	< 1	
		159.00-159.13	13	10	"	"	51	<0.1	0.5	< 1	< 1	
MJMT-8	No. 10V.											
	No. 10V.	91.65- 91.98	3	3	Q.V.		52	<0.1	0.4	< 1	< 1	
MJMT-9	No. 1 V.											
		8.90- 9.00	10	9	Q.V.	paralel.V.	53	1.7	0.7	70	3	
		- 9.10	10	9	"	"	54	1.5	0.6	56	2	
		- 9.20	10	9	"	"	55	0.8	0.6	54	4	

[Abbreviations] W.:width UB Lab:Ulaanbaatar Laboratory V.:vein Q.V.:Quartz vein brw:brown gry:grey
cont.:contain Gn:galena Cp:chalcopyryte No.10W:No.10west segr.:segregation paralel.:parallel

Table II-1-8 Result of Chemical Analysis (2)

Hole No.	Objective Vein	Depth (m)	Width (cm)	True W. (cm)	Rock Name	Remark	Chemical Analysis No.	Au (ppm)	Ag (ppm)	As (ppm)	Sb (ppm)	Au UB Lab (ppm)
HJMT-9	No. 1 V.											
		11.50- 11.60	10	9	〃	paralel V.	56	0.9	0.6	43	3	
		- 11.70	10	9	Q.V.	〃	57	0.8	0.4	63	3	
		13.85- 14.00	15	13	〃	〃	58	1.1	0.6	36	3	
		- 14.08	8	7	〃	〃	59	1.0	0.6	50	3	
	No. 1 V.	30.20- 30.35	15	13	〃		60	<0.1	0.6	31	2	< 0.1
	〃	- 30.51	16	15	〃		61	<0.1	1.1	17	2	0.14
	〃	- 30.67	16	15	〃		62	<0.1	0.8	12	3	0.11
	〃	- 30.83	16	15	〃		63	0.2	1.0	21	3	1.08
		No. 1 V. Total	63	58				<0.1	0.9	19.9	2.5	0.34
HJMT-10	No. 2 V.											
		20.75- 20.775	2.5	2.5	Q.V.		64	41.0	1.1	30	4	
		34.00- 34.02	2	2	〃		65	<0.1	0.6	4	< 1	
	No. 2W V.	60.00- 60.10	10	10	〃	branch V.	66	0.4	0.6	37	< 1	0.54
	〃	- 60.20	10	10	〃	〃	67	<0.1	0.6	16	< 1	0.28
	〃	- 60.30	10	10	〃	〃	68	4.2	1.4	19	< 1	1.45
	〃	- 60.40	10	10	〃	〃	69	3.0	1.6	11	< 1	< 0.1
	〃	- 60.52	12	12	〃	〃	70	0.7	0.7	8	< 1	18.44
		No. 2W. Total	52	52				1.6	1.0	17.8	< 1	4.69
		68.35- 68.37	2	2	〃		71	6.0	2.3	23	2	
		77.80- 77.82	2	2	〃		72	0.6	0.9	40	2	
	No. 2 V.	80.45- 80.57	12	12	〃		73	6.1	1.1	10	1	10.45
	〃	- 80.70	13	13	〃		74	0.4	1.1	5	< 1	0.65
		No. 2 V. Total	25	25	〃			3.1	1.1	7.4	0.5	5.35
Fluid inclusion samples	No. 1 V.	Out crop sample of HJMT-3,4 site					119	<0.1	1.0	21	3	
	〃	〃 HJMT-5 〃					120	0.5	2.5	10	14	
	No. 10WV.	〃 HJMT-6,7 〃					121	<0.1	1.2	6	2	
	No. 10V.	〃 〃					122	4.9	0.8-	8	2	
	〃	〃 HJMT-8 〃					123	<0.1	0.2	5	1	
	No. 1 V.	〃 HJMT-9 〃					124	0.4	0.2	6	5	
	No. 2WV.	〃 HJMT-10 〃					125	<0.1	<0.1	3	3	
	No. 2V.	〃 〃					126	0.1	0.2	3	2	

(Abbreviations) W.:width UB Lab:Ulaanbaatar Laboratory V.:vein Q.V.:quartz vein brw:brown gry:grey cont.:contain Gn:galena Cp:chalcopyryte No.10W:No.10west segr.:segregation paralel.:parallel

Table Ⅱ-1 9 Result of microscopic observation of polished sections

No.	Hole No.	vein No.	Depth (m)	Mineral assemblages													
				Primary						Secondary							
				Au	Cp	Gn	Sp	Py	Tet	Cc	Cv	Unk1	Unk2	Unk3	Unk4	Unk5	
1	MJMT-3	1	85.80		△	○			△		+						
2	MJMT-3	1	86.22	△	△	○			△		+						
3	MJMT-3	1	86.35(1)	○													
4	MJMT-3	1	86.35(2)	△								○			+		
5	MJMT-3	1	86.35(3)	○							+					○	
6	MJMT-3	1	86.35(4)	△	+	•					+	•	•		•		
7	MJMT-3	1	86.35(5)	+	△							○	+	○	+		
8	MJMT-3	1	86.35(6)	○	△	•				•	+	○			+		
9	MJMT-3	1	86.35(7)	○								△	+				
10	MJMT-5	1	78.43	△	+	△											
11	MJMT-6	10	76.20		○		△	+									
12	MJMT-7	10	99.27		○	△				△	•						

Au:native gold Cp:chalcopyrite Py:pyrite Gn:galena Sp:sphalerite Tet:tetrahedrite Unk:unknown mieral Cv:covelline Cc:chalcocite

• Relative content grade : ○>△>+>•

Presumed minerals by EPMA for above unknown minerals :

