

ANCIENT MINER'S SHOVEL DISCOVERED AT ANAYATAK MURGUL MINE, TURKEY

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ABSTRACT. — An ancient adit was discovered in 1967 at the Anayatak open pit in Murgul, located in the eastern part of the eastern Black Sea region. A shovel carved from wood was collected from this site, and was dated by the C-14 method. This is rather an important discovery with regard to the history of the Turkish mining practices.

INTRODUCTION

The advanced technology of today is undoubtedly the outcome of the past experience of early people striving to learn more about the minerals and their possible uses.

The underground resources of Asia Minor represented one of the principal elements in the cultural and technological development of the nations living here, which also affected other nearby civilizations of the Near East.

Murgul mines, located east of the Black-Sea region and characterized by abundant copper, zinc and lead deposits, contain important archeological material which may shed light on the mining history of Turkey, it is well known that Murgul deposits have been mined not only in the near past, but also in ancient times, dating as early as several thousand years B.C. For example, the discovery of ancient slag heaps in the neighborhood of these mines indicates that early people of Anatolia smelted ore using the firewood from the nearby woods. Such slag heaps can be observed on the hills surrounding the Çakmak kaya ore mines. Furthermore, several ancient adits and implements used in these mines were discovered in the Murgul mining district, confirming that mining activities were carried out even in the years preceding the B.C. era.

SITE OF THE DISCOVERY

The Murgul mine is located at Damarköy, in the vicinity of Murgul Township (Borçka County, Artvin Province) (Fig. 1) and the present mining district comprises Anayatak, Çakmak kaya, Çarkbaşı and Kızılkaya localities (3).

The material described here was found in an ancient adit discovered at Anayatak, a locality showing the strongest mineralization in this area. The mineral has been worked previously at three separate sites called Cangara, İskep and Satep. But presently it is mined as a single deposit under the name of Anayatak (S). During the work carried out at the Anayatak open pit in 1967, an ancient adit about 70-80 cm in diameter was discovered in the oxidized ore zone. Here, a miner's shovel carved from wood was found. This discovery is of a particular importance in the study of the Anatolian mining history (Photos 1 and 2).

