

## **PART II THE PARTICULARS**

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## PART II PARTICULARS

### CHAPTER 1 COLLCTION AND ANALYSIS OF THE EXITING DATA

The available geoscientific documentation on the survey area comprises reports and maps registered and stored at the Geological Information Center (GIC) of the Geological Survey of Mongolia (GSM). The eastern half of the survey area overlaps the Uudam Tal area which was surveyed in 1991-1993 by the joint team comprising members from both Japanese and Mongolian. And for this part, the results of the extraction of prospective zones based on existing information and detailed geological survey have already been reported. Therefore, the extraction of promising zones for gold and silver occurrence of the whole area, and of copper, lead and zinc for the western half were the target of work during the present study of existing documents.

#### 1-1 Outline of Existing Relevant Documents

Geological mapping in 1:500,000 scale carried out in the 1930s was the first geoscientific work of this area. Subsequently, geological and hydrological surveys in 1:200,000 scale was conducted widely in the 1950s and regional geological mapping in 1:1,000,000 (four sheets) scale and airborne magnetic survey in 1:200,000 scale were started in the 1960s.

The ore deposits and showings found by the above surveys were further investigated including detailed geological mapping in 1:50,000 scale, trenching, pitting and small amount of drilling. It was concluded by large amount of drilling for deposit assessment.

The above surveys were entrusted to the Soviet international geology research institute by the Mongolian Government, and field work was done by a joint team comprising members from both Soviet and Mongolian institutions. Analysis, interpretation and report preparation were done by the Soviet international geology research institute. Therefore, the reports are written in Russian, but some of those prepared after the collapse of the Soviet Union are written in Mongolian. They are long reports amounting to 200 to 300 pages. Reading them is not easy because apparently many carbon copies were made from single typing. The maps are water colored and are attached in separate cases.

Geologic map and structural map of the area are shown in Figure II-1-1. These maps were compiled from the 1:1,500,000 geological map of Mongolia.

## 1-2 Existing Documents

### (1) Geological reconnaissance survey in 1:1,000,000 scale

In the present area, four surveys have been undertaken in this scale. The surveyed areas are shown in Figure II-1-2. Three of these were in an area to the east of longitude  $103^{\circ} 30'E.$ , and north of latitude  $43^{\circ} 50'N.$ , where mineral deposits and showings are concentrated.

### (2) Geological reconnaissance survey in 1:500,000 scale

Reports on 22 geological surveys in this scale are available for this area. They are mainly in the Dundgovi and Ovorhangai provinces and the locations are shown in Figure II-1-3.

### (3) Geological survey in 1:200,000 scale

Twenty-two geological surveys have been undertaken in this area in this scale. As seen in Figure II-1-4, they have been carried out in the areas to the north of latitude  $43^{\circ} N.$ , and south of  $42^{\circ} 45'N.$  Some of the surveyed areas overlap prospective Ih Shanhai, Shuten and Olon Ovoot areas.

### (4) Geological survey in 1:100,000, 50,000 and detailed survey

One geological survey in 1:100,000 scale was carried out in southern part of Bayanhongor Province. In northeastern part of South Gobi Province, known for concentration of mineralized zones, 10 surveys in 1:50,000 scale as well as two detailed surveys were also carried out (Fig. II-1-5). Trenching, pitting, geophysics and drilling were included in the detailed survey.

### (5) Geophysical survey

Airborne magnetic survey in 1:200,000 scale has covered the entire area undertaken in five segments (Fig. II-1-6). The specifications for the five segments are essentially identical using proton magnetometer with analog

