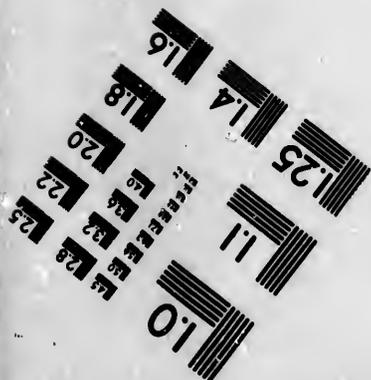
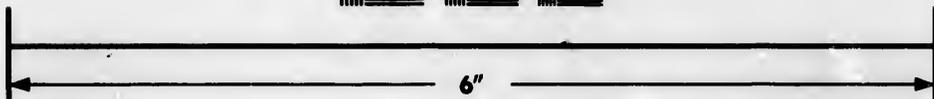
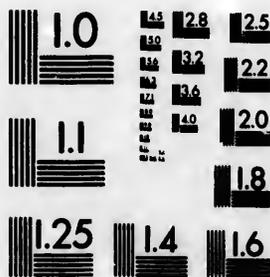


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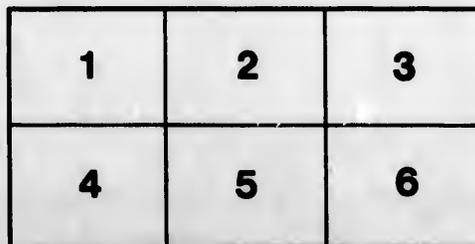
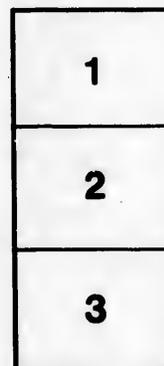
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SPECIAL REPORT

ON

The Agricultural Resources of Canada.

By ROBERT WALLACE, F.L.S., F.R.S.E.,

*Professor of Agriculture and Rural Economy in the University of Edinburgh;
Author of "The Farm Live Stock of Great Britain," "Indian
Agriculture," and "The Rural Economy and Agriculture
of Australia and New Zealand," &c. &c.*



*Published by Authority of the Government of Canada (Department
of the Interior).*

MARCH, 1894.

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PREFACE.

THE High Commissioner for Canada believes that the Report of Professor Wallace will be read with much interest by farmers in the United Kingdom. Its value is much enhanced by the fact that Professor Wallace visited Canada in 1879 as a member of the Tenant Farmers' Delegation in that year, and he is able, therefore, to bear witness to the great progress which has been made in the country in the intervening period.

It is generally known that a number of Tenant Farmers from the different parts of the United Kingdom were invited to visit Canada last autumn, with a view to report upon the agricultural resources of the country, and the advantages it offers for the settlement of farmers and farm labourers, and the other classes for which there is a demand. The following are the names of the gentlemen in question:—

Mr. A. J. Davies, Upper Hollings, Pensax, Tenbury, Worcestershire; Mr. W. H. Dempster, Millbrook Lodge, Clarboston Road, South Wales; Mr. Alexander Fraser, Balloch, Culloden, Inverness, Scotland; Mr. R. H. Faulks, Langham, Oakham, Rutland; Mr. J. T. Franklin, Handley, near Towcester, Northamptonshire; Mr. J. J. Guiry, Peppardstown, Fethard, Clonmel, Ireland; Mr. Tom Pitt, Obarnford, Cullompton, Devon; Mr. John Roberts, Plas Heaton Farm, Trefnant, North Wales; Mr. Reuben Shelton, Grange Farm, Ruddington, Nottinghamshire; Mr. Joseph Smith, 2, Mowbray Terrace, Sowerby, Thirsk, Yorkshire; Mr. John Steven, Purroch Farm, Hurlford, Ayrshire, Scotland; Mr. Booth Waddington, Bolehill Farm, Wingerworth, Chesterfield; and Mr. William Weeks, Cleverton Farm, Chippenham, Wiltshire.

In addition, two other farmers—Mr. John Cook, of Birch Hill, Neen Sollars, Cleobury Mortimer, Shropshire; and Mr. C. E. Wright, of Brinkhill, near Spilsby, Lincolnshire—visited the Dominion, under their own auspices, during 1893; and they have also been good enough to prepare Reports of their impressions.

The Reports, if published together, would make a bulky volume. They have therefore been divided into the following parts:—

Part 1—The Reports of Messrs. Shelton, Waddington, Cook, and Smith.

Part 2—The Reports of Messrs. Franklin, Faulks, and Wright.

Part 3—The Reports of Messrs. Weeks, Pitt, and Davies.

Part 4—The Reports of Messrs. Roberts and Dempster.

Part 5—The Reports of Messrs. Steven and Fraser.

Part 6—The Report of Mr. Guiry.

Part 1 will be circulated in the following counties:—Northumberland, Cumberland, Durham, Westmoreland, York, Lancashire, Shropshire, Cheshire, Staffordshire, Derby, and Nottingham.

Part 2, in Lincoln, Rutland, Leicester, Northampton, Huntingdon, Cambridge, Norfolk, Suffolk, Essex, Hertford, Bedford, Bucks, Oxford, Berks, Middlesex, Surrey, Kent, and Sussex.

Part 3, in Warwick, Worcester, Hereford, Gloucester, Wiltshire, Hampshire, Dorset, Somerset, Devon, and Cornwall.

Part 4, in Wales; *Part 5*, in Scotland; and *Part 6*, in Ireland.

Professor James Long, the well-known agricultural expert, of Stanbridge Hall, Romsey, Hants, also visited Canada during the summer and autumn, and at the request of the High Commissioner prepared a Report, which is of a very interesting and instructive nature, valuable alike to English and to Canadian farmers.

*From whom
Pamphlets
obtainable.*

Any or all of these pamphlets, as well as other illustrated pamphlets issued by the Government, may be obtained, post free, by persons desiring to peruse them, on application to the Hon. Sir Charles Tupper, Bart., G.C.M.G., C.B., High Commissioner for Canada, 17, Victoria Street, London, S.W.; to Mr. J. G. Colmer, C.M.G., Secretary, at the same address; or to any of the agents of the Canadian Government in the United Kingdom, whose names and addresses are as follows:—Mr. John Dyke, 15, Water Street, Liverpool; Mr. Thomas Grahame, 40, St. Enoch Square, Glasgow; Mr. E. J. Wood, 79, Hagley Road, Birmingham; Mr. P. Fleming, 44, High Street, Dundee; Mr. W. G. Stuart, Netley Bridge, Inverness; and Mr. G. Leary, William Street, Kilkenny. Copies may also be obtained from the steamship agents, who are to be found in every village.

It may be desirable to refer briefly to the land regulations in force in the different provinces. In Manitoba and the North-West, free grants of 160 acres are offered to eligible settlers—*i.e.*, males over 18 years of age, and females who are the heads of families; further quantities may be purchased either from the Government, or the various land and railway companies, at prices ranging from 10s. an acre. In Prince Edward Island, Government land may be purchased at from 4s. 2d. an acre. In Nova Scotia, the price of Crown land is £8 per 100 acres; New Brunswick gives free grants of 100 acres, on condition of certain improvements, and on payment of £4 in cash, or work on public works to the extent of £2 per annum for three years. Residence and certain improvements are also required. In Ontario, free grants of from 100 to 200 acres are made, with the option of purchasing more, if required, at a low rate. The grants in Ontario are subject to certain conditions. In the Rainy River district, to the west of Lake Superior, free grants are also given from 120 to 160 acres, with the privilege of purchasing an additional quantity. In British Columbia, land can be obtained both from the Provincial and Dominion Governments, at from 4s. 2d. per acre, on certain conditions of settlement and improvements. For land free of conditions 20s. per acre is charged by the Dominion Government; but no sale, except in special cases, is to exceed 640 acres to one person. Improved farms may be purchased in all the provinces at reasonable rates. They are suitable for persons with some means who desire more of the social surroundings than can be found in those parts of the country in which Government lands are still available for occupation and settlement. Most of the pamphlets issued by the Government explain the land regulations at length, and also contain much general information about the resources and trade of the country.

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THE UNIVERSITY, EDINBURGH,
December, 1893.

Sir CHAS. TUPPER, Bart.,
High Commissioner for the Dominion of Canada,
London.

SIR,—It is my privilege to report the results of a two months tour of investigation in the Dominion of Canada, taken by me on behalf of the Canadian Government, under arrangements made with the Hon. T. Mayne Daly, Minister of the Interior, and yourself, acting in the capacity of High Commissioner for the Dominion in London.

I left Liverpool by the Allan steamship "Laurentian" on Thursday, 24th August, and returned by the same vessel, landing at Liverpool on Tuesday evening, 24th October.

On reaching Montreal, I proceeded by train to Ottawa, where, in the absence of Mr. Daly, I was received by Mr. A. M. Burgess, the Deputy-Minister of the Interior. As time was short, only one day was spent in Ottawa, but I had the good fortune—it being Labour Day—to see the various trades on holiday, marching in procession, and finally completing the entertainment by holding national sports on the race-ground. I also visited the Central Experimental Farm of the Dominion, under the escort of Mr. J. W. Robertson, the Dairy Commissioner. The same evening I took train for Winnipeg, and, with the exception of about 12 days spent in Ontario and the Eastern Townships—including a flying visit of



HOPE FARM, THE PROPERTY OF MR. WM. MARTIN, IN SOUTHERN MANITOBA.

three days to the Columbian Exhibition at Chicago—the time at my disposal was devoted to Manitoba and those portions of the Dominion to the west. Taking Winnipeg as my headquarters,

my first visit was paid to Hope Farm, near St. Jean, in Southern Manitoba, the property of Mr. William Martin, of Martin, Mitchell, & Co.; the second, to the Killarney crofter district, returning by Brandon. The third tour of investigation was made with yourself to the Saltcoats crofters, on the Manitoba and North-Western Railway. On leaving your party at Minnedosa, I drove across to Brandon, and proceeded westward to Calgary, where the journey was broken to enable me to visit the ranching district in the neighbourhood of McLeod. I then crossed the Rocky Mountains to Vancouver and Victoria, and on my way back to Winnipeg broke my journey at Indian Head, to examine the wheat cultivation so extensively carried on in that district. I returned by the Canadian Pacific Railway to Toronto, and while there I took the opportunity of visiting the Guelph Agricultural College before returning to Ottawa.

*Former and
Recent
Experiences.*

It was my good fortune, as one of the first Scottish farmers' delegates who went out to Canada in the autumn of 1879, to spend three months on a mission somewhat similar to the one which I have just completed. On the return journey at that time I encountered off the North of Ireland the storm in which the Tay Bridge was destroyed. On the occasion of my first visit I spent some weeks in the Eastern Townships, in the province of Quebec, and some of the most interesting farming districts of Ontario. In going to Manitoba, the Lake route was chosen, by way of Duluth, and I arrived in Winnipeg when the terminus of the railway from the South was yet two miles distant.



WINNIPEG.

At that time, now 14 years ago, the city of Winnipeg was estimated to contain about 5,000 inhabitants. Few houses had any claim to architectural beauty, or even any degree of stability. There was no attempt

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at road-making, and no pavements in even the principal streets, and I well remember seeing the remains of a Red River cart which had hopelessly stuck in Main Street, not far from the site of the Manitoba Hotel. The contrast of the old with the new city is striking. Now, the city has an unmistakable claim to be regarded as such, having an assessed value of £21,000,000 sterling, and, according to last census, 32,219 inhabitants. The rate of taxation is a little less than 2 per cent., including school rates and other taxes. The main buildings—which include an hospital, medical college, free schools, high schools, and a university—can be fairly described as magnificent. The schools are supported by the city, and the colleges by the various denominations, to which the Government gives small grants. There is a daily attendance of 3,500 children at the free schools. The facilities for transit include a most perfect system of electric cars, which frequently travel at a rate of not less than 12 miles an hour. On the occasion of my first visit, in company with three other delegates, I drove a distance of 250 miles through Southern Manitoba, in a south-westerly direction, to Rock Lake, returning east to join the only railway then in the country, at Emerson, on the American frontier. As I covered a considerable amount of ground in my recent tour which I traversed in 1879, the interest in contrasting the past with the present has been greater than even my first tour of inspection in a new country could afford. In 1879 I was introduced to the wonderful character of the black soil of Manitoba, an alluvium of exceptional fertility, which is supposed to have derived its dark appearance, to a considerable extent, at least, from the ashes resulting from the prairie fires of generations.

In the Report which I published early in 1880, it is interesting to notice that the estimate of the cost of Manitoba wheat, laid down in Liverpool, was 28s. per quarter, and it was believed that we could not profitably grow wheat in England at less than 50s. per quarter. While the mass of information which I then collected remains applicable to the condition at the present time, it is important to point out that the estimates formed, from the best information at my disposal, of the area of land capable of growing wheat, were immensely exaggerated, as compared with what is now known of the country. It was believed that no less than 300 million acres of wheat-growing land would ultimately be cultivated in Manitoba and the North-West Territory. Although satisfied generally, I did not at that time express any very sanguine hope of a rapid development of the country, and, taken as a whole, this early opinion must be regarded as fairly correct; while it may be admitted that in certain of the more favoured parts of Southern Manitoba the outcome resulting from settlement has been beyond my original anticipations.

