IRRIGATION

Department Circular
January 23,1905.

The Circular presupposes a system of irrigation of some sort and as nothing of the kind exists in this Consular District no answer can be given to the series of questions proposed. The orange gardens at Jaffa must be and are irrigated. Abundance of water is found at from thirty to fifty feet below the surface and is brought up by means of crude wooden machinery worked by animals, and in very recent years by pumps which are supplied by Germany, English manufacturers furnishing a small percentage only of the engines used. In my Report December 5,1903, on Oil Engines, I explained how this trade was lost to America. Further in my Report February 2,1904, on Windmills, I explained why windmills could not be used here for raising water. Gasoline is not allowed to be brought into the country and the engines depend entirely upon kerosene as their motor power.--The foregoing statements may be considered as answers to questions 4 and 18.

On this general subject I will offer a few hints although they are not called for by the Circular. We have a wet and a dry season the latter lasting from early in April till November. Three of the most important crops of Palestine are raised without water. Millions of fine water melons are produced and from the time the seed is plated till the melons are gathered they never have a drop of water. (2) The sessame, extensively cultivated and indispensible for ~~oil~~ oil, needs no water; indeed should rain fall on it the crop would be ruined. (3) In like manner the durra (Oriental maize) from which a large revenue is derived, can be raised only in the rainless season.

Here and there in the mountain regions are springs, "fountains" as they are called, about which, if they are large enough, small vegetable gardens exist.

As there are no mountain streams in the country no source of that kind could be thought of should irrigation be attempted.

The question of artesian wells has often been mentioned in connection with Palestine and this is a subject to which I have given a great deal of attention. In my judgment this country is a very favorable for such a system of water supply. I say this notwithstanding the fact that the three chief attempts to sink artesian wells, one at Jericho, one at Netter's Agricultural establishment (Jewish) on the plain of Sharon, and one on the Plain of Rephaim about ~~[illegible]~~ two miles south of Jerusalem, have all been failures. But the failures were due not to the non-existence of water but to the lack of money, proper machinery, and proper engineers. The Government will not take hold of this matter, and large private means or a strong company would be required to make it a success. To supply the new Mecca railroad with water is a serious question that must be faced; and I fully believe that artesian wells are the only means of meeting the emergency.

Jerusalem, April 19,1905.

When some years since I was doing exploring work in this country I measured the entire Jordan valley between the Sea of Galilee and the Dead Sea, with a view to its being redeemed to cultivation. This valley contains upwards of 600 square miles of the finest land, every acre of which could be reached by irrigating canals from the Sea of Galilee. Large canals would be carried along the foothills on each side and at intervals means provided to distribute the water, as needed, on to the plain below. The Sea of Galilee is 700 feet and the Dead Sea 1,300 feet below the level of the Mediterranean, and the distance between them is sixty miles. Cotton, rice, indigo, sugar cane and other tropical productions would flourish in this marvellously fertile valley which at present is lying waste. The water of this river is pure as there are no villages along its banks or near them to contaminate it.

What this country greatly needs especially in Jerusalem and other of its large towns, is a supply of water other than drinking water. For drinking water the ancient inhabitants always made ample provision in their cisterns, which are now found in a ruined state in great numbers in all parts of the country. The modern inhabitants rely chiefly upon the same means for their drinking water. There is no vegetable matter to taint the water or render it impure and when the cisterns are properly cared for no purer or better water for drinking exists in the world than is thus furnished. Water for other purposes is what is so greatly needed. In the case of Jerusalem and its immediate neighborhood roads have in recent years been made, carriages have come into general use, and the dust has increased until it has become intolerable besides being ruinous to houses, clothing, to say nothing of the eyes and the lungs. The rock is limestone which is readily ground into fine powder; the wind carries this everywhere; but the greatest sufferers are the poor trees on the leeward sides of the roads which are covered with this dust giving them more the appearance they would have in a light fall of snow.

This country has an abundant rainfall, the average amount being 25 inches. The past year has been exceptional since as much as 37 inches have fallen and besides the winter has been unprecedentedly cold. Could this large amount of water be husbanded there would be an ample supply for every purpose. I have for a long time advocated the construction of surface reservoirs, basin shaped, which could be done at a moderate cost. Underneath the soil is a bed of rock which could without difficulty be levelled and the imperfect place remedied. Advantage might be taken of the bed of some valley; at anyrate the water is assured, and surface reservoirs seem feasible. The system advocated by some foreign engineers of bringing water for general purposes from certain distant springs is not to be considered for in all the mountains of Judea there are not spring yielding sufficient water for this purpose.

In connection with this subject there are certain other facts, to me very interesting, which I would like to report but they are not relevant to the Circular in hand.

Selah Merrill
Consul

Jerusalem, April 18, 1905.