What the Wheat Crop Means to Canada

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Patriotism and Production was the Slogan and now has come Profit—the Romantic History of Canadian Wheats—Mesopotamia may yet see Puffing Caterpillar Tractor in its Fields—Necessity for Mixed Farming.

By C. C. JAMES, C.M.G., LL.D.

WHEN the summons came in August, 1914, for Canada to help the Empire with food as well as men, there were appeals most strenuous to grow wheat, to grow more wheat, to grow as much wheat as possible. There were set forth schemes and plans that were impracticable and uneconomic. Apparently food production needed guidance, there was need of information as well as stimulation—hence the campaign "Patriotism and Production." It was hoped that through bulletins, the public press, and conferences, the energies of the people might be directed along lines that were not only productive, but economically productive. It would be interesting, and perhaps enlightening for any who may be inclined, strangely enough, to criticize anything that may have helped in any way towards the increased production, to read again the campaign material, the Agricultural War Book, and the advertisements that reached about three million newspaper readers.

Patriotism and Profit.

It might be well to repeat one statement from the Agricultural War Book (p. 107). "Supposing we do by good farming and through favorable weather, increase our wheat crop, and at the same time do not sacrifice other crops so important as oats and barley and peas and alfalfa and corn (and also maintain our live-stock output), and then should find that the big prices do not come, that we shall get less than a dollar a bushel—what then? Shall we blame ourselves, or blame the governments? Surely it will be something to contribute to the British Empire in this crisis not only food but cheap food. The average prices received by the farmers of Canada 1910-1914 were as follow:—

Year.	Cents per bushel.
1910	$ .75
1911	.64
1912	.62
1913	.67
1914	1.22

"We shall certainly do much better than the above, probably very much better, but if we do not get from a dollar to a dollar and a half let us not be disappointed—our duty is to provide the food as extensively as possible, as economically as possible, and as cheerfully as possible—let it be a case of patriotism and production."

What Farmers Accomplished.

What have the farmers of Canada accomplished in connection with their wheat production? They have a crop that averages in yield higher than any crop during the years 1910 to 1914, inclusive, by from four to ten bushels. Here are the official figures for the previous five years, and the figures as I write for 1915. The latter are subject to revision.

	Area acres.	Bushels per acre.	Total yield bushels.
1910	8,863,151	14.89	132,049,000
1911	11,100,673	20.80	230,924,000
1912	10,996,700	20.38	224,159,000
1913	11,015,000	21.04	231,717,000
1914	10,293,900	15.37	158,223,000
1915	12,986,000	25.89	336,258,000

Cut down the yield of 1915 by ten, fifteen, twenty per cent. and 1915 will still hold the record. Then compare market prices with those given above for the years 1910 to 1913, and we might find it rather difficult to venture to prophesy that the farmers have overdone it and been "buncoed" and that the last great grain crop has been harvested in Canada. I asked a western wheat grower what he thought. In 1914 he had 12 bushels to the acre and sold his wheat for $1.23 a bushel; this year he has 25 bushels to the acre, and could get 75 cents a bushel, but he has arranged to hold it with the hope of higher prices. The western wheat growers have done their work, and even though governments cannot call ocean carriers out of the sky or do the impossible as to ocean rates, the wheat grower who has followed the advice given in the campaign as to cultivation, varieties and clean seed, will be able to add one more word to "Patriotism and Production," the word Profit.

Value of Wheat Per Acre.

	Average yield bushel per acre.	Average price to farmer.	Value per acre
1910	14.89	$ .75	$11.17
1911	20.80	.64	13.31
1912	20.38	.62	12.64
1913	21.04	.67	14.10
1914	15.67	1.22	19.12
1915	25.89	.80	20.71

Good Margin of Profit.

While it is very doubtful whether the wheat crops of 1910, 1911, 1912 and 1913 were on the whole produced at a national profit, there is no doubt that the crop of 1915 will leave a good margin of profit to Canadians, even with high ocean rates. As to future grain crops—all that we need say here is that they will be grown, and grown abundantly, but their value to the country may be greatly enhanced by the extension of the live stock industry. If the bumper crops of the west, wheat and oats, enable the farmers to go into live stock there will be a double blessing, and the future prosperity of the country will be assured. Canada, agriculturally, must pin her faith to live stock.