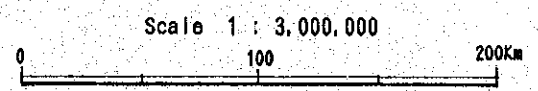
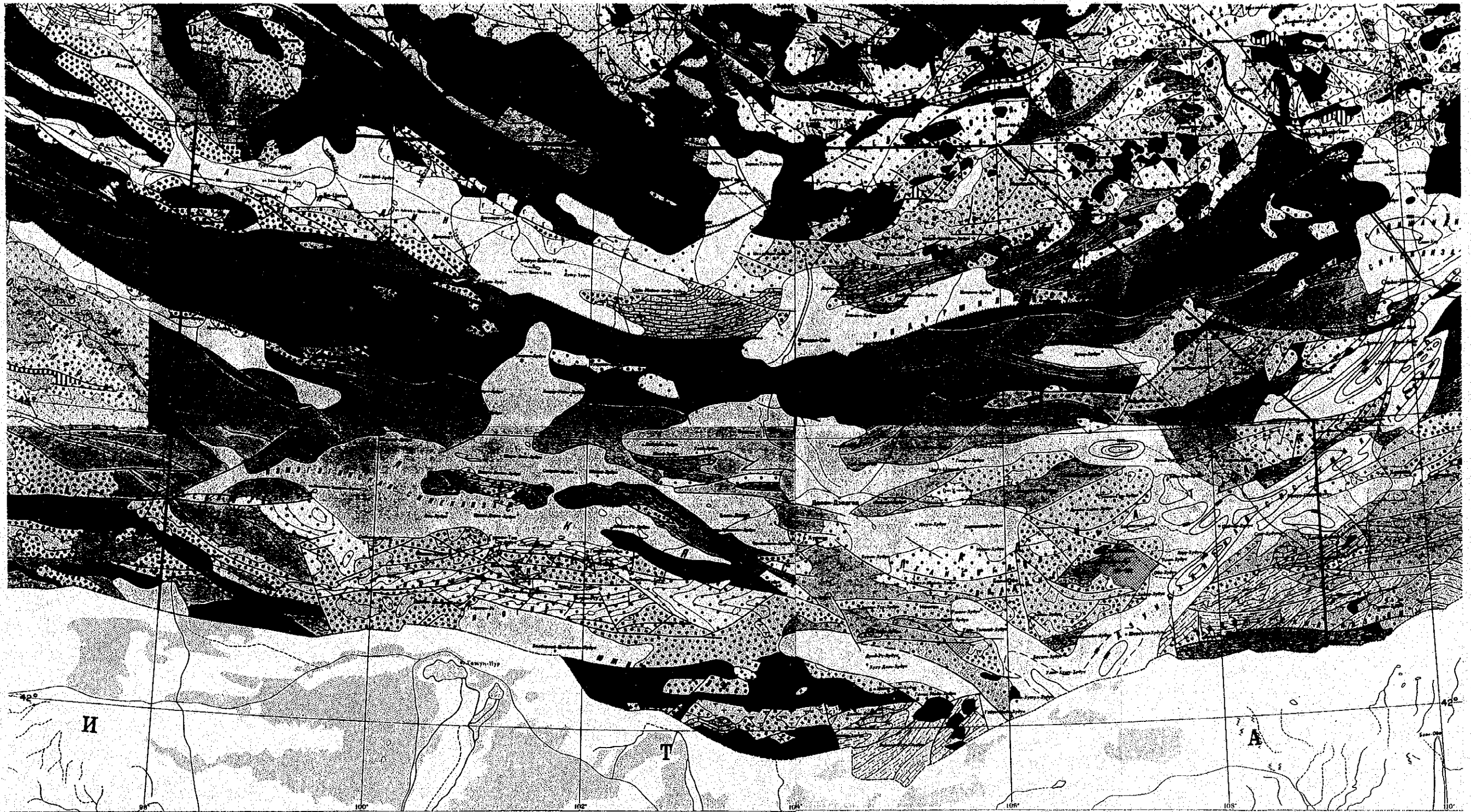
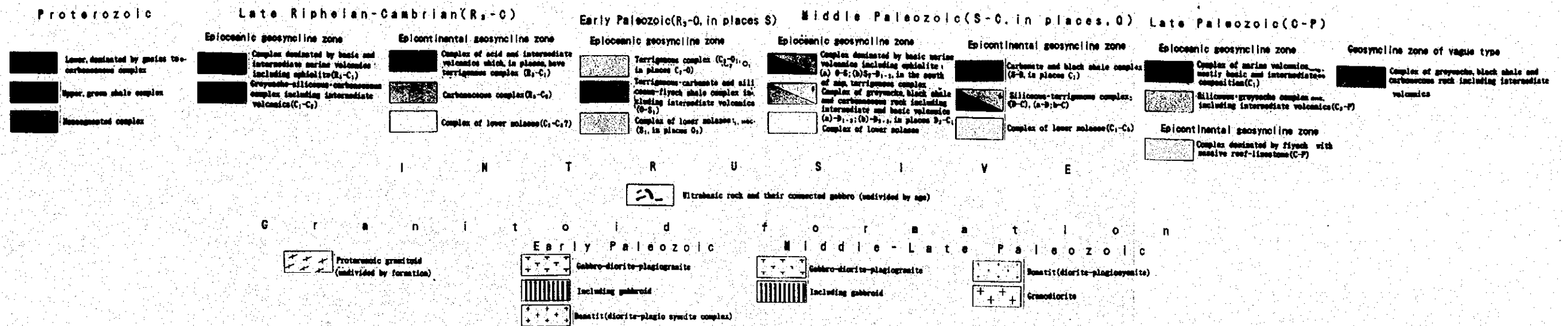
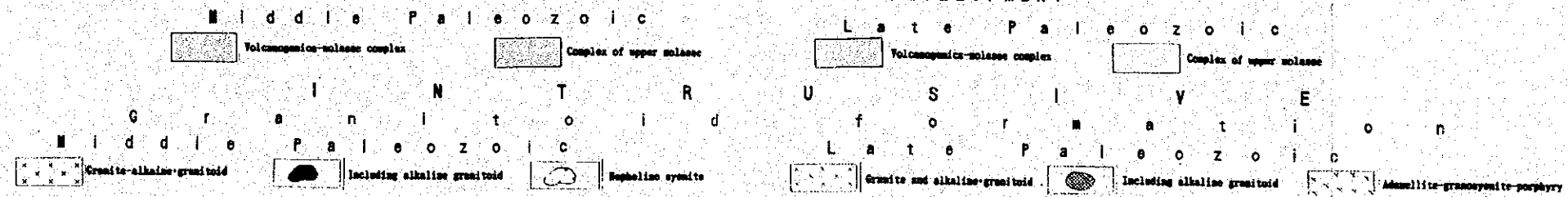