By way of illustration, I may mention a few facts relating to a settler—an excellent illustration of a successful Manitoban farmer—whom I interviewed, from the neighbourhood of Roland, on the Northern Pacific and Manitoba Railway—Morris and Brandon branch. He was thoroughly satisfied with his good fortune, and had no complaints

*A Successful
Manitoban
Farmer.*

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to make against the country. He had been 62 years out from Ireland, having first settled in Ontario. He had been only 14 years in Manitoba, and was much pleased with the part of the country in question. He began, as he described it, with "nothing." Now he owns half a section --320 acres--while his son and son-in-law own another half-section each; and all are doing well. He has never suffered from frosted wheat during the 14 years; and only once was it blighted by what he described as a "hot, salt wind," when only 700 bushels were reaped in place of the natural yield, which ought to have been 3,000. He now rents out most of his land, and does not work so hard as he did a few years ago. But this year his tenant failed to secure help, and



FARM SCENE, MANITOBA.

he had again to turn in and aid in cutting the crop, doing very frequently double work—the two men, aided by a binder and six horses, cutting and setting up 20 acres of wheat per day. But at this work they wrought frequently as late as 10 and even 12 o'clock at night. His crops suffered little from the attack of "smut" or "bunt," as he changed the seed frequently. He bought "bluestone" last year, with the object of steeping the seed, but was afraid to do so, because some of his neighbours had used too strong a solution of the steep, and the results were unsatisfactory. He reports the winters to be cold in Manitoba, yet people do not feel the cold so much as in Ontario, and are not so liable to get frost-bitten.

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Wheat-growing Areas.

Of all the provinces in the great Canadian North-West, Manitoba the one which produces the largest quantity of the best quality of wheat, and is likely to continue to do so in future. To those who are not acquainted with the character of the land of this northern region, it is not uncommon to find the belief prevalent that the whole area is a vast plain of level land, without an obstacle as far as the eye can reach, and all equally suited to the growth of wheat, if there were settlers in sufficient numbers to occupy it. On the contrary, though the country unquestionably looks flat, and the view is not broken by any great obstacle, yet the difference in level from point to point throughout its extent is considerable—as is also the variety of soil and climate—and, consequently, the difference in results attained in wheat-growing are very great.



WHEAT STACKS, MANITOBA.

The best wheat-growing land is to be found in the valleys of the Assiniboine and Souris Rivers. These naturally form the lowest regions, ranging from 733 ft. at Winnipeg upwards, as the ascent of the rivers is made, but lower by about 200 to 300 ft. than the land lying at a greater distance from the rivers. It is on these elevated parts that frost is found to do more injury than in the lower ground. For example, the range of the Pembina Mountains, Swan Lake, Somerset, and Alta districts are all most liable to suffer. The soil of the valleys is considerably heavier than that of the rising ground, and in this way is not only more suitable for wheat-growing, being denser, closer, and

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more retentive of water, but altogether better suited for producing large crops of the finest quality—the hard, flinty wheat for which Manitoba is so famous.

Going more into detail with regard to the localities in which the best wheat is grown, a very fine tract of country is that in which Miami, Carman, Roland, and Morden are situated, ranging in elevation from 827 ft. above sea level at Roland to 1,010 ft. at Carman. Another good wheat district is found round Neepawa, and again near Portage-la-Prairie. West of the 100th parallel of longitude, the climate is so much drier than that to the east that wheat is uncertain, except in specially favourable seasons, and farmers there would be well advised in keeping more live stock, and in undertaking mixed farming. So with the elevated land; farmers on the Pembina Mountain, running up from about 900 to 1,500 ft., especially about Manitou and Pilot Mound, where wheat cannot be depended upon, have adopted cattle-rearing with considerable success. The best cattle from Manitoba sent to England are exported from this region.

West of Minnedosa, on the Manitoba and North-Western line, the country is better suited for mixed farming, including cattle-rearing and dairying, than for continual wheat-growing.

*Methods of
Cultivation.*

The fertility of the soil has retarded rapid progress in the adoption of good systems of rotations of crops, or of any of the best-known European methods for restoring fertility to land; but a change is beginning to be made in this respect in those parts where cropping has been going on regularly. Wheat still follows wheat for two, or perhaps for three, successive years; then by following with a crop of oats, succeeded by a summer fallow, a little variety is introduced. The summer fallow is made to take the place of the green crop, for which, under the present system of management, there is no demand. At the Hope Farm the experiment was being tried of growing a crop of wheat and of bare fallowing in alternate years. The object of bare fallowing is to secure freedom from weeds, and to work the land early, so that time may be left for it to consolidate thoroughly before the period of sowing in spring; and it is found that the most satisfactory crops in the so-called rotation are to be got after a summer fallow. The chief defect of the light soils of Manitoba for wheat-growing is that they are too loose and open to form a suitably solid bed for the roots of the wheat plant. Hitherto the cultivators have avoided rolling, because it was found that rolling at seed time left the surface soil in such a finely divided condition that the high winds, which prevail often at that season, blew away the top layer and piled it in heaps like snow wreaths. This difficulty appears as if it could be overcome by the use, not of the ordinary cylindrical roller at seed time, but by employing the heavy Cambridge, or so-called Ring or Fluted Disc, roller, immediately after ploughing. Then the land which had been newly turned up would not be in a condition to assume the powdery form, and yet the mass of the soil which had been moved would be consolidated, and would immediately acquire that solidity which land acquires when left out in summer fallow. The difference between the growth

of wheat on soil so loose as the black soil of Manitoba, compared with a well-packed soil such as might be secured by the treatment suggested, might make the difference of two or three bushels an acre in the average of the wheat crop of the country. It is claimed for summer fallowing that the first favourable opportunity can be taken to get the seed into the ground, and thus prevent the injury resulting from early frosts in autumn; but this is not admitted by the best cultivators to be its chief advantage, because it is considered by them to be a mistake to sow too early, say in April, as under ordinary circumstances sowing in May gives the best results. On the Hope Farm I saw a splendid crop of wheat, which was sown on 20th May, took only 90 days to ripen, and gave an average yield of 35 bushels to the acre. But this record was beaten by another across the Red River from St. Jean, in which a crop of wheat, classed as No. 1 hard, ripened in 82 days. As a rule, judging from the experience of the 10 years previous to 1893, it takes about 120 to 135 days for wheat to ripen in Manitoba; so that the exceptional cases quoted merely indicate the extraordinary nature of the season of 1893, and must not be regarded as a guide in ordinary circumstances. Wheat ripens most rapidly when not too thinly sown. In the better wheat-growing districts of Manitoba $1\frac{1}{2}$ bushels of seed per acre, drilled in, yields the best crop.

A Large Wheat Farm. At Indian Head I saw the farm of the Canadian Co-operative Colonisation Company, managed by Mr. W. B. Sheppard. The total area of this holding is 43,000 acres. It was a portion of the old Bell Farm, and it has been thrown open for sale since May last, to intending settlers, at a price of from \$30 to \$40 an acre; but meanwhile the land is being cultivated on a large scale for wheat-growing. An excellent crop of wheat was reaped during last season; six binders cut 1,400 acres of wheat and 200 acres of oats and barley between 15th August and 11th September. Wheat-growing operations were started on the 7th of May, 1890. The "breaking" of the prairie begins about the middle of June, and the "back-setting" a month later. In sowing the wheat, the "breaking" and "back-setting" part of the land are put in first, next that which has been "summer-fallowed," then the winter-ploughed land, and last that ploughed in spring. This keeps the wheat from all coming to maturity at the same time, and yet ensures that the crop becomes ripe during a period of one month, which gives time to carry on the harvesting operations satisfactorily. Perhaps one of the most interesting incidents in connection with this farm is the fact that it was to this place that Lord Brassey sent out 87 settlers from all parts of the United Kingdom by way of an experiment in assisted emigration. The men went under an agreement to work for 15 months, and at the end of that time they were to get Government homesteads; but they became dissatisfied, and the agreement was broken at the end of about 11 months! This result was due to the influence of a carpenter, who stirred up a spirit of discontent—a work in which he had considerable facility, owing to the people being placed in close proximity to one

another, within easy reach of an itinerant agitator. This was an illustration of the difficulty of carrying assisted emigration to a successful issue. Needless to say, the complaints which were made were, as is frequently the case, more of a sentimental than of a substantial kind.

Manitoba Wheat. It is a fact well known to millers that the wheat of Manitoba is of superior quality, although to the eye of the British farmer, accustomed to large, plump grain, it looks small and insignificant. The grains are extremely hard and horn-like, and the dough when produced in bread-making



GRAIN ELEVATOR, BRANDON.

has in an exceptionally high degree that peculiar quality which bakers call "strength." In other words, the dough has such tenacity that when pulled by the baker in working it is difficult to break, and when undergoing the process of cooking it resists the expansion of the gases forming in the bread with such success that the product is left light and open. A barrel of Manitoba wheat 196 lbs. in weight will produce 88 loaves of 4 lbs. each. Soft wheat, on the other hand, such as that grown in Oregon, will give from 35 lbs. to 40 lbs. less bread per barrel. It will now be easily recognised why millers appreciate Manitoba wheat, and find it economical to mix with the flour produced by wheat grown in other localities.

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wheat exportation commences, and railway and steamboat accommodation are taxed to their fullest extent. The wheat which is not at once shipped is stored in elevators, on what may originally be called the American plan. To save labour, and as a matter of general convenience, the wheat requires to be graded into samples of equal value, so that it is not necessary for the owner of the elevator to deliver to a customer the identical wheat which he deposits. Gradation of wheat into different samples is undertaken by Government, who appoint an inspector and a number of assistants for the purpose of carrying out a uniform classification. Representatives from Boards of Trade throughout the Dominion come together to determine the standard for each year, acting under laws and regulations framed for their guidance. The common standards by which the greater quantity of wheat is fixed are as follows:—No. 1, No. 2, and No. 3 Manitoba hard, and No. 1, No. 2, and No. 3 Manitoba Northern. If a very superior sample is found, it may be necessary to make an extra Manitoba hard, and further subdivisions are sometimes required—such as a hard, white Fyfe wheat; No. 1, No. 2, and No. 3 spring wheat, &c. In connection with the first six divisions, it is necessary that wheat should be sound, and “well” or “reasonably” cleaned, and in the case of No. 1 hard weigh 60 lbs. to the bushel, in the cases of No. 2 hard 58 lbs., of No. 1 Northern 60 lbs., and of No. 2 Northern 58 lbs. to the bushel. The great difference between the “hard” wheat and the “Northern” is, that the hard wheat has a smaller percentage of soft grains, or grains which are soft in part—probably in the centre—and hard at each end. A hard grain has a uniformly solid and horn-like appearance when cut; whereas a soft grain is somewhat mealy and irregular when fractured, and is white to appearance within, thus resembling the wheat of this country. Samples of the standards fixed are given to the inspector, who grades the wheats and issues certificates, stating details, receiving for his labour 60 cents per car, or 50 cents per thousand bushels in cargo lots. He is, however, made responsible to the full amount of the loss sustained if a mistake be made. Anyone dissatisfied with the classification can demand a “survey;” but it is right to say that difficulties of this kind are rarely met with, so perfect is the system of management, and so expert have the inspectors become at their work.

*Boards of Trade
and Winnipeg
Grain and
Produce Exchange.*

Winnipeg, being the capital of the great wheat-growing province, stands in a unique position as compared with the market centres of the other parts of the Dominion. In these places—for example, in Toronto and Montreal—the Board of Trade possesses a department which is termed the Corn Exchange, but it is worked under one charter as one public body. In Winnipeg, the Board of Trade is a separate corporation from the Grain and Produce Exchange, and acts under a different charter and different bye-laws, although the members composing the one and the other are in a great measure the same. The importance of the grain trade in proportion to trade in other commodities in this part of the world is sufficient reason for this exceptional state of things. Winnipeg Grain and Produce Exchange is a corporate body governed by a council of management, consisting of the president,

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vice-president, secretary, treasurer, and such other members as may be provided by bye-laws. It has for its main objects, among many objects of minor importance which it is unnecessary to notice—(a) The duty of compiling and publishing statistics and distributing information respecting the produce and provision trades, and permitting the establishment and maintenance of uniformity in the business customs and regulations among the persons engaged in the said trades throughout the province, whether they be members of the corporation or not; (b) to provide and uphold a suitable building for a grain and produce exchange, and thus in the city of Winnipeg to encourage the centralisation of the produce and provision trade; (c) to settle controversies and misunderstandings between persons engaged in the trades in question



CAMERON'S FARM, QU'APPELLE

by means of arbitration, the corporation nominating arbiters—usually members of the council—but not preventing the parties in dispute selecting members of the corporation other than those in the official management. Although it would appear that it is left entirely to the individuals concerned to consent to arbitration, yet it is difficult to see from the bye-laws how anyone could remain a member of the Exchange and refuse to settle disputes in this manner, which, it must be admitted, is infinitely more satisfactory in a trade of this kind than appealing to the ordinary Courts of Justice, which would naturally have to consult experts before disputes could possibly be settled on an equitable basis. Not only does this means of adjusting difficulties do a good work in an expeditious manner when these arise, but it forms an admirable check to those who would create controversy without proper cause.