And now a few words as to the origin of the wheats, of which so much has been said and written in the past six months. There has recently been passed an order-in-council establishing certain official grades of grain for seed purposes. The Seed Commissioner states that in reference to wheat it is "to create a substantial supply of Red Fife and Marquis wheat, white oats, and six-rowed barley that is clean, of superior quality and reasonably pure, so that such grain may be made available to farmers, seed merchants, or grain dealers who sell seed at a minimum cost, the main object being the improvement of field crops." Under these regulations No. 1 Manitoba Northern seed shall be composed of 85 per cent. of Red Fife, or 85 per cent. of Marquis wheat. Herein we have the latest official recognition of the fact that those are the two important outstanding varieties of wheat for Western Canada. They are worth millions of dollars annually to Canada, and Canadians should know something of them and their origin.

Red Fife Wheat.

In October, 1860, a Wisconsin farmer, J. W. Clarke, wrote a letter to "The Country Gentleman and Cultivator" calling attention to the high qualities of Red Fife wheat, and the success he had had in growing it. In that year his crop averaged 36 bushels to the acre, and he recommended it to replace winter wheat. He referred to its originator, Mr. David Fife, of Otonabee, Canada West. "The Canadian Agriculturist" reproduced Mr. Clarke's letter, and added an account of the origin of the Red Fife wheat written by Mr. George Esson, a

neighbor of Mr. Fife. The Fifes and the Essons came from Kincardine, Parish of Tullyallen, Scotland, and settled in Otonabee, Peterboro' County, Ontario, about 1821. Here is Mr. Esson's letter, which may be found in "The Canadian Agriculturist" for March, 1861, (p. 167).

"About the year 1842, Mr. David Fife, of the Township of Otonabee, Canada West, (now Ontario), procured through a a friend in Glasgow, Scotland, a quantity of wheat which had been obtained from a cargo direct from Dantzig. As it came to hand just before spring seed time, and not knowing whether it was a fall or spring variety, Mr. Fife concluded to sow part of it that spring, and wait for the result. It proved to be a fall wheat, as it never ripened, except three ears, which grew apparently from a single grain. These were preserved, and although sown the next year under very unfavorable circumstances, being quite late, and in a shady place, it proved at harvest to be entirely free from rust, when all the wheat in the neighborhood was badly rusted. The produce of this was carefully preserved, and from it sprang the variety of wheat known over Canada and the Northern States by the different names of Fife, Scotch and Glasgow. As the facts occurred in my immediate neighborhood, and being intimately acquainted, not only with the introducer, but with the circumstances, I can vouch for the correctness of the statement, and if necessary produce incontestible proof."

From An Ontario Farm.

There are some traditions in connection with David Fife's wheat that differ from the above. One is that having by experiment found out that the Scotch Dantzig wheat was a spring and not a fall variety, the sack in which the wheat had been contained was looked up and a handful of grain was found in it, and this was sown in the succeeding year. Mr. Esson's account is probably the more accurate. Another story is that Mrs. Fife is entitled to share in her husband's honor, for, discovering the family cow contentedly making a meal off the growing clump of grain, she was in time to rescue a portion of it before it was too late. It is worth recording in Canadian history that the millions of bushels annually produced on the Canadian prairies are the descendants of one or more grains that a pioneer farmer in Ontario was fortunate enough to sow over seventy years ago. In 1862, Mr. Walter Riddell, of Northumberland County, in one of his communications to "The Canadian Agriculturist" called attention to the fact that no public recognition had been paid to Mr. Fife by the farmers of Upper Canada. "It does not reflect much credit on our farmers that they have not ere this bestowed some public testimonial on the gentleman who was the means of introducing it into the province." (July 16, 1862, p. 442). It is too late now to make the personal recognition, but we can at least inform our people of this story and suggest a proper place in the historical records of our country.

European Origin Established.

But the story is not yet complete. In 1905, Dr. Chas. E. Saunders, Dominion Cerealist, in his evidence before the Parliamentary Committee on Agriculture and Colonization, referred to Mr. Esson's letter, and then added the following:—

"This account has given rise to the idea that Red Fife is a Canadian wheat, that it originated with Mr. Fife in some wholly unaccountable manner, or as a sport from some European variety. It always seemed to me probable that the kernel which Mr. Fife obtained was merely a seed of some common European variety which had found its way into this wheat from Dantzig. Last season, among our newly-imported European varieties, was one under the name of 'Galician' obtained from a seedsman in Germany. Now, Galicia lies about 300 miles inland from Dantzig. This imported Galician wheat struck me at once as being very much like Red Fife,

and I therefore sowed it last spring alongside Red Fife, and watched them both very carefully throughout the season. They proved to be identical at all stages of their growth as well as when the grain was harvested. A larger plot of Galician wheat furnished grain for milling purposes. This was ground, analyzed and baked. Red Fife from a plot in the same field was similarly treated. The two samples of flour were found to be alike in all respects, and thus the absolute identity of the two wheats was established. The firm from which the seed of the Galician wheat was obtained informed me that the variety was procured by them many years ago from a farmer in Galicia. It seems, therefore, quite clear that the kernel of wheat which came into the hands of Mr. Fife was a kernel of this Galician spring wheat, accidentally present in the cargo of winter wheat from Dantzig, of which he obtained a portion. It is interesting to be able to throw this light on the subject of the origin of Red Fife, which has hitherto seemed very dark. There is no doubt that this variety is still grown in Europe, and so far as our tests have gone, it seems to be of the same quality there as it is here."

