

## ACTIVITIES OF THE MINERAL RESEARCH AND EXPLORATION INSTITUTE DURING 1960

### I. Geological Work

1. In connection with the preparation of the 1/500,000-scale Geologic Map of Turkey, a total of 63,550 km<sup>2</sup> belonging to the map-sections of Adana, Sinop, İzmir, Kars and Samsun were worked on and partially completed. Also the 1/100,000-scale map was revised in corresponding parts. Some of the map-sections, such as those of Kayseri, Diyarbakır, Kars, Trabzon, Van and Cizre are ready and waiting to be printed.

2. Petroleum prospection is carried out in the Amasya, Gümüşane, Elazığ, Kırşehir, Kayseri, Malatya, Sivas, Çorum, Tokat, Yozgat and Erzincan regions and the geological study of an area covering some 50,000 km<sup>2</sup> was thus completed on a 1/100,000-scale map.

3. Individual projects carried to completion during 1960 include the geological study of the vicinity of Çamlar village near Bakırköy, İstanbul, study of the vicinities of Kilis, Side and Zir (Ankara), ground test on the spot where the Technical University (Ankara) is to be built and finally hydrogeological studies of the Haymana and Sivrihisar hot springs.

### II. Mineral Deposits

1. *Copper, pyrite and zinc.*— Detailed geology coupled by drilling wherever necessary was undertaken in the district of Murgul, Tirebolu, İspir and Erzurum, while prospecting was carried out in Artvin, Lahanos and Torul regions.

2. *Heavy and rare minerals.*— In the vilayets of Ödemiş and Fethiye, in

western Black Sea district, an area of 45,000 km<sup>2</sup> was prospected for heavy and rare minerals and the samples brought in were tested in the laboratory.

3. *Iron.*— Detailed geology plus drilling and mining operations were continued in the iron districts of Hasan-Çelebi (Malatya) and Karamadazı (Kayseri). In addition to a number of iron ore occurrences preliminarily examined in Western Anatolia, the stretch of area between Divriği and Hekimhan iron deposits was systematically prospected.

An area aggregating 124,000 km<sup>2</sup> in the Western, Central and Eastern Anatolia was subjected to an airborne magnetometric prospection. Anomalies noticed are being studied.

4. *Lead.*— The granitic region of Egrigoz, in Western Anatolia and the region of Ulubey (Ordu) were searched for lead.

5. Prospecting was conducted in Mardin, Hakkari and Antalya regions preparatory to the next year's work. Detailed geological study of *phosphates* in Gedikkaya, Söğüt-İnhisar region was also completed.

6. *Boron minerals.*— Detailed geological study and exploratory drilling on the boron mineral deposits in Emet (Kütahya) was carried on.

7. *Chrome.*— Detailed geological study of the chrome ore deposits in Gürleyik and Gücek was also completed.

8. *Tungsten.*— Over an area of some 225 km<sup>2</sup> detailed geology was conducted and 19 Ankara regions were picked up for further investigation.

Samples taken to the laboratory were subjected to petrographical determination.

9. *Gold*. — Some regions in Izmir, Çanakkale and Fethiye were prospected for gold along with detailed geology and drilling performed on some locations.

10. *Radioactive minerals*. — Prospection of radioactive minerals were conducted in Karpuzlu-Çine-Bozdoğan-Nazilli (Aydın), Sayrakçı-Kızılcabölük-Kisni-Turgut (Denizli, Muğla), Koçarlı-Mersinbeli (Aydın), Kargıcak -Yeniköy (İçel, Muğla), Salihli (Manisa), Polatlı-Sivrihisar-Beylikahır (Ankara, Eskişehir), Kırşehir - Reşadiye - Şebinkarahisar (Tokat, Giresun) and Bergama (İzmir) districts, in Thrace, in Eastern and Southeastern Anatolia as well, over large areas totalling 196,500 km<sup>2</sup>, 29,500 of which done on foot or car, that is on the surface, while the rest (167,000 km<sup>2</sup>) was prospected aurally, In some places exploratory mining work including trenches, tunnels and drilling was taken up and carried through. Radiometric maps of some sections were also prepared.

#### 11. *Exploration for coal*

Bituminous coal. — Drilling program underway in Amasra, east of the Zonguldak Coal Basin, continued with a new discovery of reserves estimated at 15,000,000 tons in addition to the already known 45,000,000 tons.

Lignite. — Exploratory drilling work conducted in Söke (Aydın) and Kemalpaşa-Devecikonağı (Bursa) resulted in determination of 4,000,000 tons and 12,000,000 tons of reserves respectively. Detailed geology was done in Hazru (Diyarbakır), Gürün (Sivas), Hasarca (Malatya), Yarpus (Adana), Deniz-Soma (Manisa), Gördes-Alabarda (Kütahya), Ovacık (Çorum), Salıpazarı (Bolu), Bayburt (Gümüşane) and Kuşadası (Aydın) and prospection work carried on in Küçükkuyu (Çanakkale), Şile, Silivri-Çekmece (İstanbul), Amasya (Amasya), Bayındır-Nazilli (Aydın) and Oltu (Erzurum).

### III. Geophysics

Geophysical work done included the following: magnetometric measurements were made to locate iron ores deposits in Sakarkaya (Muğla), Keban (Elazığ), Genç (Bingöl) and Çetinkaya, Simav (Sivas, Kütahya) regions. For pyrites and chalcopyrites electromagnetic method was used in Espiye - Killik - Tirebolu (Giresun) regions. In Büyük Menderes and Küçük Menderes valleys seismic and resistivity studies were carried out for State Water Works and cores taken from 226 wells, drilled by SWW, were tested for radioactivity.

### IV. Technical Operations

Mostly drilling, conducted in various regions for various types of deposits are shown below :

<i>Type of Deposit</i>	<i>Number of wells</i>	<i>Drilling total in meters</i>	<i>Location</i>
Bituminous coal	—	5 072	Amasra-Tarlaağzı and Kandilli districts
Lignite	47	15 514	Söke, Devecikonağı, Karaisalı and Gediz-Soma
Radioactive minerals	17	1 052	Şebinkarahisar, Milâs, Sivrihisar and Mersinbeleni
Petroleum	1	1 795	Antalya
Various minerals	76	8 516	Hasançelebi, Karamadazı, Murgul, Tirebolu, Çanakkale and Emet
Water	2	21	Mürted plain, Ankara

### V. Laboratory work

Macro, micro and phyto-paleontological determinations numbered 2733. In addition to 6984 chemical, mineralogical, flotation and coal tests, 1209 radiometric analyses' were carried out in various laboratories.

### VI. Topography and Photogeology

Topography. — 709 secondary triangulation points were determined over an area covering 3750 km<sup>2</sup> that belonged to 23 map-sections (scale : 1/25,000) in the Sivas-Kayseri district,

with necessary computations completed. Topographic maps totalling 2218 km<sup>2</sup> were prepared in scales 1/500 and 1/5000. Length of geological profiles summed up to 37,417 meters. Measurements for 352 m underground work and 268 drill holes, trenches etc. were worked out.

Photogeology. — Photogeological studies of some regions were taken up as follows : in Hekimhan (Malatya) for iron ore deposits, totalling 621 km<sup>2</sup>, in Çanakkale, for gold, covering 300 km<sup>2</sup> and in the region of Gördes-Akhisar, where lignite may be found, covering 800 km<sup>2</sup>.