Fig. II-1-1 Brief geological and structural map of the survey area

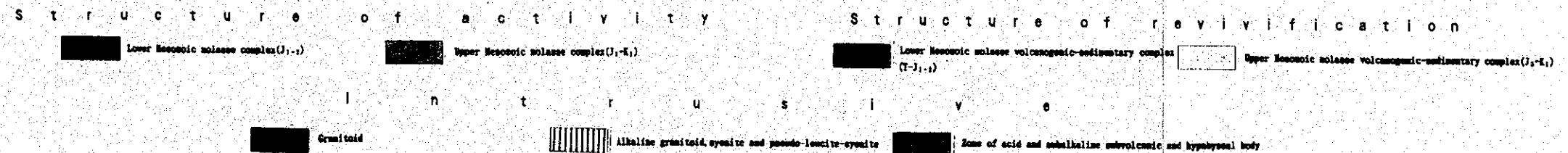
STRUCTURE AND FORMATION COMPLEX OF GEOSYNCLINE STAGE OF DEVELOPMENT



STRUCTURE AND FORMATION COMPLEX OF OROGENIC STAGE OF DEVELOPMENT



STRUCTURE AND FORMATION COMPLEX OF MESOZOIC REVIVIFICATION AND ACTIVITY



STRUCTURE AND FORMATION COMPLEX OF PLATFORM COVER (K<sub>2</sub>-P)

STRUCTURE AND FORMATION COMPLEX OF EPIPLATFORM CENOZOIC ACTIVITY (N<sub>2</sub>-Q)

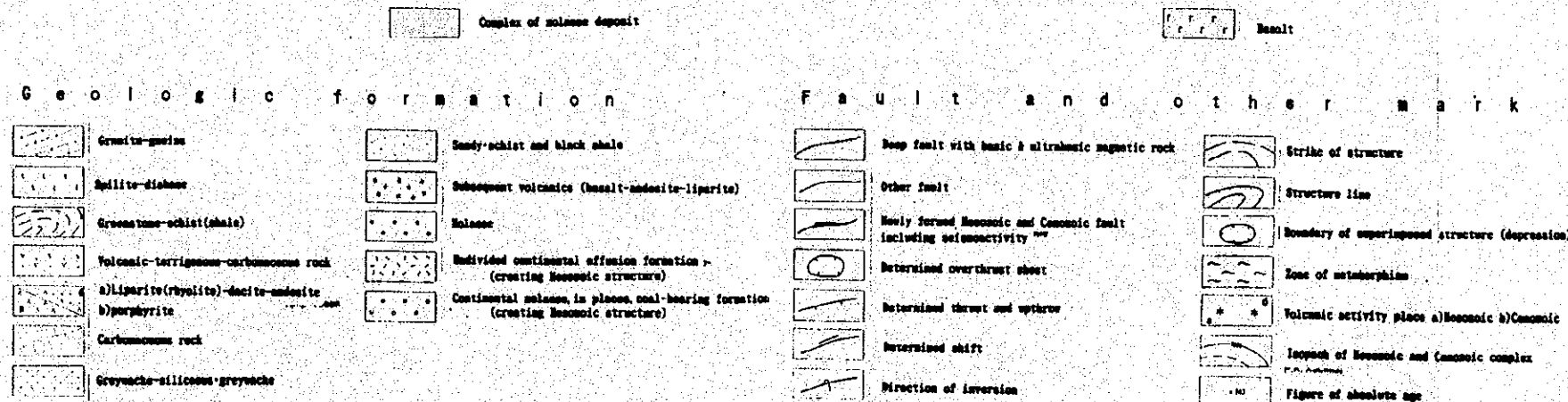


Fig. II-1-1 Brief geological and structural map of the survey area (LEGEND)