Unk1··· chalcocite and another Cu oxide

Unk2··· Pb-Sb oxide contained small amount of silver

Unk3··· tetrahedrite, and in which a part of Cu is substituted by Ag

Unk4··· assemblage of sphalerite and Zn oxide

Unk5··· assemblage of oxide minerals of Cu, Pb, Sb, As individual

Table II-1-10 Result of X-ray diffraction

No.	Drilling No.	Depth (m)	Thickness (m)	Rock name (determined)	Mineral assemblages											
					Ch	Se	Sm	K	Lau	Ca	Qz	Ab	Kf	Pl	Py	Clz
1	HJMT-3	85.60- 85.70	0.10	altered Gr-Dr at haging wall of No.1 quarz vein		17	2			1	50					
2	〃	- 85.80	0.10	〃 〃		18										
3	〃	86.65- 86.66	0.01	alterd clay at foot wall of No.1 Q.V.		3					38					
4	〃	- 86.70	0.04	altered Gr-Dr at foot wall of No.1 Q.V.		11					38					
5	〃	- 86.90	0.20	〃 〃		9				3	36	14	7			
6	〃	88.98- 88.99	0.01	brown oxided clay vein		7	2				32	5				
7	HJMT-4	95.50- 95.52	0.02	grey clay vein	<1?	7	16	<1?		1	43	17				
8	〃	96.30- 96.40	0.10	altered Gr-Dr		23	3			12	7	43				
9	〃	103.00-103.01	0.01	grey clay vein					27	31						
10	〃	106.40-106.41	0.01	〃	1?	4	2	1?		1	33	3				
11	〃	106.77-106.80	0.03	grey clay at haging wall of No.1 Q.V.	<1?	3	2	<1?			13					
12	〃	106.80-106.98	0.18	shered zone of No.1 Q.V. (quartz fragment & clay)		7	<1			1	72					
13	〃	107.01-107.05	0.04	grey clay at foot wall of No.1 Q.V.	<1?	11	1	<1?		2	13	9				
14	〃	107.60-107.63	0.03	grey clay		17				2	33	3				
15	〃	114.00-114.10	0.10	argillized fault breccia	1?	4	3	1?		2	19	37				
16	〃	126.50-127.40	0.90	〃	1?	4	4	1?		4	29	11	3			
17	HJMT-5	76.10- 76.15	0.05	fault clay	1	5	7	1?		1	30	14	1			
18	〃	78.24- 78.32	0.08	strong argillized Gr-Dr at haging wall of No.1 Q.V.		3					35					
19	HJMT-6	44.19- 44.20	0.01	argillized Gr-Dr at haging wall of No.10W Q.V.		22					37					
20	〃	75.93- 75.95	0.02	alterd clay at haging wall of No.10 Q.V.		6					3					
21	〃	76.55- 76.57	0.02	〃 foot wall 〃		23					10				1	
22	〃	96.40- 96.52	0.12	strong argillized Gr-Dr	1	12	53	1?			18	3				
23	〃	- 96.62	0.10	〃	<1	1	30				19	10	38	10		
24	HJMT-7	9.90- 9.91	0.01	grey clay vein	1	1	1	1?		4	32	17	14			
25	〃	99.26- 99.27	0.01	alterd clay at haging wall of No.10 Q.V.		7					9				<1	
26	〃	100.0 -100.03	0.03	grey clay vein	1	10		1?		2	45		4			
27	〃	135.07-135.10	0.03	clay vein			5			2	15	3	7		4	7
28	〃	138.70-138.90	0.20	argillized adamellite	2	2	2	2?		5	29	30	15			
29	HJMT-8	92.90- 92.92	0.02	grey clay vein	2	22	<1	2?			17				<1	
30	HJMT-9	5.92- 5.92	0.02	clay vein		8	4			1	33					
31	〃	22.05- 22.30	0.25	fault breccia argillized		6	5			3	42	10				
32	〃	29.85- 30.20	0.35	strong argillized Gr-Dr at haging wall of No.1 Q.V.	<1	6	2			<1	34	27	3			
33	〃	30.83- 30.85	0.02	argillized Gr-Dr at foot wall of No.1 Q.V.	1	10	1?	1?			28	15	8			
34	〃	47.60- 47.61	0.01	grey clay vein					17	33	5					
35	〃	62.70- 62.71	0.01	〃					25	28	15					
36	〃	76.18- 76.20	0.02	white clay vein	1	3	1?		28	22	32	6	5			
37	HJMT-10	7.45- 7.50	0.05	strong argillized Gr-Dr		11	2			5	29	25				
38	〃	59.98- 60.00	0.02	weak argillized Gr-Dr at haging wall of No.2W Q.V.	2	5	1			7	30	33	7			
39	〃	80.44- 80.45	0.01	strong argillized Gr-Dr at haging wall of No.2 Q.V.		10	<1				28	22	5			
40	No.1 V. O.C.			alterd Gr-Dr at outcrop of No.1 Q.V. (MJMT-3,4 site)		17					54					
41	〃			〃 〃 (MJMT-5 site)						1	92					
42	〃			white clay cut No.1 Q.V. (HJMT-5 site)						12	83					
43	No.10V. O.C.			alterd admlt. at outcrop of No.10 Q.V. (HJMT-6,7 site)		1				1	35	30	19			
44	〃			alterd admlt. & grey clay cut No.10 Q.V. (MJMT-8 site)		5					63	34				

O.C.: out crop Arg:argillization O.C.:out crop Gr-Dr:granodiorite Ch:chlorite Se:sericite Sm:smectite K:kaolin-Mineral Lau:laumontite Ca:calcite
Qz:Quartz Ab:Albite Kf:potassium feldsper Pl:plagioclase Py:pyrite Clz:clinozoisite

Table II-1-11 Homogenization temperature and salinity mesured in fluid inclusionin (1)

