

FARMING IN NORTH AMERICA.

SPECIAL INQUIRY BY THE "DUNDEE COURIER."

GREAT UNDERTAKING.

A 12,000 MILES JOURNEY.

MR. ANDREW OSLER, FARMER, KINTYRIE, KIRRIEMUIR, APPOINTED
THE *DUNDEE COURIER'S* SPECIAL COMMISSIONER.

(From the *Dundee Courier* of June 16th.)

It gives us much pleasure to announce that we have made arrangements for carrying out one of the greatest missions ever undertaken by British journalism. This is the thorough investigation by a practical Forfarshire farmer of the conditions of agriculture in Canada and the United States. The purpose is one which we doubt not will interest all sections of the Scottish people. So large a proportion of the food supplies of this country comes from Canada and the States that the prices naturally fluctuate in sympathy with the vicissitudes experienced on the other side of the Atlantic. British farmers especially are interested in these fluctuations, for upon them depend, to a considerable extent, the prices they are likely to get for the produce of their land. It is necessary, too, that

FARMERS ON THIS SIDE

should be made familiar not only with the quality of Canadian and American land and the climatic influences, but also with the methods of cultivation adopted in the Dominion and the great Republic. Already American implements of various kinds are used in Great Britain, and it is, therefore, all the more desirable that, on behalf of the agricultural classes of this country, the whole subject of American land culture should be carefully investigated. Other and still more important objects of such an examination will readily suggest themselves. Wealthy landowners, unable to find an outlet for their capital in this country, often resort to the United States for investment purposes, and it is essential that these should be made aware of the circumstances of the country in which their money is placed. Then agriculturists who have only a very small amount of money at their command sometimes find it necessary to emigrate to America or the Colonies. For them, as well as for farm servants of all classes, the information that will now be given in the columns of the *Courier* will have

IRRESISTIBLE ATTRACTIONS.

It is expected that we will be enabled to put before our readers a description of the agricultural conditions of Canada and the United States, which will be absolutely reliable in its details, and will be invaluable as a guide to many thousands who for some reason or other are interested in the present condition and future prospects of these countries. The Commissioner who has been chosen is



MR. ANDREW OSLER, FARMER, KINTYRIE,

near Kirriemuir. Mr Osler, we need hardly say, is a thoroughly trained agriculturist. He has farmed Kintyrie since 1865, and his father was for many years tenant of the farm of Meams, on the Kinnordy estate. In addition to engaging in agricultural pursuits, he has led a most useful public life, being for several years a member of Kirriemuir Parochial Board. In 1878 he was returned as a trustee of Kirriemuir parish. He was also returned at the top of the poll at the Kirriemuir School Board election in 1882. He is, however, best known in the district as secretary of the Kirriemuir Agricultural Association, to which Society he has acted as secretary for fifteen years. Mr Osler will accompany the *Weekly News* Expedition of artisans in its visits to Chicago, Montreal, Toronto, Niagara, and other places. Ultimately, however, he will leave the Expedition, and will proceed on a journey of investigation, which will take him first from the shores of Lake Michigan to the great flour milling centre, Minneapolis. Thence he will proceed through the States of Minnesota and North Dakota to Winnipeg, the capital of Manitoba. Passing through the Province of Manitoba, he will reach Assiniboia, the Central Province of the North-West. Subsequently he will pass through the Province of Alberta, and get into British Columbia, his final destination being Vancouver. In this way Mr Osler will actually have

TRAVERSED THE WHOLE CONTINENT

from the Atlantic right on to the shores of the Pacific Ocean. The journey from Winnipeg to Vancouver and back will be by the Canadian Pacific Railway. His return will be by a different route from Winnipeg, for, instead of going home by North Dakota, he will go right through Manitoba into Ontario, and thence to Ottawa and Montreal. The vast importance of this tour cannot possibly be exaggerated. North-West Canada, as everybody knows, is one of the finest of the wheat-growing districts of the world. Its

GREAT FERTILE BELT

has no equal for the raising of wheat, barley, rye, and oats, roots and grasses, butter and cheese, and for the price of its products and the cheapness of transportation. By the Canadian Government large portions of the North-West Territories are offered free to those who will settle upon them. Millions of acres of land are actually offered at from 10s per acre upwards with long credit. Along the foothills of the Rockies, beyond the strictly agricultural lands, large tracts of unoccupied grazing land remain to be taken up either by settlement or purchase for ranching purposes. British Columbia is said to possess marvellous timber, mineral, and

fishling interests, which have only begun to show their possibilities. It has also extensive and beautiful valleys, admirably adapted for fruit-growing, grain-raising, and stock-breeding. Manitoba, with its ridge of black, loamy soil, is well favoured by nature. Assiniboia, the central province of the North-West, contains the largest unbroken tract of wheat-growing land to be found on the American Continent. Alberta, which is situated immediately east of the Rocky Mountains, covers 120,000 square miles, and thousands of cattle are sold from its different ranches. Ontario has recently been brought into agricultural prominence by the labours of the Agricultural College which has been established in the province, and Mr Osler will have an opportunity for thoroughly examining that institution. Altogether

MR OSLER WILL TRAVEL,

from the time he leaves this country until his return, a distance of no fewer than 12,000 miles, and will have made himself familiar with the most wonderful of the American prairies and cultivated territories. His letters, which will appear in the *Courier*, will therefore be well worthy of perusal by agriculturists of all classes in Scotland.

REPORTS

OF

THE DUNDEE COURIER'S SPECIAL AGRICULTURAL COMMISSIONER TO NORTH AMERICA.

MR OSLER IN CANADA.

DESCRIPTION OF STOCKYARDS.

APPEARANCES OF CROPS.

AN INTERESTING LETTER.

(From the Dundee Courier of July 25th.)

Mr Andrew Osler, Kintyrie, who has been specially commissioned by the Dundee Courier to investigate the agricultural conditions of North America, writes as follows:—

We left Middlesbrough on the morning of Sunday, 25th June, at one o'clock a.m., sailed round the north of Scotland, passing through the Pentland Firth. We had a good view of John O'Groats and Cape Wrath on our left, and the Orkney Islands on our right, the last we saw of Scotland being the Butt of Lewis, which we left behind us in the mist about two o'clock on Monday afternoon. We had a good passage across the Atlantic, old Father Neptune just shaking his fist sufficiently in our face to let us know that he can frown as well as smile. I went on deck at six o'clock of the morning of Sunday, 2d July, and looming behind was a perfect field of icebergs, I had the first view of American soil, this being 5½ days that we were of steaming between land and land. After passing through the Straits of Belle Isle, we came very near the shores of Labrador on the right, and Newfoundland on the left. At this stage the weather was as cold as it has ever been in Scotland all winter, and I must say that the "shores of Ameriky" presented a very forbidding aspect. Snow lay in patches large and deep. The scanty herbage had not yet begun to grow green, but was brown and withered. The land was a continued congeries of mountain, rising precipitous from the very edge of the water. Scranky ill-grown pines covered the heights, a few scattered cottages occupied by fishermen were to be seen along the shore, with not a patch of cultivated soil in their vicinity, the whole district appearing like a howling wilderness incapable of yielding sustenance to either man or beast, and this state of matters continued until we reached Father Point, a distance of 570 miles inland. At Father Point the hills begin to lie farther back from the river, leaving a margin of what appears to be fairly good arable land, and this margin continuing to widen as we got up, by the time we reached Montreal, a distance of 360 miles from Father Point, there is between St Lawrence and the mountains on both sides fertile slopes of from one to four miles in breadth. This district is very densely inhabited, the people being what are called French Canadians, speaking the French language

A Peculiar People.

