

Calcareous deposits of the brackish-water lakes in Egypt

by

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Bottom deposits were collected from six Egyptian brackish-water lakes in order to estimate the amounts of calcareous materials accumulated, in considerably great amounts, on the bottom of these lakes. The calcium carbonate content of the sediments was determined by means of a chemical method, and the results obtained were calculated as p. 100 of the dry mud.

The lakes considered for this study are : Lake Manzalah (350.000 feddans)*, Lake Brullos (146.000 feddans), Lake Edku (30.000 feddans), Lake Mariut proper (6.500 feddans), Nozha-Hydrodrome (1.200 feddans) and Lake Qarun (50.000 feddans). All these lakes are situated at the North of the Delta of the Nile, except Lake Qarun, which is lying in upper Egypt. The first three lakes are connected directly to the Mediterranean Sea. All the lakes receive drainage waters, except the Hydrodrome which feeds from the Nile water. The water depth of the first four shallow lakes ranges between 50 and 240 cm. However, it may reach 3,5 and 9 metres in the Hydrodrome and Lake Qarun, respectively. The chlorosity of each lake varies according to locality and season. Lake Qarun had the highest chlorosity content. The lowest chlorosity values, on the other hand, were obtained from the Hydrodrome.

The calcareous materials of the Egyptian lake sediments gave variable amounts. The absolute maximum and minimum values of 86,20 and 14,66 p. 100, respectively, were found in the lake Manzalah sediments. The highest average value of the carbonate content of 63,29 p. 100 was found in lake Mariut sediments. The lowest average of 40,20 p. 100, on the other hand, was obtained from lake Edku. The sediments of lake Brullos had also a lower average of 41,70 p. 100. The calcareous materials of the Hydrodrome and lake Manzalah sediments gave nearly the same average values.

The bottoms of the Egyptian lakes are very different from the common European lake bottoms, and have a more marine character. Shell of dead bivalves, specially *Cardium* sp., and empty calcareous tubes of the serpliid worm *Mercierella enigmatica* accumulate nearly on the whole lake bottoms in great amounts. Some of these shells are transported by the action of waves and currents to the lake margin forming calcareous beds.

The high amounts of calcareous materials found in the bottom deposits reflect mainly the richness of these deposits with calcareous shells and shell fragments. The low values of calcium carbonate content, on the other hand, are found in sediments poor in calcareous shells. The scarcity of these shells at certain stations of the lake bottom is mainly attributed to : 1. the unfavourable ecological conditions necessary for the growth of calcareous organisms at these localities; 2. the continual covering of these shells with minerogenic matter carried out to the lakes by drains, and with sand transported to the lakes through the lake-sea connection; 3. the solution of calcium carbonate which may occur after the death of the organisms.

* One feddan is equivalent to 4.200 m².

