

was, up till a few years ago, apparently more profitable.

In the opening up of a new country the situation may always be described tersely in the terms that land for some time is always relatively cheaper than labor. Quick development, or, as wiser men put it, quick exploitation of land, leads to the extensive use of land, with labor as the limiting factor. It took us some time to realize that there was another limiting factor—moisture. And now we realize that we have still another factor of limitation in the soil drifting, which has been a growing problem in the last few years all over Western Canada, which this year (1920) became so serious in parts of Southern Alberta as to be disastrous in its effects.

Farming under irrigation, while it must make agricultural operations more intensive, leading to the use of less land per unit of labor, will provide against the lack of moisture, and will provide means absolutely to control soil-drifting—further than that, it inevitably leads to the maintenance of the fertility of the soil, a matter that has received, unfortunately, far less than the attention that is its due in Western Canada.

Replace the Humus

We have been prone to think that our soils had illimitable quantities of nitrogen, phosphoric acid and potash to draw from; and while this may largely be true if the top soils stay with us, it certainly is no longer true when these rich soils blow away. The one sovereign remedy against this is the replacement of humus in the finely tilled soil. And there is, practically speaking, but one means for the provision of this humus available for us, and that is cow-dung. We cannot have that without cows, we can't have cows without pasture, and we certainly can't have many cattle on the farms unless we have irrigation to provide the necessary pasturage and feed. Then again, one of the most profitable crops under irrigation is alfalfa, which is in itself both a humus-builder and a nitrogen provider.

Remedy Close at Hand

It so happens, very fortunately, that in the area where the effects of soil-drifting have been most severe, the re-

medy is closest to hand. The Lethbridge Northern Irrigation District, which will draw its water from the Old Man river—an all-Canadian stream—is prepared to proceed at once with construction work just as soon as financing can be arranged. Every detail has been carefully studied by the Reclamation Service of Canada. At the instance of the Alberta Government the proposed project has been reported upon by George G. Anderson, an irrigation engineer of continental repute, having great practical experience both in the United States and Canada, who thoroughly understands all the engineering, financial, agricultural and human elements involved. The water supply at the very lowest stream measurements over a long series of years is guaranteed. There are no engineering works of any magnitude necessary, and the engineer of the district, H. B. Muckelstone, has had long experience as assistant chief irrigation engineer with the Canadian Pacific Railway Company.

The farmers who own the 110,000 acres that will be irrigable under the project are most anxious that construction should be proceeded with at once. Estimates of cost, generously conceived even at the present prices of labor and materials, indicate that when tenders are called or, they will show that the work can be carried through to a finish at a capital cost of less than \$5 per irrigable acre. That the farmers will amply be able to pay the interest, and repay the capital on this expenditure during a term of say thirty years is clearly demonstrated.

Irrigation Will Pay

Taking wheat alone as an index, wheat production on "dry" land averages 30 bushels per acre, which, allowing for summer-fallowing half the acreage each year, gives 15 bushels annually; against 53 bushels annually on irrigated land—an increase of $3\frac{1}{2}$ times in production. Even at pre-war prices of around 80 cents a bushel, and cutting down the estimated production to 40 bushels, there would be a gross return of \$32 per acre per annum. Or, again, figuring in terms of alfalfa at the low rate of $3\frac{1}{2}$ tons per acre at say \$10 per ton, there would be a gross return of \$35