

WHAT OF THE DROUGHT AREA?

WILFRID EGGLESTON

NINE successive crop failures in the drought core of Saskatchewan, and from four to eight failures in nine years over a much wider territory extending into Alberta and Manitoba, must inevitably raise once more the old question as to the suitability of large areas of the western plains for cereal production. So far, a policy of widespread abandonment has been avoided, and in an attempt to salvage an area in which losses have already been appalling, governments and individuals have continued to pour vast sums of money into the Canadian "Dust Bowl", evidently in the belief that the condition of affairs is temporary. Their faith in the ultimate future of the drought area is subject to severe trial after nine years of crop failure, more or less complete; although as the drought cycle lengthens, the probability of the early arrival of a cycle of excessive precipitation and luxuriant growth must increase. It is not yet clear whether the financial resources available will enable the drought core to hold out until meteorological aid arrives, or, in any event, whether the returns balanced against the cost will justify a continuation of the present degree and type of settlement there.

Experience of the past few years inevitably renews interest also in the manner in which that country came to be thrown open to promiscuous settlement, and the responsibility for putting under the plow thousands of acres of tough range grass which have been succeeded by drifting silt and sand on abandoned farmsteads. The territory which has suffered most severely from drought was unhesitatingly condemned by the first economic explorers.

Captain John Palliser, who was sent to Western Canada in 1857 by the British Government to explore and examine, among other things, "the nature of its soil, its capability for agriculture", made an unfavorable report on what he called the "arid plains". He outlined these in language which has since added a new term, "Palliser's Triangle", to the literature of prairie settlement:

"The fertile savannahs and valuable woodlands of the Atlantic United States are succeeded on the West by a more or less arid desert, occupying a region on both sides of the Rocky Mountains, which presents a barrier to the continuous growth of settlements between the Mississippi Valley and the States on the Pacific coast,"

he wrote. "This central desert extends, however, but a short way into the British territory, forming a triangle having for its base the 49th parallel from longitude 100° (Boissevain, Man.) to 114° W (Waterton Lakes, Alberta), with its apex reaching to the 52nd parallel of latitude", (to the latitude of Saskatoon).

Palliser modified this condemnation slightly in his meteorological report: "In the summer of 1859," he wrote, "the Expedition traversed the most arid plains that lie within the British territory, without, however, encountering any of the great expanses of true desert country which exist further to the south, within the United States." But that he saw no agricultural future for his "Triangle" is unmistakable from such comments as these:

The true arid district, which occupies most of the country along the South Saskatchewan, and reaches as far north as lat. 52, has even early in the season a dry parched look. In the northern districts the accumulation of humus, and the distribution of the pleistocene deposits, have given rise to a great variety in the nature of the soil; but to the south the cretaceous and tertiary strata almost everywhere come to the surface, so that the stiff clay, highly impregnated with sulphates, bakes under the influence of early spring into a hard and cracked surface, that resists the germination of seeds. . . The grass is very short on these plains, and forms no turf, merely consisting of little wiry tufts. Much of the arid country is occupied by tracts of loose sand, which is constantly on the move before the prevailing winds. This district, although there are fertile spots throughout its extent, can never be of much advantage to us as a possession. In June and July, the Expedition experienced great inconvenience in traversing it, from want of wood, water and grass.

Palliser was an Irish military gentleman, who had spent several adventurous years among the Indians in the north-west States before being engaged by the British Government to conduct this survey. At about the same time, the Canadian Government engaged Henry Youle Hind, an English geologist, resident in Toronto, to make a similar investigation. Hind was evidently influenced to some extent by Palliser's observations (Palliser penetrated further than Hind, going through country around Medicine Hat apparently never before visited by white men), but on his own account also, he rejected the "arid plains" as unsuited for settlement, and, defining the northern extension of the "Great American desert" more exactly than Palliser, produced a map in which "Palliser's Triangle" becomes an irregular pentagon. This, if projected on a present-day map, would follow a line indicated by Morden, Carman, Brandon, Kamsack, Saskatoon, Macklin, Castor,

Olds, Calgary, Pincher Creek. This, it is seen, would condemn all of southern Alberta except a narrow strip along the foothills, almost all of southern Saskatchewan and the southwestern corner of Manitoba.