Thick rows of cottages resembling a continuous village line the banks of the river on each side, large churches being placed at regular intervals of

about three miles. Further inland every here and there are clusters of houses which could almost be called villages. The inhabitants have brought with them and retained their French habits and customs. The farms are very small, being what we would call crofts, and are curiously laid out in narrow strips from the river's edge back to the mountains, the common size and shape being 108 feet broad, and as much length up the mountain as the lie of the land will admit of—oftentimes two miles. The people are a most primitive race. Their manners and cultivation seem not to have made any advancement since the arrival of their forefathers. Their resources are limited, and their incomes small, but by frugality and thrift their expenditure is less, and accordingly they get ends to meet, and have something over. They tan their own leather, and make their own shoes, spin their own wool, weave their own cloth, and make their own clothes; and as the men are mostly engaged in fishing, the wife is the boss of the farming department, and I am told she may often be seen between the stils of the plough, with a horse and the cow harnessed together. The cultivation is very poor, yet in spite of adverse circumstances their farms are mostly all freehold.

Approaching Montreal

We had a good view of some fair-sized herds of cattle, horses, sheep, and pigs all grazing together. I put the powerful ship's telescope upon them, and had them, as it were, at my feet. The cattle are small, narrow, and scrubby, very thin in condition, and even although they were made fat they could not be worth much. They appear to me to be of the Brittany breed, most likely the descendants of cattle brought from France by the predecessors of the inhabitants. The horses are what at home we call shafts, and by no means the best of sorts. They will run from 14½ to 15 hands high, flat in the rib, and have an ungainly droop from the rump to the tail, narrow hammed, and long thighed, making them what is known at home as dog-hogged. The sheep are big, but of a nondescript breed which I cannot make out, but resembling sheep in the old country having two strains of Leicester and one strain of blackfaced. They could be fed to good weights. The pigs are very well bred, mostly of the Berkshire breed, which a little extra feeding would make excellent porkers. Nothing is given to them out of hands, they being allowed to gather their food in the fields with the cattle. The houses are all made of wood, and joint stock portable sawmills driven by horse power are common. No farms are let on lease, but many are for sale. I could not get at the price of land, but learned that few labourers are engaged. Any who are hired are paid £3 per month with food and rations, but are only kept on during spring and harvest. They have, however, no difficulty in getting work at lumbering, that being an extensive industry in the district, timber being extra abundant.

MR OSLER IN CHICAGO.

THE AGRICULTURAL EXHIBITS.

DAIRY BUILDINGS DESCRIBED.

INTERESTING PARTICULARS.

(From the Dundee Courier of August 1.)

Mr Andrew Osler, Kintyre, the *Courier's* Special Commissioner to North America, writes as follows from Chicago:—

On the morning of Tuesday, 11th July, I proceeded to the Dairy Buildings, situated near the extreme south of the Exposition. In cool, dark cases, sitting amongst ice, were plenty of cheeses wrapped in cloths, and jars of cured butter. There were also several large cases of ornamented butter, which had a very pretty and most unique appearance. Large bouquets of flowers, such as roses, lilies of the valley, dahlias, &c., appeared in some, while festoons of grapes, cherries, and other luscious fruits were represented by others. One large case, 4 feet by 4 feet, exhibited by Mrs Dowell, Minneapolis, attracted much attention, and was by far and away the best case of ornamental butter in the show.

Advice to Ladies.

Should this happen to meet the eye of any of my lady friends in the old country who at the local shows exhibit ornamented butter, I would advise them to have made a wooden case of sufficient size to hold their exhibits, with a glass lid. Fill the case with ice, leaving just sufficient room to hold the exhibits. Put in a shaded place in the show, and their productions will keep firm and in good shape for weeks instead of days. There is a daily demonstration of butter-making made in the Dairy Hall every day. This daily demonstration is meant as an object lesson to interested parties attending the Fair, the operation being at the same time carried on as part of a series of trials of breeds of dairy cows now being conducted under the auspices of the World's Columbian Exposition. The breeds competing are the Jerseys, Guernseys, and shorthorn breeds, each breed being represented by 25 registered cows. Each cow is charged daily with the amount of food she consumes, and credited daily with her proportion of the amount of cheese, butter, and bye products, such as whey, skim milk, and butter milk, produced by the breed to which she belongs, the details of the test being in charge of a Special Committee appointed for the purpose. The awards will be given in each case to the cows and breed showing the greatest profit.

The Tests.

The following is a scheme of the tests:—

- May 11 to 25 inclusive—Cheese test, all products credited.
- May 31 to August 28—Butter test, all products credited.
- August 29 to September 27—Butter test, only butter credited.
- September 28 to October 27—Butter test of young herds, all products credited.

The cows were selected by the respective Cattle Associations of America. The World's Columbian Exposition supplies the food, charging against each cow the value of food she consumes, and crediting her with the value of her products, including the increase or decrease of live weight. The cows are milked three times a day. Food is supplied at the following rate at the requisition of the representative of each breed:—Timothy hay, No. 1 Upland, \$12 (£2 8s) per ton of 2000 lbs.; clover, \$11 (£2 4s);

hay, prairie, \$10 (£2); corn meal, \$22 (£4 8s); cottonseed meal, \$26 (£5 4s); linseed meal, \$22 (£4 8s); oats, \$23 (£4 12); middlings, \$13 (£2 12s); bran, \$12.50 (£2 10s); silage, \$4 (16s); grano gluten, \$14.75 (£2 19s); cream gluten meal, \$17.50 (£3 10); corn hearts, \$13.50 (£2 14s); green feed, &c., at cost prices. The Committee in charge of each breed will choose the foods, and resolve the quantities to be given to each cow.

Butter Competition.

It is arranged that the amount of butter to be credited to each breed daily shall be computed upon the result of a basis of 80 per cent. butter fat, the actual number of pounds of butter produced being multiplied by the percentage of fat found, expressed as a whole number, and divided by 80, *i.e.*, 50 lbs. of butter containing 83 per cent of fat, $50 \times 83 \div 80 = 51.875$ lbs. of butter, with 80 per cent. butter fat. The jury will judge such butter upon the following scale of points:—Flavour, 55; grain, 25; solidity, 10; colour, 10—total, 100; and it will be valued on the following scale, *viz.*, butter scaling from 75 to 80 points shall be credited at 25 cents per lb., from 80 to 85 points at 30 cents, from 85 to 90 points at 35 cents, from 90 to 95 points at 40 cents, and from 95 to 100 points at 45 cents. The increase or decrease in live weight will be credited or debited at 4 cents per lb. They will be credited at 8 cents per 100 lbs.

Cheese.

Cheese shall be stored daily under the seal of the Committee of Tests, and when ripe will be judged by the jury by the following scale of points:—Flavour, 55; texture, 25; keeping quality, 15; colour, 5—total, 100. Cheese scaling from 75 to 80 points will be credited at 8 cents (4d) per lb.; from 80 to 85 points, 10 cents (5d); from 85 to 90, at 12 cents (6d); from 90 to 95, at 14 cents (7d); from 95 to 100, at 16 cents (8d). It will be seen that the trial is to be very searching and exhaustive, its object being to find out and determine what breed of cows are the most profitable to keep for dairy purposes. The cows are kept in byres in the Fair, not open to the general public. I, however, presented myself to Professor Scovell, who was very courteous and kind. He showed me through all the

Byres and Laboratories,

and explained how the tests were being carried out. Not any of the breeds of cows are fat, but are in fair, fresh milking condition. The shorthorn cows, although said to be pedigreed, do not in the least resemble the pedigreed English shorthorn, being thinner in the shoulders and ribs, and rather look like as if they had a dash of Ayrshire blood in their system. Nor did the appearance of their udders denote them to be great milkers. The Jerseys are a nice gentle-like lot, with good, set milk vessels, and showing every appearance of being good milkers. The Guernseys are bigger and rougher than the Jerseys, and their milk vessels not so good. They are not so big as the shorthorns. It is as yet premature to form an opinion as to the probable result, but from statistics given by the Professor I could gather that the shorthorns were giving the greatest amount of produce per head, but they were also eating the most food, and that as a profitable speculation he thought the Jerseys would carry the palm.