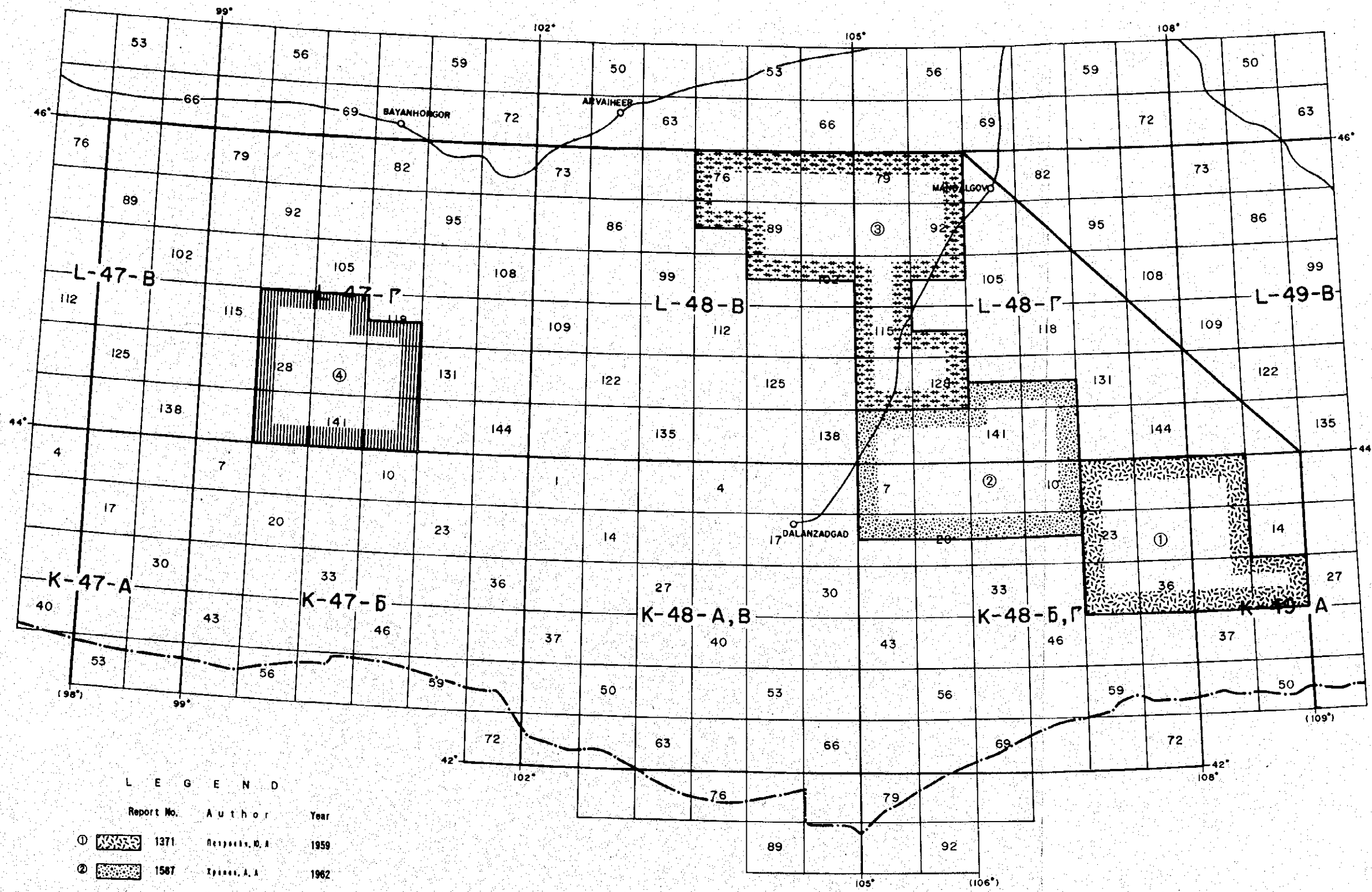


Fig. II-1-2 Location map of areas investigated at a scale of 1 to 1,000,000 in the past