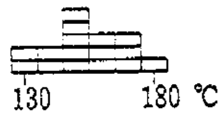
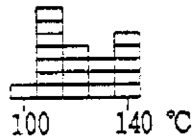
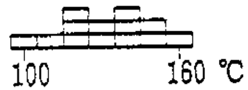
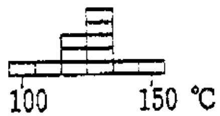
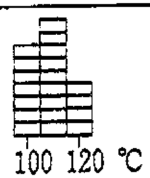
No.	Drilling hole No.	Qz vein No.	Depth (m)	Numbers of inclusion	Size of inclusions (m μ)	Homogenization temperature(℃)				Average of melting temp. (℃)	Avg. of NaCl Wt(%)	Histogram
						Max.	Min.	Avg.	Std.			
1	MJMT- 3	1	85.85	primary(16)	<2.5~7.5	181	137	157.9	13.1	-8.1	11.55	
2	MJMT- 3	1	86.15	primary(15)	<2.5~7.5	182	131	153.1	13.8	-6.5	9.70	
3	MJMT- 3	1	86.35	primary(20)	<2.5~7.5	146	108	125.8	12.1	-0.1	0.22	
4	MJMT- 4	parallel vein of No.1	107.60	primary(20)	<2.5~7.5	168	132	147.1	11.3	-0.1	0.09	
5	MJMT- 5	parallel vein of No.1	65.80	primary(13)	<2.5~7.5	167	106	136.0	16.9	-0.2	0.13	
6	MJMT- 5	1	78.44	primary(12)	<2.5~5.0	154	102	129.3	13.1	-0.7	0.69	
7	MJMT- 6	10W	44.35	primary(20)	<2.5~7.5	127	102	112.5	7.2	-1.7	0.13	

Table II-1-11 Homogenization temperature and salinity mesured in fluid inclusionin (2)

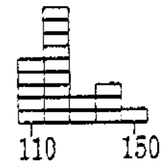
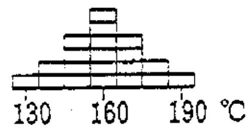
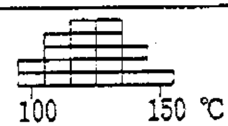
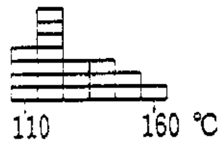
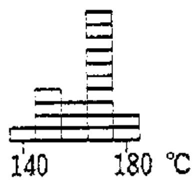
No.	Drilling hole No.	Qz vein No.	Depth (m)	Numbers of inclusion	Size of inclusions (m μ)	Homogenization temperature(℃)				Average of melting temp. (℃)	Avg. of NaCl Wt(%)	Histogram
						Max.	Min.	Avg.	Std.			
8	MJMT- 6	10	75.95	primary(20)	<2.5~7.5	152	114	127.3	10.4	-0.1	0.09	
9	MJMT- 6	10	76.25	primary(20)	<2.5~10.0	142	103	125.6	12.4	-1.5	0.15	
10	MJMT- 6	10	76.53	primary(20)	<2.5~37.5	196	131	164.4	15.1	-1.3	0.07	
11	MJMT- 7	10W (parallel to No.10)	58.28	primary(20)	<2.5~22.5	153	103	127.8	13.3	-1.3	0.10	
12	MJMT- 7	10	99.64	primary(20)	<2.5~5.0	161	116	132.0	12.9	-3.8	6.13	
13	MJMT- 7	segregated vein	157.73	primary(20)	<2.5~10.0	188	147	168.9	10.6	-6.9	10.36	

Table II-1-11 Homogenization temperature and salinity mesured in fluid inclusionin (3)

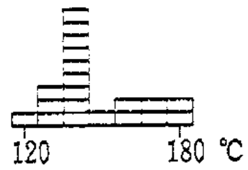
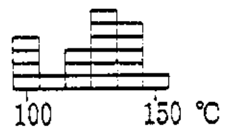
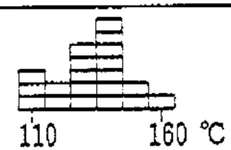
No.	Drilling hole No.	Qz vein No.	Depth (m)	Numbers of inclusion	Size of inclusions (mμ)	Homogenization temperature(℃) Max.	Min.	Avg.	Std.	Average of melting temp. (℃)	Avg. of NaCl Wt(%)	Histogram
14	MJMT- 8	10	91.65	primary(20)	<2.5~17.5	182	124	152.1	16.8	-6.3	8.41	
15	MJMT- 9	parallel vein of No.1	13.98	primary(20)	<2.5~7.5	191	141	162.7	16.3	-1.3	0.09	
16	MJMT- 9	1	30.65	primary(20)	<2.5~7.5	156	106	130.2	15.2	-0.1	0.09	
17	MJMT-10	2W (blanch of No.2)	60.24	primary(20)	<2.5~5.0	151	101	128.9	15.4	-0.7	0.87	
18	MJMT-10	2	80.55	primary(20)	<2.5~15.0	167	114	137.8	14.0	-0.8	1.21	
19	(MJMT-3.4)	No.1 out crop of drilling direction	0.0	primary(20)	<2.5~5.0	167	133	148.1	8.9	-1.4	2.33	

Table II-1-11 Homogenization temperature and salinity mesured in fluid inclusionin (4)

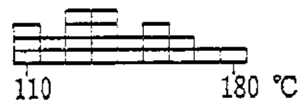
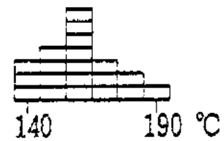
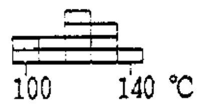
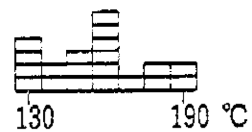
No.	Drilling hole No.	Qz vein No.	Depth (m)	Numbers of inclusion	Size of inclusions (m μ)	Homogenization temperature(℃) Max.	Min.	Avg.	Std.	Average of melting temp. (℃)	Avg. of NaCl Wt(%)	Histogram
20	(MJMT- 5)	No. 1 out crop of drilling direction	0.0	primary(20)	<2.5~5.0	272	230	254.0	12.8	-0.3	0.58	
21	(MJMT-6, 7)	No. 10W out crop of drilng direction	0.0	primary(20)	<2.5~22.5	181	112	143.0	19.6	-2.7	4.64	
22	(MJMT-6, 7)	No. 10 out crop of drilng direction	0.0	primary(13)	<2.5~5.0	178	138	155.6	11.4	-0.3	0.27	
23	(MJMT-8)	No. 10 out crop of drilng direction	0.0	primary(20)	<2.5~12.5	197	142	163.2	13.7	-0.7	0.97	
24	(MJMT-9)	No. 1 out crop of drilling direction	0.0	primary(12)	<2.5~5.0	146	103	123.3	12.4	-0.2	0.12	
25	(MJMT-10)	NO. 2W out crop of drilling direction	0.0	primary(20)	<2.5~10.0	157	101	123.6	17.5	-0.9	1.64	
26	(MJMT-10)	NO. 2 out crop of drilling direction	0.0	primary(20)	<2.5~17.5	194	131	159.6	19.1	-0.5	0.86	