MR OSLER INTERVIEWED.

Mr Osler has already been interviewed by the representatives of a very large number of American newspapers, including the *New York Times*, the *Chicago Inter-Ocean*, the *Chicago Tribune*, the *Pittsburg Leader*, the *Pittsburg Press*, the *Pittsburg Dispatch*, and the *Morning Star*, Rockford,

Illinois. The last-mentioned journal on July 16th had the following:—Mr Osler resides in Kirriemuir, the place where our Anly first saw the light of day. He is a portly man, with a typical Scotch ruddy face, and is an extensive farmer. He is a man of large intelligence, and is courteous, companionable, and a hale fellow well met. He is specially delegated to inquire into our methods of farming, our products, and the general condition of the agricultural classes. Mr Taylor is an intelligent young mechanic who is here to find out how our wage-earners live, the houses in which they reside, what hours they work, the leisure they have, and what kind of food they get. The entire expense of the trip is paid by the *Dundee Courier*, one of the ablest and most enterprising papers in Scotland. Mr Osler likes the country. He sees evidence of thrift on every hand, but the distances appal him. The Scotch people travel but little, and a hundred miles is considered a great journey, and he wonders how our people can go a thousand miles with so little preparation. American implements are getting into general use in the Kingdom, and it is deemed important that the agricultural classes of Scotland are given a good idea of the subject of land culture in America. He is surprised at our wondrous crops, though he has seen but little of the real farming region.

MR OSLER AT CHICAGO.

THE AGRICULTURAL EXHIBITS.

FURTHER PARTICULARS.

AGRICULTURAL BUILDING.

(From the *Dundee Courier* of August 8.)

This building, which is called the Palace of Agriculture, is 500 feet by 800 feet, and the annex is 300 by 500 feet, the total cost of both being £125,000. On each side of the main entrance are mammoth Corinthian pillars, 50 feet high and 5 feet in diameter. On each corner, and from the centre of the building, pavilions are reared, the centre one being 144 feet square. The corner pavilions are connected by a continuous arcade around the top of the building. The main entrance leads through an opening 69 feet wide into a vestibule, from which the visitor passes into a rotunda 100 feet in diameter, surmounted by a great glass dome 130 feet high. The northern portion of the main floor of the building is occupied by the agricultural and other food exhibits of foreign nations. Great Britain, Germany, France, Mexico, Austria, Denmark, Sweden, Japan, Paraguay, Canada, Russia, Australia, Cape of Good Hope, Greece, and of almost every country and nation on the face of the earth. In front of the building and at the sides are lagoons or lakes 100 yards long and he yards broad, on which float Venetian gondolas and Indian canoes. Broad steps descend to the water at the middle of each side. On each side of the one stair are two ponderous shorthorn bulls in stucco, 12 feet high. At the other side and on each side of the stair are two mighty draught-horses in harness, also in stucco. At the corners are images of reindeer and buffaloes. On entering the palace—for palace it is in every sense of the word—I am struck with its immensity, and the countless number of the exhibits, defying all my preconceived conceptions. I wander on, endeavouring to form some plan on which to draw up my notes. Soon surprise merges into bewilderment, and I come to the con-

clusion that to do anything like justice to such an undertaking would require at least two months. Forming my plan, however, I resolve to take the machinery department in the first place, and seeing a well-known name—viz.,

Massey, Harris, & Co.,

Toronto and Brantford—I step into their stall and begin. Their space is excellently laid out—floored and laid with Brussels carpets—and the machinery is all finished to perfection. All the iron work is polished and burnished as clear as silver; the wood work all brightly polished and varnished, unlike the most of American manufactures. The machines in this stall are all built in keeping with the best-known principles of usefulness and durability. All new inventions are immediately adopted on trial, but none are sent out until satisfactorily proved that they are really improvements. They show a number of self-binding reaping machines, which do not differ materially from those which have for some years been giving so much satisfaction in the old country. These machines are in high repute in every country of the world, and, in my opinion, are decidedly the best in the Great Columbian Exhibition. The Toronto Mower is a novelty, an invention being adopted whereby the use of the crank is entirely dispensed with. Two cog wheels, and these scarcely the size of a dinner-plate, constitute the whole driving mechanism. One of the gear wheels revolves slowly on its axis and the other rotates or rather gyrates around the revolving wheel. Twenty-two teeth of this gear are always in contact, sliding in and out on each other, the one wheel rotating around the other, that is travelling with it, one being an external and the other an internal bevel, and the gyrating motion thus given to the internal bevel wheel acts upon a lever, the other end of which works the knife out and in to the finger-board. I inspected this machine on Monday, and was so much struck with the idea of dispensing with the crank motion that on Tuesday morning I requested the engineering representative of the *Dundee Weekly News*, Mr Bennett, to accompany me, and give me his opinion of it. He thought the principle sound, and a decided improvement upon the old system. They also exhibit corn or hay rakes provided with an apparatus which clears out the stuff the moment the rake is lifted, and never allows it to clog. There were two hay tedders, one for two horses, the other for one. These are furnished with five forks, which do not revolve, but work automatically, the same as if wrought by the hands of a man. They lift up and spread out the hay just as if it were done by hand, and are so fitted that if they come upon an obstruction the fork will spring back or stop, which obviates all risk of breakage. Messrs Massey, Harris, & Co. also exhibit traction engines, threshing machines, ploughs of every description, Scotch diamond harrows, spring tooth harrows, and a great variety of other articles.

A Handy Wagon.

Kemp & Burke, Syracuse, exhibit a manure distributing wagon—4 feet 6 inches wide by 7 feet long—fit to contain two tons of farmyard dung. The bottom of the wagon is composed of narrow strips of wood fastened loosely together, which are supported upon rollers at each side of the wagon, and moved by an endless pitch chain in the centre. A revolving drum, 10½ inches in diameter, is fixed along close to the back end of the cart. This drum has six arms set with spikes two inches long. The motion is taken from the carriage wheels, and the bottom moving backwards brings the manure on to the revolving drum, which scatters it upon the

ground. It will spread a load of farmyard dung as fast as the horses can walk, and by a simple contrivance upon the gearing will spread from 2 to 32 loads per acre. Wellfield & Co. exhibit reversible road-scrapers, earth-levelling scoops, and sod-breaking ploughs. Silk-spinning and weaving attracts much attention. The cocoons are put into a dish amongst water, and a girl manipulates them with her hands, and passes the end of the web on to the spinning machine, out of which the thread is wound upon a reel. Two girls attend a loom driven with power, which weaves the silk into beautiful handkerchiefs with representative figures of the World's Fair. The Craver and Steel Header is a reaping machine with twelve feet, drawn or rather shoved before four horses; it is meant for cutting merely the heads of the grain crops. A travelling platform carries the heads to an elevator, which lifts them into a waggon driven alongside, after which the straw left on the field is burned. Perhaps this in a manner explains the poor crops which we saw when coming along. The platform binder is different in construction from most machines, the cutting parts being set altogether behind the driving wheel and gearing. This enables the grain to be carried entirely horizontally to the knottor, and dispenses with a great deal of the machinery necessary in the common binder. A carrying wheel behind follows up in the track of the driving wheel. The appearance is that of a machine set back-end foremost. The Empire Cigar Company exhibit machines for rolling and moulding cigars, and for cutting tobacco. The American Harrow Company exhibit the American spring tooth riding cultivator which can be made into

A Combination of Various Machines,

as follows:—First as a riding corn cultivator, second as a fifteen-tooth harrow by the application of the middle section, third, it may be transferred into a broad-cast seeder, with a force-speed attachment, sowing a space six feet wide, and harrowing the seed in at the same time. It can also be converted into a stock-cutting—that is, Indian corn—and a bere harvester. This design is meant to supply a long-felt want by small farmers, enabling them by an expenditure of money equal to the cost of one and a half single machine of any of the kinds mentioned to possess six machines in one, and while this is true, yet each one of the machines separate, with its attachment, is a complete machine in itself. The same firm exhibit an artificial manure distributor, which can also be converted into a cultivator or harrow. When used as a cultivator the arms can be locked to any desired depth. They also exhibit sulkies and disc harrows, with ball-bearings, entirely dust proof. John Jacob Astor exhibits pneumatic road improvers for cleaning macadamised roads, park drives or walks of dust, leaves, &c. Motion is taken from the carrying wheels to drive a high-speed blast, the flattened end of a wide tube being set close to the road. The current of wind generated in the blast drives, or rather blows, light materials off the road into the side ditches.