As to Marquis Wheat.

And what of Marquis wheat? It is an offspring of Red Fife, having this old and trusty variety as its father and Hard Red Calcutta as its mother. Its story was told in the Annual Report of the Canadian Experimental Farms for 1913, pp. 118, 119.

"All the details in regard to the origin of Marquis are not available, but it is one of the descendants of a cross between an early-ripening Indian wheat, Hard Red Calcutta, (as female) and Red Fife (as male). The cross (as appears from unpublished notes) was made by Dr A. P. Saunders, probably at the Experimental Farm at Agassiz, in the year 1892. The cross-bred seeds, or their progeny, were transferred to Ottawa, and the writer of this report was appointed in 1903 to take charge of the work of cereal breeding. He made a series of selections from the progeny of all the cross-bred wheats which had been produced at Ottawa up to that time. Some of these had been named and others were under numbers. Though they had all been subjected to a certain amount of selection, each of them consisted of a mixture of related types. In some cases all the types present were similar. In other instances striking differences were observed. The grain which had descended from the cross referred to above was found by careful study of individual plants (especially by applying the chewing test to ascertain the gluten strength and probable bread-making value) to be a mixture of similar-looking varieties which differed radically in regard to gluten quality. One of the varieties isolated from this mixture was subsequently named Marquis. Its high bread-making strength and color of flour were demonstrated in the tests made at Ottawa in the early months of 1907, and all the surplus seed was at once sent to the Indian Head Experimental Farm for propagation."

By Way of Wisconsin.

It will be clearly seen from the above account that the question, "When was Marquis wheat originated?", can never be answered. It came into existence probably at Ottawa between the years 1895 and 1902. It remained, however, mixed with other related sorts until discovered by the writer in 1903. It was first grown in a pure state in 1904, when a few seeds were sown in a sheltered garden on the Central Experimental Farm. Even then, however, its fine qualities were only partly known, and it was not until the cerealist's baking tests of 1907 were completed that he decided to send out this wheat for trial in Saskatchewan. Its success in the prairie country was phenomenal.

And so we trace back the millions of acres of Canadian Western wheat by way of Wisconsin and Illinois to a little

settlement in the back woods of Ontario, thence back through Glasgow and Dantzig to Galicia, and link up the peaceful prairies of Canada with the blood-soaked, ravaged fields of the peasants of Galicia in Central Europe.

I have referred to the Wisconsin farmer's letter of 1860. He had been growing Red Fife for a few years. At that time this variety had made its way farther north and was being grown also in the Red River Valley of Manitoba. In a few years it became the standard of excellence upon the Prairies of the west—Manitoba Hard.

Wanted Five Thousand Bushels.

In 1876 spring wheat failed in Ontario, the old reliable Red Fife apparently had run out, it had lost its vigor—perhaps the fault lay in the soil rather than in the grain. The Red River Valley Fife wheat had made a reputation, and so in the fall of the year the late Mr. R. C. Steele, of Steele Brothers, Toronto, started for Manitoba. He travelled by rail to St. Paul and thence to Fisher's Landing, where, doubtful of the river navigation so late in the year, he took a lumber wagon and made the 150 miles to Winnipeg in thirty hours of continuous going. He wished to bring back 5,000 bushels but all that he was able to secure at Winnipeg was 857 bushels, which he bought at 85 cents a bushel. This wheat came down to Toronto by steamer from Winnipeg to Fisher's Landing, where he secured some additional United States wheat, thence by rail to Duluth, by vessel Duluth to Sarnia, and by rail from Sarnia to Toronto. This was the first wheat exported from Manitoba to the east. It was in the latter part of October 1876. Mr. Steele paid 85 cents per bushel for this wheat on the twelfth of October, 1876.

Harvest and Battlefield.

