

The Canadian Horticulturist

Vol. XXXI

JUNE, 1908

No. 6

Irrigation in British Columbia

A. E. Meighen, Irrigation Engineer, Kamloops, British Columbia.

THE word "irrigation" ordinarily conveys to the mind the idea of an elaborate system of ditches—main canal, laterals with the accompanying sluices—water gates and measuring devices. As a matter of fact, irrigation is practiced where none of these works exist. All persons in all countries have brought the principle of irrigation into practice. All that is required is a favorite bed of flowers or patch of vegetables, a continued spell of dry weather, the watering can or the garden hose and we have irrigation pure and simple. Irrigation then is an aid to nature, a supplying of the need where she fails; a thorough grasp of this idea is of the utmost importance to the farmer when he comes to apply water to his land by the methods now employed in practical irrigation.

The only difference between this simple form of irrigation and that employed on large tracts in the dry belts is a matter of degree and methods. Given a large tract of arid land, the simple methods of the watering can and garden hose are out of the question. It then becomes a problem for the engineer. He either taps a supply distant from the land to be served and by the aid of gravity conveys it in a ditch to the spot, or, if a supply is at hand, but on a lower elevation than the land (a condition which is generally present in British Columbia), he installs a pumping plant and raises the water to the necessary height. The supply thus being available, he proceeds to lay out such a distributing system as the different conditions indicate as the wisest, his aim being to serve the land in the easiest, cheapest and most certain manner possible.

WHEN IRRIGATION IS NEEDED

In a general way it is considered that in regions where the average annual of rainfall is twenty or less inches, irrigation becomes necessary for the production of full crops. Of course, it is true that the necessity of irrigation depends on the distribution of the rainfall over the year. Thus it occurs that in some localities on the Pacific coast the rainfall is considerably over twenty in-

ches, but, as it occurs mostly in the winter, irrigation becomes necessary, while in other localities with a much smaller rainfall, but occurring during the growing months, irrigation is unnecessary.

Taking twenty inches as the minimum annual rainfall required to produce full crops, the extent of aridity on the North American continent is much greater than most people imagine, comprising in the United States two-fifths of the entire land area. In Mexico, the proportion of arid lands to the total land

2,800,000 acres, in France, 400,000 acres, in the United States, 11,000,000 acres. In our own country, when the C. P. R. project in the Northwest provinces is completed, there will be 3,500,000 acres under water.

ADVANTAGES OF THE NEED

The practice of irrigation is often considered a hardship and the necessity for it a misfortune. A greater mistake could not be made; for, as a matter of fact, the necessity for irrigation and the ability to irrigate make a fortunate combination of circumstances. They imply a warm, dry climate as that of the arid regions. This means that the crops are not liable to destruction by sudden violent storms, by lack of sufficient sunshine or by the failure of the water supply as often results from dependence on nature alone.

THE RETURNS FROM IRRIGATION

Obviously the returns from irrigation depend largely on the soil and climate which in turn determine the kind and value of the crops that can be produced. In the semi-arid regions irrigation is merely an insurance against failure of crops from lack of rainfall, in regions where the climatic conditions are such that only grain, potatoes, and so forth, can be successfully grown, the returns are not great, while in regions where fruit, deciduous and citrus trees can be grown, the returns from irrigation in crops and the increased value in land are enormous.

The following returns taken from the United States census of 1900 give a good idea of the increase in value of land and water, after an irrigation system has been provided, and the value of crops obtained from irrigated lands. While the average first cost of water, that is, the cost of construction of canal to bring water to the land, was \$7.80 an acre, the average value of water per acre to settlers, after they obtained it, was \$26, an increment of \$18.20, due to the mere fact of having the water available for irrigation. The average value of the land before irrigation was provided, was from \$2 to \$5 an acre, and after an irrigation system was pro-

One of the Best

THE CANADIAN HORTICULTURIST is one of the best edited, brightest, and most interesting of the many magazines and agricultural and horticultural papers which weekly and monthly come to my desk. May success ever be with you.—F. H. Reed, District Representative of Ontario Department of Agriculture, Lindsay.

surface, is probably equal to that in the United States, while in Canada the entire interior of British Columbia, from the Coast range to the Selkirks, and great tracts of Alberta and Saskatchewan, may be also classed as arid, or semi-arid, where, if irrigation is not absolutely necessary in all cases, it would be in the nature of an insurance against loss of crops from drought.

The fact is that the extent of aridity in North America is so great that it is estimated that there is only water enough available to supply 10 per cent. of the arid lands; for instance, in the state of California, with 100,000,000 acres of arid land, there is water enough for only 17,000,000 acres.

The area of land now under irrigation is enormous when we consider how recent is the practice and this area is being added to greatly every year. Today, there are under irrigation in India, 33,000,000 acres, in Egypt, 6,000,000 acres, in Italy, 4,700,000 acres, in Spain,