The Hoover Potato-Digger

is a novelty. It has two wheels just like those of a common potato-digger, between which is set a harp 5 feet long and 21 inches wide. Endless chains run up each side of the harp, between which at suitable intervals are placed light iron bars. At the lower or fore end of the harp is placed the steel share, shaped like a shovel. The share passes in below the drill and loosens the potatoes and soil, which are drawn up over the harp, the soil meanwhile falling through,

and the potatoes, separated from the earth, fall into a box behind. But should the crop not be sufficiently freed from impurities, the box is removed, and they fall upon an iron screen or rake through which the potatoes drop into a narrow row, easily gathered, and the shaws or tops laid aside. I am not certain if this machine is likely to work well, but should it not, I see no reason why our diggermakers at home should not put a harp attachment of the same principle upon our home diggers, when, if the potatoes were run a short distance up one harp and down another, they would all be laid on the surface, and easily gathered. The same firm show a potato assorter. The potatoes are poured in a hopper, parallel to which is placed a revolving drum 3 feet 3 inches by 1 foot 5 inches, into which the potatoes fall in a steady stream. The outside of the drum or cylinder is meshed the size to which the potatoes are desired to be dressed, and passing through the drum from the fore-end to the back-end, they fall either into a box or bag. Placket, Philadelphia, exhibit a great number of ploughs, weeders, &c. They have adopted

An Ingenious Plan

to show off their goods. A large globe or map of the world, 18 feet diameter, 54 feet circumference, revolves on its southern axis. Round the equator is a platform, upon which the implements are placed. They, of course, revolve with the globe, and this brings them prominently under notice. St Joseph Co., Mishawaka, Ind., exhibit ponderous sod-breaking ploughs, one and two furrowed, and with or without drivers' seats. These ploughs are made to turn a furrow 15 inches by 4 inches, and lay it flat over right upon its grassy face. The name given to them in America is sulkies. They also show steel tooth cultivators and harrows. E. A. Porter & Brothers exhibit ensilage cutters, principally adapted for smashing up Indian corn. The cylinder is made of wrought iron, 5 feet wide, with cutting blades which cut the stalks to two-inch lengths. It is also adapted with chisels which shred the stalks. There is an elevator attached which lifts the chaff into the silo. P. T. Avery & Sons exhibit ploughs and agricultural implements adapted for every country, soil, or crop. Their

Ploughs for the Sugar Plantations

are somewhat curious. A double mould board has a wooden beam 9 feet long and 5 inches by 7 inches. The mould board is 32 inches wide, and cutting share 22 inches wide. It ploughs 6 inches deep, and requires six mules to draw. They have smaller sizes down to one mule—subsoil ploughs, which go 10 inches deep, with two mules; stubble digger, with wheels 4 feet 7 inches high, seven revolving diggers on two axes, one in front having three teeth, the one behind having four teeth. Each digger has seven teeth 8 inches long, the teeth being so arranged that they are forced their whole length into the ground, loosen it, and come up without bringing any soil. They have also sectional drop discs for cultivating the sugar cane. Garg ploughs, two, three, or four furrows, with revolving disc coulters; a two-furrow plough to make work 7 inches deep by 10 inches wide, and drawn by three mules, also several simple sulkies for breaking prairie or stubble lands. There were revolving plate bottom planters for opening the fallow and planting the seed at the same time. They can also be fitted for planting corn and beans. A stubble shaver, with two steel discs 20 inches diameter revolving by friction horizontally, shave the surface from 1 to 4 inches, taking a breadth of 3 feet 4 inches.

Other Exhibits

were riding spring shovel cultivator, ron-beam double shovel ploughs, South American ploughs with one handle, black land ploughs with convex mould board, which sets the furrow up on edge. A. Perch, California, shows a reversible sulky running on a centre bottom wheel. The mechanism for reversing the beam is very simple and accurate. He honestly thought the whole invention new, and appeared thunderstruck when I told him that I had seen them in the old country showyards twenty years ago. I inspected Gillen's horse clipping machinery—a boy supplies the power by treadle action. There is an iron pillar supported on a pedestal 7 feet high, on which is a wheel driven by an elastic band. A hollow gutta percha tube is attached to the pillar, through this tube the motion is carried to the clipper attached to the loose end. The horse to be clipped is brought up alongside, the boy gives the speed, and the operator has merely to hold the clippers in place. All the threshing machine engines are fitted with an apparatus to convey straw into the furnace for fuel. I asked if this was not bad policy—"Oh, no," they said, "we have no use for the straw, and we are glad to get rid of it." I suggested that it would be better to make dung of it. They laughed at the idea, and said that the dung oftentimes accumulated in such quantities that they prefered to remove the stables and byres rather than lift the dung. May not this be another cause of the deficiency of crop?

Scores of Threshing Machines

are on show, and which, in my opinion, are very far behind the old country machines. I did not see a single fluted beater cylinder in the whole show, the drums all being spiked. Brock elevators are upon all of them to bring the unthreshed heads back to the drum. In discussing these machines with one large maker, I mentioned that I thought fluted beaters would suit them better, but he told me he had heard of them being tried, but did not succeed. I then asked why it was necessary to return the brock to go through a second time, and said I was sure it would clog the mill and impede the shaking and dressing machinery. He explained that a great many ears came through unthreshed, and if not put back they would be lost. "Oh," I said, "that is just where your mills are deficient, as the spikes would be apt to strip off the ears without separating the grain, but if fluted beaters were used, every pea would be crushed out at the first operation." He then asked how many bushels of wheat we in Scotland threshed in a day. So not to be behind Yankee bumpion, I

Stretched a Point,

and said about 1000 bushels. "Oh," he said, "that explains it. We never thresh less in a day than 2300 bushels, and your machines couldn't do it. Nothing on the top of earth except our machines could do it." I was non-plussed and left. Horsegangs, or horse walks, are in great force. They run from one to six horse power. Treadmills are numerous, and are said to be very efficacious, each animal contributing double the power that it could do in the old way. These mills are largely used on dairy farms in Canada, the bull being made to do the work. There are also in the Exposition scores of hay baling machines, cotton and maize planters, ponderous sugar cane crushers, cotton dressing and baling machinery, flax scutchers, and other flax-dressing machinery, and hundreds upon hundreds of other machines, implements, and tools, which it would be impossible for me to take notice of.

AGRICULTURAL PRODUCTS

AT THE CHICAGO EXHIBITION.

— PLOUGHMEN'S WAGES.

— COST OF FOOD AND CLOTHING.

— HOW ROADS ARE MAINTAINED.

(From the Dundee Courier of August 15.)

