



DIVERTING EARTH'S WATERS
—A salt-water canal will route Mediterranean water into the Dead Sea, to replace fresh water from the Jordan river system, diverted for irrigation purposes through a second great canal. This picture shows fresh water being run onto salt flats near the Dead Sea to leach out the minerals and make the land suitable for cultivation.

worse than wasted. While the eventual aim is to have all these tamed wadis fit into the unified irrigation and water-power system, obviously they can be taken in hand one by one, by either Jews or Arabs, according to whose land they lie in.

A good deal of water is expected to be obtained by tapping the underground drainage system with wells. These also can be dug and operated separately; though it is true that power for pumping will be much cheaper when the major hydroelectric plants that depend on joint action by Arabs and Jews can be built.

These partial operations are not mere salvage of scraps. They represent a really respectable fraction of the total new acreage which it is hoped will eventually be brought under irrigation. The final figure is expected to be somewhere in the neighborhood of 750,000 acres. The partial reclamations which can be carried out by the Jews alone will amount to at least 340,000 acres, mostly in the now arid coastal plain. The Arabs can reclaim about 100,000 acres without Jewish help. Moreover, declares Dr. Lowdermilk, this new land can be added within

two years if work is started promptly.

Even for the full realization of the JVA project, some time will have to be spent in research on some of the unique problems involved in the handling of the great volume of sea water to be channeled from the Mediterranean into the Dead Sea. All hydroelectric plants now in existence are run by fresh water. What kind of metals, and what type of turbine, will be needed for the great power plants? There is a challenge to metallurgists and engineers alike.

Palestine, like all the Near and Middle East, is a land where earthquakes sometimes happen just as they do in Calif-

ornia. Some very careful planning and experimental work will be needed to protect the large-scale engineering structures that will eventually be built. Here is a big job for the new profession of geophysics.

These are only a couple of the problems which the JVA engineers and administrators will have to meet and master. There is every reason to expect that these problems will be solved, and that twentieth century science will do much to make Palestine, for Jew and Arab alike, once more a land of milk and honey.

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CHEMISTRY

Fuel from Natural Gas

➤ GARDEN CITY, KANS., will soon become a gasoline-producing center. This motor fuel and other petroleum products are to be manufactured there from natural gas, from the neighboring Hugoton Field, which is not desirable for ordinary uses because of its low heating qualities.

The manufacturing plant is to be built by Stanolind Oil and Gas Company of Tulsa, Okla. It is a multi-million-dollar project. It will include a plant to extract liquefiable hydrocarbons such as gasoline, butane and propane from the natural gas; a synthesis plant including an oxygen-production unit; a chemical refining unit; laboratories and other buildings. The gasoline and fuel oils produced will be marketed largely in the Kansas area. The chemicals produced will be distributed nationally by U. S. Chemicals, Inc.

The huge Hugoton Field of southwestern Kansas is claimed to be the largest gas field in the United States and to contain 23,000,000,000 cubic

feet of gas, part of which has low heating qualities. The new plant will process about 100,000,000 cubic feet of this gas daily, it is expected.

In the process, dry feed gas from the field is burned under 300 pounds pressure with relatively pure oxygen to yield synthesis gas from which the final products are made. This synthesis gas is largely carbon monoxide and hydrogen. With the help of an iron catalyst in a fluidized state, being finely powdered, it is converted into the petroleum hydrocarbons and water.

Another plant for making gasoline and other hydrocarbons from natural gas is under construction in Texas. It will use gas of real fuel value, it is understood, not the low-heating-value gas to be used in Kansas. The supply of natural gas in America is limited, of course, but there is enough to permit the manufacture of liquid fuels from it for the next 25 years without danger to the amount needed for gas lighting and heating.

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CHEMISTRY

Convert Waste into Fuel

➤ THOSE great heaps of waste anthracite silt near hard coal mines may soon be furnishing homes with fuel gas and automobile engines with liquid fuel, President Frank W. Earnest, Jr., of the Anthracite Institute, Wilkes-Barre, Pa., revealed.

A new process for converting the present waste into fuel will be tested in a pilot plant under construction by the Institute's research organization of which Dr. Raymond C. Johnson is in

charge. In the anthracite country there are an estimated 200,000,000 tons of this silt immediately available, and more is produced every year.

Anthracite silt, washed out of the coal after mining, is about as fine as granulated sugar. It is not suitable for burning in grates and has accumulated at mine heads for years. Its use to produce fuel gas and liquid fuels will in no way decrease the available supply of marketable coal.