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Carriage and Storage of Wheat.

The Canadian Pacific Railway has this year reduced its freight charges for wheat from all the chief points of shipment by 3 cents per 100 lbs., or from 21 cents to 18 cents to Fort William, the Lake port for Manitoba. The same rates apply on the Northern Pacific lines, which carry the wheat to Duluth. When it goes the latter way it passes in bond across the boundary. Wheat is thus carried by the Canadian Pacific Railway at the same freight charges about 100 miles further than wheat going by other lines from points north of Dakota, contiguous to the boundary line with the States. The reduction in the cost of carriage will make a difference to the farmers of Manitoba of about \$300,000, calculated upon the basis of 15,000,000 bushels being the crop of the country for the past year. The terminal charges at Duluth and Fort William for storing grain in the elevators and putting it afloat within 14 days, is $1\frac{1}{4}$ cents per bushel, and half a cent per bushel for every additional 14 days it is kept. This is between 1st June and 1st November. For winter storage 4 cents is the maximum charge, which is reckoned to begin with as above stated. In the case of wheat stored in the country the rate is 2 cents per bushel for receiving, cleaning, and shipping within 14 days. After that the authorised rate is half a cent per bushel up to the maximum of 4 cents; but this latter right to charge is not often put in force.

Milling Canadian Wheat at Home.

The work of milling wheat in Canada is gradually passing into the hands of large companies, which adopt the most recent and best machinery, and the individual millers and old companies are going to the wall. The opinion is held by those who have knowledge of the comparative value of Manitoba wheat as compared with the wheats grown further south, that the practice of beginning to ship Manitoba wheat into the States, and also to England, immediately the crop has been threshed, leads to the disposal of it at a rate below its true relative value; and that if the wheat crop were ground into flour at home, not only would there be a large increase in the amount of labour employed, but refuse products would be got to feed thousands of cattle, and at the same time the flour in barrels would command a price commensurate with its true value for mixing with the weaker wheats, which are so abundant in England and in America.

At the Lake of the Woods, on the Canadian Pacific Railway, about 138 miles east of Winnipeg, the amount of available water power is four times that in use at Minneapolis, where from 10,000 to 12,000 horse-power may be seen at work driving 32 flour mills. The possibility of creating an industry employing four times this amount of power is one which should not be forgotten in dealing with the resources of the country. Not only might 10 cents per bushel be added to the price of all grain shipped abroad, but the bran and other refuse would make it possible for Canadian farmers to feed their store cattle at home, and once for all settle the difficulty of the importation of grazing and store animals into this country.

Since the above was written, intimation has been made that the Keewatin Power Co., Limited, has already been established with the

object of carrying out the work referred to, with a capital of \$1,000,000, a large amount of which has been subscribed. The minimum volume of water issuing from the lake is estimated at 35,000 to 40,000 horse-power, the magnitude and importance of which may be estimated when it is known that 1,000 horse-power is ample to work a flour mill, grinding 1,000 barrels per day, or, say, 5,000 bushels of wheat. Work has been begun, and will be continued during the present winter. The company intend to make available the entire volume of water, and will sell or rent power, and sites for building, so that works of all descriptions may be established, and Keewatin become one of the most important manufacturing centres in the Dominion. Not only does it possess the immense advantage of cheap water power, but also that of the proximity of the Canadian Pacific Railway—certainly the most enterprising and efficient railroad service which is to be found on the American continent. It is also proposed ultimately to make a canal to Winnipeg, and this, with the cheap water communication which can be had from Fort William, must confer on Keewatin privileges that are possessed but by few industrial centres.

Prices of Wheat in September of this year, the extremely low price of 45 cents per bushel of 60 lbs. for Manitoba No. 2 hard was all that was offered; No. 1 hard bringing 48 cents per bushel, and

No. 3 hard 40 cents; No. 1 Northern being about the same price as No. 2 hard. Last year No. 2 hard was 52 cents; No. 1, 55 cents; and No. 3, 47 cents. The low prices of this year were accounted for by the depressing influences of the surplus of old wheat in hand, by the monetary difficulties in America, and, of course, by the low quotations ruling in the English market. The samples of wheat coming to hand were extremely good, there being very little "touched" with frost or injured by "bunt," and the season had been favourable for the development of wheat of the best quality for milling purposes. Prices tended upwards in a few days, but at current rates it cannot be said that wheat-growing in Manitoba is the most remunerative branch of the farming industry. The yield for the colony was originally estimated at 20,000,000 bushels, but it was not long before reports of very small yields came in from various quarters, and the total return is now officially stated to be 15,615,923 bushels.

The American system of selling "options" on the wheat market is one which has created a good deal of discussion and led to no little irritation among American wheat-growers. A farmer—or, more frequently, a grain dealer—agrees to deliver on a given date an amount of wheat of a certain quality at a price named, reserving, however, in the event of wheat falling in value, the option of paying to the purchaser the difference between that price and the market price at the time fixed for delivery. There is much to be said in favour of the system when confined to *bona-fide* transactions. It affords the growers a ready means of marketing their grain at current rates, and it tends to prevent extreme fluctuation in prices, in a great measure through the freedom with which information relating to transactions is given for the benefit of those interested. But abuse comes in, and a blessing

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is transformed into a curse when "bear" speculators sell wheat "options" without being in possession of the grain, trusting to secure it at a favourable price when the time for delivery arrives. In this way what is equivalent to an artificial supply of wheat is created, which depresses market prices.

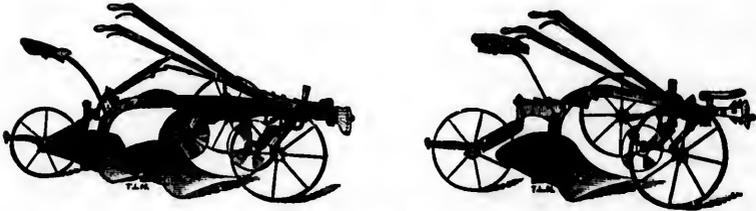


CLIPPER PLOUGH BELONGING TO A KILLARNEY CROFTER.

Agricultural Machinery.

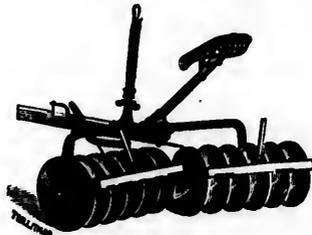
The scarcity and dearness of labour in Canada form a great inducement to the farmer to provide himself with the most effective farm implements and machinery, which will enable him to do the work quickly and efficiently. We consequently find that men are liable to contract liabilities beyond their means in providing machinery for their farms. The conditions of things are such that it would be almost impossible to get through the work unless by the aid of modern machinery; but the difficulty with small holders arises in the fact that each man has not sufficient work to fully employ the machinery in which he invests. The burden, therefore, is greater upon those small holders than upon men who are in a larger way of business. Till lately there were numerous small companies of implement dealers, but a large number of these have been absorbed in the Massey-Harris Company, which is now the largest company employed in the manufacture and sale of implements in the Dominion. By the courtesy of the manager of this company, I have been provided with blocks illustrating the forms of a number of machines commonly employed in agriculture, and plates printed from these are added as an appendix to my Report. For breaking in prairie land, the Sulky Plough, on which the workman rides, and which turns over more than one furrow at a time, is probably the best and most useful; but where weeds have established themselves, the common Chilled Plough, turning over a 15-inch furrow, is more serviceable. On clean land, the Sulky or

the Gang Plough does a greater amount of work. The operation of ploughing is succeeded by that of harrowing, with the Disc Harrow



A DOUBLE-FURROW AND A SINGLE-FURROW WHEEL PLOUGH.

and common Zig-Zag. The Disc Harrow is much more used in Canada than it is in this country, being extremely useful for raising a mould or forming a tilth, without tearing up the furrow slices and displacing them, on land which has been ploughed only a few inches deep. While doing this work, it also presses down the furrow slices and aids in preparing a solid bed for wheat. The so-called Shoe Drill,



THE DISC HARROW.

which has dragging behind each coulter a series of three rings to cover the seed, is intended to prevent the disturbance of the surface of the soil in sowing, which, it has been explained, is liable to give rise to its removal by wind. The Steel Frame Cultivator is one which is serviceable on land, such as is to be found in the Canadian North-West, of a loose working description, and free from hard obstacles, such as stones. The mowing machines and reaping machines are familiar to farmers in this country, as numbers are shipped to us by the Massey-Harris Company.

The Canadian Farmer.

The position of the agricultural community in Canada is unique in some important features. The great majority of farmers are their own proprietors, but many, having mortgaged their holdings to the full extent to money-lenders, are only nominally so. Still, it must be stated that the land is not mortgaged for the usual reason. The fact is that many Canadian farmers have little or no working capital, and the holding is mortgaged in order to provide it. It is a good invest-

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ment to the people who lend the money, and advantageous to the farmer. Although, as a rule, the owner works his own land, yet land is sometimes let out on shares. Virgin land broken in for the first year is free to the man who agrees to cultivate it. The land which has been already under cultivation is rented at half the crop if the proprietor supplies the seed, or a third of the crop if the tenant assumes all responsibility. Perhaps there is no agricultural country in the world where so many men who were not reared in the business are engaged at farming. They have been induced by grants of free land, and by the prospects of being their own masters, to emigrate to this vast country, and they have often laboured under great difficulties, but they have struggled on and established themselves as farmers. While all have made a living, only some have done well in the effort to accumulate wealth. Much depends on the character of the individual, and we find there are those who are unable to succeed in Canada, just as there are men who are failures in every country. It would not be surprising if a greater number failed in a new country like this than in an old, because naturally those who go abroad are not, as a rule, those who are most successful at home, but those who hope to find in a change of surroundings a possibility of bettering their condition.

Classes Wanted in Canada. What Canada wants for the development of her great resources is a class of hard-working, industrious cultivators with large families, such as are to be found leaving our country districts and accumulating in

towns, mainly with the object of securing employment for the members of their families as they reach the age at which they are permitted by law to take employment in shops and factories. Men of this description become comparatively well off when the family income is increased by the earnings of three or four of the elder children, and the temptation is consequently great to draw this class of people into the more populous centres, where alone employment is abundant. Such individuals do not possess means sufficient to defray the expenses of emigration and to establish themselves in a new country; and it would be a dangerous experiment on the part of a colonial Government to provide the necessary funds, although it would no doubt be highly satisfactory to Canada to see aid given by local authorities or the British Government, should it ever become necessary to relieve the pressure of population by State-aided emigration on a large scale. The question of the means of disposal of the surplus population is becoming a grave one. Already large numbers of workmen are out of employment in the United States of America, and with the natural tendency to the shrinkage of trade, through the disappearance in many cases of the margin of profit, not only in America but in this country, the numbers of the unemployed are more likely to increase than to decrease within a few years. The natural result of this condition of things in America will be the stoppage of immigration by the United States Government, on the plea that if there are more inhabitants in the country than there is work for, it could only aggravate the position to admit aliens who have no claims on the resources of the Republic. This will turn the tide of

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emigration to Canada and other British colonies, where it is to be hoped no restrictions to the freedom of the individual will ever be introduced to retard those who can afford to go out. Unfortunately for Canada, the men who possess the necessary money—say £150 to £200 each—to enable them to leave this country and take up homesteads in the free lands of the North-West, are not numerous as compared with those who are willing to go but who have not the necessary means at their disposal. Single men who are willing to enter into service for a time, and are free from many of the difficulties which have to be contended with by the heads of families, need not find the obstacles to be overcome any serious objection to their change of country. But emigration, again, involves on the part of these an amount of self-sacrifice which is not willingly undertaken until years of experience have induced a more serious view of life. The Icelanders, who come in considerable numbers to Canada without any capital, are said to be able to cope with the early difficulties of the settler, and to make a start in the new country without falling under the control of the money-lender; but, having succeeded so far, there is a want of development in their future career, until they get associated with people of greater enterprise than themselves. Icelanders, to the number of 650, are reported to have found their way to Canada in 1893. Of these, 200 settled in the Killarney and surrounding districts; and so great is Icelandic reputation for industry and honesty, that all were engaged by farmers in the neighbourhood on the night of their arrival. The difficulties and trials of the emigrant in landing were at one time so severe that, had it been known by those who intended to leave their homes what they had to encounter, emigration would not have developed in the early days to the extent it did. Circumstances, however, are now completely changed. In place of struggling through an almost unknown country, which involved weeks of incessant toil, the emigrant is now conveyed in a few days under conditions of comparative comfort. Emigration trains for the West start from Quebec on the arrival of the steamers, and are provided with sleeping cars, stoves for cooking food, and even the luxury of a smoking room.