Mr Osler writes:—If I expressed disappointment with the mechanism and get up of the agricultural machinery and implements at the World's Fair Exposition, I must, in justice to all concerned, express my unbounded admiration and surprise at the extraordinary display and excellent quality of the exhibits of natural products. Every corner of the known world, every country, and every State has poured forth its libations, each vying with the other to make its own department the pride of the Fair. So successful have they been that every department of every country is worth going half way round the world to witness. Where all are so good it would be invidious of me to make odious comparisons, and therefore I will content myself merely with making a few short remarks upon what strikes me as being remarkable in the exhibits of the individual countries. California is huge in wool. The temple in which her products are being exhibited may be said to be built of wool. The walls are of double glass, stuffed with wool between, and the pillars arc glass tubes stuffed with wool and piles of wool. Seeds and Indian corn adorn the shelves. New South Wales excels in wheat, tobacco, and honey. Canada exhibits numerous specimens of every product under the sun. She is extremely abundant in fruits, such as grapes, peaches, apricots, apples, pears, &c. In wheats and other small grains she simply excels, as well as in collected specimens of grains, grasses, and other straw and seed products. Roots are exhibited in almost endless rows, while vases filled with seeds of almost every description ornament the walls and shelves of her various temples. Great honour and credit is due to the colleges and experimental farms throughout the Dominion for the painstaking manner in which they have prepared and brought out the exhibits, and for the unique and artistic manner in which they have arranged the exhibits with a view to ornate and scientific display. North Dakota is rich in wheat. In the pavilion they exhibit

A Typical Field of Wheat,

ready for the harvest, 12 feet by 12 feet. They exhibit 390 specimens of grasses, a stem or stalk of grass 72 feet high, timothy grass with heads 10 inches long, 146 varieties of wheat, 30 of peas, millet, &c. Miss Dakota, exhibited on the dome of the temple, is a lady with whom every farmer is sure to be enamoured. She is 14 feet tall, and proportionately stout. Her body is composed of wheat, amongst which some cohesive substance has been put to make it stick together. Her hair is of flax, her face and arms of shelled corn, the white of the eyes of wild rice, and the dark of the eyes of poppy seed. The neck trimmings are of wild pampas grain, and the dress of wheat heads, trimmed with green clover seed and split cornstalk. Placed as it is in a very conspicuous position in the hall, the figure has a very imposing appearance. The grain temple upon which she stands is built as follows:—Pillars of glass tubes, with solid cylinders of native soil: the walls are of wheat incoloured in mosaic.

Teas and Chocolate.

Japan sends teas of every description, and displays a veritable tea garden in actual growth, and a perfect host of preserved insects, amongst which are several specimens of silkworms, long-tailed poultry (one tail 10 feet long), peppers, and tobacco leaf, banana cloth, and hundreds of specimens of native birds. Malay sends wicker chairs, &c., knives, and native weapons. Bavaria exhibits in a pavilion made of 30,000 lbs. of chocolate, inside of which is a statue made of a solid block of chocolate weighing 2960 lbs. She also shows bottled liquors built in castles 60 feet high. Nebraska exhibits piles of round glass balls filled with agricultural

metto bloom honey, oranges, lemons, and other roots, and specimens of native hemp ropes. Idaho exhibits potatoes, parsnips, beets, pumpkins, wheat biscuits, strawberries, gourds, onions, carrots, turnips, &c. Denmark exhibits dairy utensils, such as separators, churns, refrigerators, butter workers, and weighing scales. In the pavilion is a full-sized native cow stuffed, specimens of margarine, and native boots and shoes. Cape of Good Hope sends ostrich feathers, bush tea, aloes, wool, bushmen's stone implements and weapons, bucha leaves, stuffed ostriches, piles of ostrich eggs, ivory tusks, &c. Wyoming exhibits armchairs of moose horns curiously intertwined, wheat seeds, &c. West Virginia sends lemon juice, tobacco leaf, and seeds.



MAMMOTH CHEESE, PURCHASED BY LIPTON.

seeds, sugar, &c. The temple is supported upon columns, each column being composed of four glass cylinders filled with seed of various colours. The arches are of unthreshed wheat, and balls filled with seeds stud the arches. Altogether the temple has a very striking appearance. Iowa is rich in maize and wheat. The pillars and arches are built of maize in the cob, supported on glass pillars filled with native soil. Florida exhibits a bambœ cane 60 feet high, hemp, pal-

North Carolina excels in cottons, peaches, grape jelly, pears, tobacco, sorghum seeds, and sugar. Russia, Spain, Greece, &c., all have large departments filled with the natural products of these countries.

Great Britain

excels in the quality of manufactured products. She is extremely rich in sauces and relishes, and in cloth products she stands unrivalled. She also exhibits largely in bottled beers and ales. Scot-

land and Ireland stand unrivalled for whiskies. The latter is represented by the Bushmills Distillery Company, and exhibits specimens of Irish whisky 113 years old. In this temple is exhibited a smuggler's still 150 years old, in which old Irish poteen was wont to be made (called in America "Moonshine"). Here is also exhibited Dan O'Connell's drinking cup. Scotland is represented by John Dewar & Sons, Perth, who exhibit "Auld Scottie," a specimen of whisky much relished by Yankee connoisseurs. Almost all the States of America vie with each other in their extraordinary exhibits of tobacco and maize or Indian corn. The former is exhibited in the leaf, and in every stage of manufacture; the latter is exhibited on the stalk, on the husk, and in the pea. These States also show endless exhibits of cotton, on the plant and in all the subsequent stages. And on these three commodities, viz., cotton, Indian corn, and tobacco may the richness of the Southern States be said in a great measure to depend, Canada, on the other hand, depending upon her richness in wheat, oats, and dairy products.

One Remarkable Exhibit

made by Canada is a mammoth cheese, 22,000 lbs.—10 tons. This marvel of the dairy was made from the milk of 10,000 cows milked by 1666 dairymaids, the milk weighing 207,000 lbs., equivalent to over 100 tons, or fully 24,370 gallons. If sold at 8d per lb. the cheese would be worth £733. It has been purchased by Mr Lipton, and has been moulded in a massive iron cylinder $\frac{3}{4}$ -inch thick, riveted together with strong iron bolts after the fashion of a steam boiler. It measures 9 feet by 6 feet. Near the Agricultural Hall there is an exhibit of about a score of moose or elk deer of very large size, almost as big as fair-sized horses, with ponderous heavy spreading horns. This breed of deer is almost extinct, and is accordingly much admired. The animals are quiet and peaceful, and allow themselves to be handled while feeding upon their rations of hay and corn. There is also a number of donkeys on exhibit of about the ordinary size. Near the Dairy Hall is an open space, where

Windmills

in motion are exhibited. They are of all sizes, and I counted about 100 in active operation. Windmills are in great request in America for pumping water to farms, driving grist mills and dairy utensils, &c. They are very handy and easily controlled. Should the wind get too strong and the machinery be driven too fast, simply by pulling a lever the wheel of the mill is thrown around parallel with the vane entirely out of the wind, and brought to a dead stop. Governors are also attached, which regulate the mill to a steady motion. J. E. Person, Toronto, exhibits gates fitted with side levers, whereby a man in a machine or on horseback can open or close the gate without dismounting. The contrivance is very simple. Levers about 14 feet long are placed at the side of the road at right angles to the gate. These levers by a mere touch throw the gate up on end out of the roadway, and after passing through a slight touch to the other lever brings it back to its place. The contrivance looks like doing.

AMONG THE RED INDIANS.

SURROUNDED BY SQUAWS.

(From the *Dundee Courier* of August 22.)