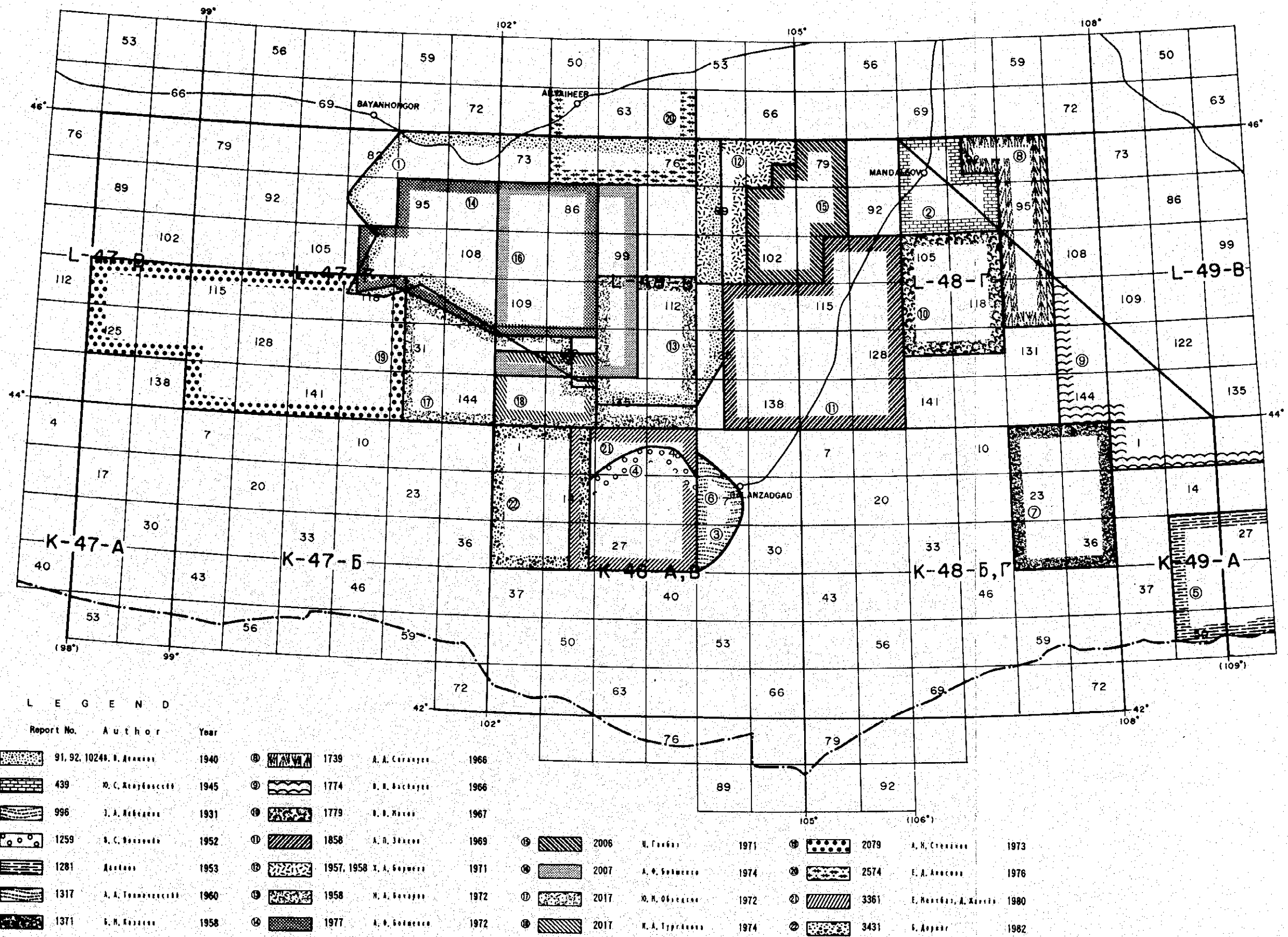


Fig. II-1-3 Location map of areas investigated at a scale of 1 to 500,000 in the past