Wages and Lady-Helps. A man employed in agricultural labour receives \$25 per month, and food, in most parts of the country; but at harvest and threshing time an immense addition to the ordinary field staff is required, and from \$35 to \$45 per month, with food, is given, to induce those who are able to undertake the work to come from other employments for the few weeks during harvest, to help to secure the crop. The labour question in a new country is of course one of the main difficulties with the settler, and it is a fact that employer and employed must work harder and longer than under ordinary circumstances in an old country. The difficulty of securing household labour has been somewhat overcome by the development of what may be described as a new department of labour, supplied by the lady-help. Ladies who attempt to earn their own living at home frequently lose caste, but in a new country the state of matters is entirely different. Labour is at a premium, and employ-

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ment is honourable. Even the best in the land have to do menial work, which would only be undertaken by a servant in this country. Ladies have gone out in considerable numbers, and have been taken into families of settlers, where they are received on equal terms with the members of the household; and, although they undertake all sorts of work, they are expected to take part during times of leisure in the companionship and social enjoyments of the family. It is generally admitted that the work done by people in this position is quite as much in amount and of superior quality to that of the ordinary menial; one main reason for this, no doubt, being that life is to them made more tolerable and enjoyable under circumstances which are somewhat trying.



CATTLE IN THE QU'APPELLE VALLEY.

Management of Cattle.

In the eastern provinces of Canada, and also in Manitoba, it is necessary to give the cattle shelter at night, and to provide them with fodder, variously estimated at from 1 to 1½ tons per head, for the winter season. The rough-and-ready method of allowing cattle to simply browse on a straw stack may be adopted when straw is abundant and of little value; but where the fodder is hay, which is got probably at some distance from the homestead, and in the securing of which labour, if not money, has been expended, greater care is taken in the management of it. The ordinary roots—turnips, mangel-wurzel, and sugar beet—grow well in most districts of Manitoba, and some farmers cultivate a few acres of them; but, as a rule, green cropping has not been so widely adopted

as it may be in future. While bran remains at a moderate price, there is not such an inducement for farmers to grow roots, which must always be regarded as an expensive crop in a country where labour is comparatively dear. I found that one man, who farmed in the neighbourhood of the Saltcoats crofter settlement, last year fed 75 steers, and sold them at \$50 to \$60 each, and this season he is preparing to tie up 150 to be treated in a similar manner.

The water supply in some districts is a great difficulty. There are considerable tracts of country which have no natural drainage system, by which excess of water—and, still more important, excess of salts of various kinds—can be freely removed from the soil. Water finds its way into numerous lakes which have no outlet, and there the saline substances collect, forming brackish or sweet waters; and in these parts of the country there is a strong tendency to the development of salt on the surface of the lower-lying land, making it unsuitable for cultivation, and of little value as pasture. The universal statement with regard to these lakes was, that they have been for a number of years shrinking in volume or altogether drying up. As this goes on, the water becomes saltier, and in those which contain a considerable amount of decaying vegetable matter, resulting from the accumulation of water weeds, it becomes putrid, and injurious to animals which drink it, producing diarrhœa and ultimately blood-poisoning—the weaker specimens and cows in calf succumbing more readily than others to the influence described. The cause is variously stated to be the reduction of rainfall, through the recurrence of a cycle of dry seasons; to the increased number of cattle in the district walking on the bottoms of the lakes and breaking the alkali crust, so that water is allowed to escape into the soil beneath; and, again, that prairie fires were thought to bring about the loss of moisture. But the most reasonable explanation seems to be the first—the diminished rainfall, which in a few years will again come up to a normal amount. The so-called “breeds” or “half-breeds” have a tradition in the ranch country of the Canadian North-West, that the lakes and creeks dry up or become low in recurring periods of 27 years.

The cattle in the ranch country are treated quite differently from those where mixed farming is practised. In many parts it is impossible to get hay, unless in exceptional seasons, the prairie being too dry, and the growth of natural herbage too short; but, with the exception of calves, the other portions of the stock are able to live through the winter without any artificial supply of food. It is true that considerable numbers were lost last winter, which was an exceptionally cold and stormy one; but it was probably not so much from want of food, as from the animals while in a poor condition being left in hollow places, from which they were unable to extricate themselves. Had they been rounded up and kept out of dangerous places, probably the death-rate might have been much less.

The Buffalo. The North American bison, which is familiarly known as the buffalo, is all but extinct. A remnant of a herd of about 40 exists in the northern portion of the North-West Territory of Canada. A few are still preserved in Yellow

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Stone Park, in America, and an enclosed herd is to be seen in the neighbourhood of Winnipeg. A few are kept in a park in Northumberland, England, and single specimens are also to be seen in the Zoological Gardens, and among other collections of wild and rare animals. All that remains of the buffalo in the vast region over which it ranged on the plains to the east of the Rocky Mountains, are piles of bones and horns, now being collected at railway stations with a view to being shipped as manure.



RANCH SCENE, ALBERTA.

Ranching in the North-West.

That part of the North-West which is best suited for cattle-rearing, and which may be described as the "ranch country," lies to the east of the Rocky Mountains, and is bounded on the north by Sheep Creek, on the south by the boundary line of the United States, while to the east it merges into the drier and less valuable prairie.

The cattle, as a rule, are Shorthorn grades of superior quality, with a considerable dash of Hereford blood, which was introduced some years ago. The Herefords are regarded as being peculiarly hardy and active, and well suited for ranching purposes. The Galloway breed—specimens of which, reared in Manitoba, may be seen on next page—is remarkably well suited for ranching purposes in a country subjected at times to extremely low ranges of temperature. The hornless condition is an advantage on the ranch, and in shipment by rail, and even by sea if, in place of a rope round the neck, a properly constructed halter be used on the head in tying the animals. With polled cattle no loss can be sustained by horns becoming frost-bitten. The tendency to slow

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maturity in the Galloway is no disadvantage when bullocks are kept till they are three years old, and the hardiness of the breed (a quality



GALLOWAY CATTLE AT HOPE FARM, THE PROPERTY OF MR. WILLIAM MARTIN

which usually accompanies slow maturity) cannot be surpassed by that of any other British cattle. The Aberdeen-Angus has also established itself with much acceptance in the western ranch country. Mr. R. G. Hardisty owns a pure-bred herd, containing some of the finest blood of this breed, on his ranch near Edmonton. The best time for shipping fat cattle from the ranges to this country is during the two months of September and October. When the grass is soft, as it is earlier in the season, the animals shrink considerably in weight and suffer more in transit, and, moreover, the temperature is higher—a circumstance less favourable to the maintenance of their original condition.

The development of the cattle industry of the region where large ranches exist is interesting to us, as already large numbers of steers of first-rate quality are regularly shipped to our markets, and greater numbers than ever may be expected in the immediate future. The steers and breeding cows run out all the year round, and are independent of any artificial supply of food, except in instances of exceptional extremity. The calves are weaned in most cases, and kept within range of the homesteads, so that they may be fed when necessary. The homesteads are placed at a distance of about 10 miles apart. The storms of winter tend to drive the cattle towards the south, which necessitates a general round-up in spring, so that each district and every individual owner may secure at the opening of the grass season the animals belonging to them. A meeting of the different stock associations is held to fix the time at which this round-up shall take place, any variation depending upon

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whether the season is early or late. A place of meeting is appointed for the general round-up. Each local stock association, consisting of about 10 or 12 members living in one district, sends out about 20 riders, who are divided into two "messes," or divisions. Each mess has two waggons, a cook, a horse day-herder, and a horse night-herder, accompanied by a "bunch" of horses sufficient to supply about seven mounts for each man. The meeting takes place about the beginning of June, usually to the south of the country to be operated upon, and a captain is elected who is given absolute control. Breakfast is had about 4.30 a.m., and the night-herders drive the horses against two waggons, placed end to end in such a position as to form, along with two ropes and a line of men, a square, in which the horses are held until each rider has secured his mounts. The men are told off by the captain in gangs to round up different sections of country and meet at a certain point. Meanwhile, the waggons are moved on to the new camp next to be occupied. The cattle are got together about 9 o'clock, and two men from each division—say six men in all—are sent in on horseback to cut out their cattle, while the others hold them together. The animals removed from the main herd belonging to one district are kept apart from the others, and each lot is made to form the nucleus of a herd which will be added to from day to day as the work of separation goes on; the men from each district holding the cattle thus secured all the time. The general round-up occupies about three weeks to a month, and after this is over each district rounds up its own cattle and brands its calves. About the middle of September a full round-up is held on the various ranches to brand late calves, and to select the steers which are ready for the butcher. A week or two later the calves are weaned. It is the practice to keep a line rider on each ranch till Christmas, to hold the cattle together. After that they let the main portion of the herd drift towards the south. A number of ranchmen now keep their breeding cattle at home, and provide about a ton of hay for each animal. During the operation of branding, a man on horseback lassoes each calf and throws it; when down, one man brands it by applying a heated iron to a conspicuous part of the skin, while another castrates and ear-marks it. As each lot is finished it is turned out, and allowed to go to its own feeding ground. It is necessary for two men to continue riding round each mob of cattle during night to keep them close together and to prevent a stampede, which very quickly becomes a nightly practice with steers if they are badly handled. Breeding cattle do not so readily stampede, but are more liable to stray. The percentage of deaths amongst steers is extremely small in the Edmonton district, and rarely exceeds 1 per cent., unless in exceptionally bad seasons. In the district further south, towards McLeod, the death-rate is higher, but there the ranches are larger, and less attention, as a rule, is paid to management. One firm of enterprising dealers, Gordon & Ironside, from Ontario, bought as many as 9,000 cattle in the North-West during the past season, and shipped them to this country. The price paid is \$40 a head for steers of four years old, weighing from about 1,350 to 1,400 lbs. live weight; and the cost of shipment by rail and sea from the ranch country to

Liverpool is, in round numbers, \$34—a sum which, however, ought to be considerably reduced within a few years. Until quite recently the main outlet for these cattle was Vancouver, a market which was opened when the Canadian Pacific Railway was completed across the Rocky Mountains. An interesting experiment has this year been tried, by the introduction into the ranch country of one-year-old steers bred in Manitoba, and sold by the dealers named to the ranch owners for \$20 a head, under an agreement that they will re-purchase the same when three years old. As these are all selected animals, the probability is that in quality they will at the end of two years be considerably above the average quality of the ranch cattle of the country. As cattle are supposed not to thrive well when pastured along with sheep, the latter are by law prohibited from grazing on the ranch country now under consideration.



CALGARY

The queries put by intending emigrants will include the following: "Are openings still available for young men in the ranching business?" and "Have those who have been settled in it for years made money?" The first question may be answered in the affirmative. It is the case that money has been lost by the pioneer ranchers; but that need not have been unexpected where everything was new, and where the proper methods of management were not at first understood. It seems to be a fact that much money has been lost in establishing the large ranches in the North-West Territory, but now experience has been gained, and, with the loss admitted and discounted, there is every chance of a successful industry, capable of immense expansion, being carried on in future.

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ought to govern him in the selection of the district in which he intends to settle. A man of limited means—say of £500 up to £1,000 of capital—would naturally go to the north of Alberta, to the Edmonton district, where he could secure, say, 50 cows at \$30 each, and rapidly breed a herd of 200 animals. He would take up a homestead at an original outlay of \$10. He cannot now secure a pre-emption, but hay can be got from Government land at 10 cents per ton, and can be put up at a cost of \$1½ a ton. A small number of cattle can be kept at home without straying into the general herd, and can be maintained in excellent condition during winter with 2 tons of hay for each, or one feed of hay with another of straw. Where mixed farming is undertaken, it is believed that a more intensive method of management, which involved the growth of oats and barley, and roots of all kinds for the support of sheep, cattle, and hogs, would have every prospect of success in the immediate future. All these crops grow well in the North-West regions, which, however, are not suitable for the production of wheat to a greater extent than is required for home consumption. A settler with a limited amount of capital might do very well in the large ranch district to the south of the province, in the neighbourhood of McLeod, by investing in steers, which would run with the large mob of cattle of the district, while he engaged himself to work with someone who has been established for some time. The district association may be safely left to attend to the cattle at the round-ups for a moderate fixed sum per head. A man with a capital of £2,000 or £3,000 is in a different position. If he is confident that he can undertake the management of a ranch on his own account and learn by the way, he might start at once, although it is always advisable to gain some experience of a new country before investing capital in any enterprise of this kind. He would take up a homestead, and prevent his stock from straying any considerable distance from home. No doubt this constant control of stock will become more prevalent as the country becomes more fully settled.*

The water supply of the ranching country is sometimes had in "muskegs," or soft, boggy ground of rather a peculiar character. A tough, soddy covering spreads over water resting in an elongated hollow, and the weight of a few cattle together depresses the surface at a point, so that the water comes up and a drinking hole is formed. These muskegs often range in extent from small areas up to 100 acres or more, and are to be recognised by a springy sensation under foot when trodden upon.

The months of September and October form the time in which shipments are made from these western ranches. The weather is then cool enough to permit of the transit of live animals across the Atlantic without serious injury on board ship, and there is no falling off in the fleshy condition such as takes place at a later period owing to the

* In time it will be possible to irrigate considerable tracts of land near the foot hills of the Rocky Mountains from streams running from the higher ground; but such an undertaking involves expenditure which is not to be warranted at the present time.

stoppage of the growth of grass. The prairie grass is excellent for feeding purposes, producing beef of prime quality when the animals are well bred, as the great majority of ranch cattle are. The restrictions against the importation of live cattle into this country do not affect this part of the Canadian live stock trade, because it would be impossible to improve the condition of the animals suitable for exportation by any method of feeding on this side of the Atlantic, and the shipments take place at a period when there is no risk of cattle being left unsold, or bought by the butchers at ruinously small prices, on the plea that the beef will not keep in hot weather.