Professor Hind attempted to dissipate false hopes about the arid territory:

"Very great misapprehension," he wrote, "has prevailed with regard to the region west of the Mississippi, as well as of the valley drained by the Saskatchewan. Sanguine enthusiasts have laid out new states and territories on the broad map of the Federation, and peopled them with bustling, industrious, and wealthy communities. Other visionaries have converted the 400,000 square miles drained by the Saskatchewan into a region of unbounded fertility and inexhaustible resources. Whereas a proper appreciation and use of facts will convince the most sanguine that the larger portion of this area is, in its present state, unfit for the permanent habitation of man both on account of climate, soil and absence of fuel." Hind was at pains to distinguish between true "prairie", (the word means "meadows", and infers fairly heavy vegetation) which he regarded as fertile, and the sterile plains. The latter coincides in Canada, he thought, with the extension into Saskatchewan and Alberta of the "Grand Coteau de Missouri", which, it is interesting to note, embraces that part of south-western Saskatchewan which has earned for itself in the past nine years the unenviable title of the "Dust Bowl" of western Canada. On this Coteau, says Hind, "both soil and climate unite in establishing a sterile region". A little later he reiterates that "From the character of its soil and the aridity of its climate, the Grand Coteau is permanently sterile and unfit for the abode of civilized man." Anyone who has followed the course of the Missouri in northern Montana will agree that, with the exception of irrigated oases, this condemnation was apparently justified so far as the American part of the Coteau is concerned. Hind quotes a U. S. authority regarding the same formation: "Whatever may be said to the contrary, these plains west of the 100th meridian are wholly unsusceptible of sustaining an agricultural population, until you reach sufficiently far south to encounter the rains from the tropics." (William H. Emory, 1846).

Along a strip between Palliser's Triangle and the northern forests, Hind traced a "fertile belt" where, he thought, about 11 million acres of land suitable for agricultural settlement existed.

If the advice of the early authorities had been followed, the present "drought area" of western Canada would not have been

thrown open for immigrants, certainly not the "core" in southwestern Saskatchewan and southeastern Alberta which is located on the Grand Coteau. But Palliser and Hind were succeeded by other economic explorers, who took a much more optimistic view of the area. This generation has forgotten the prolonged and bitter controversy which raged in eastern Canada over the merits of the "Great Plains", between 1860 and 1880. The swing of the pendulum from the pessimism of Palliser and Hind was completed when another Irishman, John Macoun, was sent to spy out the land. Basing his conclusions largely on plant growth, he rejected almost *in toto* the findings of Palliser and Hind. He estimated at one time that there were 200 million acres of fertile land in the west, and that not more than 20,000 square miles need be rejected as sterile.

The fertility of the north-west also became a political issue, it would appear from Macoun's autobiography. Sir John A. MacDonald and the founders of the Canadian Pacific Railway were enthusiasts, and quoted Macoun; the Liberals under Hon. Alexander Mackenzie were sceptics, and quoted Palliser and Hind.

"In 1857, the British Government," Macoun writes, "sent out an expedition under Capt. Palliser, to explore in Canada. This expedition spent four years in the country and made a report stating that it was impossible to make a railroad through the Rocky Mountains. Their report also said that the largest proportion of the prairies was nothing more than part of the Great American Desert. This report gave the country quite a set-back."

On his way west to explore the country in company with Sandford Fleming in 1872, Macoun found all the leading men at Fort Garry discussing Palliser's estimate of the country, taking sides pro and con. Archbishop Taché, it appeared, had adopted views similar to that of Palliser. The Canadian Government wanted to find out which was right. Macoun, so he says, was "sent to see if Palliser's report was of any value." When Macoun came back with a highly conflicting report, Dr. George Dawson in turn was sent out to verify Macoun. Macoun, in 1877, after extensive exploration of the west, had sent back a long report "and told that I had seen no bad country at all."

On his way back to Ottawa, John Macoun was received enthusiastically by the optimists, and a public meeting was arranged in the Court House at Winnipeg, over a thousand men being present, at which he "fearlessly announced that the so-called arid country was one of unsurpassed fertility and that it was literally the 'Garden' of the whole country."

So ardent was Macoun about the new region, that on one occasion, when a debate was going on in the House of Commons, and Hon. Alexander Mackenzie was belittling, as Macoun thought, the possibilities of the North-West, Macoun shouted down to the Leader of the Opposition that he should quote Macoun as well as Palliser and Taché. One of the ushers laid his hand on Macoun's shoulder, and invited him to keep quiet or leave the Galleries.

