



Soil Cultivation in the West

By E. HUGHES



From the valley of the Red River to the foot of the Rocky Mountains stretches an area of country which, thirty years ago, was as little known, to the world at large, as the remote parts of China are to-day. To the world at large it was a barren, inhospitable waste, the greater part designated on our maps treeless, arid desert. It is true some travelers brought back stories that seemed to point to some variations from the general classification generally accepted. These stories came from enthusiasts and were accepted with so much salt that the whole mass was unfit for human assimilation. By degrees spots were discovered where the general designation of desert was palpably inappropriate; but when such places were looked up on the map, they appeared as mere specks in the wide expanse generalized. Though few of those who came to spy out the land had ever set foot in the commonwealth of Missouri, it took a lot of showing to make them believe there was a country here fit to live in.

It took a long time to show people that there were different kinds of soil and different climates in this great area. As climates and soils varied, so have the pursuits of the settlers. Towards the Rocky Mountains, where winters were mild and cattle could get a living outside for most of the year, stock-raising or ranching was followed almost entirely.

Wheat raising belonged to Manitoba, the Red River valley, where the soil is a heavy, black clay loam but, going west, one encounters all admixtures from the heaviest clay to gravels, even to drifting sand. As a rule, as elsewhere, the more clayey soils last the longest under bad farming methods and they need more motive power in cultivation.

For general rules, the land should be broken as shallow as possible when the grass has made a good start, thus dividing root and crown so that the sod will die as quickly as possible. A month to six weeks later backsetting, or plowing the same land about double the depth after breaking, commences. Broken land is the better for being rolled or packed after breaking so that the least possible moisture may be lost and the sod rotted with all possible speed. Discing should follow backsetting and harrowing be done in the fall. This should make a model seed bed for following spring.

The consensus of opinion among the best authorities favors the breaking and backsetting system for nearly all soils. A plan followed in Dakota and practised by Dakotans who come to this country, is to plow deep in breaking the sod, disc well, harrow and sow a crop of flax the first year. The

second year the stubble is disced, harrowed and seeded without plowing. The third year the land is plowed four inches deep, and not until the fifth year is the original top of the sod brought up to the air again. This system is condemned by some authorities but it has the advantage of getting a crop the first year and the second crop without much work.



A Rumley Steam Tractor pulling a 9 bottom 14 inch Cockshutt Engine Gang, Outfit of Jacob Gien, Hirsch, Sask.

However in some localities with a good top soil that is shallow it would not do, as the seed would be laid in subsoil and would not grow.

With a friable, sharp loam of good depth success has been attained by simply breaking rather deep, say four inches, and putting on discs and harrows till the sod is thoroughly pulverized. The advocates of this system claim that breaking and backsetting such land involves loss of too much soil moisture, but by discing, harrowing and packing at once this moisture is held. It is, however, impractic-

rainfall is light over all the country. The same degree of good tilth, or other requisites are not attained in a stiff, clay soil with the same power or in the same time as with a friable soil that pulverizes easily.

In the handling of stubble land much advance has been made in the last few years. Discing after the crop is cut is a good plan, for the process buries weed seeds, which

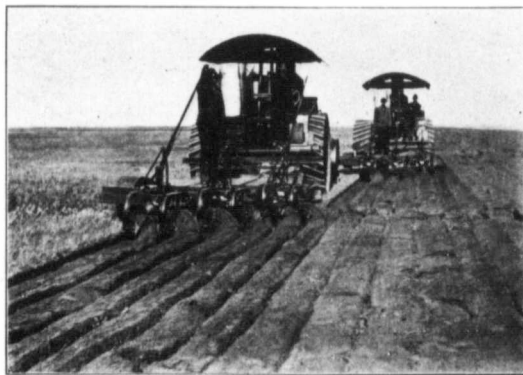
till of late years, should observe the system of neighbors and procure a copy of the reports of the dry farming conventions. Much of Southern Alberta is irrigated and extensive systems have been instituted for distributing water, but in the same localities fall wheat was raised by dry farming methods and captured first prize at the great exhibition at Billings, Montana, in the fall of 1909. Yields there reach 40 bushels per acre without water. It is only within very recent years that this section of the country has demonstrated its ability to grow cereals at all and, already, the land commands the highest price of any irrigated land in the country, as purely farming land.

Much injury has been done by the overweening ambition to have a large crop. There is more money in 100 acres of crop perfectly tilled than in 200 on the get-in-all-you-can plan. The man who is wiser than his neighbors will keep stock from the start and feed more grain than he sells; thus making it possible to have his yields of grain as large ten or twenty years hence as now.

The old tales of inexhaustible fertility are the veriest hosh ever invented. There never was such land anywhere, but generally where there has been a series of owners, clinging to that insane idea, the mortgagor has had to rustle to realize the amount of his claim.

When a dry year came to the early settlers and crops were short, fallowing was resorted to with much improvement. Then it became popular. Land was cheap and some men found there was less rush in work by fallowing land one year and growing grain the next, keeping half the land unproductive. Such a thing is too costly to-day and it would only defer the evil day of exhausted land. Fallowing is good for weed killing and, with frequent harrowing much moisture is saved; land should not be plowed twice in a season if it can be avoided. Humus and intrates are wasted by such work.

When land becomes weedy, a good discing of the stubble in the fall, plowing in spring, cultivating and harrowing to kill weeds till 1st June will be fine preparation for a crop of barley. This can be cut and the land plowed again before weeds have gone to seed. With a cultivator and harrows weeds can be killed again and the land will be freed clean again. If rape be sown broadcast about 1st September it will smother weeds, and either provide fall pasture for stock or make plant food for next year's crop. Rape costs about \$1.00 per acre for seed and is well worth sowing any time from 1st May till 1st Sept. if land is going to otherwise be idle for seven



Hart Parr Outfit of A. A. Johnston of Lethbridge Alta. John Deere Engine Gangs are doing the work

able with a heavy, strong sod.

When a crop has been drilled in, frequent harrowings, especially after rain, hold moisture and kill sprouting weeds. This should continue till growing crop is covering the ground well.

Strange as it may seem, much the same general principles of cultivation apply in the cases of very diverse qualities of soil. The reason is that good tilth, conservation of moisture and weed killing are as necessary in one soil as another and

of the Canadian north-west provinces, it is pretty certain that some land will take as much power as would be needed anywhere. In other places but a minimum is sufficient. Four 1,400 pound horses will be kept warm with a 14 in. breaker in some soils, while in others two lighter horses will cover the same ground in a day.

Though the above rules of cultivation hold good generally, anyone going into the south part of Alberta, which has been termed semi-arid