*Live Cattle
Trade with
Great Britain.*

An Order of the Board of Agriculture in London, issued at the end of the cattle export season of 1892, prohibited the landing of cattle from Canada in Great Britain, unless for immediate slaughter. This put a stop to the "store" cattle trade, which had been in existence for a number of years. Considerable disappointment was felt by those feeders in certain parts of the North of Scotland, with whom Canadian cattle had become favourites for feeding purposes. The owners of pedigree stock and the breeders of store cattle, including the Irish farmers, who had until recently largely supplied the British market with store cattle, all differed in opinion from the feeders to whom I have referred, and an agitation has been maintained by those interested in the exclusion of Canadian cattle, against the relaxation of the Order of the Board of Agriculture. I made careful inquiry into the health of Canadian cattle, and I have no doubt in my own mind that the country is free from contagious pleuro-pneumonia; and, moreover, pleuro-pneumonia is unknown in those parts from whence it is supposed to have been imported into Great Britain.

Chilled Beef.

Looking into the future, it appears, to those who study the question in all its aspects, as if a dead meat trade would be more economical than that now carried on of shipping fat cattle alive. It is quite true that in good weather the cattle come across the Atlantic in excellent condition, and even gain 100 lbs. live weight in the passage of about 10 days—at least, if they have come a long journey by rail before being shipped. Still, in stormy weather the sufferings of the animals are severe, and large numbers are annually injured so that they have to be thrown overboard. Before the chilled beef trade can be fully successful, the prejudice against chilled beef in this country must be overcome. It is a fact that the method of preservation which is known by the name of "chilling" does not injure the beef as it is injured when frozen through—a process which till recently was considered necessary in the case of Australian and New Zealand beef in order to enable it to cross the Equator. The chilling process only involves a reduction of temperature, in the chamber in which the beef is preserved, of a few degrees below the freezing point of water. This moderately low temperature does not affect the interior of the carcass, as the juices of meat freeze at a lower temperature than water, and the mass does not become hard and ice-like.

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Sheep in the North-West.

The Canadian Cold Storage Agricultural Company, which took over a portion of the land owned by Sir Lister Kaye's company, grazes about 25,000 sheep and some 6,000 or 7,000 head of cattle, on land lying near to the railway as Calgary is approached from the east. A regular trade has been maintained by the company with Vancouver and Victoria for the supply of both beef and mutton by the aid of refrigerated cars, which carry it over the Canadian Pacific Railway through the Rocky Mountains; but now that a market has been opened in England, the impetus given to the increase of live stock in this part of Canada must be considerable.

Sheep do remarkably well on the dry lands in this section of the country. In winter they are sheltered at night in sheds made of rough poles with hay built on the top; but in good weather they are allowed to go out and pick up their food during the day from the prairie, the surface being cleared for them by means of a snow plough which goes in front, and takes in a fresh piece of ground each day. During stormy weather they are fed on hay and artificial food, such as light wheat and oats. The breed kept was originally the Merino, which was first crossed with Shropshire Down rams, and more recently by Cheviots. It has been proved that Cheviots are hardier and better suited to the surroundings than the larger and less active Black-faced Down breed. On one occasion last spring 150 sheep—some being ewes in lamb—were lost in a blizzard and wandered from Swift Current to Wood Mountain, a distance of 200 miles. The flock disappeared in February, and were found by the Mounted Police in April in excellent condition. The marvel, of course, was that they had escaped the wolves, which form one of the drawbacks to successful sheep farming in this part of the country.

Both in Manitoba and this North-West country, ponies may be turned out in autumn and left till spring, when they will come up fatter than they were at the beginning of winter. Owing to the want of rainfall, the grass in autumn simply dries like hay, and retains the valuable feeding qualities of grass until the rains of spring arrive. Ponies instinctively scrape with the fore feet to remove snow from their pasture, and are thus more independent than cattle, which are not possessed of that instinct; and I think it may be admitted that the horse, when allowed to assume its own protective covering of hair, is even hardier than the ox, in withstanding the influences of a severe winter. The time when ponies are liable to fall off in condition is in spring, when the March sun becomes strong. They get lazy, and do not paw and work for their food as well as in cold weather. The influence of the sun in spring is rather weakening also to cattle, and greater care has to be exercised with animals of all kinds at this period than even in winter.

The Ontario Agricultural College.

This is one of the best-equipped educational institutions of the kind which I have seen in any part of the world. The number of students in attendance is about 160—mostly Ontario farmers' sons—and applications for admission exceed the numbers which can

be accommodated. About 40 students are nominated by County Councils, and pay no fees for tuition. The regular curriculum of the college extends over two years, and at the end of this period those who are able to pass a sufficiently high standard in the examinations are admitted as associates of the college. In 1892, 26 were successful in securing this distinction. A limited number of the best students are permitted to remain over a third year, and at the end of this time examinations are conducted by the University of Toronto, and the degree of B.S.A. is conferred upon the successful candidates. Seven are reported to have graduated in 1892. The staff of the college consists of the president, the professors of agriculture, chemistry, natural history and geology, veterinary science, and dairy husbandry; an assistant resident and mathematical master, instructor in drill and gymnastics, an experimentalist, an assistant chemist, and a bursar. The class-room accommodation, laboratories, and museums are all of the most recent and most perfect description, and great importance is laid upon specimens, diagrams, and limelight views for illustrating the ordinary work of the lecturer. The experimental dairy is the last department which has been completed, and it now forms an important and interesting feature of the college. Thirty milch cows are kept, belonging to five distinct breeds—Jersey, Guernsey, Red Polled, Ayrshire, and Holstein; and, in addition to the general work of the college, which includes instruction in both cheese and butter making, and that connected with classes held specially for dairying, three travelling dairies are sent out in the early part of the season to different parts of the country, to instruct the farmers at local centres. Experiments are regularly carried on with the various descriptions of live stock and farm crops. The interest attached to the college by the general public may be estimated by the number of people—no less than 18,000 during the past year—who come annually to visit it. Another important work of the college is the encouragement which it gives to the meetings of farmers' institutes throughout the province. In January, 1893, no less than 119 meetings were organised at different centres, and the "deputation" of experts told off for each meeting is usually composed of a representative from the college and two other men qualified to discuss some of the numerous questions of interest and importance to the farming community. Annual reports are now made by each of the different officials of the college, and these form a bulky as well as interesting volume. Bulletins are also prepared and circulated, giving results from time to time of the operations in progress. Ontario may well be congratulated on her possession of one of the most perfect centres for instruction in agriculture to be found in any part of the British dominions. It is interesting to note that considerable change has taken place in the nature of the work of this institution since I visited the country 14 years ago. At that time *extreme* importance was attached to practical work, as is usually the case in institutions which are just starting, or with people who are beginning to take an interest in agricultural education for the first time; but a little experience has shown the college authorities that

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For a farmer's son, who has been accustomed to practical work from his youth upwards, to spend much time in doing operations with which he ought to be thoroughly familiar, was merely wasting valuable time which might have been better devoted to scientific study, or, in other words, to those branches of his education which it was impossible for him to carry out at home. The result is, that in place of the student being able to earn by manual labour enough money to pay for his residence in the college, as was the case in the early years of its existence, manual labour is now reduced to a minimum; only a few hours per week being devoted to hand labour exclusive of laboratory work—just sufficient to provide healthy exercise, and to create variety and interest in the daily routine of the place.

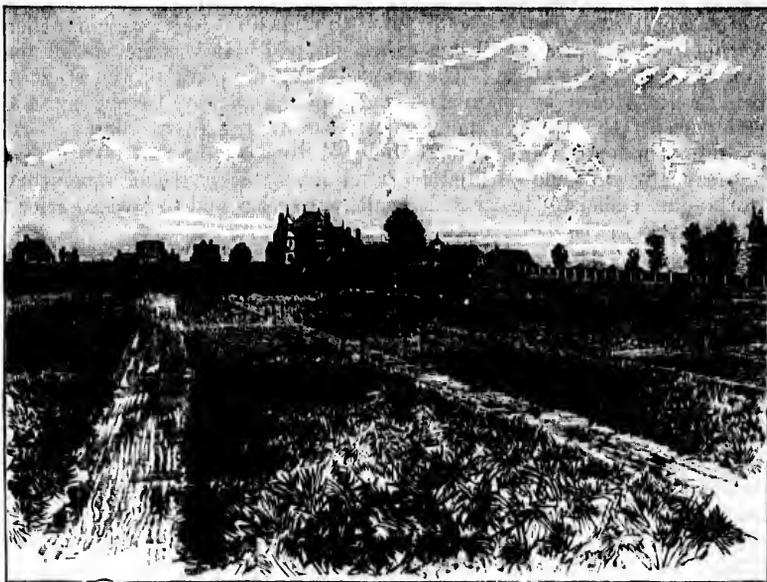
Dr. Barnardo's Industrial Farm, established in April, 1883, is the visible evidence of a successful enterprise, and is well worthy of a visit of inspection. The area extends to

about 9,000 acres, located between the Assiniboine River on the west, and the Manitoba and North-Western Railway—the Russell branch—on the east. Fifty youths are now kept in residence, but it is proposed to increase the number to 100, the object being to train certain boys who have completed their school education at the Homes in London to the agricultural life of Canada, and to prepare them first to enter into the employment of Canadian farmers, who are, as a rule, anxious to secure their services, and who pay them \$5 to \$10 per month, with food; and ultimately, after a few years of experience and after accumulating a little capital, to take up homesteads of their own. The staff consists of the agent and manager (Mr. E. A. Struthers), a farm superintendent, a house master, a butter-maker and superintendent of the creamery, a gardener, a carpenter, and four under foremen. The average length of time spent by the boys at the institution is about eight months. There are about 600 acres in cultivation, one-fifth being fallow, and the crops grown are the ordinary grain crops. The garden forms a prominent feature, and extends to 25 acres, in which all sorts of vegetables are produced. The dairy department is perhaps one of the most complete; about 60 cows are kept, and cream is also bought from farmers in the neighbourhood, who are allowed 15 cents per pound for the butter produced. The butter is sold in British Columbia and in Winnipeg direct to the wholesale merchants, and the price received in 1892 was 24½ cents per lb.

*Dominion
 Government
 Experimental
 Farms.*

The three experimental farms visited—namely, the Central Farm at Ottawa, and the farms at Brandon and Indian Head—are excellent representatives of the experimental farms which the Canadian Government have established as centres of instruction in various parts of the country. When these farms were started a few years ago—many of the legislators grudged the expense entailed, and at first the farming community ignored them. Professor Saunders, the head of the department, was fortunate enough to secure excellent men as managers—Mr. James W. Robertson, the Dairy Commissioner, at the Central Farm, Mr. S. Bedford at Brandon, and Mr. Mackay at Indian Head. Farming difficulties soon compelled

attention to the work being carried on, and now it is no exaggeration to say that these experimental farms are regarded by the most



EXPERIMENTAL FARM, OTTAWA.

enlightened farmers of Canada as a boon to the country. Considerable sums of money are now spent upon their support; still, it would appear that in time the staff employed at each place will require to be larger, and the work broken up into specialist departments. For example, the cross-fertilisation of wheat, which might lead to vast probabilities in the future of Canadian wheat-growing, should during its progress occupy the individual attention of an expert, and probably of an assistant as well. The unparalleled success in dairying indicates what might be done in other directions. This section of the work, as in the case of our own technical education movement at home, has taken the lead at these farms. Not only are there numerous experiments on the growth of grain crops carried on—the results of which are carefully recorded and published—but last year 21,000 sample bags, containing 3 lbs. each, of seeds of all kinds of farm crops were sent out free to farmers who applied for them; and samples of the crops grown from this seed were returned by the farmers for inspection and report. In this way in a little while an intimate knowledge of the possibility, or otherwise, of growing the various kinds of seeds in different districts of the country will be in the possession of the experts at these centres of distribution. It may be remarked, in passing, that the influences of locality and climate in different districts show immense differences, even within one season, on the products derived from samples of the same seed. Among the

other useful work of the college, including laboratory research, we find seeds tested free to farmers who forward samples for examination.

"Timothy" is one of the most successful grasses cultivated in Canada—a fact of which we are this year made aware by so much Canadian "timothy" hay being imported for use in this country. Though hard and uninviting in appearance, this hay is of excellent quality. It did create an amount of irritation in the mouths of the London horses, accustomed to the soft hay of this country, when first fed to them; and this threatened to be a serious drawback to its introduction. But this difficulty has now been got over, and Canadian timothy hay is regarded as of excellent quality for either carriage or hunting horses. One of the lines of experimental research at these Government Experimental Farms is in the direction of discovering new artificial grasses or forage plants, which will stand the drought of the climate and at the same time produce a good yield of high-class produce. At Indian Head the *Bromus inermis* has proved to be one of the best of the imported grasses. Here the country is too dry for timothy, Hungarian grass, or Italian ryegrass, though in some of the more humid years perennial ryegrass does pretty well. I found the so-called Hungarian grass, which is a small millet, growing remarkably well as a forage crop in Southern Manitoba. It is highly appreciated for cattle, although there seems to be some danger in giving it in quantity to horses, as it is liable to bring about urinary derangements. To show the difference in the growth of certain grasses in different parts of the country, I may mention that in the Edmonton district timothy grows so thickly upon the ground that in the course of four years it seems to dwarf the plants, which become short, though dense and close. A disc harrow is then used to thin out the roots, and thus increase the bulk of produce.