It is not easy to reconcile such conflicting reports as those of Palliser and Hind in the late 50's, and that of Macoun and others in the 70's, except on the assumption that the visit of the earlier explorers coincided with a drought cycle, and those of the latter with an era of abnormally high rainfall. These rainfall cycles have not been adequately studied, from lack of prolonged observations, but it is suspected that they last long enough to alter the whole appearance of the country. A cycle of drought lasting ten years, as so many inhabitants of the prairies know to their sorrow, can cause almost incredible deterioration in soil and vegetation, and similarly a long period of excessive rainfall can work wonders in restoring it. There is a suggestive passage in Hind's narrative. When his party was near Indian Head, an old Indian told them that he remembered when the whole of the prairie through which they had just passed "was one continuous forest, broken only by two or three narrow intervals of barren ground." Old-timers in the West have seen park country rendered almost treeless by drought and then restored by a period of heavier rainfall.

Events have proved that Palliser and Hind underestimated, and Macoun overestimated, the capabilities of the "arid" country. The latter was nearer right than the former, and yet, considering how many abandoned farms dot that country and how much hardship was undergone in learning the unsuitability of certain areas, one cannot help wishing that more attention had been paid to the observations of the two pioneer economic explorers, Palliser and Hind. A calamity comparable to that of 1929-37 was avoided in the early 90's only because the country had not yet become populated. That drought cycle should have shown even optimists like Macoun what the country was occasionally subject to.

The extent to which Palliser and Hind were wrong, of course, can be seen from an examination of the country now embraced by Palliser's Triangle and Hind's Pentagon. It embraces an area which more than once has produced 300 million bushels of wheat in a single year, as well as other cereals and other farm products. Indeed, it includes three-quarters of the entire wheatland of the

West, and takes in territory which has averaged as high a figure in farm income as any part of the prairie. Their condemnation was too sweeping. Their geometrical figures were too large and regular. It should be added, however, that what they said as to the character of the Coteau country would appear to be largely justified by the experiences of the past nine years. An aridity map prepared by the Dominion Bureau of Statistics outlines an area strikingly similar, though not quite so large as that shown on the Palliser-Hind diagrams.

Macoun erred on the other side. His 200 million acres of land suitable for settlement has not been reached, although he is closer than Hind was with his 11 millions. The present area of occupied farm land in the prairie region is about 90,000,000 acres, and is still growing, though the gains in the north are largely being offset by abandonment in the south. When Palliser and Hind made their surveys, the capacity of certain Siberian and Mongolian wheats, and strains from them, to withstand excessive drought was not known, nor could it be forecast that other wheats would be developed capable of such early ripening as to push the wheat region many miles north and west. Such discoveries have vastly extended the wheat belts into the arid country on the one side and the park country on the other.

Until 1906, settlement largely avoided "Palliser's Triangle", but the pressure of the incoming hordes of immigrants subsequently filled up the vacant areas until eventually very little of even the "arid plains" had not been settled. Subsequently, of course, large belts of sub-marginal lands were abandoned again.

Though developments, in the main, have vindicated the optimists, the fluctuations of fortune have been amazing. The Bank of Canada's recent economic survey noted that the average income in Saskatchewan in the period 1925-28 was, with one exception, probably the highest ever attained on any part of the globe for such a large area. Ten years later, a large part of the same area had been reduced to destitution almost as complete as that which follows flood or earthquake.

The Dominion Government's policy for the drought-stricken area has been formulated in the past three or four years, and was re-stated in the House of Commons as recently as February 11th, 1937, after eight successive failures in the drought core. It is, therefore, not likely to be materially affected even by a ninth successive failure. Briefly, it is a policy built on the belief that a cycle of better times will arrive, that selective rather than wholesale abandonment should be undertaken, that ten years from now

the drought area will probably be found to contain a population slightly more than the present figure of 900,000, rather than less. At the same time the 1937 crop failure will compel even stricter attention to water conservation, tree planting, the development of irrigation districts, community pastures, the breeding of hardy grasses, strip farming, and other means which are to be used to combat drought. It will also tend to define more emphatically those marginal areas where the odds against the grain farmer are evidently too great for long-term success, no matter what they may be capable of in a brief period of exploitation during a cycle of excessive rainfall.