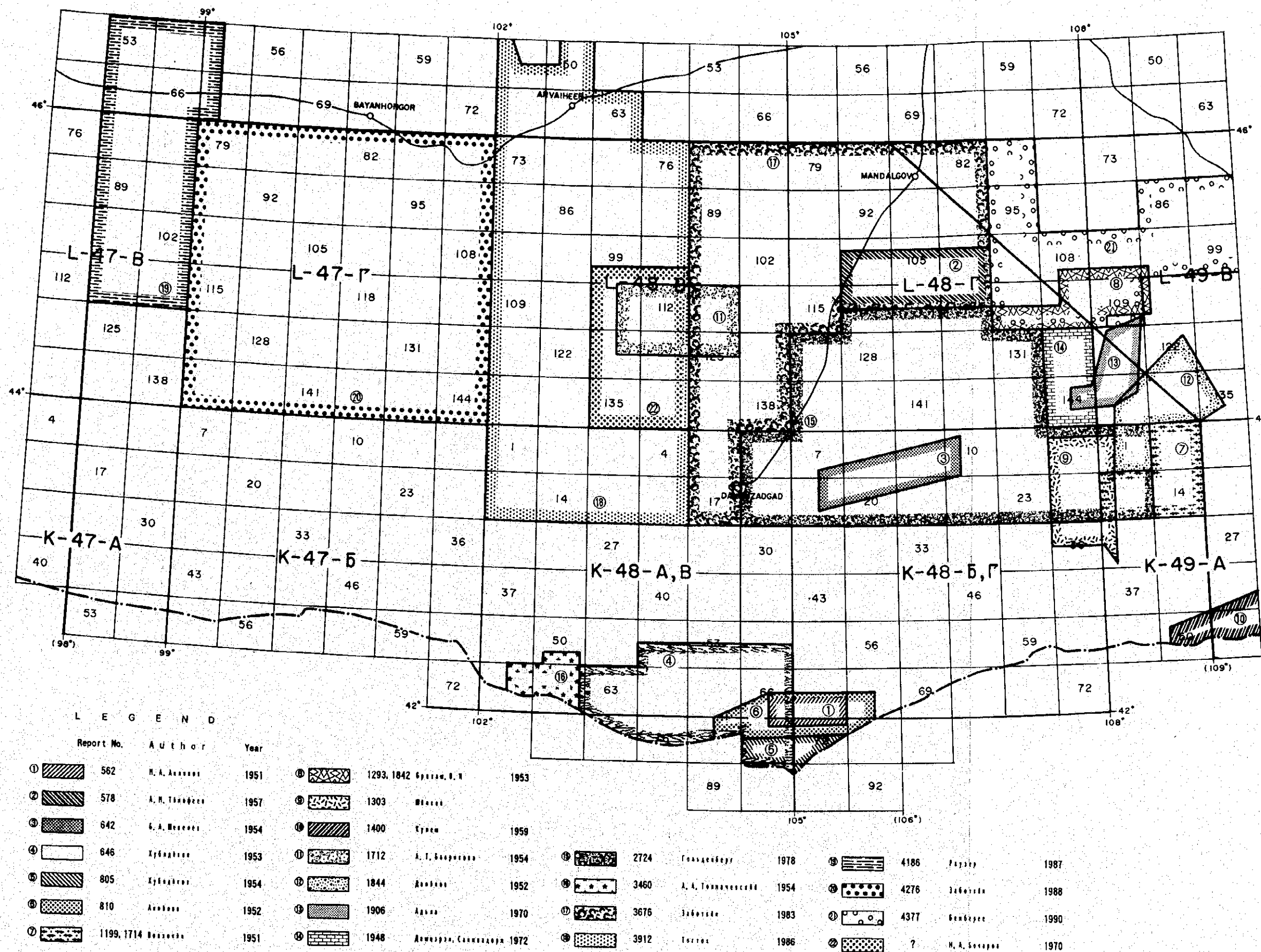
