Can Alkali Lands be Brought into Cultivation?

The question of the practicability of changing the character of the alkali lands of the western part of this continent so as to bring them into a state where successful cultivation would be possible has been engaging the attention of men of science for some time. The question is a most important one in view of the fact that the proportion of good land fit for settlement becomes less each year, and must ere long be all taken up, and that, in districts, such a large portion of that western country consists of these alkali lands, which at present cannot be cultivated successfully. The larger part of these so-called "bad lands" is to be found in the Western States of the Union, but they run up over the border into the Canadian Northwest Territories, although the proportion of them there is not as large as in the United States.

There are two kinds of alkali, black and white. The latter is much less injurious than the former, which consists of carbonate of soda, and not only dissolves the humus of the soil, but also the bark of plants growing in it. It has been found out that black alkali can be converted into white by the use of gypsum, which changes carbonate of soda into sulphate. It is quite possible, however, for even the white alkali to interfere seriously with, and even destroy, crops.

The California Experiment Station has been studying the question of these alkali lands, one of the branch stations being located on such soil. It was discovered that the main mass of these salts existed in the soil and subsoil within a short distance of the surface, and that the amount was limited. The chemical analysis of the alkali, moreover, showed that it consisted, as a rule, of such compounds as are known to be formed in all soils in consequence of weathering, and that it contains all the ingredients useful, as well as those useless, to plant growth, the alkali lands having extraordinary intrinsic and permanent fertility, fully justifying their reclamation.

It was also found that these alkali salts penetrated downwards through the soil each year as far as the rainfall wetted the soil, and that from this depth it partially or wholly reascended towards or to the surface by evaporation during each dry season. It is possible for flowers and herbage to grow in the spring on unirrigated land after winter rains, because these have washed the salts to a depth below the reach of the roots of these plants, and, when this growth is going on, all the evaporation takes place through the roots and leaves, and the alkali does not move up to any great extent. Hence, a crop of alfalfa may flourish for years on ground which, as soon as it is left bare during the dry season, will become so impregnated with alkali as to kill any fall crop. Irrigation, too, has the effect of bringing alkali to the surface, owing to the excess of water brought to the soil.

Since evaporation from the soil surface is the cause of the rise of the alkali, one of the chief preventive measures must be the reduction of surface evaporation to the lowest possible point. This can be done by mulching or shading, the best mulch being a well and deeply tilled surface soil on which a crust is not allowed to form. The growing of hoed crops is therefore indicated.

Life of a Turkish Farmer.

The lot of the Turkish farmer is not a happy one. Inured as he has been to a struggling existence, it has had the effect of making him gloomy and taciturn. In place of a neat farmstead, we find a hovel constructed of sun-dried mud bricks. This one-roomed hovel, without any windows (the only light and air admitted comes down the chimney), serves him and his family as their residence. Adjoining this we find a cellar-like building which serves to house his live stock. All the surroundings are dirt and untidiness. In the place of a garden we see heaps of manure. The walls round the premises are studded over with lumps of cow-dung undergoing the process of drying for fuel. Frugality is a great characteristic of the Turkish farmer, and it is owing to this that he has been able to eke out a miserable existence. His tastes are simple and his requirements few. He produces everything for his sustenance at little cost; his food consists for the greater part of bread, for which he grows the wheat. This is sometimes varied by a soup made of sour milk and crushed wheat boiled; this is a most nourishing and satisfying dish. He also cooks another dish, equally good, of crushed wheat boiled and flavored with fresh butter. Sometimes he indulges in a dish of fried eggs. Coffee he drinks occasionally. This completes his dietary, and, simple as it is, he is strong and healthy and generally of fine physique. He thinks nothing of a twenty or thirty-mile walk, or of doing a day's work of