Mr Andrew Osler, the *Dundee Courier* Commissioner in America, who was accompanied by Mr

Taylor, member of the *Weekly News* Expedition, has sent the following letter:—

When I set out on my journey I fully intended to have kept my despatches abreast with my travels, and to have in imagination carried my readers along with me in my roamings over meadow and mountain, plain and prairie. But as our great National Poet said, "The best laid schemes o' mice and men gang aft agley," and I now find that it is quite impossible for me when on my journey to give even a vidimus of my observations. The utmost I can do is to give a few brief notes of objects which strike me most forcibly as I pass along, and afterwards to fall back upon my notes, and comment upon the merits and demerits of each province and district in detail. The other day I finished up my remarks on the agricultural department of the World's Fair Exposition, and on Friday Mr Taylor and myself separated from the other members of the Expedition, and went to view some objects of interest about the city of Chicago. And in this I was much assisted by

Mr Andrew Gilruth,

son of Mr James Gilruth, late farmer, Kilnhill, Kirriemuir, who, hearing I was in the city, came in all the way from Rockford to meet me. Mr Gilruth is a member of the firm of Hollard, Gilruth, & King, real estate agents, Rockford, who are doing a large and lucrative business. Consequently Mr Gilruth was in a good position to give me reliable information on the land question. We stayed the most of Saturday in Chicago, and visited the stockyards, the largest live stock markets in the world. The Union stockyards, which were organised and opened in 1865, are indeed well worth seeing. At the present time the Company own 400 acres of land, and the capital is, roughly speaking, about £4,000,000. In 1891 there were received at the yards 3,250,359 cattle, 205,333 calves, 8,600,805 hogs, 2,153,537 sheep, and 94,396 horses. Altogether there are 75 Companies engaged in the manufacture or packing of meats, and twenty great trunk railroads deliver and carry away the raw and manufactured articles.

The Stockyards Company

own all the railroad tracks (over 150 miles), and do all the switching or shunting connected with them. The buying and selling arrangements are completed very quickly, and the cattle are then driven on to the weighing scales, which have a capacity to weigh 100,000 lbs. Animals which are brought in for shipment are then driven over to the shipping division, but the dressed beef men generally allow their cattle to remain in the pens overnight. Next day the cattle are driven over to the slaughtering houses, and are put into separate compartments, which are just large enough to hold one bullock each. Over these compartments is a wooden footpath along which a man can walk, and it is from this point that the animals are either shot down or felled. Between the compartments and the slaughterhouses is a moving door which slides up mechanically. A chain is passed round the horns of the animal, and it is dragged into the main slaughterhouse, in which the animal is properly bled. Lifting pulleys worked by steam-power are provided for hoisting each carcass while being dressed, and there are iron runs for moving the carcass in halves or quarters from the hanging-rooms to the chillrooms. In the refrigerators the carcasses are cooled off in a temperature of about 3¢ degrees Fahr. I also saw the cattle, hog, and sheep slaughtering establishments of Messrs Armour, Libby, Macneil, & Libby, and others. As an indication of the magnitude of the operations, I may mention that in 1891

Messrs Armour & Co.

did business amounting to about £13,000,000. In that year they slaughtered 1,714,000 hogs, 712,000 cattle, and 413,000 sheep. The employés during the period numbered 7900, and the aggregate wages paid amounted to something like £700,000. The total area covered by the buildings of the firm is about 50 acres; the floor area of the building is 140 acres; and the storage capacity 130,000 tons. We also visited the pork-curing and tinned meat packing establishments, and other places of interest in the city, of all of which I have taken elaborate notes, and will amuse my readers with a description of them later on. We then took train for Rockford, where we stayed a couple of nights, and were driven by Mr Gilruth, Mr Henderson, banker, and Dr Boyd around a number of the largest farmers of that district. I picked up a lot of valuable information as to their modes of management, values of land, and prices of produce. These farmers seem to be a thriving and prosperous class of men, and I will have pleasure in again going back upon my notes and introducing my friends into their wages and means of farming and living.

Our Next Journey

was to St Pauls and Minneapolis, again accompanied by Mr Gilruth, who was remarkably useful to us in getting us introduced to and shown through the great flour mills and lumber yards of these cities. All three of us took train for Granite Falls, the residence of Mr and Mrs James Gilruth and family, late of Kirriemuir. Here we were accorded a most hearty old-country welcome, and, as we were somewhat tired out with so much knocking about, we availed ourselves of the opportunity of resting and recruiting under the hospitable roof of our old friends. Here, too, we had a grand opportunity of viewing the country, as either Mr William or Mr Lawrence Gilruth (who are prosperous merchants in that town) yoked their carriage and drove us every day round amongst their farming customers. We found this district to be comparatively new, most of the land being only a few years broken, not so well adapted for corn, but yielding good crops of wheat. We learned there was

A Settlement of Sioux Indians



A SIOUX INDIAN.

residing at Minnesota Falls, a few miles distant. So Mr Gilruth drove us down there to have a talk with the red skins. It appears that there was a reservation for Indians here, but, they made a revolt and massacred the white men, after which they were expelled from the district. A few braves had, however, acted friendly to the whites,



AN INDIAN BRAVE.

and saved a number of their lives. Amongst these friendly braves were Robert West and Sioux Ben, and when peace was declared these came back to Minnesota Falls and bought land with the handsome money award which was given to them, and were soon joined by a number of others. We found their land in a capital state of cultivation, in fact they had the best maize we saw in the district. They have also all the necessary farming accoutrements, and drive to market in a buggy and pair of horses. We found the men engaged in making trinkets for sale, and the women picking gooseberries for market. The trees around were hung with shreds of beef, drying preparatory to being ground into pemmican, a favourite winter food. The men were friendly and talkative. On being introduced to me, Sioux Ben said—"You come over big sea? You know great Queen?" I said I did. He said—"Great Queen good woman; have plenty money," and added—"White man great too; white man much learned; Indian learn by-and-by." He then began talking to the women, and told me they wanted to shake hands with white man from over big sea. I said I would be very glad, and was soon surrounded by a dozen of them all

shaking hands. I bought some trinkets from them, and left them highly pleased, Ben saying as I came away—"Me Queen's man too; me from Canada." On Saturday afternoon we took train for Winnipeg, where we safely arrived on Sunday evening. Our journey now is over the Rocky Mountains to British Columbia and back.

OVER THE ROCKIES.

BRILLIANT DESCRIPTION.

THE GREAT PRAIRIE STEPPES.

PIONEER FARMERS.

MORE ABOUT INDIANS.

ANTHRACITE COAL MINES.

(From the Dundee Courier of August 29.)

Mr Osler, the *Courier's* Commissioner, writes:— On the morning of Monday, 24th July, Mr Taylor and I left Winnipeg by the C.P.R. Leaving Winnipeg, the train passes through a broad plain as level as a bowling green, extending to the west apparently without end. It comprehends the valley of the Red and Assiniboine Rivers, which unite at Winnipeg. Far to the left is a line of trees which marks the course of the river, and between us and it is a continuation of well tilled farms, with attractive whitewashed buildings peering from amongst clumps of recently-planted trees, the age of the plantation in most cases announcing the date at which the holdings had been taken up. Standing on the platform at the rear of the train, we see the track stretching away behind us, without curve or deflection as far as the eye can reach, and the motion of the train is hardly felt as we fly along. One hundred and thirty miles from Winnipeg we cross the Assiniboine River and reach Brandon, next to Winnipeg the largest town in the Canadian North-West. Here are several large grain elevators and mills, telling us the fact that we are still in the midst of a great grain-growing district. Leaving Brandon, we have now reached the first of

The Great Prairie Steppes

that rise up one after the other at long intervals till the Rocky Mountains are reached. And now we are out on the real prairie, a great billowy ocean of grass and flowers, now swelling into low hills, and again dropping into broad basins, broken here and there by valleys and irregular lines of trees. We pass station after station, nearly all alike, mostly consisting of a stationhouse for passengers, a store shed for goods, a great round water tank for the engines, and the never-absent grain elevators. Soon we reach Regina, the capital of the Province of Assiniboia, and, speeding on, pass Moosejau, four hundred miles west from Winnipeg. For the last hundred miles or so I have observed that the deep black soil of the valley we left in the morning has given place to a soil of lighter colour, overlying a porous clay less inviting to the experienced agriculturist, and giving indications of the presence of alkali, a substance very detrimental to the successful cultivation of crops. We are now ascending another prairie steppe. We have reached the end of continuous settlement, and between this and the Rocky Mountains we only find

