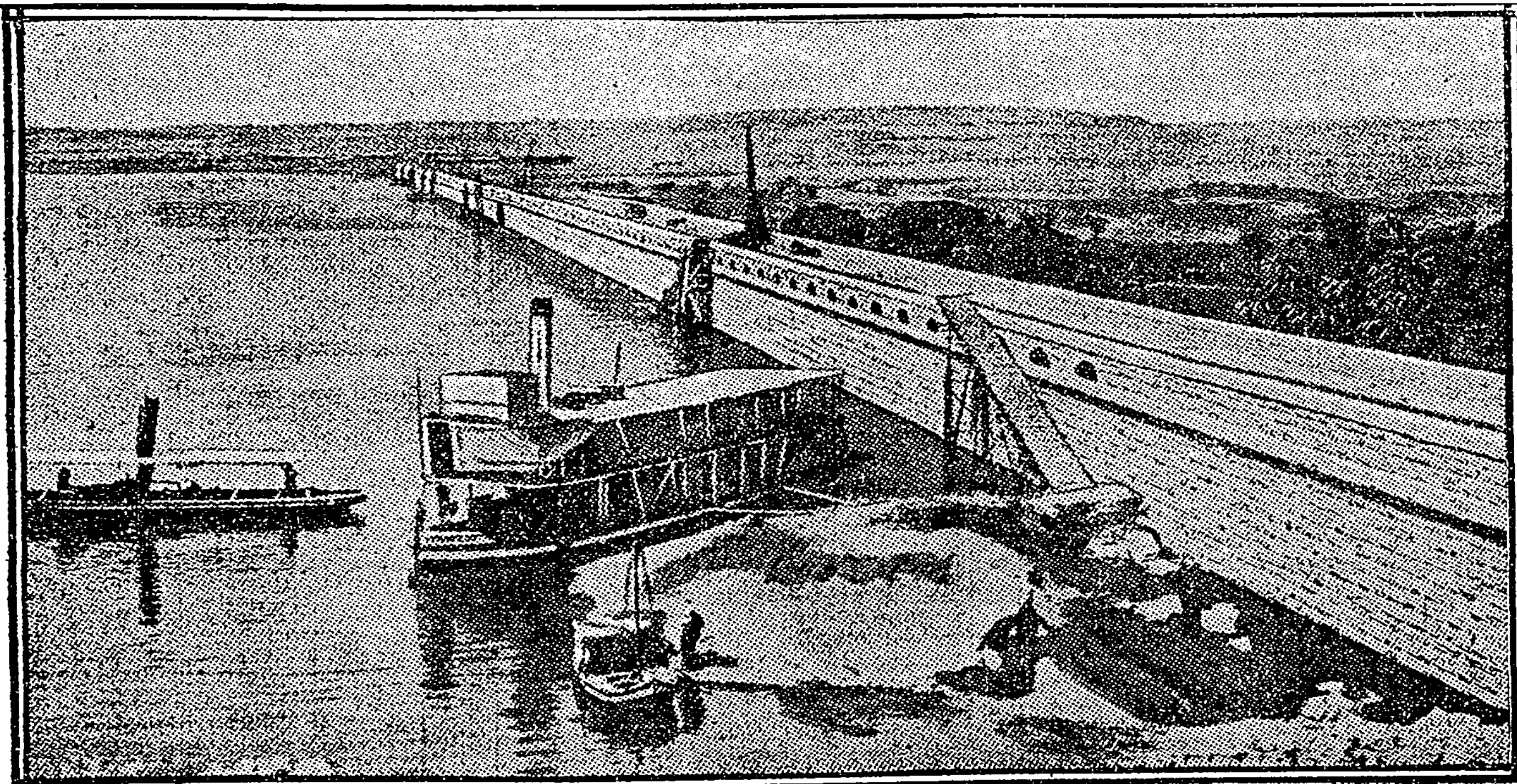
