

Cyprus – Colonial Geological Surveys 1947-1956

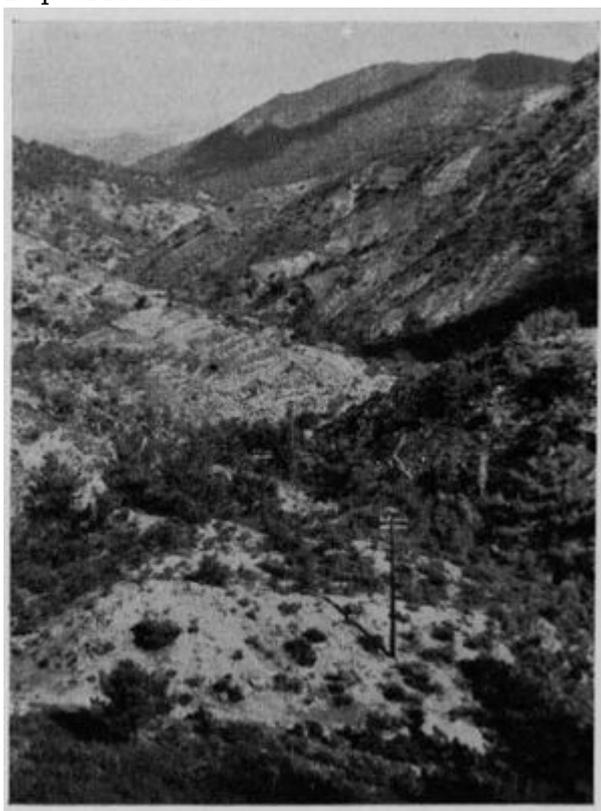
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From Dixey, F. 1957. [Colonial Geological Surveys 1947-1956: a review of progress during the past ten years](#). Colonial geology and mineral resources. Bulletin supplement No. 2. London: HMSO.



Geological and mining features, Cyprus.
Panoramic view of the Amiandos Asbestos Mine, Troodos Range, where chrysotile is worked on a large scale by modern open-cast methods. Photo: Geological Survey Dept. Plate XVII.

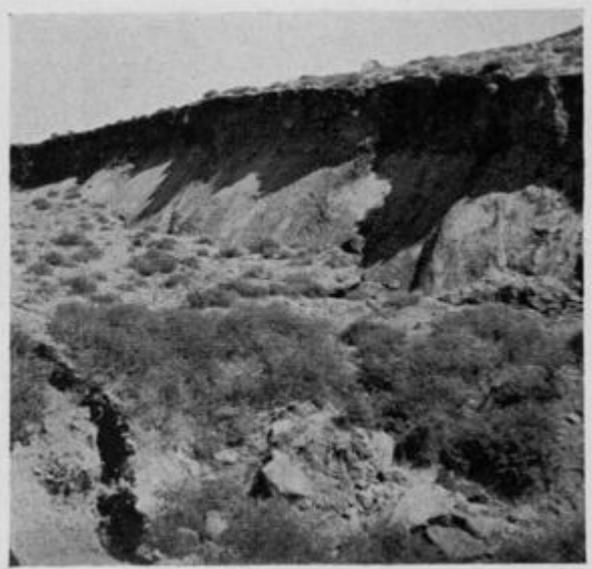


Geological and mining features, Cyprus.
Typical diabase terrain in the Kannavia Valley, about 7 miles NE of Troodos. Photo: Geological Survey Dept. Plate XVII.



[Photos: Geological Survey Dept.]

Geological and mining features, Cyprus. Mavrovouni copper-pyrite mine and railway to treatment plant at Xeros. Photo: Geological Survey Dept. Plate XVII.



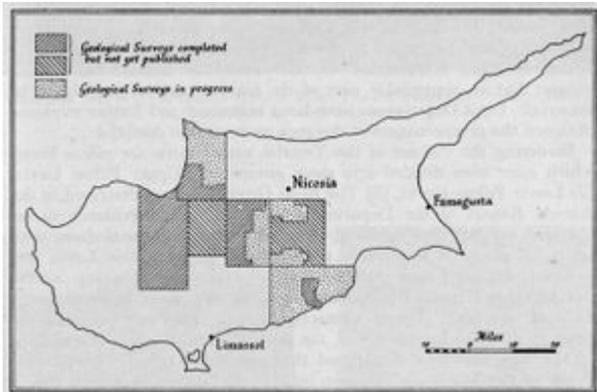
Earthquake features, Cyprus. A 10-foot landslide caused by earthquake in marls near Salamiou. Photo: Geological Survey Dept. Cyprus. Plate XVIII.



