



PALESTINE TERRACES—The land you see to the left has been washed off to bed rock; that on the right has been maintained, though farmed in a primitive manner. Five bushels to the acre is considered a good yield by natives. The proposed plan of irrigation would increase this yield greatly. This picture was taken by Dr. Walter C. Lowdermilk.

ENGINEERING

Jordan River Authority

Plans are formulated for the irrigation of 600,000 acres in postwar Palestine. Unique drainage of the main interior valley is the keystone.

► **JORDAN'S WATERS**, baptising into fruitfulness 600,000 acres of land now sterile or scant-yielding, are part of a vision of things to come in postwar Palestine that has been seen by a group of American scientists and engineers, the Commission on Palestine Surveys. A second part is the construction of a 95-mile chain of canals and tunnels, leading water from the Mediterranean down a 1300-foot drop to the Dead Sea, with great turbo-generator plants to exploit its power possibilities to the extent of more than a billion kilowatt-hours a year—more than ten times the electric power consumption of all Palestine at present.

Dr. Emanuel Neumann of New York City, a member of the Commission, disclosed some particulars of the project in an interview. The Commission has been at work for about 14 months, developing details of the plan, and there is still several months' work to do.

Details of the project are set forth in a chapter in a new book, *Palestine, Land of Promise*, by Dr. Walter C. Lowdermilk, assistant chief of the U. S. Soil

Conservation Service. Dr. Lowdermilk drew up the basic outlines of the scheme; filling them in was the task of the Commission.

Key to the whole situation is the unique drainage of the main interior valley of Palestine. The Jordan river, a rapid fresh-water stream, flows into the intensely salt Dead Sea, lying 1,300 feet below sea level. Nothing flows out of the Dead Sea; it loses water only by evaporation.

If the precious fresh water of the Jordan is diverted for irrigation, the Dead Sea would in time dwindle and dry up, leaving at most a malignant salt marsh. To prevent this, the inlet from the Mediterranean is projected. It would let in enough water to replace the evaporation losses, generating power on the way downhill. It may be found advisable to raise the Dead Sea level somewhat, increasing its efficiency as a great evaporating pan.

The Dead Sea waters, under the plan, would also be "mined" for some of the minerals they contain—potash, bromine,

asphalt, and especially magnesium. It is estimated that the dense brine contains some 22 billion tons of magnesium salts. It is also conjectured that there may be an oil pool under the sea bottom.

However, the real treasure is still the fresh water of the Jordan. It is hoped that the total irrigated acreage can be raised from the 600,000 at present projected to an eventual 750,000. The present project, however, is expected to make room and a living for between 100,000 and 120,000 families. The population of that historic land has nearly trebled in 25 years, from 500,000 in 1919 to 1,500,000 today; full realization of the Commission's hopes would in time permit this figure also to be trebled.

The project calls for many small dams and three larger ones, the latter ranging from 80 to 300 feet in height and from 1,200 to 8,500 feet in length. Main feeder canals, excluding laterals, will total 450 miles in length. All canals will be concrete-lined.

Water carried by the canals is expected to reach 750,000 acre-feet a year. Major reservoirs will store a total of 900,000 acre-feet. Included in the storage system will be Lake Genesareth, or the Sea of Galilee. Changing of the lake level, however, is not contemplated, on account of its great historic significance.

In addition to making life better for more people in Palestine, the Commission hopes that their project, like the TVA and the Boulder Dam in this country on which it is modeled, will serve as a stimulus to similar undertakings in neighboring Near East countries. With proper irrigation and land management, Dr. Neumann stated, the Kingdom of Iraq could probably support a population of 25,000,000 instead of its present 4,000,000.

Capital investment for full development of the Jordan valley project would require, over a period of years, from \$150,000,000 to \$200,000,000. This can be raised in several ways, Dr. Neumann suggested. Some might come from the Government of Palestine. More would be raised by Jewish organizations, and additional sums put in by private investors. Finally, in the post-war returning of Nazi loot, property stolen from European Jews who were subsequently killed might with justice be assigned to the support of this great work of reclamation and restoration.

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Peruvian chemical industry is now manufacturing zinc oxide.