Table II-1-11 Homogenization temperature and salinity mesured in fluid inclusion (5)

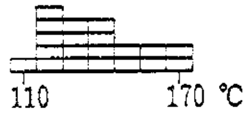
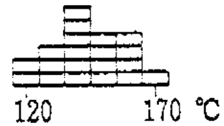
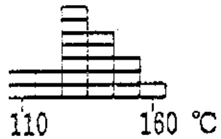
No.	Sample# (1.996)	GPS Cordinate		Qz vein No.	Numbers of inclusions	Size of inclusions (mμ)	Homogenization temperature(℃)				Avg. of melt. temp. (℃)	Avg. of NaCl Wt(%)	Histogram
		Longit. 46N	Latit. 100E				Max.	Min.	Avg.	Std.			
27	960806002	9.10	10.41	5	primary(20)	<2.5~15.0	174	119	141.9	16.6	-0.1	0.13	
28	960813038	8.25	9.04	5	primary(20)	<2.5~ 5.0	172	128	148.6	12.6	-0.2	0.18	
29	960826041	7.81	9.25	3	primary(20)	<2.5~15.0	172	122	148.3	15.3	-1.0	1.27	
30	960827011	8.12	9.42	1	primary(10)	<2.5~ 7.5	163	121	140.7	9.7	-0.2	0.22	
31	960827019	8.04	9.44	1	primary(20)	2.5~ 7.5	168	117	138.1	12.7	-0.2	0.18	
32	960830041	7.74	9.38	2	primary(20)	<2.5~12.5	193	143	164.4	14.3	-0.7	0.67	

Table II-1-11 Homogenization temperature and salinity mesured in fluid inclusion (6)

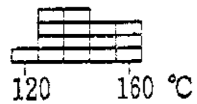
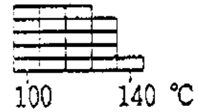
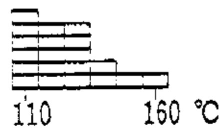
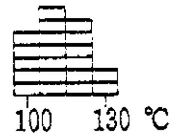
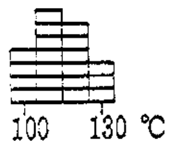
No.	Sample# (1.996)	GPS Cordinate		Qz vein No.	Numbers of inclusions	Size of inclusions (m μ)	Homogenization temperature(℃)				Avg. of melt. temp. (℃)	Avg. of NaCl Wt(%)	Histogram
		Longit. 46N	Latit. 100E				Max.	Min.	Avg.	Std.			
33	960830044	7.67	9.41	2	primary(15)	<2.5~10.0	164	127	145.7	11.0	-0.2	0.21	
34	960903064	7.63	11.89	10	primary(20)	<2.5~ 5.0	142	104	119.7	10.5	-0.2	0.09	
35	960907008	7.27	11.03	7	primary(20)	<2.5~10.0	163	111	130.1	13.2	-0.1	0.05	
36	960901012	9.97	9.86	6	primary(10)	<2.5~10.0	173	136	156.0	11.2	-2.5	4.06	
37	960912032	8.15	11.42	9	primary(20)	2.5~ 7.5	133	104	117.3	8.9	-0.3	0.35	
38	960912062	7.43	11.83	9	primary(20)	<2.5~ 7.5	133	104	119.1	9.3	-0.7	1.26	

Table II-1-11 Homogenization temperature and salinity mesured in fluid inclusion (7)

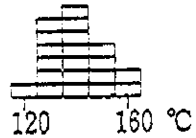
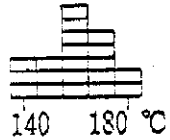
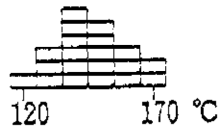
No.	Drillig hole No.	GPS Cordinate		Qz vein No.	Numbers of inclusions	Size of inclusions (m μ)	Homogenization temperature(℃)				Avg. of melt. temp. (℃)	Avg. of NaCl Wt(%)	Histogram
		Longit. 46N	Latit. 100E				Max.	Min.	Avg.	Std.			
39	MJMT-2 (1,996) 152.95m	–	–	1	primary(20)	<2.5~ 7.5	165	128	144.2	10.5	-0.1	0.03	
40	MJMT-1 (1,996) 202.78m	–	–	10	primary(20)	2.5~30.0	182	141	164.0	12.1	-6.1	8.74	
41	MJMT-1 (1,996) 298.84m	–	–	10W	primary(20)	<2.5~12.5	179	126	150.0	13.2	-0.2	0.10	

Table II-1-12 Sample situation of fluid inclusion test and its result (1)