Earthquake features, Cyprus. Distant view of the landslide shown in the adjacent photograph. Photo: Geological Survey Dept. Cyprus. Plate XVIII.



Earthquake features, Cyprus. House damaged by earthquake, Ktima. A major task of the Cyprus Geological Survey Department in recent years has been the re-siting of villages affected by earthquake shocks. Photo: Geological Survey Dept. Cyprus. Plate XVIII.



Areas mapped, or in course of mapping, in Cyprus by the Geological Survey Department, 1947-56. None was carried out prior to 1947. From October, 1950 to 1956, 700 sq. miles were mapped on scale 1 :

5,000. Areas in hand comprise 734 sq. miles, but it is intended ultimately to complete the mapping of the whole island. Text-fig. 13.

Cyprus

The Geological Survey Department of Cyprus is still in its infancy, as official work did not commence until October, 1950, when a senior geologist was appointed. Before this time, various papers and maps had been published, though many were by authors who had paid only brief visits to this country; a list of the most important of these earlier works has been given in the Departmental Annual Report for 1955, two of the more recent ones being a geological map on a scale of 4 miles to an inch, published by the 42nd Geological Section G.H.Q. Middle East in 1940, and a paper entitled "A Synopsis of the Stratigraphy and Geological History of Cyprus " by Henson, Browne and McGinty, published in the Quarterly Journal of the Geological Society in 1949.

The Department was at first attached, for accountancy purposes, to the Lands and Surveys Department, but became a separate unit in January, 1955. Until 31st March, 1956, its work was financed entirely from funds provided under Colonial Development and Welfare Acts, and its primary intentions were to examine the mineral potentialities of Cyprus, to assist in their development, and to carry out geophysical prospecting. It was therefore essential from the outset to map the igneous rocks of the Troodos massif, in which the bulk of the economic minerals are believed to occur, but, because of its complex geology, an early decision was made to postpone any geophysical work until the geological mapping had been completed. Early in 1956 the scope of the Department was widened, when the necessity for a detailed geological map covering the whole island became apparent, for such a map would not only form the basis of planned development in several fields, but be of value to the Departments of Agriculture and Water Development, and to the Public Works Department. Although a larger establishment has therefore been approved, slow recruitment of staff has not yet allowed progress to be made at the rate desired. At present there are vacancies for 1 senior geologist, 3 geologists and 1 palaeontologist.

As already indicated, the geology of various parts of Cyprus is particularly complicated, especially that of the igneous rocks, and it was soon found necessary to map on the scale 1 : 5,000, or about 12½ inches to a mile. Such mapping is necessarily slow compared with that on the much smaller scale which is usually carried out by most Colonial Geological Surveys. The first task of the Survey was to map in detail an area of country extending north and south through the Troodos igneous massif. Small extensions to the original selected area were made, and a strip 12 miles wide and ultimately covering 265 sq. miles from Xeros to beyond Troodos has now been mapped. Mapping of an adjoining strip from Peristerona to Lagoudhera, comprising 170 sq. miles, has also been completed. Four other areas are at present being mapped, the first of which is a rectangle to the east of the above, including Akaki and Lythrodhonda. The second adjoins this, but is still further east and extends from Athalassa to beyond Sha. The third, to the south of this and extending to the coast from Zyyi-Larnaca, has only recently been begun. The fourth, in which sedimentary rocks are dominant, was started in 1956 and includes the area from Cape Kormakiti to beyond Morphou. The first three areas were selected primarily for their mineral possibilities, while the fourth was chosen on account of water-supply probabilities and agricultural development. To date, the areas mapped in these four sections are approximately 95 sq. miles, 120 sq. miles, 20 sq. miles and 63 sq. miles respectively. From aerial photographs, reconnaissance and field trips, a provisional geological map covering more than 100 sq. miles, on the scale 2 inches to a mile, has been made of portions of the Paphos district.

The ultrabasic rocks which form the highest portion of the Troodos massif have been divided into

four groups, namely: (1) dunite, (2) enstatite-olivinite, (3) harzburgite, and (4) peridotite. The central ultrabasic rock is surrounded by a zone of gabbro which includes olivine-gabbro, diopside-gabbro and quartz-amphibole-gabbro. The gabbro in turn, in portions of the area, has a fringe of granophyric rocks, which are characterised by their richness in quartz and epidote.

The whole of these ultrabasic rocks has been intruded into diabase, which is believed to extend from its outcrop boundaries in a WNW-ESE direction for approximately 45 miles. This rock has been described by Bishopp as the Folded Diabase Series, and is considered by him to represent ancient volcanic flows and intrusive sheets. Considering their large extent, this mode of origin appears reasonable, but later evidence however of diabasic dykes in the Basal Series, and remains of pillow structures some considerable distance from the diabase boundaries, suggest that an appreciable part of the diabase may be intrusive dyke material. Until larger areas have been examined and further evidence obtained the precise nature of this rock must remain doubtful.