Pioneer Farmers

in groups here and there. Hour after hour we pass through a district not at all inviting, the dry,

withered, stunted prairie grass not appearing sufficient to afford sustenance to the numerous gophers which are everywhere to be seen. No trees are visible, and the country has a desolate, barren look. All around the surface is marked with buffalo trails, and pitted with their wallows. No live buffaloes are now to be seen, but at almost every station we see scores of tons of their bones collected into piles ready for shipment. These bovines a few years back must have been very numerous, and their entire extinction is the greatest loss which the red men could have sustained. There is yet a species called the timber buffalo, existing in the forests of the Rockies, and proposals are being made by the Canadian Government to have them protected by law. At every station groups of Indians appear offering carved articles of wood, knitted beadwork, and other small trinkets for sale, and they appear very grateful when a few coppers are put into their hands. We are now in the land of

The Crowfoot Indians,

the most warlike and most revengeful of all the tribes. They are now perfectly peaceable and friendly. They do not, however, take well to work, and do not do much in farming, their principal industry being the rearing of horses. Every few miles as the train proceeds we see canvas encampments, browned with age and smoke, around which bunches of thirty to fifty horses are grazing. As Crowfoot Station is approached, all are on the outlook for the first view of the Rocky Mountains, yet more than a hundred miles away, and soon we see them, a seemingly impenetrable barrier of snow-clad peaks, rising straight from the plain, and extending the whole breadth of the western horizon. As we speed on, peak rises behind peak straight up from the plain; then dark bands of forests that reach up to the snow-line come into view. The snowfields and glaciers glisten in the sunlight, and over the rolling tops of the foot-hills the passes are seen cleft deep into the heart of the mountains. We have been running along the banks of the Bow River, beside which stands the new town of Calgary at the base of

The Rocky Mountains,

2264 miles from Montreal, 692 miles from Vancouver, and 3388 feet above the ocean. Before us and on either side the mountains rise in varied forms and in endless change of aspect as the lights and shadows play upon them. Northward is the fertile and well-wooded district of Edmonton and North Saskatchewan; 150 miles southward is the United States boundary. A railway to the left extends to M'Leod, the centre of a great ranching country, and another railway to the right leads north to what is said to be the best wheat-growing district in the world. Our course is, however, straight ahead, following up the valley of the River Bow. Soon we enter an almost hidden portal, and find ourselves in a valley between two great mountain ranges, grand and stern and close at hand. At every turn of the valley alternations of precipitous gorges and overhanging precipices present themselves. Serrated peaks and vast pyramids of rock, with curiously contorted and folded strata, are followed by gigantic castellated masses, down whose sides cascades fall thousands of feet. Through the gorges we catch glimpses of glaciers and masses of everlasting snow, thousands of feet deep, overhanging the precipitous cliffs above, seemingly waiting but a finger's touch to send them in an avalanche crashing into the valley below. Three hours after leaving Calgary we pass

The Famous Anthracite Coal Mines, and soon stop at the station of Banff, famous for its hot sulphurous springs. Here we leave the train, and find luxurious quarters for the night in a large, well-appointed hotel, perched on a height overlooking the beautiful valley of Bow River. The river comes down from its glacier sources in the west, and plunges over a precipice beneath the hotel balconies. Half-a-dozen ranges of magnificent lofty, snow-tipped mountains centre here, and well-made carriage roads and bridle paths lead to the different hot springs, and wind about among the mountains everywhere. After tea a conveyance is at the door, and we are driven along the new steel bridge over the Bow, up the spiral corkscrew road to the top of the Cave Mountain, down the descent at a breakneck pace, and away to visit and inspect the anthracite coal mines at the base of the Cascade Mountain, and back to the Sulphur Mountain to visit and taste the hot sulphurous water in the cave and bathrooms. It was an exciting and venturesome drive, and one which is not likely to be soon forgotten. Coming down the corkscrew, the gradient was so steep, the turns so quick, and the pace so great, that had a buckle given way or a strap broken we would inevitably have been precipitated down the mountain into the river, hundreds of feet below. Next morning a conveyance and four horses was again at the door of the hotel, and we were driven along the base of the Cascade Mountains and Inglismaldie to Minnievanka or Devil's Lake—where we boarded a small steam launch, and steamed along the base of the mountains for several miles. The waters were perfectly blue, and the sun reflected the mountains, until their snow-clad tops were seen reversed in the bottom of the lake, giving the scene a weird and awe-inspiring aspect. At 3 p.m. we returned to the hotel, and getting our baggage in order again took train for the west.

THE CANADIAN CATTLE SCANDAL.

INVESTIGATIONS ON THE SPOT.

PLEURO-PNEUMONIA UNKNOWN.

STATEMENTS BY PROMINENT AGRICULTURISTS.

(From the Dundee Courier of September 5.)

Mr Osler, the Courier's Commissioner to America, writes:—

As it seems to me that my inquiries into the health of Canadian cattle may be of some importance at the present time, I fancy I will be excused if I digress from the regular routine of my journey, and give an epitome of the evidence I have gleaned regarding it in the course of my travels throughout the Dominion. On our eastward journey from the west coast we stayed for a few days at Calgary, in the province of Alberta, and thence made excursions into the surrounding district for thirty miles around. We visited a number of the ranches lying in the triangle between the Bow and the Elbow, amongst which was the Elbow Park Ranch, owned by Mr Robinson, an Englishman. Mr Robinson has been in the ranching business for five years, and he owns 1000 head of cattle and the same number of horses. He never had a single case of lung disease amongst his cattle, and is quite certain that

No Disease Exists

in the province of Alberta. He says that the air

of the country is so pure and salubrious that broken-winded horses brought from the eastern provinces and put out upon the prairie soon recover, and that stock of all kinds enjoy the most perfect health. Mr M'Pherson, Springbank, Calgary (a Scotchman), has been in Canada for 49 years, and has been a breeder of cattle all that time. He says he never heard of lung disease existing amongst the cattle of the Dominion. In the fall of the year he occasionally logs a few over-fat suckling calves from blackleg, but he never had any infectious disease of any kind in his herd, and never heard of any such disease existing in his neighbourhood. At Quorn Rancho, where 1200 horses and 2000 cattle are kept, I met and interviewed Mr Richard Broderick, grandson of Sir Charles Warren of Warren's Court, Ireland. Mr Broderick is headman of all the round-ups in the M'Leod ranching district, and perhaps knows better about the health of cattle in the province of Southern Alberta than any man living, and he says that no infectious disease exists in that province. A good many cases of lumpjaw occur, and cattle are sometimes lost through the severity of the weather, and occasionally wolves destroy a few of the calves, but as for lung or any other infectious disease, he

Never Heard of Any

except through reading the home papers. Mr Patrick Burness, Calgary, whom I met in the Red Deer River Valley, has dealt in cattle for twelve years, handling 3000 annually. He ships them to the West Coast, and therefore has no interest in booming the East Coast export trade. He is quite certain that no disease exists in the province. Mr Walter (a Scotsman), resident at Edmonton, 200 miles north from Calgary, has been in Canada for twenty-three years, and for the last seventeen years has been a raiser of cattle, generally having 100 on hand. He says he never heard of pleuro-pneumonia except through the newspapers. He never had an infectious disorder amongst his cattle, and is quite certain that no disease exists amongst the herds of Northern Alberta. Mr Thomas Anderson (an Englishman) has been in Canada for fifty years, and has been Crown Timber Agent, and Dominion Land and Emigration Agent for the last twelve years, and his business has led him to be most intimately acquainted with the cattle-raising industry of the North-West. He has never known of a case or heard of a case of pleuro-pneumonia except through what has been said about it in the English newspapers. Major Griesbach, superintendent of Mounted Police, and Commandant of the district of Saskatchewan, has been