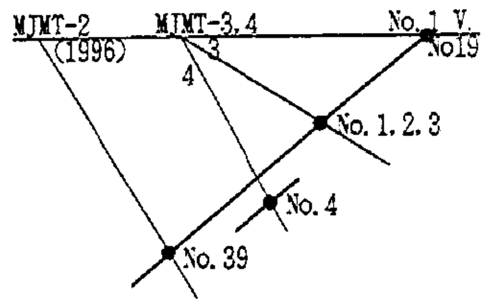
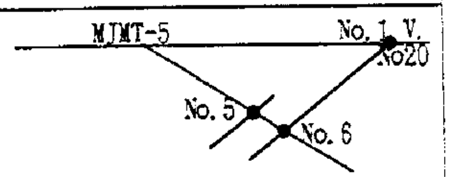
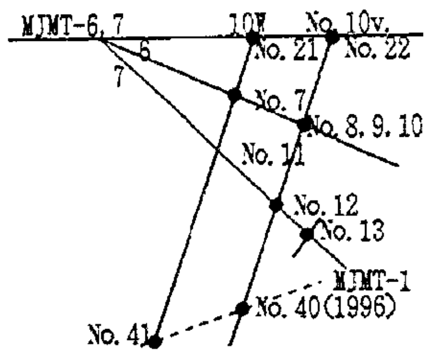
No.	Drilling No. and others	Qz vein No.	Depth (m)	Au content (g/t)	Homog. temp. (℃)	NaCl cotent Wt(%)	Boiling	Remark	Ideal profile of drillings (Sample situations)
19	Out crop	1	0.0	< 0.1	148.1	2.33	○		
1	MJMT-3	1	85.85	< 0.1 8.1 *	157.9	11.55		*assayed in Ulanbatar	
2	MJMT-3	1	86.15	11.2 14.7 *	153.1	9.70		*assayed in Ulanbatar	
3	MJMT-3	1	86.35	1910 1373 *	125.8	0.22		*assayed in Ulanbatar	
4	MJMT-4	1*	107.60	0.7	147.1	0.09		*parallel to No.1 Q.V.	
39	MJMT-2*	1	152.95	< 0.1	144.2	0.03		*drilled in 1996	
20	Out crop	1	0.0	0.5	254.0	0.58			
5	MJMT-5	1*	65.80	0.3	136.0	0.13		*parallel to No.1 Q.V.	
6	MJMT-5	1	78.44	11.3 17.4 *	129.3	0.69		*assayed in Ulanbatar	
21	Out crop	10W	0.0	< 0.1	143.0	4.64	○		
7	MJMT-6	10W	44.35	0.2 0.1 *	112.5	0.13		*assayed in Ulanbatar	
11	MJMT-7	10W *	70.32	0.2	127.8	0.10		*parallel to No.10W Q.V.	
22	Out crop	10	0.0	4.9	155.6	0.27			
8	MJMT-6	10	75.95	0.8 0.8 *	127.3	0.09		*assayed in Ulanbatar	
9	MJMT-6	10	76.25	29.1 395 *	125.6	0.15		*assayed in Ulanbatar	

Table II-1-12 Sample situation of fluid inclusion test and its result (2)

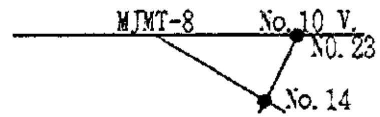
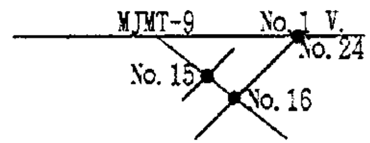
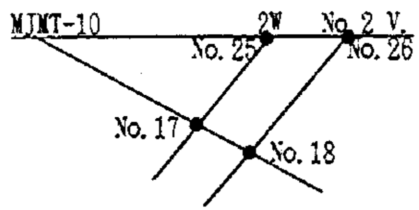
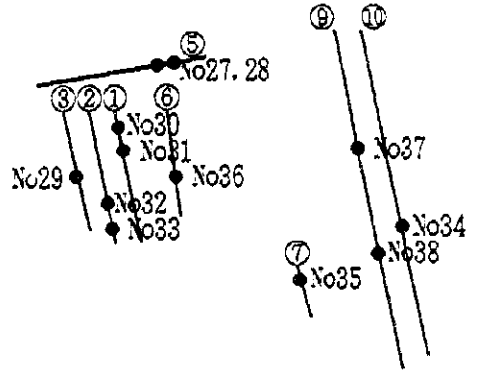
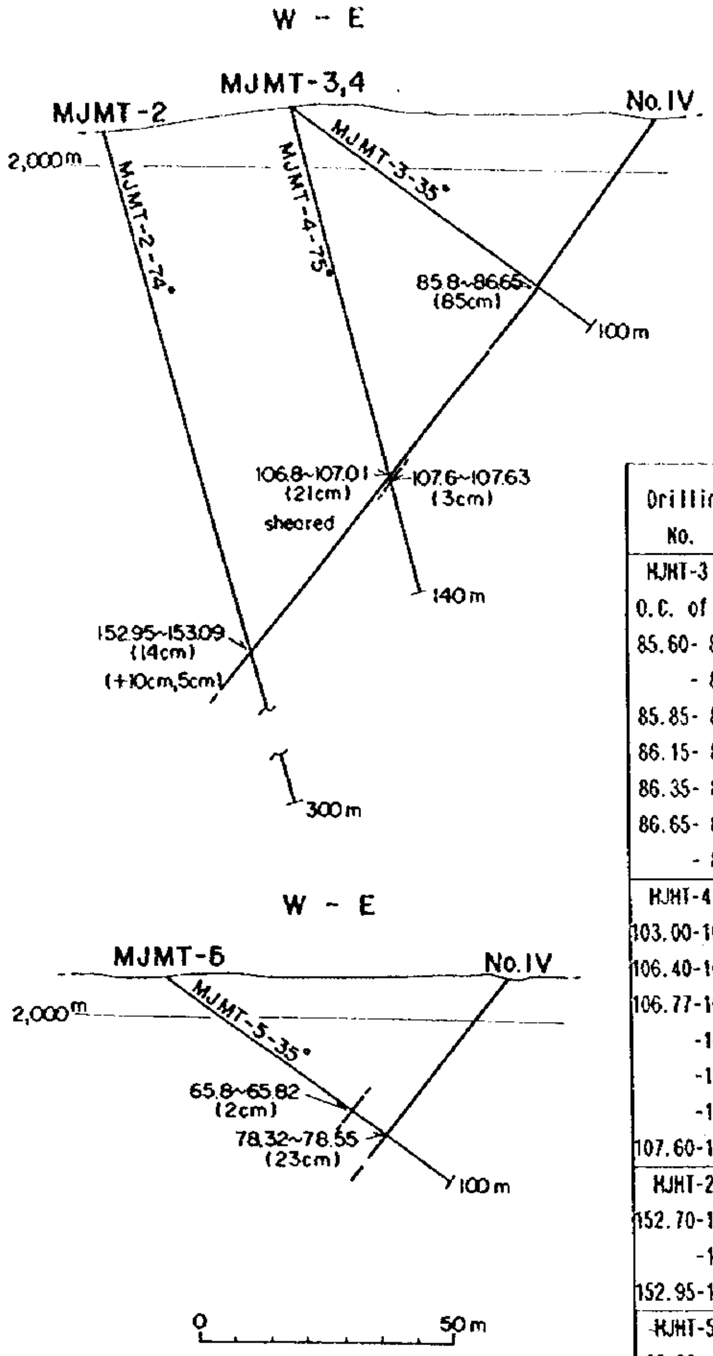
No.	Drilling No. and others	Qz vein No.	Depth (m)	Au content (g/t)	Homog. temp. (℃)	NaCl cotent Wt(%)	Boiling	Remark	Ideal profile of drillings (Sample situations)
10	MJMT-6	10	76.53	1.4 1.5 *	164.4	0.07		*assayed in Ulanbatar	
12	MJMT-7	10	99.64	< 0.1 < 0.1 *	132.0	6.13		*assayed in Ulanbatar	
13	MJMT-7	segrg. V*	157.73	< 0.1	168.9	10.36		*segregated Qz vein	
40	MJMT-1*	10	202.78	< 0.1	164.0	8.74	○	*drilled in 1996	
41	MJMT-1*	10W *	298.84	< 0.1	150.0	0.10	○	*parallel to No.1 Q.V.	
23	Out crop	10	0.0	< 0.1	163.2	0.97	○		
14	MJMT-8	10	91.65	< 0.1	152.1	8.41			
24	Out crop	1	0.0	< 0.1	123.3	0.12			
15	MJMT-9	1W*	13.98	1.1	162.7	16.30		*parallel to No.1 Q.v.	
16	MJMT-9	1	30.65	< 0.1 0.1 *	130.2	0.09		*assayed in Ulanbatar	
25	Out crop	2W*	0.0	< 0.1	123.6	1.64	○	*blanch of No.2 Q.V.	
17	MJMT-10	2W*	60.24	4.2 1.5 *	128.9	0.87		*blanch of No.2 Q.V. *assayed in Ulanbatar	
26	Out crop	2	0.0	0.1	159.6	0.86			
18	MJMT-10	2	80.55	6.1 10.5 *	137.8	1.21		*assayed in Ulanbatar	