Bordering the diabase of the Troodos massif there are pillow lavas, which have been divided into three groups: (1) Upper Pillow Lavas, (2) Lower Pillow Lavas, (3) The Basal Group, and are described in the Annual Report of the Department for 1955. Field evidence so far obtained suggests that the Basal Group may antedate the diabase, with which in places it appears to merge. The Upper Pillow Lavas are, however, definitely later than the diabase, which in places they overlie. According to Henson, Browne and McGinty, the pillow lavas are probably of Senonian (Upper Cretaceous) age. They are undoubtedly younger than the Lapithos beds, the earliest of which are Maestrichtian. It has, however, been recognised that pillow lavas and volcanic tuffs occur in the Mamonia (Triassic beds), and Bishopp suggested that a major portion of the pillow lavas fringing Troodos might be Triassic in age. Recent discovery of sediments of Jurassic (probably Liassic) age near Trimiklini, on the south side of Troodos and apparently resting on the Pillow Lava Series, confirms this suggestion and it would appear likely that all the lavas—except possibly in the Kyrenia range—are pre Jurassic and probably of Triassic age.

The earliest rocks known in Cyprus prior to 1952 were the Trypa Formation, to the lowest members of which—the Mamonia Formation, the Petra-tou-Roumiou Limestone and the Akamas Sandstone—an Upper Triassic age has been ascribed. Renz, however, considered some radiolarites to be of Permian age, but this statement requires confirmation. Hornblende- and quartz-mica-schists have now been discovered on the coast near Polis and also near Episkopi, both localities being in the Paphos district. Although the precise age of these rocks is not known, it is not likely to be younger than the Devonian and may be much older.

In the south of the island, rocks of the Mamonia formation and blocks of Petra-tou-Roumiou limestone, associated with lavas and sheared serpentine, are of more widespread occurrence than has been shown on any published geological map. In addition to the two outcrops previously known near Pendakomo, similar deposits have been observed in the Limassol district near Moni, Pyrgos, Parakklishia, Armenokhori, Phinikaria and Akrounda.

During the period under review new mineral deposits have been discovered by mining companies, especially by boring after geophysical prospecting, and both electrical and gravimetric methods have been used. A new mine is being developed at Troulli, and the Hellenic Mining Company has recently proved a pyritic ore-body of about 3 million tons near Agrokippia. It is of interest to record that the mode of genesis of the Skouriotissa ore-body as given by Cullis and Edge can no longer be accepted. The sediments thought by them to act as a blanket to the ore-bearing emanations are now known, as first suggested by Lespineux and De Magnee in 1935, to be of later deposition than the pillow lavas and the ore-bodies. Moreover, many of the deposits discovered later are entirely enclosed within the lavas. Evidence suggests that faults have in a few localities acted as channels for the ore-bearing emanations, but in other deposits no channels have yet been identified. The

Geological Survey is expected shortly to commence geochemical prospecting in the more promising areas found during geological mapping.

Increasing use is being made of the services of the Department in connection with engineering problems. A major task undertaken was the re-siting of villages affected by the Paphos earthquake in September, 1953. Numerous villages were visited, geological surveys were made and new sites were selected for twelve villages. Agricultural areas and roads affected by landslides were also visited, and advice was given. Sites for village schools over a wide area were also examined. Landslides are common in steeply sloping country where soft marls occur at various horizons, particularly where the Mamonia beds occur. These frequently affect villages and roads, and the advice of the Department has been sought on numerous occasions. Other recent inquiries have been on water schemes, dam sites, material for aerodrome fill, dock construction, and the selection of an area for military camps and erection of silos.

The following publications have been issued, or are in course of preparation:

Troodos Massif, Cyprus . by D. W. Bishopp. *Nature, Lond.*, 1952, Vol. 169, No. 4299, pp. 489-490.

Some New Features of the Geology of Cyprus , by D. W. Bishopp. *C.R. 19e Congr. geol. int. Alger*, 1954, Fasc. 17, pp. 13-17.

Annual Report of the Geological Survey Department, 1955, by F. T. Ingham.

The Geology and Mineral Resources of the Xeros-Troodos Area (*In course of preparation.*)

The Geology and Mineral Resources of the Peristerona-Lagoudhera rectangle. (*In course of preparation.*)

The last two publications will include a geological map on the scale two inches to a mile.

Mineral occurrences

Pyrites

Water supply

Cyprus — Staff list

*Geological Survey Department, Nicosia***Bold text**

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