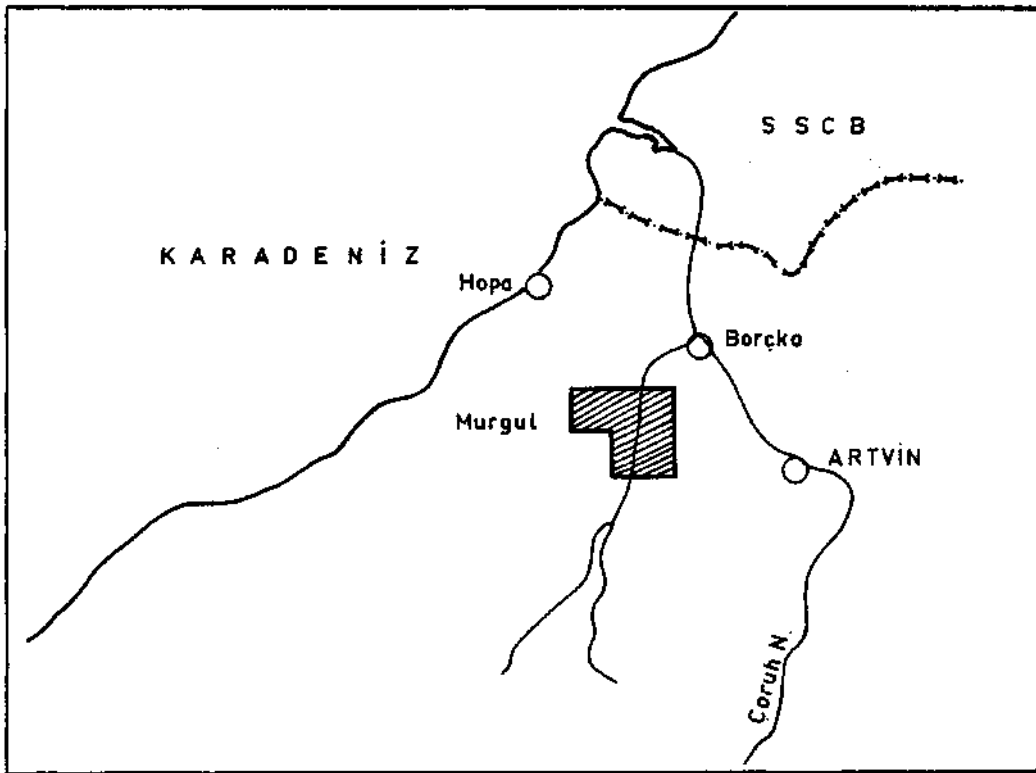


Fig. - 1

DESCRIPTION OF THE MATERIAL DISCOVERED

Locality : Anayatak, Murgul mines.
Time : Second half of the first millenium B.C.
Material : Miner's shovel.

Measurements (in cm) :

Length of the the scoop up to the beginning of the handle	24.5
Width of the scoop.....	12.0
Thickness of the scoop	0.8
Length of the handle (in present state).....	27.5
Thickness of the handle.....	2.5

Characteristics : The shovel discovered had been used as a mining implement; it is entirely sterilized as it stayed for a long time immersed in water containing copper sulphide. The rim of the scoop is considerably worn out by use, and part of the handle is missing (Fig. 2).

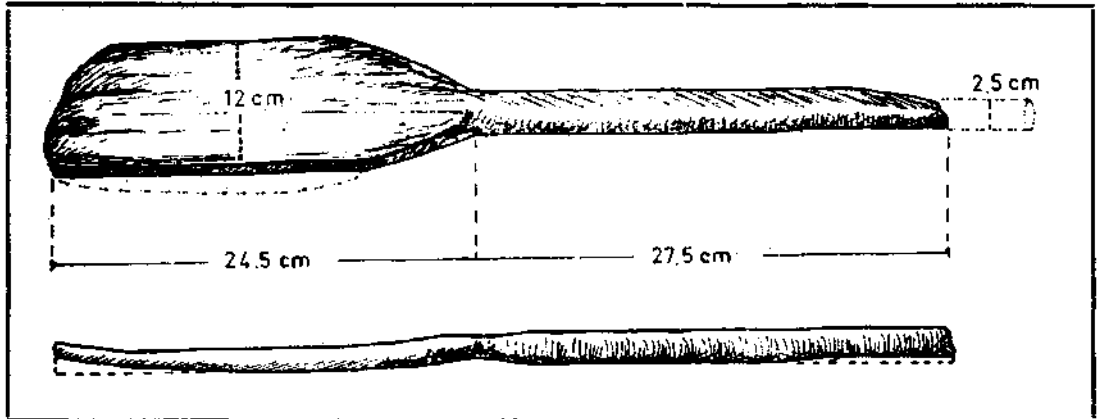


Fig. - 2

AGE DETERMINATION

A small fragment of wood taken from the handle of the shovel—which is kept now at the Mineralogy Section of the Natural History Museum of the M.T.A. Institute (inventory no. 854)—was analyzed at the Laboratories of the Physics Dpt., Middle East Technical University, by the 5730 radioactive half-life C-14 method. The results are given below:

2266 ± 170 before 1950 A.D.

316 ± 170 B.C.

On the basis of the C-14 dating—although no other material was available for comparison—it may be assumed that the mining of the ore deposits in the Anatolian region was carried out as early as in the second half of the first millenium B.C. However, it should be noted that this age determination performed by the C-14 method cannot be taken as the beginning or termination date of the first exploitation activities carried out by the ancient inhabitants of Anatolia in the Murgul mining deposits.