Table II-1-12 Sample situation of fluid inclusion test and its result (3)

No.	Field sample# (1.996)	GPS Cordinate		Qz vein No.	Depth (m)	Au content (g/t)	Homog. temp. (℃)	NaCl cotent Wt(%)	Boiling	Sample situations (idealized)
		Longit. 46N	latit. 100E							
27	960806002	9.10	10.41	5	0.0	<0.1	141.9	0.13		
28	960813038	8.25	9.04	5	0.0	<0.1	153.9	0.18		
29	960826041	8.81	9.25	3	0.0	0.9	148.3	1.27	○	
30	960827011	8.12	9.42	1	0.0	2.2	139.5	0.22		
31	960827019	8.04	9.44	1	0.0	58.4	138.1	0.18		
32	960830041	7.74	9.38	2	0.0	48.2	164.4	0.67	○	
33	960830044	7.67	9.41	2	0.0	34.8	145.7	0.21		
34	960903064	7.63	11.89	10	0.0	15.7	119.7	0.09		
35	960907008	7.27	11.03	7	0.0	< 0.1	130.1	0.05		Scale : about 1 km
36	960901012	7.97	9.86	6	0.0	0.3	156.0	4.06		
37	960912032	8.15	11.42	9	0.0	0.2	117.3	0.35		① : Quartz vein No.
38	960912062	7.43	11.83	9	0.0	0.2	119.1	1.26		

Remark: Gold content is value of one lot sample (contains ±25 pieces of Qz vein fragment)
Test sample is one piece within one lot sample