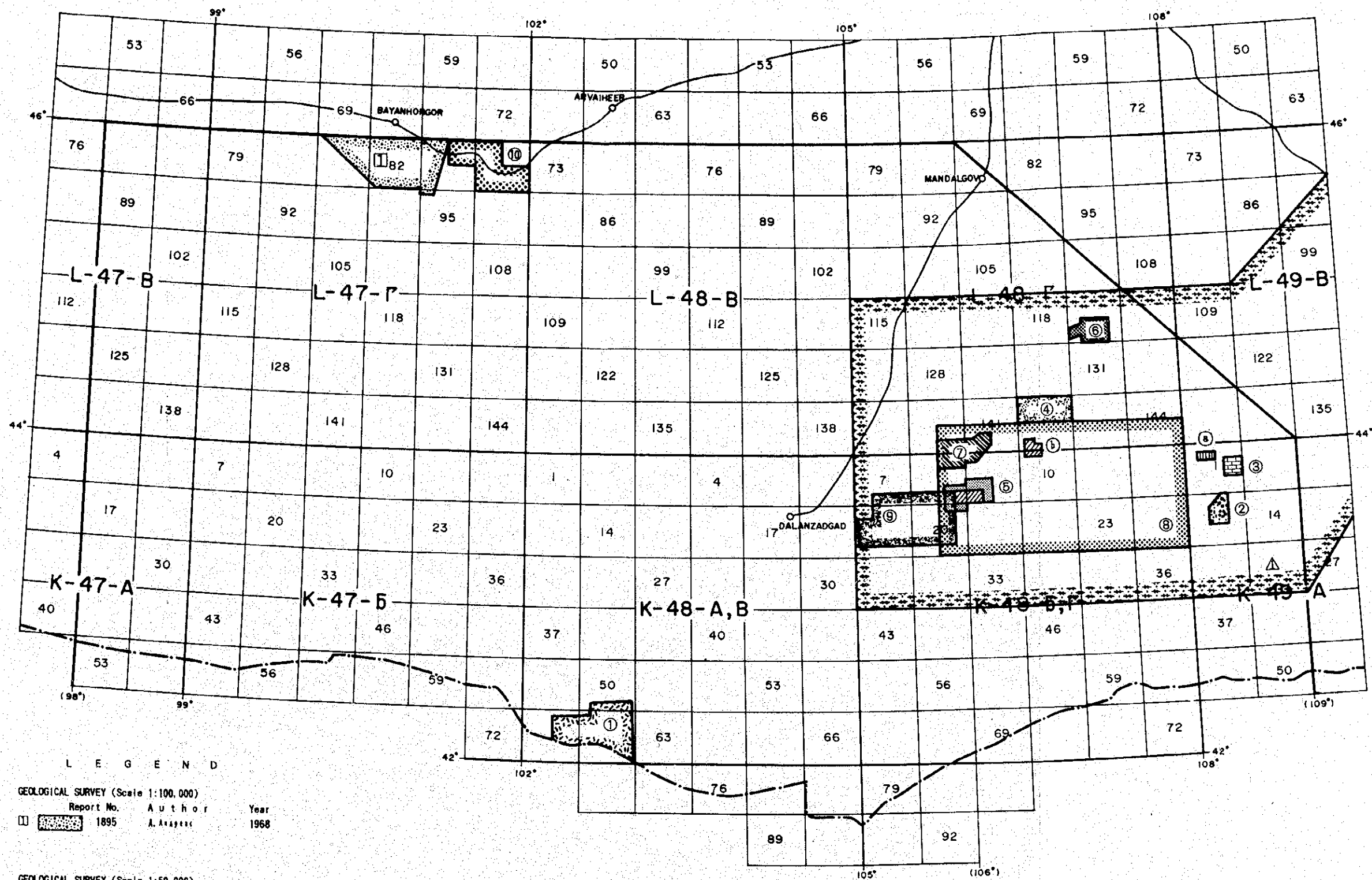