Dairying in Canada. In dairy work, in addition to the lectures given by the Dairy Commissioner, the Government has established numerous dairy instruction centres in the various provinces, with the object of improving the systems of the manufacture of both butter and cheese. The Government assistance is all in the educational line, no bounties being given, as in our Australian colonies. In this country we have for some years been feeling the influence of the improvement in dairy management in Canada, in the improved quality of the Canadian cheese imported by us; and some years ago Scotland did Canada the honour of adopting her system of Cheddar cheese making, and employing for several seasons Canadian experts to teach the details of the method to our best farmers. The most recent evidence of the superiority of Canada in dairy management is to be found in the results of the awards at the Columbian Exhibition, Chicago, 1893. In the June competition, of 667 exhibits of cheese, Canada sent 162, mostly of the factory class. There were 138 awards, of which Canada carried off 129; and it may be further stated that 31 of these successful exhibits secured more points than the highest number obtained by any American cheeses. In the October competition for the same class of cheese, made previous to 1893, there were 82 entries from the United States, and 524 from

Canada. There were 110 prizes offered, and Canada secured them all. A further 414 awards were given for cheese made in 1893, of which Canada obtained 369, and the United States 45. Much of the credit for the remarkable successes of the Canadian produce is no doubt due to Professor Robertson, the Dairy Commissioner, a native of Ayrshire, Scotland, who has had the chief responsibility of organising the instruction which has led to the improvement in the systems of manufacture. At the Exhibition, the enterprise of Canada was still further illustrated in the exhibit of a mammoth cheese weighing 22,000 lbs. This cheese was pronounced to be of excellent quality, and showed, on being pierced to the depth of 2 ft., a desirable solidity and uniformity. In the butter exhibits Canada was not quite so successful as might have been expected. She secured, however, 12 medals, 11 of which went to the province of Quebec, and one to Ontario. The most of the prizes for cheese and butter taken at Chicago by Quebec went to the county of Brome, a rugged and, from the railway, not a very inviting district, although its intrinsic qualities have been proved by the dairy produce which it yields. We may look for a considerable development in Canadian dairying in the immediate future. The resources of the country for the production of cheese and butter have been amply proved, and farmers are rapidly falling into the methods of winter dairying, which will enable them to command the markets at all seasons of the year.

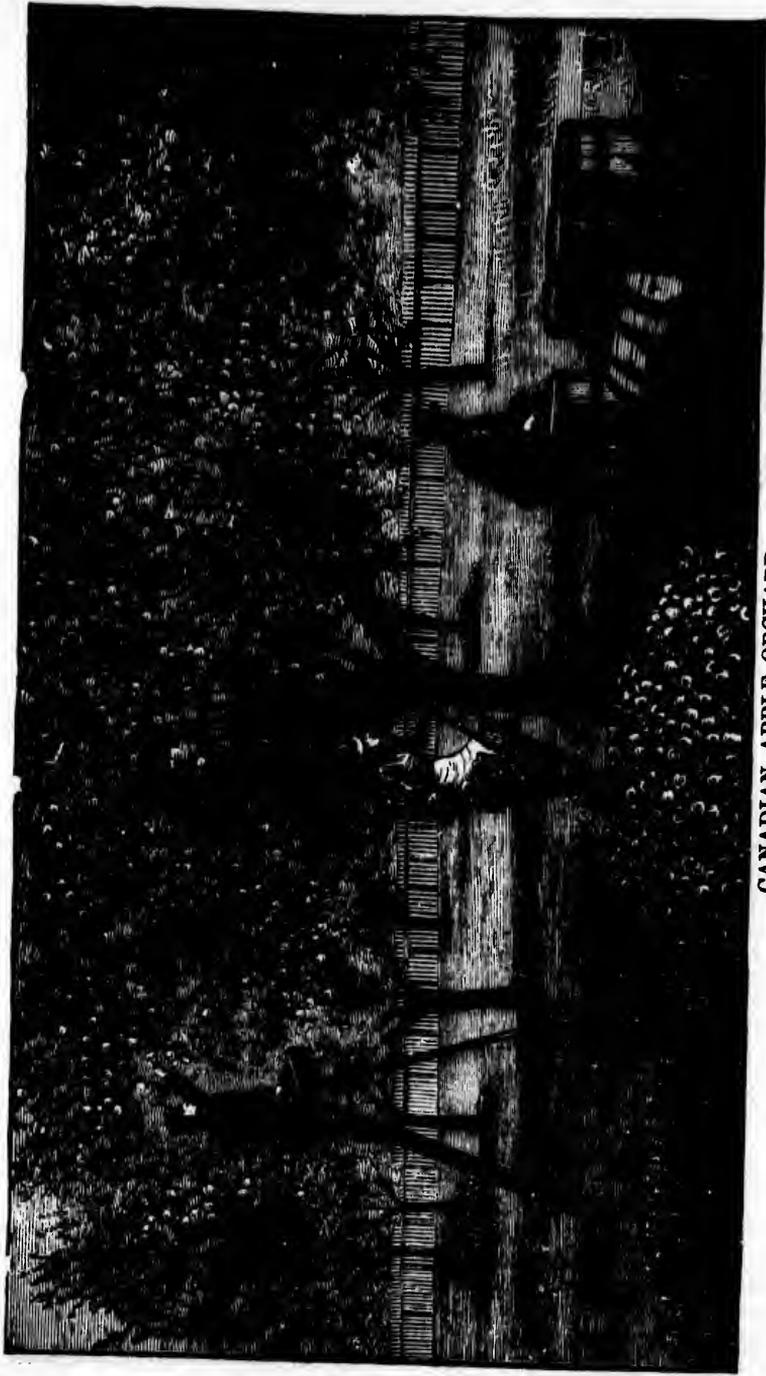
Silage is in a great measure the mainstay of dairy farming in the winter season. One of the works of the Central Experimental Farm at Ottawa has been to show what suitable mixture of green food for storage in silo—gives the best results when fed to dairy cows. Half a bushel of beans and a third of a bushel of Indian corn are sown to an acre. When the resulting crop has reached a satisfactory stage of its growth—namely, when the corn is at the glazed stage—it is cut and chaffed, mixed with sunflower heads, and then put in silo. The mixed crop will yield some 16 to 18 tons of green fodder per acre, and the sunflower heads weigh about $7\frac{1}{2}$ tons per acre; 2 acres of corn and beans and half an acre of sunflower heads being chaffed together. Round maize or flint corn is used in preference to the dent corn, which generally ripens at a later period of the year. In one of the Government silos I saw 135 tons of silage made without any weight being put on the top, and the loss was hardly perceptible. It is no exaggeration to say that by the use of silage the stock of a farm can be doubled in numbers, because the silage given in the amount of 40 lbs. to each cow or bullock makes it possible to use straw as fodder, which in ordinary circumstances is regarded as worthless for that purpose.

The Eastern Townships of Quebec. The farm of Mr. Rufus Pope, M.P., of Cookshire—perhaps the best illustration of a show farm in the Dominion—has proved without doubt the extraordinary advantages of silage in connection with dairying. The total area of the farm is about 1,400 acres, 300 of which are wood. Before silage was made 250 cattle of all ages were kept; now the number has been increased to 500. In some experiments which were tried in feeding straw against hay along

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CANADIAN APPLE ORCHARD.

(691,000 barrels of apples exported from Canada in the year ending June 30, 1892.)

with the silage, little or no difference was discernible in the results. Fifty-three acres are set apart for the growth of silage crops, and these yield about 800 tons. No weight is required on the silo except in the case of uncut clover, which has a tendency to rise on heating, and to become fire-fanged. The men employed on this farm receive \$250 a year of wages, together with a cottage and fuel, and the keep of a cow if desired. The creamery, which has a capacity sufficient for the milk of 300 to 400 cows, cost \$1,000 to erect and furnish. It is fitted up with cream separators and all the modern appliances for butter-making. The milk of 80 cows from the farm, and also that from four or five farms in the neighbourhood, is manufactured; the farmers having returned to them 80 lbs. of skim-milk for every 100 lbs. of sweet milk delivered. Calves and pigs are fed upon the skim-milk. The return in money paid to the farmers who contributed milk to the creamery was about 10 guineas per cow, and the skim-milk was estimated at about 28s. per cow extra, on the basis of 8 lbs. of milk being equivalent in value to 1 lb. of meal worth 1 cent a lb. Butter sells, on an average, at about 24 cents per lb. all the year round. The whole place, even the cow-house and pig-sty, is lit by electricity, and the motive power on the farm is also electricity, supplied from a large engine in the centre of the main building, which drives a powerful dynamo, connected when necessary by wire with small dynamos placed at distant parts of the farm when work has to be done. No doubt the secret of the success of this exceptional method of supplying light and power is the extraordinary cheapness of the wood for fuel, which costs in this case only 60 cents a cord—i.e., 8 ft. \times 4 ft. \times 4 ft. = 128 cubic feet, or merely the expense of hauling. Owing to Mr. Pope combining with his farm operations the possession of a lumber mill, from which he can secure without cost an unlimited supply of firewood, he is thus saved the expense of buying fuel. Pinewood slabs make excellent firewood. In the same district the price per cord of hard wood, such as maple and birch, would be \$1.75. Pigs naturally form an important portion of the stock of this farm, the feeding pigs being a cross between the Yorkshire and a strong-boned Berkshire. The food supplied is half milk and half meal, made from light or damaged wheat, and at the end of the fattening season a proportion of barley or oats is added. The pigs are placed entirely under cover, and during winter the temperature is maintained, by means of steam pipes, at about 60 degrees Fahrenheit, which enables the fattening process to go on as quickly during winter as in summer.

The cow of the country is the French-Canadian cow—for which a register has been established by Government—and is no doubt descended from the Brittany and other cows imported by the French residents on their first arrival. The cows are not large, but they are suitable for the broken and rugged nature of the land on which they graze. Though it is beyond the ordinary farmer to imitate Mr. Pope in his electric fittings and electric machinery, yet many have followed his example in making silage, and in increasing the number of dairy cattle. This is one of the best illustrations to be found of the benefit of a good example in a district where a change of method has been

rendered necessary owing to change of circumstances. Men who were rapidly losing money under the old methods of management, when the price of corn and beef went down, are now able to do well and live comfortably in small holdings of, say, 60 acres. Good land—including house and barns, fences, and other surface improvements—can be bought in this district for \$20 per acre—a considerable reduction on the value, as compared with the time of my previous visit. Since the development of dairying, however, there is no doubt land has reached its lowest point for the time, and prices are inclined to harden.

Two of the most prominent points of interest during *The Scottish Crofter Settlements.* a tour in the Canadian North-West are to be found in the district of Killarney, in Southern Manitoba, 160 miles south-west of Winnipeg, and Saltcoats, in Assiniboia, on the Manitoba and North-Western Railway, about 260 miles from Winnipeg. In May and June, 1888, about 30 families of crofters—in all, 193 persons—from the islands of Lewis and Harris were selected and sent out to Killarney, under the Crofter and Cottar Colonisation Scheme. In December of the same year four commissioners were nominated by Her Majesty the Queen to constitute a Colonisation Board in London for the management of this colonisation work; and in April, 1889, 49 crofter families from the same congested district were despatched from Glasgow and settled at Saltcoats. The results achieved in this double experiment, which involved the transfer of a fishing population from our barren Western shores to a grain-growing and stock-rearing prairie country, has not been uniformly successful as regards individuals, but on the whole the scheme cannot be pronounced a failure. It must be admitted that unsatisfactory elements come in, but not such as should deter further effort in a praiseworthy cause.

At Killarney the conditions of soil and climate point to wheat-growing as the means by which the most immediate returns can be got, and the wide area which has been annually under crop in this settlement has clearly shown that the Highland crofter in his new home cannot be termed lazy when a sufficient prospect of a remunerative return for his labour is open to him. The first season, 1888, was practically lost, as it was too far advanced before the people arrived; and an unusual run of bad luck has, unfortunately, attended crop-growing and harvesting in this district, and has seriously retarded the progress of the crofter population, along with that of their Canadian farmer neighbours. Early frosts, hail showers, and strong winds that shake out the grain from a ripe uncut crop, have affected sections of the area under consideration, and frequently reduced in one night, or even in a few minutes, the prospective yield of a crop of 20 to 30 bushels of wheat to a measured return of 10 or 12 bushels.