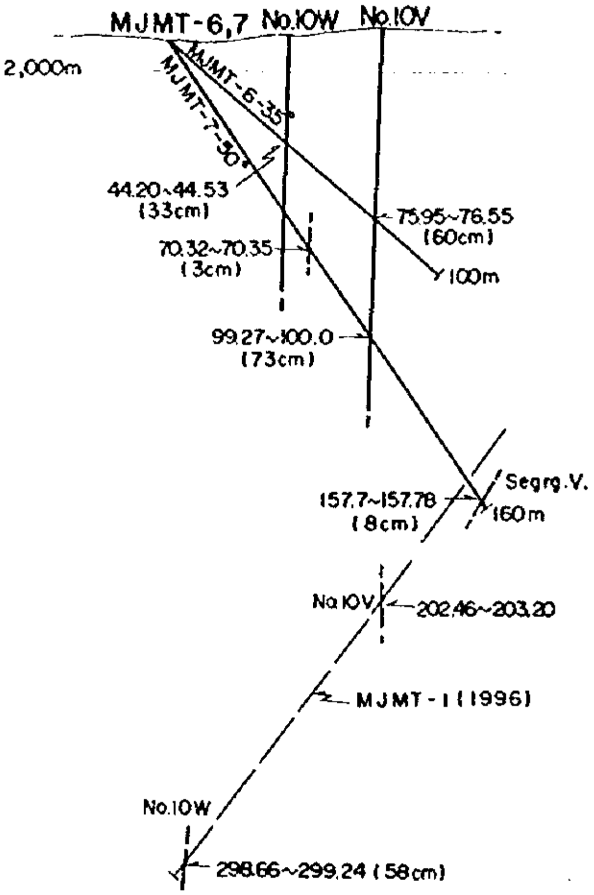


Drilling No.	Rock name and others	Au (g/t)	H.T. (℃)	NaCl (%)	Altered M.	Remark
MJMT-3						
O.C. of No.IV.	•	<0.1	148.1	2.33	Se	
85.60- 85.70	H.W.clay	1.5	—	—	Se,(Sm,Ca)	
- 85.80	〃	1.0	—	—	Se	
85.85- 85.87	No.IV.	<0.1	157.9	11.55	—	margin
86.15- 86.18	〃	11.2	153.1	9.70	—	submarg.
86.35- 86.40	〃	1910	125.8	0.22	—	center
86.65- 86.70	F.W.clay	8.2	—	—	Se	
- 86.90	〃	5.6	—	—	Se,Ca	
MJMT-4						
103.00-103.01	H.W.clay V.	—	—	—	Lau,Ca	
106.40-106.41	〃	—	—	—	Se.,Sm(Ch,Ca)	
106.77-106.80	〃 clay	3.9	—	—	Se,Sm,(Ch)	
-106.98	No.IV.	0.6	—	—	Se	
-107.01	No.IV.	41.5	—	—	—	
-107.05	F.W. clay	0.9	—	—	Se,(Sm,Ca)	
107.60-107.63	parallel.V	0.7	147.1	0.09	—	
MJMT-2 (1996)						
152.70-152.80	H.W. clay	—	—	—	Se,Sm	
-152.95	〃	—	—	—	Se,Ca	
152.95-152.97	No.IV.	<0.1	144.2	0.03		
MJMT-5						
65.80- 65.82	parallel.V	0.3	136.0	0.13		
O.C. of No.IV.		0.5	254.0	0.53		
78.24- 78.32	H.W. arg-R	—	—	—	Se	
78.44- 78.46	No.IV.	11.3	129.3	0.69		center

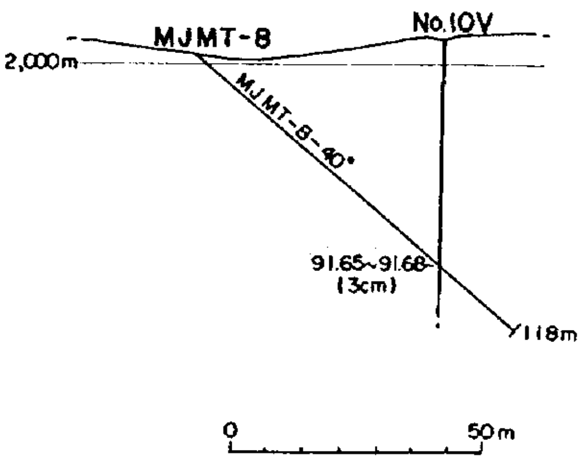
H.T.:homogenization temperature M.:mineral O.C.:out crop V.:vein
H.W.:hanging wall F.W.:foot wall Q.frag.:quartz fragment
arg-R:argillized-rock Se:sericite Sm:smectite Ca:calcite
Lau:laumontite Ch:chlorite

Table II-1-13 Gold contents and clay minerals relative to result of fluid inclusion test (1)

W - E



W - E

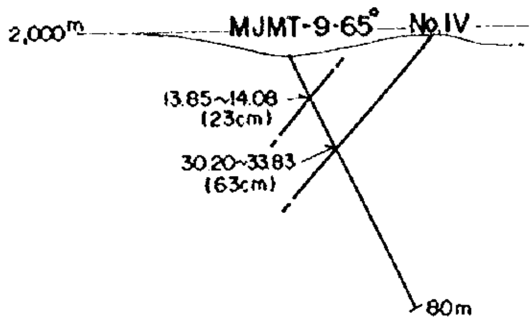


Drilling No.	Rock name and others	Au (g/t)	H.T. (℃)	NaCl (%)	Altered M.	Remark
MJMT-6						
O.C. of No.10W.		<0.1	143.0	4.64	–	
44.35- 44.37	No.10W.	0.2	112.5	0.13	–	
MJMT-1(1996)						
298.84-298.86	No.10W.	<0.1	150.0	0.10	–	center
MJMT-6						
O.C. of No.10V.		4.9	155.6	0.27	–	
75.93- 75.95	H.W.clay	–	–	–	Se	
75.95- 75.97	No.10V.	0.8	127.3	0.09	–	margin
76.25- 76.28	〃	29.1	125.6	0.15	–	center
76.53- 76.55	〃	1.4	164.4	0.07	–	margin
- 76.57	F.W.clay	–	–	–	Se	
MJMT-7						
70.32- 70.35	parl.V	0.2	127.8	0.10	–	
99.26- 99.27	H.W.clay	–	–	–	Se.(Py)	
99.64- 99.66	No.10V.	<0.1	132.0	6.13	–	center
157.73-157.75	segrg.V.	<0.1	164.4	10.36	–	
MJMT-1(1996)						
202.78-202.80	No.10V.	<0.1	164.0	8.74	–	center
MJMT-8						
O.C. of No.10V.		<0.1	163.2	0.97	–	
91.65- 91.68	No.10V.	<0.1	152.1	8.41	–	