Hundreds of thousands of Russians, Germans and Austrians have for months been battling over the wheat lands of Galicia. Meanwhile a British army has been slowly moving north from the Persian Gulf, and driving the enemy out of the wheat lands of prehistoric times. This country of the Tigris and Euphrates, wherein human history begins, may well have been the original home of the Galician Red Fife wheat. Let us take a brief glance at the agriculture of that region. The farmer must first prepare his land. The plow consists simply of a share of soft iron attached to a frame of rough wood. It is drawn by a yoke of native cows or oxen and the depth of the furrow will depend mainly upon the strength of the man or boy who drives the beasts.

Over the soil thus roughly scored and turned the sower goes forth to sow his wheat or barley, scattering the seed by hand. He next brings out his drag, which consists simply of a heavy plank on which he stands while driving his cows or oxen. Thus he breaks the clods, levels the soil, and covers the seed. If the rains come in due season all is well; if not, he must flood his field through his irrigation system. Perhaps he is fortunate to be able to tap a source of supply that will furnish him water by gravity; if not he must raise it bucket by bucket from his wells. He has cast his bread upon the waters or watered soil and he expects it to return unto him after many days of sunshine. About midsummer the farmer and his family start out to reap the matured crop and the sole implements are hands and sickles. The grain is thrown loose into a stack.

When harvesting is finished, thrashing begins. The straw is spread out on the ground. The faithful cows are hitched to a crude log frame which carries a pair of wooden rollers. In these rollers are set short blunt blades. There is a seat for the driver. Back and forth the farmer drives his beasts. The knives cut and break the straw, and the grain is set free by the treading of the beasts and the crushing of the runners. And now the wheat must be separated from the broken straw and the chaff. A windy day is chosen and the winnowers arm themselves with wooden forks. Starting on the wind-

ward side they throw the straw into the air, the wind blows the straw and chaff away and the heavy grain falls at their feet. Any chaff or husks that may be left are rubbed off in stone mortars and then the grain is ready for market. The broken straw is used as food for the cattle and for making brick.

Meanwhile, the gleaners may be seen in the fields gathering up the stray heads and straw that are sure to be left after such a crude method of harvesting. The crop of wheat will average about five bushels to the acre, the barley a little more. Remote from the cultivated land we see the flocks of sheep and of goats feeding and fattening upon the grass, not grass such as we have, but plants that show here and there the yellow or bluish blossom of alfalfa. Accompanying them is the shepherd.

Agriculture of Bible Times.

This, you say, is a rough picture of the agriculture of Bible times. Yes, it is; but it is also a rough picture of the agriculture to be seen to this day in Persia and Arabia. Farming in Mesopotamia is to-day very much as it was one thousand, two thousand, three thousand years ago. And now all this is likely to be changed, for Sir William Willcocks, who designed the great Assouan Dam on the Nile to modernize the agriculture of Egypt, has designed and is now constructing great works on the Euphrates and the other rivers which will direct the waters of that region, so that, instead of destroying floods, there shall be enriching irrigation canals of water under human control.

Perhaps some of our strict interpreters will not agree with Sir William Willcocks who has suggested that if Noah had been an irrigation engineer he might have cut a channel for the flooded Euphrates into the river bed of the Pison instead of constructing an ark, and thereby might have saved not only his own family but also the whole country. This, however, is by the way. The works under construction are intended to double the cultivable area and to increase manifold the annual production of the entire country. After the great war is over we can see in imagination the incoming of the sulky plow, the disk harrow, the seeder, the thrashing machine, the silo, the creamery, and cold storage warehouses.

Mesopotamia and the Tractor.

Perhaps Mesopotamia may yet see a Caterpillar Tractor puffing across the fields pulling its battery of half a dozen plows or half a dozen self binders, and who knows but that some of these may carry the names of our Canadian implement manufacturers. We can see the people changing in their methods of work, changing in their methods of life, and we can even imagine them out of their prosperity struggling with the problem of the increased cost of their living. They have grown for over a thousand years wheat and barley and alfalfa; we grow these crops to-day. They use the sickle, we the self binder; they winnow with the wind, we thrash with the separator; they plow with cattle, we have the gasoline tractor. What lies in between? Surely there must be something, yes, much, that we may call Romance.

When the great war is over the peoples of Central Europe will return to grain growing, for thereby they will most readily and quickly obtain food. Siberia will increase her cereals, Mesopotamia and other forgotten countries will soon become exporters and rivals for the grain trade of Europe. What is Canada to do? Shall we place our dependence on wheat and more wheat? Or shall we now begin to lay broadly and wisely the foundations of permanent prosperity on a well-balanced form of agricultural production? We shall do well if we direct our energies more and more to the increase of mixed farming over those large areas of the north and west that are so admirably suited by nature to the growing of live stock.