

ACTIVITIES OF THE MINERAL RESEARCH AND EXPLORATION INSTITUTE (M. T. A.) DURING 1958

The geological studies, mineral prospecting and laboratory work, carried out by the M. T. A. Institute during 1958, can be summarized as follows :

I. STUDIES UNDERTAKEN

1. Geological studies

a. *Work done on geological maps :*

With a view to complete the 1/500,000-scale map, field work covering a total area of 102,860 km² on the map-sections of Trabzon, Erzurum, Adana, Sivas, Sinop and İzmir was carried out.

The geologic revision of an area of 2,200 km² was completed in connection with the map-sections nos. 94/1, 2, 3 and 4 of the 1/100,000-scale map.

The geology of an area of 400 km² in the Bilecik region was plotted on the 1/25,000-scale topographic maps.

b. *Studies relative to petroleum geology :*

Study of an area which covered approximately 30,000 km² in the regions of Sivas, Çankırı and Çorum was also taken up and carried to completion with the purpose of locating interesting structures.

c. To find more water, hydrological studies were carried out within the counties of Gönen and Kilis.

2. Mineral prospecting and studies

a. *Metallic minerals :*

A variety of prospecting work coupled with detailed, geology was taken

up and carried through in a number of regions; namely, for copper lead and zinc in the vilayet of Giresun; for copper and iron in the vilayet of Artvin, for iron at Çamdağ in the vilayet of Sakarya; for gold in the vilayet of Aydın; for aluminum in the vilayets of Antalya, Kenya and Isparta; for barite in the vilayet of Muş and Lapseki and Umurbey districts of Çanakkale; for chrome in the Pozantı districts of the vilayet of Adana; for lead, iron and vanadium in the Keban region of the vilayet of Elazığ; for iron, bismuth and nickel in Divriği, Sivas; for lead and chrome in the vilayet of Maraş. In addition, a search for limonite at Emet, vilayet of Kütahya and for borium in several regions of the western Anatolia must be added to the list.

b. *Lignite :*

Regional studies in the Dursunbey area in Balıkesir and in the Edirne-Kırklareli district were taken up besides the general geology done in Vazıldan, Sivas and in Kapçıktı, Balıkesir districts, as well as the detailed geology conducted in the Seyitömer district of the vilayet of Kütahya, which pointed to the possible presence of an estimated 15-50 million tons of additional lignite.

c. *Non-metallic minerals:*

Istrancalar district in Thrace was searched for feldspar, the vicinity of Çatalca for quartz and sand, along with detailed studies undertaken for porcelain raw material.

d. Radioactive minerals:

General prospecting together with a detailed study was conducted in the following areas and localities, and radio-metric maps prepared for some of them: Divriği, Yıldızeli, Kevik and Akdağ in the vilayet of Sivas; the neighbourhood of the villages Yortan and Kerkenez in the vilayet of Yozgat; Şebinkarahisar (Asarcık) in the vilayet of Giresun; vilayet of Gümüşane; Karakaya district of the vilayet of Eskişehir; region of Gediz in the vilayet of Kütahya; near Edremit in the vilayet of Balıkesir; Milas and Çine within the district of the Menderes Mountain-range; Dinar in the vilayet of Afyonkarahisar and also the vilayet of Kırşehir. In order to speed up the prospecting for radioactive minerals, special scintillometers were used in aerial survey flights made over regions of the vilayets of Sivas (Akdağ madeni), Afyonkarahisar, Diyarbakır, Urfa, Yozgat, Elazığ, Kars, Kırşehir, Malatya and Niğde.

II. EXPLORATORY WORK DONE

Coal (Amasra) :

In order to learn more about the geologic structure and the extension of coal measures within the Zonguldak-Amasra coal basin, exploratory drilling on seven locations, adding up to 3,170 meters, were carried to completion with results indicating the presence of approximately 30 million tons of coal.

Lignite :

Manisa-Soma.— Here 28 holes, totalling 5,744 meters, were drilled with detailed geology conducted on the side. As a result, 24.5 million tons of visible and approximately 25 million tons of probable reserves were determined.

Yerköy.— 2 holes, with a total depth of 541 meters, were drilled in Yerköy as part of a geologic investigation.

Balıkesir.— In parallel with the detailed geologic studies, exploratory wells drilled in different places in Balıkesir gave the following results :

3 wells in Sebepli region, totalling 413 meters, 600,000 tons of probable reserves.

4 wells at Çırpılar, totalling 396 meters, approximately 500,000 tons of reserves.

2 wells, in Ayvacık, totalling 317 meters, 80,000 tons of reserves.

Barite :

Bilir, Muş.— An area of 4,200 km² was geophysically surveyed for barite, using gravimetry and resistivity methods, and in an area covering 3,000 m² prospecting was conducted. This latter included the digging of 20 trenches of approximately 370 m³ and 9 drill-holes adding up to 316 meters.

Copper :

Tirebolu.— Using resistivity and electromagnetic methods in the vicinity of Lahanos, resistivity and «mise a la masse» in the region of Harkköy, and self-potential on several other locations, geophysical survey for copper was carried out in Tirebolu; in addition detailed geology and exploratory drilling, totalling 3,178 meters, was completed on 53 different locations (of this : 380 meters of underground drilling on 23 locations and 2,798 meters of surface drilling on 30 locations). As a result, several million tons of copper ore were estimated.