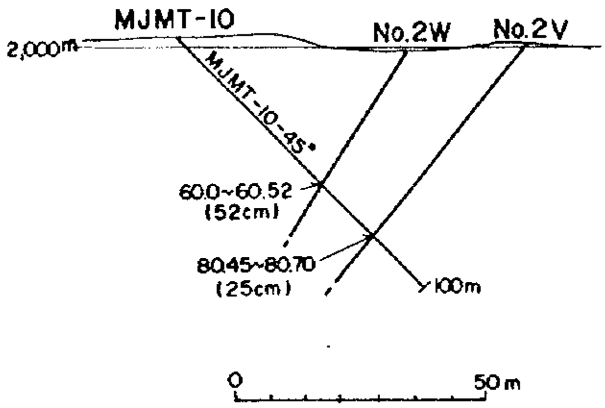
H.T.:homogenization temperature M.:mineral O.C.:out crop W.:west V.:vein segrg.:segregation parl. :parallel vein H.W.:hanging wall F.W.:foot wall Se:sericite Py:pyrite

Table II-1-13 Gold contents and clay minerals relative to result of fluid inclusion test (2)

W - E



W - E



Drilling No.	Rock name and others	Au (g/t)	H.T. (C)	NaCl (%)	Clay M.	Remark
MJMT- 9						
O.C. of No. IV.		<0.1	123.3	0.12	—	
13.98- 14.00	parallel.V	1.1	162.7	0.09	—	center
29.85- 30.20	H.W.arg-R	—	—	—	Se, Sm, (Ch, Ca)	
30.65- 30.67	No. IV.	0.1	130.2	0.09	—	center
30.83- 30.85	F.W.arg-R	—	—	—	Se, (Ch)	
MJMT-10						
O.C. of No. 2W.		<0.1	123.6	1.64	—	
59.98- 60.00	H.W.arg-R	—	—	—	Se, Ca, Ch, (Sm)	
60.24- 60.26	No. 2W.	4.2	128.9	0.87	—	center
O.C. of No.2		0.1	159.6	0.86	—	
80.44- 80.45	H.W.arg-R	—	—	—	Se, (Sm)	
80.55- 80.57	No. 2V.	6.1	137.8	1.21	—	center

H.T.:homogenization temperature M.:mineral O.C.:out crop W.:west
V.:vein H.W.:hanging wall F.W.:foot wall arg-R:argillized-rock
Se:sericite Sm:smectite Ca:calcite Ch:chlorite

Table II-1-13 Gold contents and clay minerals relative to result of fluid inclusion test (3)

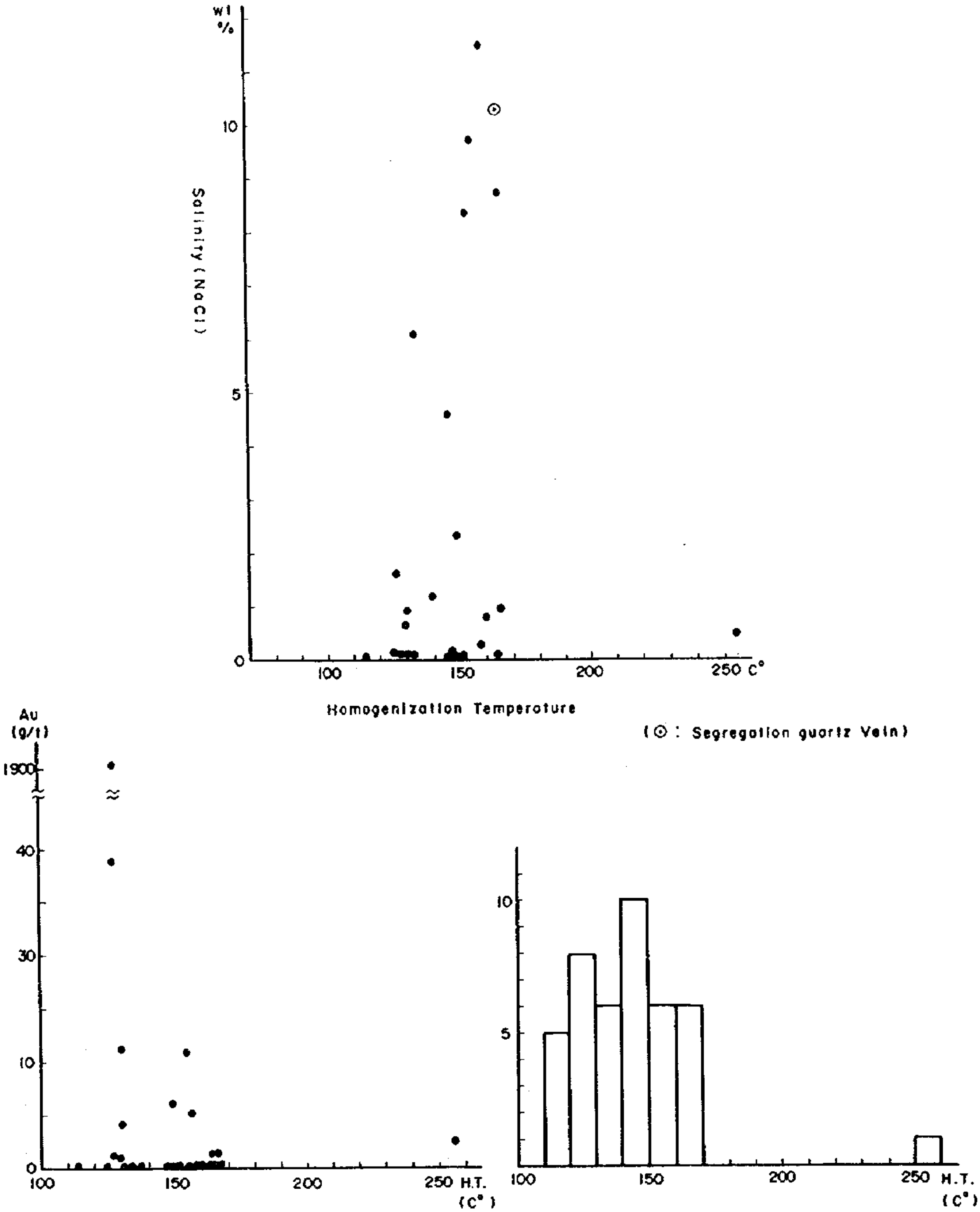


Fig. II-1-16 Relation between homogenization temperature,salinity and gold content