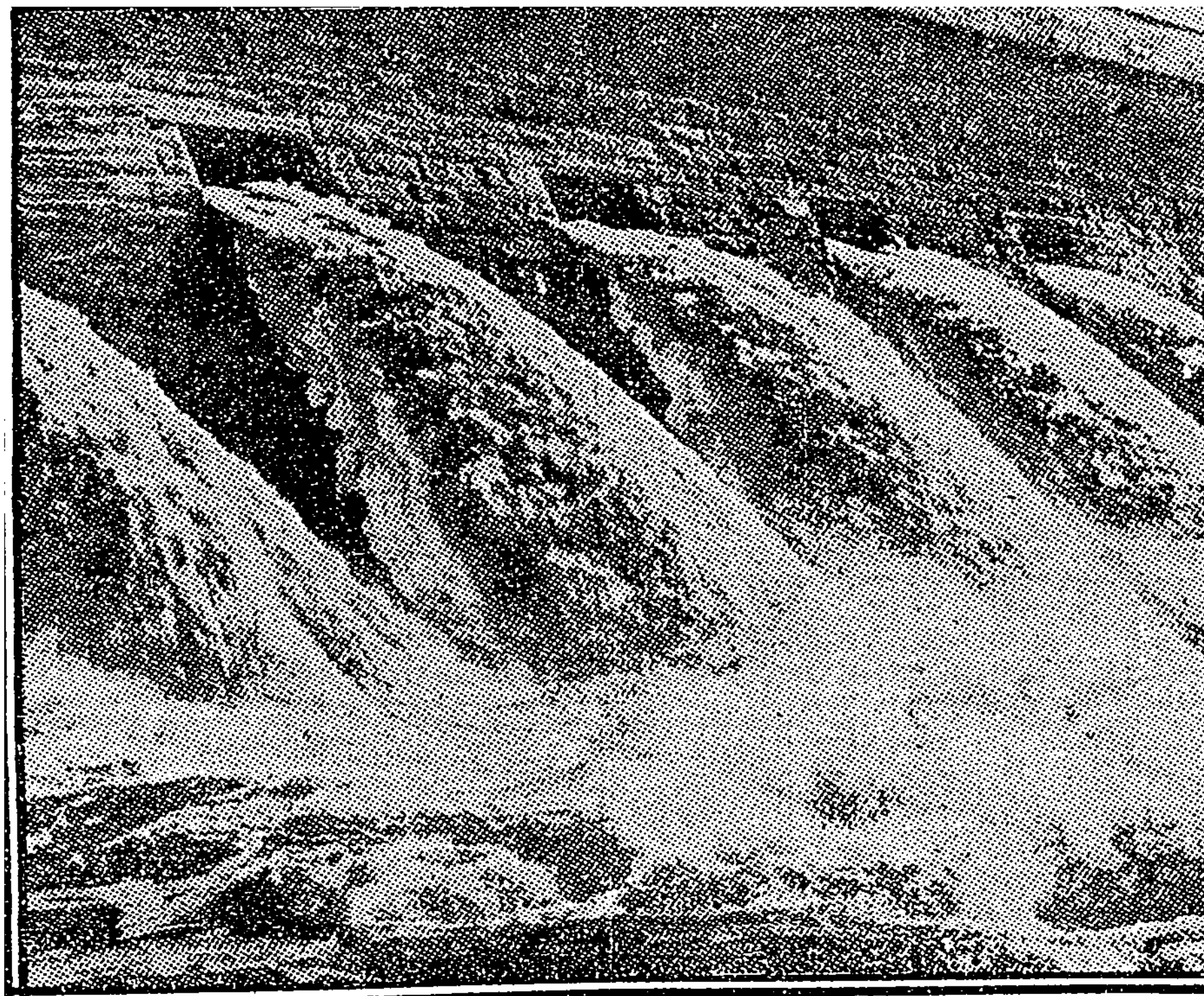