Boxite :

Akseki.— A geologic survey and systematic prospecting was carried out over an area of 1,250 km² along with 12 trenches of 824 m³ and a total of 309 meters of drilling on 7 locations.

Aplite :

Küre, Bilecik.— As a result of geotechnical studies conducted in the region, reserves approximating 300,000 tons were calculated.

Radioactive minerals

Divriği.— Along with radiometric prospecting that took place, the following exploratory mining activities, namely, 38 trenches (earth removed 543 m³), six shafts with a total depth of 27 meters, one 48 meter-long tunnel, three underground drill-holes adding up to 32 meters and nine other surface drillings, totalling 242 meters, represented the work done in Divriği.

Karakaya, Eskişehir.— Here, in addition to a detailed radiometric survey, 7 trenches (242 m³) were dug and drilling on 7 different locations, totalling 341 m., was carried out. The work is not yet finished.

Yıldızeli.— In the line of an investigation, 3 trenches were dug with 368 m³ of earth removed.

III. LABORATORY AND TOPOGRAPHICAL WORK

1. Laboratory work*a. Paleontology :*

1,057 samples were subjected to macro and micropaleontologic examination.

b. Analyses and tests :

About 4,424 different samples, mineral as well as coal or lignite, brought in from various places, where any type of field work is in progress, were subjected to chemical analyses and other tests in order to determine their contents and characteristics. In addition to flotation tests made on copper, Lead and zinc ores from Tirebolu-Harkköy a number of other tests were run to find

out the adaptability of lignites from the Kütahya district in production of coke and briquettes.

2. Topography and Photogeology

Work done in this line consisted of the following :

- a. Preparation of the topographic maps of various parts of Denizli, Uşak, Kırşehir, Tirebolu, Divriği, Muş, Sivrihisar, İstanbul, Akseki, Beyşehir and Muratsuyu-«Varto».
- b. Carrying through of the necessary coordinate computations for all points of interest encountered during the field works and plotting of their locations.
- c. Mapping of the concession areas complete with boundaries, triangulation points and some profiles.
- d. Placing of the geologic boundary lines on the aerial photographs.

IV. WORK DONE FOR OTHER GOVERNMENT CONCERNS AND PRIVATE PARTIES

1. Geology*a. Hydrology ;*

Necessary hydrological studies were conducted for the account of Sümerbank in order to supply more water to a number of factories operated in Çanakkale, Beykoz, Bursa, Mudanya, Karaman, Maraş, Diyarbakır and Adıyaman. Likewise, M. T. A. did hydrological work for Keçiborlu Sulphur Mine and for the Power Plant planned to be set up in Kütahya.

b. Foundation studies :

M. T. A. was in charge of conducting necessary geological studies on the site where the Middle East University is to construct its various buildings. A report was subsequently

An other report was prepared for and presented to the office of the Ankara Municipality in connection with the problem of land slides at Topraklık.

c. Studies undertaken for mines and industrial raw materials :

Separate studies were undertaken for raw materials needed to operate the cement factories to be erected in Sinop, Manisa, Bartın and Çanakkale.

Studies involving some marble, mica, asbestos and lead (Balya) deposits were conducted for Etibank.

Financed by the Altın Toprak Ltd. Co., M. T. A. completed a survey and handed in a report on the iron deposit in Kırıkkale.

Gypsum deposit studies were carried out for the Azot Sanayii in the vicinity of Gediz and Sarayköy.

In the Küre district a geophysical survey for copper and pyrite was made upon request by Bakırlı Pirit T. A. Co.

2. Exploratory drilling done upon request

The following three projects (paragraphs a., b. and c.) were financed by Etibank :

a. In Beykoz, 10 wells, with a total depth of 312 meters were drilled to get more water for the Sümerbank factory there.

b. In Çatalca, along with the search launched for quartz sand, 7 wells totalling 256 meters were drilled disclosing reserves in excess of 300,000 tons requested.

c. At a locality called Acıpayam-Hızırderesi, vilayet of Denizli, 25 wells totalling 1,351 meters were drilled, which helped locating a magnesite deposit of

about half a million tons. Samples brought in are still under study.

d. Etibank financed also the drilling of a 138 meter-deep Well within the concession area of the Guleman Şark Kromları, the bore-hole cutting through a-chromite vein 10 meters thick.

e. The Kömür İşletmeleri T. A. Ş., a Turkish coal company, requested and paid for a project that involved the drilling of 8 exploratory wells—with a total depth, up to date, of 1,498 meters—in the district of Gediz. The work is still in progress.

f. In Tunçbilek (Western Lignites) 2 wells, adding up to 518 meters, were drilled as requested by the General Directorate of T. K. İ., the government organization in charge of the coal production and distribution in Turkey.

3 Work done in the M. T. A. Laboratories

1,260 different samples, which came in from a variety of private sources, were duly analysed and results made known to the parties concerned. Sporological study was carried out on samples of coal brought in by the firms Ahmet Uncu and Ünberg Ararat.

CONCLUSION

Thus, in order to help learn more about the geology or to go into mine prospecting and surveying with greater certainty on some regions and localities, the Institute has carried through, on a state-wide scale, exploratory drilling totalling, in the fiscal year of 1958, 19,378 meters, as against a predicted 12,280 meters. Of this total 3,543 meters were drilled outside the M. T. A.'s own program, either for the government offices or private sector.