Fig. II-1-4 Location map of areas investigated at a scale of 1 to 200,000 in the past



**LEGEND**

**GEOLOGICAL SURVEY (Scale 1:100,000)**

Report No.	Author	Year
1895	A. Arayev	1968

**GEOLOGICAL SURVEY (Scale 1:50,000)**

Report No.	Author	Year
641,642	Messary	1954
1195	Shaykh	1951
1773	Seyman	1968
2571	G. Janyayev	1977
3022	N. Arayev	1980

3190	Arayev	1955
3366	Messary	1981
3695	N. Kozlov	1981
3740	Kochayev	1984
4544	Cybat	1991

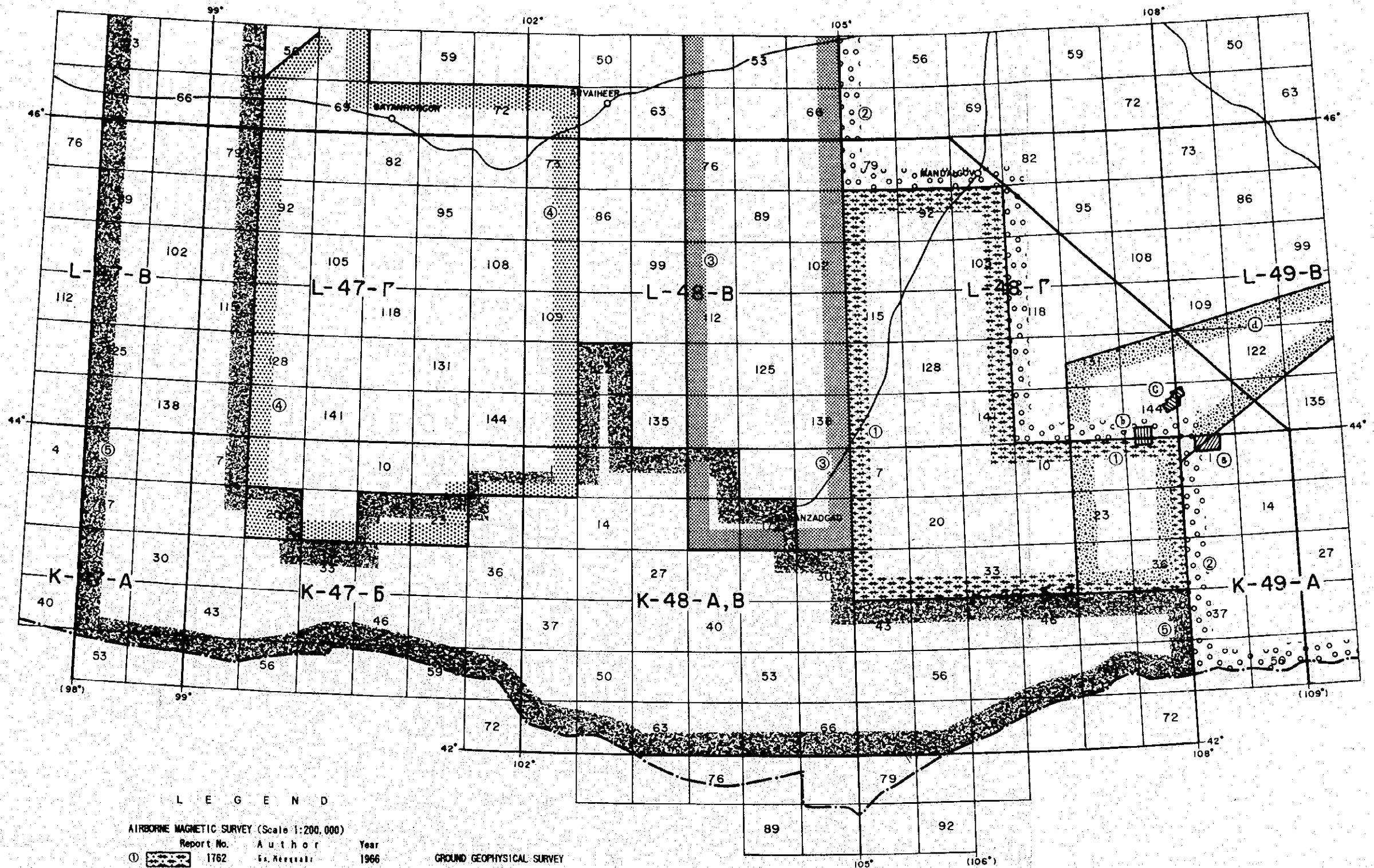
**EVALUATION OF ORE DEPOSITS**

Report No.	Author	Year
2267	Makarskaya	1978
2648		

**DETAIL SURVEY**

Report No.	Author	Year
2772	Усан-Аман, П. Нарсы	1979
3615	N. Kozlov, Geyge	1983

Fig. II-1-5 Location map of areas investigated at a scale of 1 to 50,000 in the past



L E G E N D

AIRBORNE MAGNETIC SURVEY (Scale 1:200,000)				GROUND GEOPHYSICAL SURVEY			
	Report No.	Author	Year		Report No.	Author	Year
①	1762	St. Negeal	1966	①	2347	Asakuyayya	1977
②	?	?	1963-1967	②	2591	Asakuyayya	1978
③	3454	Kcaca	1981	③	2987	Asakuyayya	1980
④	4354	Sakuyayya	1990	④	3614	Keia	1983
⑤	4547	Sakuyayya	1991				

Fig. II-1-6 Location map of areas investigated by geophysical method in the past

recorder, flight line interval of 2 km and flying height of 220 m. Magnetic profiles along the traverse and magnetic anomaly maps after subtracting IGRF were prepared, and analysis maps showing the qualitative interpretation of the magnetic anomalies were prepared. The major results obtained are; the large subsurface structure (mainly faults and folds) and the distribution of mafic to ultramafic bodies.

There are four reports regarding surface geophysical survey mainly in East Gobi Province. Wide-ranging methods were employed; time domain IP, resistivity, gamma-ray radiometry, EM and others. The results showed relatively small and weak anomalies and it was concluded that only small mineralization could be expected from the work.

### 1-3 Ore Deposits and Ore Showings

Ten sheets of mineral distribution maps in 1:500,000 scale with plots of the above information and with geologic background covers the present area. These sheets are accompanied by five explanatory texts and all mineral resources including metals, coal, hydrocarbons and industrial raw materials are described. Geochemical anomalies are also plotted. Description of important prospects covers two or three pages and relevant data such as location, commodities, grade, geology et cetra are listed for those with low potential. Chemical analysis is all done by spectrometry and the number of analyzed samples are small, in some cases only one or two samples. Thus the analytical results must be interpreted with care. There are many cases of geochemical survey where the analytical values are not shown.

One hundred and twenty-six ore showings of gold, 46 showings of silver, 207 copper showings, 52 showings of lead and 10 zinc showings were extracted in this area.

Ore deposits and showings of gold, silver, copper, lead and zinc were extracted from the above documents and plotted on a 1:1,000,000 scale map (PL. II-1). All mineral showings are listed in Table II-1-1. The location of the showings in the map (PL. II-1), references, grade and other relevant data are included in this list.