# Power from the Assuan Dam to Be Used to Increase Still Further the Cotton Crop in Egypt.



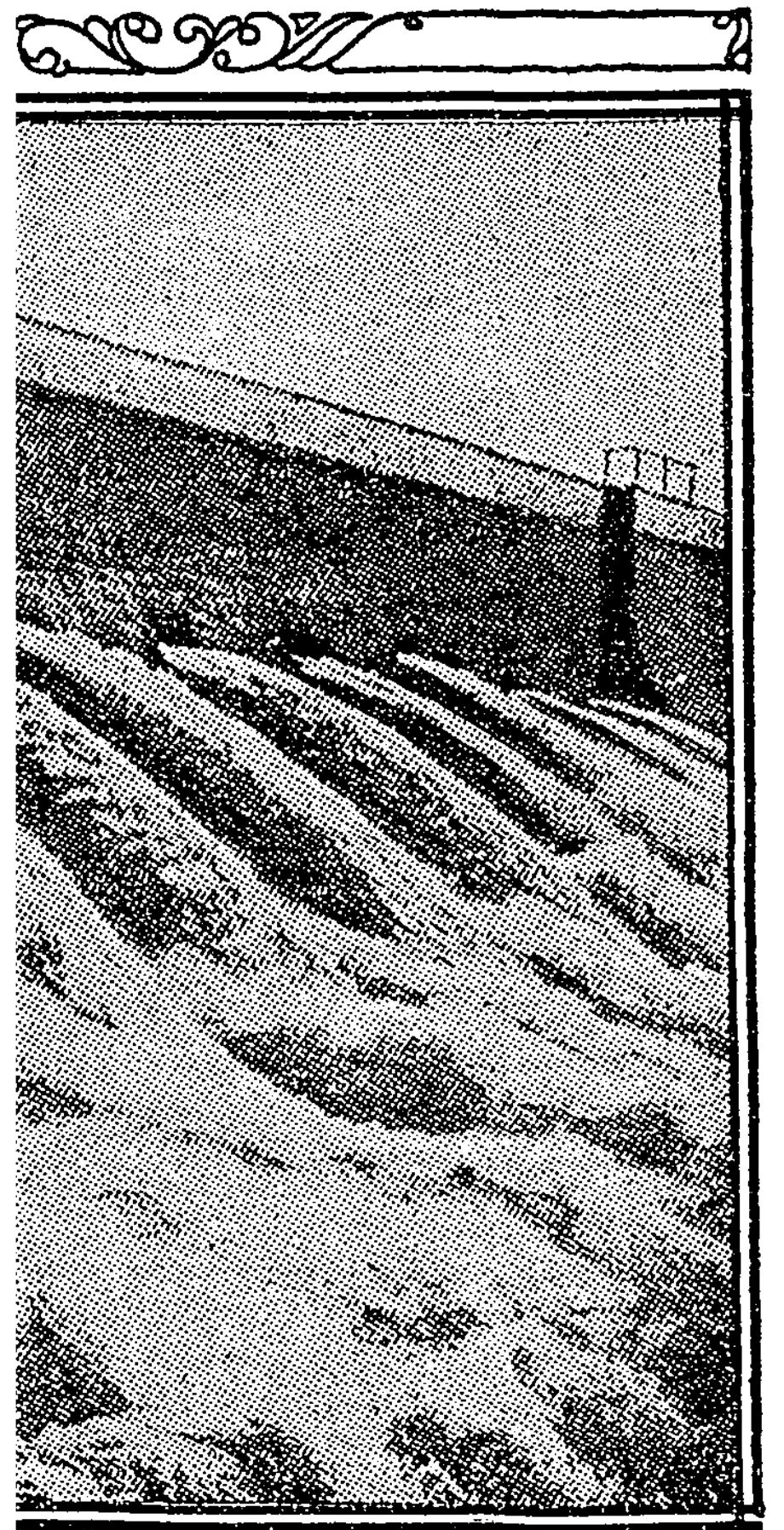
THE HEIGHTENED DAM, LOOKING WEST ACROSS THE NILE, WHICH IS HERE ABOUT A MILE WIDE



AN ARTIFICIAL NIAGARA: THE IMPOUNDED WATER POURING THROUGH THE OPEN SLUICES

who have carefully examined the dam. It is established that no settlement has taken place, and that it is as dry a dam as it is possible for human ingenuity to make. As regards the suggested settlement of the dam, it is only necessary to say that the extensions are founded everywhere on hard igneous rock, and, as the dam is a monolith of masonry, no settlement is possible. As regards the leakage, there is nothing more than sweating, which occurs here and there, and it was only because the sweating discolored the masonry that the joints were cleaned out and false pointed.