In 1891 the wheat crop in the Killarney settlement was magnificent, and it appeared as the grain stood in stacks on the ground that a sum sufficient to relieve all immediate financial pressure and secure comparative independence in future would be realised. Only a limited

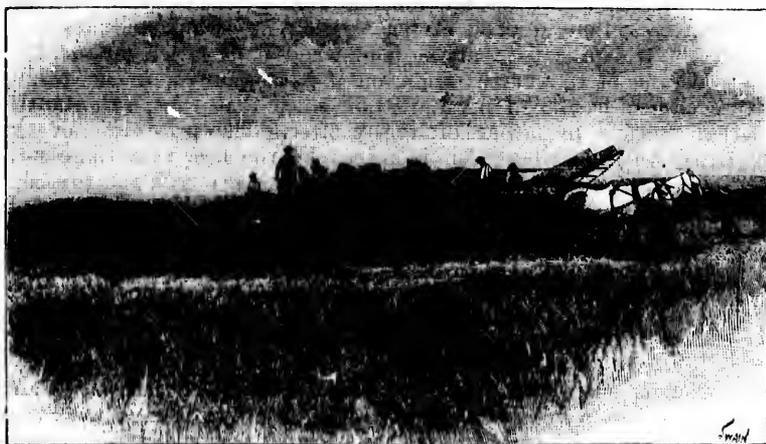
number of those in the Hilton district—or the north-eastern portion of the Killarney settlement—realised these anticipations, owing to their being situated nearest the railway, so that threshing machines were procured early in the season. Snow fell before the more inconveniently placed settlers could thresh their crops, which were put up in ill-formed stacks, unfit to resist the storms of winter. Snow and ice became attached to the sheaves, and during the operation of threshing were mixed with the grain: although in the frosty weather of early spring the wheat appeared in perfect condition as it left the mill, it heated in the cars as the ice melted, and was rejected by buyers, and finally became unsaleable. No means of consumption could be found for it in this condition, and thousands of bushels of wheat were burnt in heaps to get rid of it. Had the crofters been possessed of the experience necessary to lead them to set out the sheaves to thaw before threshing, many of the more energetic members of the community who lost not only the crop, but also the labour of threshing, would have had, like their Hilton neighbours, 1,000 to 1,500 bushels of wheat for sale at the remunerative price of 70 cents per bushel. It would be unreasonable to think that such an unexpected calamity would not seriously cripple the resources of a struggling community for years to come, especially as it occurred during a cycle of comparatively unproductive seasons.



A KILLARNEY CROFTER'S STABLE AND FARM-YARD.

No doubt there are considerable differences in the character of individuals, but individuals are influenced to a large extent by their surroundings. The general impression was that the crofters who came originally from Harris were a better class than those who came from Lewis; but it is possible that the greater good fortune of the Harris men in the neighbourhood of Killarney in being able to benefit from the good crop of 1891 might make all the difference. They were reported to be more frugal, but prosperity is one of the best possible incentives to a high standard in this respect. A few individuals among them had earned a reputation for being dishonest, even repudiating

small debts which had been incurred to provide the bare necessities of life; but this was distinctly the exception, and not the rule. As an old crofter put it, "it is difficult to be what is called honest when you have not got the money to meet your liabilities." The good intention is not so readily put in evidence as the actual payment of the debt. As a body the crofters bear an excellent reputation now that the few black sheep have been singled out from the others. The figures on pages 17, 38, 39, and 41 are reproductions of photographs taken by me in the crofter settlements. The figures on pages 17 and 38 represent two scenes on the holding of one of the most successful crofters in the Killarney district, and certainly do not indicate poverty or want of enterprise; although it must be admitted that the securing of machinery and stock led to the owner becoming indebted to a considerable extent. The team of three horses in the "clipper" plough (page 17), and in the reaping machine (page 38), cost, with the harness, \$700, and the bullocks in the latter are worth £26 per pair. The initial outlay is not the only expense incurred by such a purchase, as the horses consume from 500 to 600 bushels of oats during the season. In return for this, not only does the owner secure the speedy harvesting of his own crop, but he is enabled to find work in the neighbourhood amongst his neighbours at the rate of \$12 a day for himself and his team. During this last season the team in question cut 120 acres of wheat in buildings in the district. These shelters for stock can be put up in a 5½ days. When on hire it is supposed to do about 20 acres a day. The turf stable shown on page 38 is thoroughly characteristic of similar short space of time, and at little cost. This stable, which is 42 ft. long by 19 ft. wide, was erected by two men in four days.



CROFTERS THRESHING WHEAT.

A calamity similar to that which overtook a section of the community, and which ended in the loss of the greater portion of the

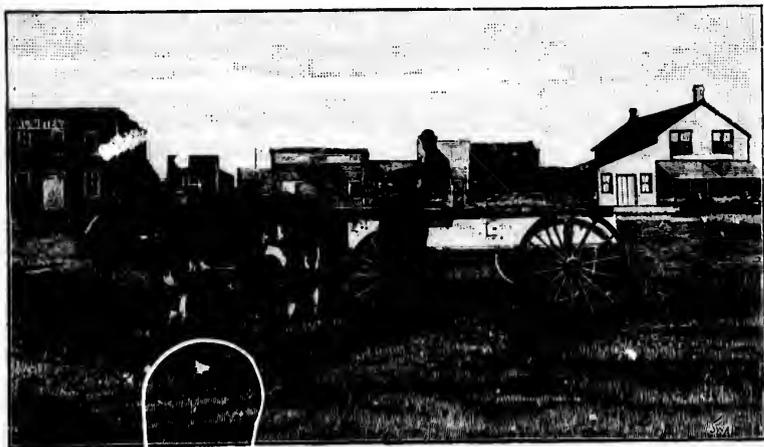
1891 crop, is not so likely to recur now that the crofters have amongst themselves a threshing mill, which is manned by 13 or 14 men, and travels amongst their homesteads, threshing the grain at a cost of 4 cents per bushel. The fuel used for the driving engine is straw, the fire being started by dried sunflower heads.

A prominent feature of the position of the Killarney crofter community is the extent of its indebtedness, which amounts, in round numbers, to a sum of about \$43,000. About \$24,000 are due for advances made by the British Government through the Colonisation Board, and to the municipalities for seed grain and taxes; and \$19,000 to money-lenders, tradesmen, and storekeepers. It has been asserted, and with some reason, that many crofters have in an extravagant spirit rushed into unnecessary debts for general store supplies, for machinery, and for teams of horses to replace in too great haste the bullocks which were provided as beasts of burden when the colony was formed; and, moreover, that the crofters, not being aware at first that the store bills would not be paid for them by public funds, bought extravagantly. This spirit of thoughtless spending has, however, exhausted itself without exhausting the credit of the hard-working and industrious; and it can be asserted with the greatest of confidence, in spite of all disadvantages arising from climatic and other misfortunes, together with the loss entailed through lack of experience of methods of cultivation, that the community is solvent; and, further, that the members of it have at no time suffered from scarcity of food, or from want of the other necessaries of life. The improvements made upon the holdings, and the increase of live stock and chattels, are amply sufficient to cover the indebtedness to the ordinary creditors; and the advances of public money and taxes are fully secured by the original stock and the quarter-sections of land (160 acres each) on which families were located. It is estimated that the land when first settled possessed an original value of \$5 an acre; and even if it be granted, as some assert, that such land has fallen in value \$1.50 since that time, a substantial margin remains in favour of the crofter. The prosperity of the Killarney settlement has been increased by the fact that those men who were in a position to leave home for a time have been able to secure work at good wages in the neighbourhood, and thus to increase their incomes as well as gain experience in Canadian methods of cultivation. The Killarney people secure what wood they require on the banks of the Pelican Lake, and they also draw a valuable supply of food by fishing for pike, which in most seasons are abundant in the lake. The fish are dried, and mostly used during winter.

The Saltcoats Colony. The Saltcoats colony was planted in a different section of the country under very different circumstances, and a somewhat erroneous impression has gone abroad that this part of the colonisation experiment has been unsuccessful. This district is not one in which the settler can depend upon grain crops for his chief support. Climatic drawbacks are more pronounced in this region than in that of Killarney. It is essentially a stock-rearing, dairying, and mixed farming district. The animals of the farm are healthy, prolific, and develop good bone on which to

build the 'butchers' carcass, and until settlement advances considerably abundance of hay of excellent quality and rough outlying pasture will, as at present, be available. Too much has been expected as the result of cultivation, and too little attention has been paid to stock; nevertheless, several successful Canadian farmers who have been settled in the district for five or six years have shown that, with skill, a crop return of some kind can be secured even in the most unsuitable seasons. Land, for example, which has been summer-fallowed will produce a crop, although it may not be altogether satisfactory, however unpropitious climatic influences may be.

The winter of 1892-93 was one of unprecedented length and severity, and many of the crofters who had not been successful in growing crops during previous years, owing, to some extent at least, to their lack of skill as cultivators, became disheartened, and did not plant the crops which they ought to have planted, and for which seed had been supplied to them by Government. The lateness of the season, and the feeble condition of the work oxen, were also pleaded as excuses for lack of results in crop-growing; though, when the crop year just passed proved to be the best in the memory of the oldest resident, very general regret was freely expressed that greater efforts had not been made.



A CROFTER'S BULLOCK TEAM AT SALTCOATS

A successful English settler in the Saltcoats neighbourhood stated as follows his experience of the seasons since he took up his homestead five years ago next May:—

1888. First year. Owing to late arrival, no crop was sown this year.

1889. No crop, owing to insufficient knowledge of farming and a drought.

1890. A good season; harvested a good crop.
1891. Great promise of an abundant crop, but, owing to early frost—August 22nd—the grain was frozen; but the result was a fair profit, as the damaged grain was fed to pigs, pork always finding a ready market at good prices.
1892. Owing to drought, only reaped half a crop of grain of excellent quality.
1893. Fifty-five acres under crop, consisting of 20 acres of wheat, which averaged 24 bushels; 28 acres of oats, 30 bushels; 7 acres of barley, average 30 bushels; 1 acre of potatoes, fair crop.

Another serious drawback to a young colony of poor, hard-working men was the want in the neighbourhood of a demand for well-paid labour at which the able-bodied could have employed the time not required on their own holdings. It is true that the Manitoba and North-Western Railway offered wages of \$1.25 a day, but this cannot be regarded as a sufficient inducement for men who could not return to their own homes during night and thereby reduce the cost of living.

In spite of all these disadvantages and misfortunes, it is a significant fact that, while the Killarney crofters got deeply into debt to storekeepers and others, the Saltcoats crofters do not owe altogether more than \$400 of corresponding liabilities. Owing to the nature of things, they must move at a slower, but at the same time a surer, rate than the Killarney people. They have not the prospect of such immediate returns from stock as may be looked for from grain-production. Their wants that cannot be supplied by the products of the farm are few, and their prosperity will be marked by the increase in the numbers of stock and the improvement of their holdings, rather than by cash received from the sale of the products of cultivation. Crop-growing should be confined to the supply of household wants and of food for farm animals, among which the pig should occupy a foremost place.

The success of this colony is already secured, and only a little time is required to develop the mixed farming suitable to the district, which will involve a considerable increase in the numbers of live stock. Where work is done for purposes of experiment in a new country, of which little is known regarding the nature of the climate or of the soil, it cannot be expected that every detail should at once show most satisfactory results. And when homes are found for people who have not previously been cultivators, it is unreasonable to expect that every individual should be successful. Even among those who have been reared as agriculturists—the farmers who come up from Ontario, for example—some do not succeed.

The large measure of success which has attended the crofter settlements—located as they are at a considerable distance from each other, and presenting widely different conditions of soil and climate—speaks volumes for the resources of the country, and is ample encouragement for the continuance of further efforts of a similar kind for the relief of the congested districts of the Western Highlands and islands

of Scotland. The difficulties to be contended with are too great for the shiftless and thriftless to overcome, and these, whether they belong to the crofters or to any other class, must go to the wall; but overwhelming and satisfactory evidence has been obtained as to the possibility of success in the case of hard-working and industrious people.

Agitation among the Crofters.

Strenuous efforts have been made by malicious agitators to stir up discontent among the settlers in the "Lothian" colony, and to encourage them to think they have been unfairly and harshly treated; but, although a limited number grumbled in a half-hearted way, none were found anxious to return to their West Highland homes, while the great majority, comprising the most industrious and most successful, were ready to admit that they had by emigrating decidedly bettered their position and prospects. It was interesting to find that one of the crofters who was most demonstrative in his objections to the treatment which he had received from the Colonisation Board, was one who had repeatedly attempted to persuade relatives at home to come out and try their fortunes in Canada. He was by no means one of the most unsuccessful, and his son expressed himself as quite contented with his lot, and altogether took a more reasonable and hopeful view of the situation. Considerable astonishment has been created by the refusal of the Killarney crofters to pay their liabilities, even allowing their holdings to be sold for the taxes, which amounted to only a few pounds. The exceptional liberality of the Government regulation with regard to the payment of taxes, together with the high rate of interest charged by money-lenders for small sums for accommodation, is entirely accountable for this position. By the payment of the taxes before the expiry of two years, with a charge of 10 per cent. for each year, the holding can be redeemed, and the crofter consequently secures the money at a much lower rate of interest than he would have to pay to the local money-lender. His only regret is that he cannot get possession of a greater amount of money on such favourable terms.

More Crofter Settlements.