SIMILAR DISCOVERIES

During surveys conducted in 1974 at Artova, Province of Tokat, an ancient mine site with remains of what may be a caved-in pit was discovered (4) in a locality named «Ağaca Ağaca» near the Karaoluk village. It was reported that about ten years ago a shovel some 150 cm long was discovered at this site by the villagers (at a depth of 15 meters). Unfortunately, no further information could be obtained with regard to this discovery and the shovel does not exist today. However, a sample of mine timber, which shows traces of copper oxide, was taken from this site and was submitted for analyses by the C-14 carbon dating method, using a half-life of 5730. The age determined is as follows:

696 ± 206 before 1950 A.D.

1254 ± 206 B. C.

It should be noted that several other ancient adits were also encountered in different parts of Turkey. These discoveries were made while exploration drilling work was carried out in order to evaluate reserves in various mining production centers, besides the Murgul mineral

deposits Among such should *be* mentioned ancient production sites found at the Kayseri-Denizovaşı zinc-lead mine (6) and the adits discovered at the Ergani Maden copper mine (1), as well as the Keban galena mine in the vicinity of Hazine Mağara locality; furthermore, an ancient pit was discovered, probably dating as early as 2800 B.C., in a copper sulphide deposit in the forests of the Erbaa-Kozlu area, where surveys were carried out in order to discover new mineral deposits (2). Some of these workings are very ancient, going back probably to a B.C. era, while others represent more recent past and can be considered as the prototypes of the modern Turkish mining practices.

CONCLUSION

The shovel discovered in an ancient adit of Anayatak, Murgul, should be considered as evidence to assume that the ore deposits occurring in this area have been mined not only in the relatively near past, but also during the ancient times, dating as early as the second half of the first millenium B.C. Unfortunately, this is the only material available, since no other objects were found in the same area, which would otherwise be used as a basis for comparisons. It is, therefore, essential that the age determined by the C-14 technique should not be taken as the beginning or the termination date of the mining activities carried out in the Murgul mining district in the early era B.C. Additional surveys should be taken up and new discoveries made to confirm that these mining activities date back to times immemorial.

Furthermore, several other ancient adits, like those found at Anayatak, are being discovered in various parts of the country where, although very rare, some artifacts—e.g. various types of implements used for mining purposes—were found. However, as we have no sufficient information today about these objects, the shovel discovered in an ancient adit at Anayatak whose age was determined by the C-14 dating method could not be compared with similar material.

We may conclude, therefore, that the miner's shovel described in the present paper because of the material used in its manufacture, its general shape and the locality where it was discovered should be considered as a very important discovery, which contributes greatly to our understanding and knowledge of the ancient mining history of Anatolia.

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Foto 1 -

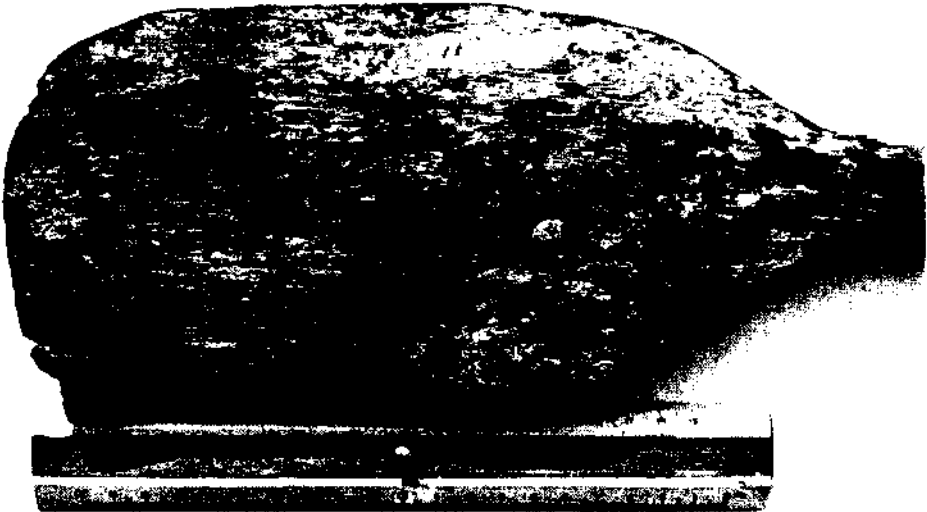


Foto 2