This heightening of the dam has submerged to a certain extent the temples of the Island of Philae, but only during a small portion of the year. While the dam was in course of construction, however, the temples were carefully underpinned down to the solid rock, where the old foundation had not reached that material. The result of this work is that there are no signs whatever of any settlement having taken place, although the ground level of the island has been submerged for four or five months each year since the reservoir was first filled. The Egyptian Government has voted the sum of



LONDON, July 12.—In his recent report on Egypt Lord Kitchener states that the Government at Cairo is now considering proposals for utilizing the water flowing through the Assuan Dam to produce artificial fertilizers and for other purposes, such as working pumps in Upper Egypt. According to The Times's correspondent in Cairo, it is highly probable that the project will be embarked upon at the end of the year.

The new scheme lends additional interest to an article in The Graphic by an eminent engineer, who has, it is stated, had unrivaled opportunities for studying the great work.

The original Assuan Dam, begun in 1898, and opened in December, 1902, was designed to impound 980,000,000 cubic metres of water in the reservoir. The dam was built across a hard granite gorge, and is pierced by 180 sluices, the lower sluices, of which there are 140, being 7 metres high by 2 metres broad. These, however, are not all at the same level, owing to the uneven contour of the riverbed in cross section, where the dam was built. The original report, covering the design and construction of the dam, was carried out by the late Sir Benjamin Baker.

It was realized, even at that time, that it might be found necessary to protect in some way the down stream rock surface from the action of the water owing to the velocity of discharge through the sluices. Murdoch Macdonald (the present Under Secretary for Public Works), who was Resident Engineer from 1902 to 1906, carried out certain experiments with two sets of sluices, building experimental aprons in each case, and at the end of 1904 the construction of the permanent apron was begun by building up masonry from the solid rock. All these apron works were carried out departmentally under the supervision of Mr. Macdonald during the years of 1905 and 1906.

In 1905 it became evident to the Government that additional storage of

water was necessary to meet demands for existing areas, and also for future extensions. It was originally intended to build the dam high enough to store 2,500,000,000 cubic metres of water, but an agitation was started that this would inundate Philae. The agitation was successful; hence the dam was built to store 980,000,000 cubic metres, which only submerged the outer works of Philae, leaving the main temples dry.

A thorough investigation was undertaken as far up the Nile as Khartoum to find a new storage area. A. L. Webb, (now Sir Arthur Webb,) who became Under Secretary of State after Sir W. F. Garstin in 1904, again called in Sir Benjamin Baker to report as consulting engineer. He, however, after personally examining all the likely sites, advised the Government that a satisfactory dam could not be built at any of them. There was, therefore, no alternative but to increase the existing storage capa-

city at Assuan. Sir Benjamin Baker, therefore, submitted a design for thickening and heightening the existing dam, which would increase the storage capacity to what was ultimately found to be 2,420,000,000 cubic metres. This extension of storage capacity would enable another 1,000,000 acres of land to be brought into cultivation.

This thickening and heightening was commenced in May, 1907, and was officially opened last year. There has been a considerable amount of criticism in the technical press lately as to the methods adopted by the present Administration in Egypt in so far as this heightening and thickening is concerned, while statements that the masonry has settled in places, and that there are bad leakages have also appeared. These statements, however, have been fully disposed of by engineers with personal experience of the construction and by independent engineers

\$300,000 to restore all the temples and to complete an archaeological survey of the Nile Valley between Assuan and Wadi Halfa.

The Government, through Mr. Macdonald, is now making arrangements for the utilization of the power available at the dam with a view to producing nitrogenous fertilizers at a very low cost. In view of the fact that the power will not be more than \$2.50 per horse-power, so that Lord Kitchener may yet add further laurels to his prestige as an administrator by increasing the yield of the cotton crop a further 25 per cent. and by giving the fellahen another cause to be thankful for British administration. The value of 150,000 horse-power for pumping and electro-chemical operations is an asset of extreme importance, and may well form a fund which will ultimately release Egypt of all capital charges in connection with this vast undertaking.