The two crofter settlements now under the Imperial Colonisation Board are not the only agricultural settlements which have been established, or are proposed to be established, in Canada. Lady Cathcart was the means of some 60 or 70 families being taken out to Pipestone Creek, to the south of Moosomin; and a scheme of considerable magnitude was at one time proposed for British Columbia, and but for the untimely death of the Hon. John Robson—the British Columbian representative who was sent over to carry on negotiations in this country—and also the difficulties in the financial world, it is possible that an experiment might before this have been tried to establish crofters as fishermen on the Pacific Coast.

There is another district in which crofter settlement might be carried out with advantage without the preliminary precaution of an experiment such as that which has been suggested; and that is, on the north shore of Lake Superior. Lake Superior whitefish, Lake Superior trout, and also sturgeon—from the roe of which caviare is made—are at

present caught in this region and sent in considerable quantities to the United States. The fish is bought by companies who own steamers, and who send round periodically to collect the fish. Boxes on wheels, 6 ft. \times 4 ft. \times 3 ft., are left with the fishermen, and in these the fish are stored in ice against the return of the boats. Should the weather be stormy, so that the collecting steamers are for a time unable to call, the white fish and trout are salted, so that no serious loss is sustained. The present value of fish to the consumer is from 10 cents to 15 cents per lb. With a great increase in the supply, the price would no doubt fall considerably; but this would be a boon to the country, and, moreover, the demand from the great centres of population of the United States, as well as in Canada, would, with an increased and cheaper supply, also develop. As nets are used and no bait is necessary, the expense and difficulty of establishing fisheries may be regarded as of small importance. For a time it would be necessary for Government to employ local fishermen of experience to instruct the new-comers in the methods of fishing, and to find the whereabouts of the fish, as they move about in different seasons or according to the nature of the weather—sometimes into shallow, and, when it is cold, again into deep water.

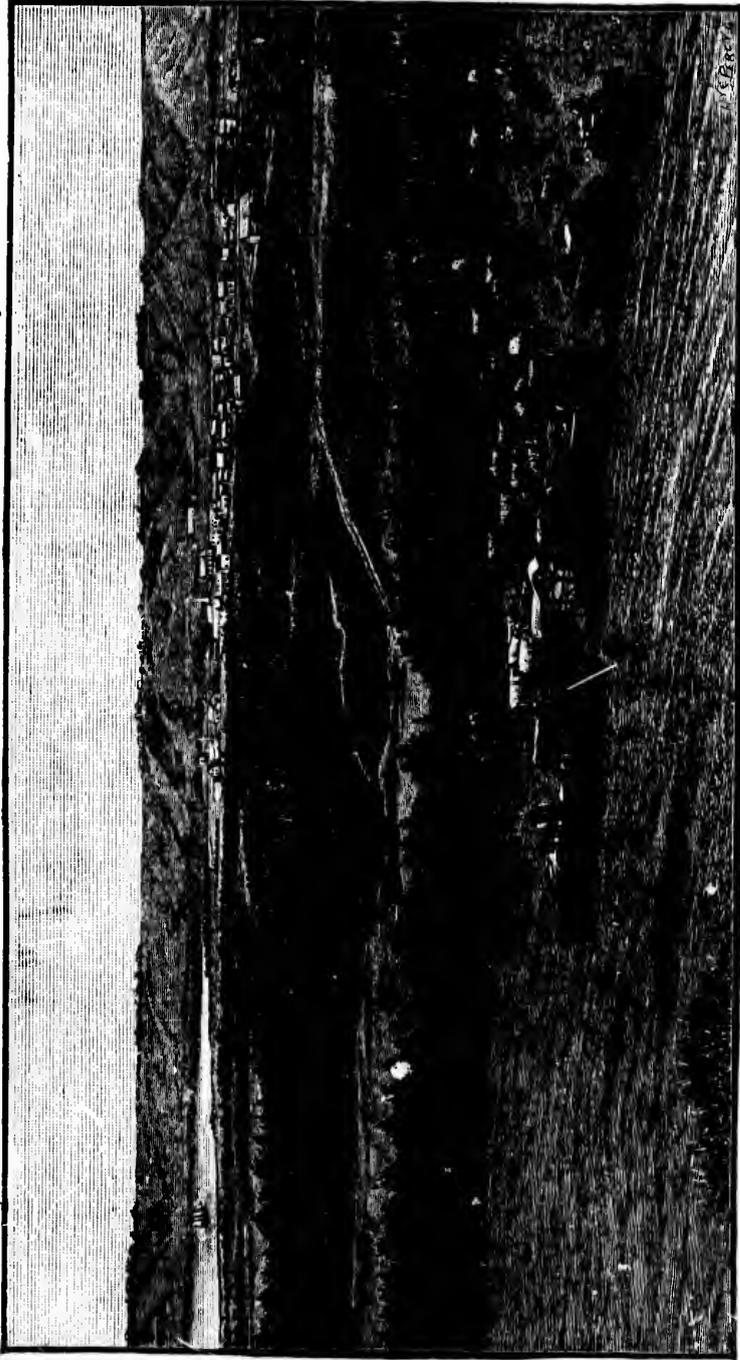
I have the honour to be,
Sir, your obedient Servant,
ROBERT WALLACE.



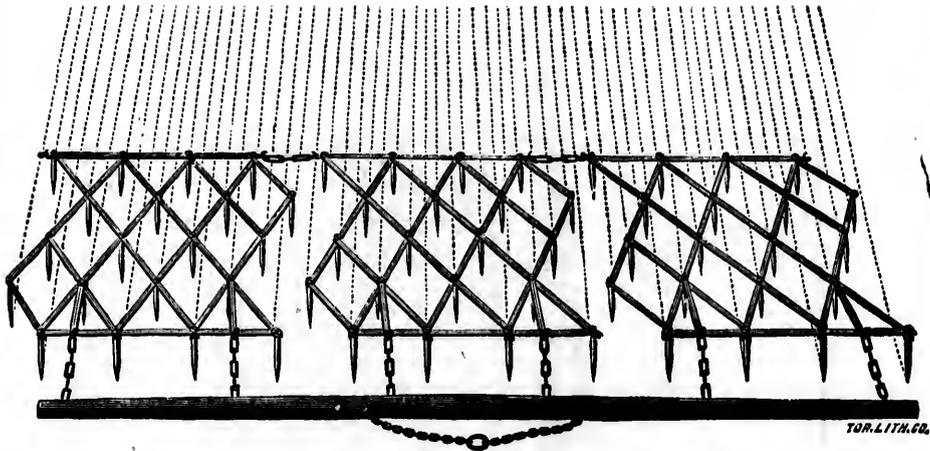
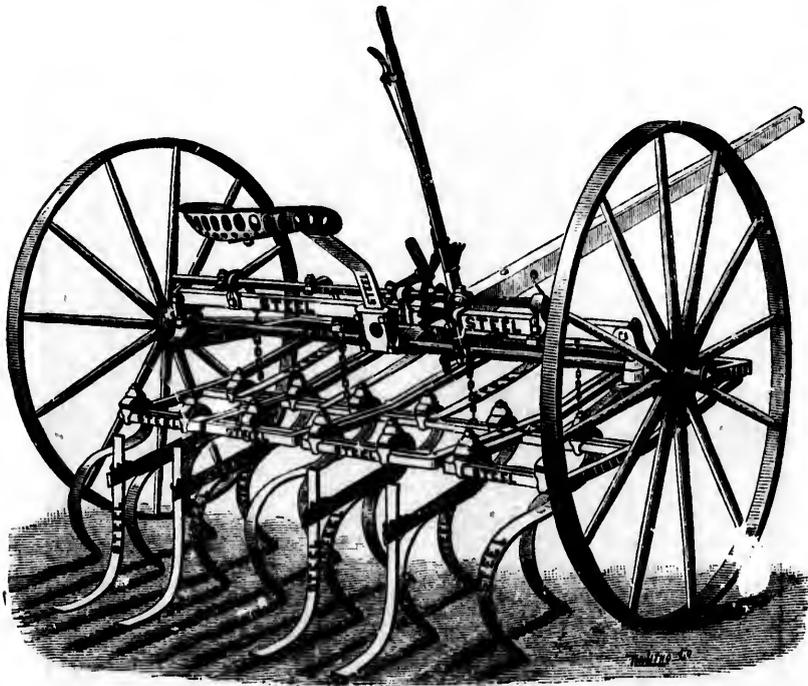
AN ONTARIO FARM.

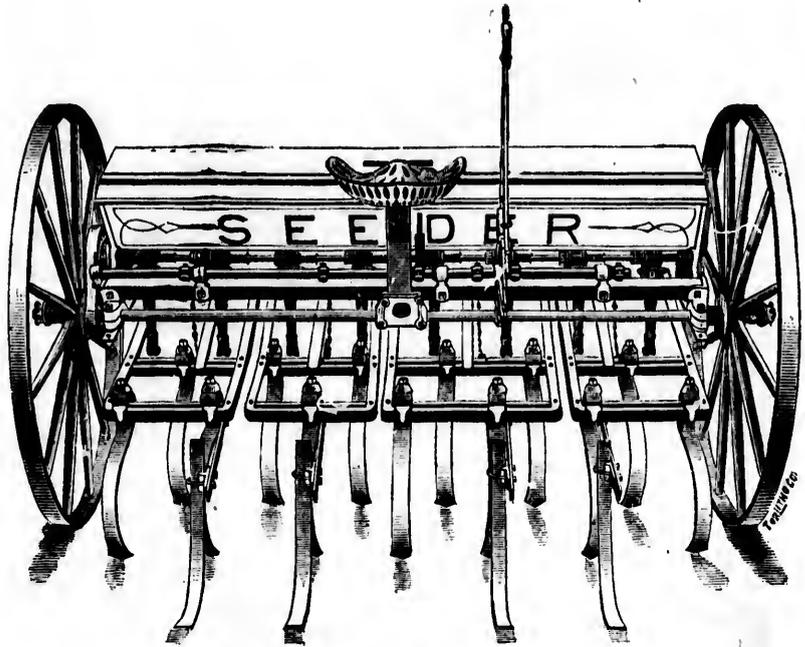
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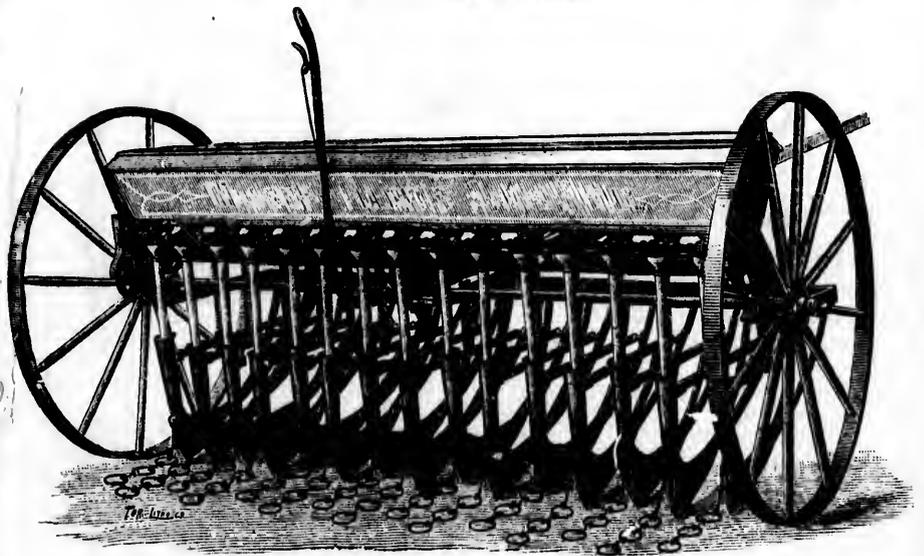


THE QU'APPELLE VALLEY

APPENDIX.**ZIG-ZAG HARROWS.****THE NEW STEEL FRAME CULTIVATOR.**



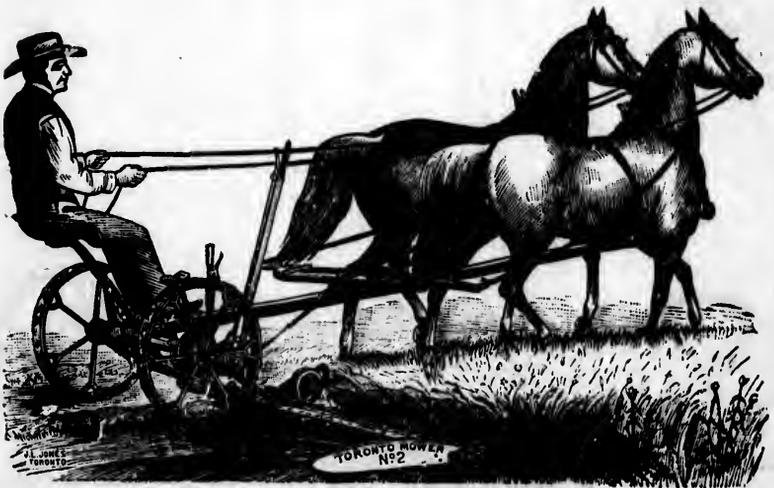
A STEEL FRAME SEEDER.



THE SHOE DRILLING MACHINE.



WIDE-OPEN BINDER.



THE TORONTO MOWER.