Twenty Years in the North-West

Territories, ten of which have been spent at Fort Saskatchewan. The Major said it was his duty to inquire into any suspected case of infectious or contagious disease that might occur. Only one suspicious case had been reported to him, which, upon careful and scientific investigation, turned out to be lumpjaw. The Major spoke confidently as to the very healthy state of the cattle in the province, and as to their perfect immunity from disease. Mr John Coleman, homestead inspector and forest ranger for the Valley of Saskatchewan, said, "I am forty years of age, was born in Canada, and have lived in it all my days. For the last sixteen years I have been interested in the raising of cattle, and on an average have a regular stock of 40 head. I never lost an animal in my life, except one horse that got cast in a neighbour's stable. My duties lead me into constant contact with the farmers and ranchmen in Northern Alberta, and I am quite certain that no disease has ever

existed amongst any of their herds in my time." Mr Donald M'Leod (a true Scotsman, who has an undying veneration for his native heather hills), farmer, rancher, and general commission agent, said the existence of cattle disease in Canada was only in the mind of those who wished to protect cattle breeders of Ireland against competition from the Canadians. He has a large herd of cattle grazing on his ranche, and has a great many bullock teams, moving all throughout Northern Alberta and the Valley of Saskatchewan, and had any infectious disease existed in either of these districts his oxen would have been certain to have contracted it, seeing that in the course of trade his teams come in contact with all the herds. But he never had a single case of cattle disease, and is sure that no such disease exists in the province.

A Veterinary Surgeon's Opinion.

Mr John Creamer, veterinary surgeon, Regina, in the Province of Assiniboia, is in partnership with his brother, who is Government Inspector for the district, and together they have an extensive practice. I called upon him at his office, and he said that so far as cattle contagions were concerned they had never had any, *i.e.*, such diseases as pleuro-pneumonia. They had had blackleg and some cases of lumpjaw, but no cases of foot-and-mouth disease, and no lung disease. Mr Andrew Dundass (a native of Kirriemuir, Scotland), farmer and rancher, Indian Head, Assiniboia, has 70 head of cattle, and never had any disease of any kind

amongst them. At Brandon, Assiniboia, we stayed a few days, and drove around a distance of thirty-five miles, visiting the principal farms and ranches in that vicinity—Mr Bedford, manager of the Government experimental farm, an enthusiastic breeder of pure-bred cattle; his near neighbour, Mr Nicoll, who owns two large farms; Mr Matthewson (a Scotsman), owner of a large farm and ranche; Mr M'Gregor, an importer of pedigree stallions; pedigree Aberdeen-Angus cattle, and Tamworth pigs. All of them are very

Decided in their Assertions

that no disease exists in the Province of Assiniboia. Leaving Brandon, we went westward upon the Central Pacific Railway for some ten miles, then struck the Souris branch, then went south, and joined the Pembina Railway at Napinka. We were now in the Province of Manitoba, and not very far from the line between Canada and the United States. Striking eastwards in the direction of Winnipeg, past Deloraine and Killarney, we came to Pilot Mound, now famous as the place from which came the ox whose lungs have lately caused such a commotion in Britain. Here I made pointed and careful inquiry into the health of the cattle in the district, and was fortunate to meet and have a long interview with Dr Young, member of the Ontario College of Veterinary Surgeons, who resides near by, at Manitou. The details of the interview and the results of further investigations will be given in my next letter.

THE HEALTH OF CANADIAN CATTLE.

INQUIRIES IN THE DOMINION.

THE FACTS ABOUT THE PILOT MOUND CASE.

THE SUPERVISION OF THE FRONTIER.

OPINIONS OF VETERINARY SURGEONS AND AGRICULTURISTS.

CANADIAN FEELING AGAINST THE RESTRICTIONS.

(From the Dundee Courier of September 12th)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—As mentioned in my last letter I had the pleasure of interviewing Dr Young, of the Ontario College of Veterinary Surgeons, in pursuance of my inquiries concerning the health of Canadian cattle. Dr Young, in the course of the interview, said he had every opportunity to judge of the existence or non-existence of pleuro-pneumonia in the Province of Manitoba, and he felt justified in asserting that it had no existence within its boundary. He knows the Pilot Mound herds very intimately, and the allegation of pleuro-pneumonia having existed in an animal drawn from there is quite a mistake. It is quite impossible that any contagious diseases could be in the district without his knowing it. He is quite positive that every animal of the herd from which the ox was drawn is perfectly healthy, and that the animal in question could not possibly have been infected with pleuro-pneumonia when it left the Province of Manitoba. Dr Young is inspector of quarantine for that district, and explains that a

Cordon of Mounted Police

is kept on patrol night and day along the line between Canada and the States, and it is their duty as well as the duty of the Customs authorities to detain all cattle coming over the line, and immediately send for him to inspect them. Should there be anything suspicious as to the perfect immunity of the cattle from disease, it is his duty either to order immediate slaughter or send them back into the States, but should they appear all right he orders them into quarantine for ninety days. He says this rule is most stringently enforced, and that it is quite impossible for States cattle to enter into the Dominion without undergoing the ninety days' ordeal. The only disease for which he ever had to turn back cattle was actinomycosis or lump jaw. He has had suspicious cases of glanders amongst horses, for which he turned them back. The suspicions, however, were not confirmed. Had they been so he would have ordered slaughter. All the cost of feeding and tending the cattle while in quarantine is defrayed by the Canadian Government. Dr Young is a practitioner of the highest standing and probity, and I was particularly struck with his apparent sincerity and earnestness when speaking of the unfortunate Pilot Mound ox case. I had the pleasure of spending several days in the company of Mr John J. Hobson, Mosboro, Ontario, chairman of the Guelph Agricultural College Board, and judge of best managed farms for the last eleven years. He is a large and very successful farmer, an extensive breeder of pedigree shorthorn cattle, and

An Undoubted Authority

on all matters connected with agriculture and the cattle trade, he being taken out as a judge of cattle at almost every large show and fair in the Dominion. Speaking of pleuro-pneumonia, he says:—"I know of none and never knew of any case of pleuro-pneumonia, and I conscientiously believe that the cattle of this country are entirely

free from it, and I am prepared if called upon to make this declaration on oath." Henry Carter, farmer, Wellington, Ontario, has been a rearer of cattle for sixty years, breeding twenty calves annually, and keeping them until sold fat at three years of age. He says the Province of Ontario is free from all contagious or infectious diseases amongst cattle. Pleuro-pneumonia was never known to exist, and he never heard of any infectious disease of any description amongst cattle in any part of the Dominion of Canada. John M'Kerlie, Fergus, Ontario, has reared cattle for forty years. His herd consists of a breeding stock of twenty cows, and he purchases twenty calves annually, the whole being kept until they are three years of age and sold off fat. He says his cattle have always been

Extremely Healthy.

He never knew of contagious disease of any kind amongst Canadian cattle, such a trouble being an entire stranger to the farmers of Ontario. Wm. Levick (a Scotsman), a butcher in Toronto, has been twenty years in business, and kills 150 to 175 cattle weekly for the wholesale trade. He never saw a single case of lung disease since he came here, but knows it well, as he saw plenty of it in Edinburgh before he left Scotland. The Jews kill in his premises, and have done so for the past ten years, and it is well known that they will not eat the flesh of any animal that shows the slightest spot or blemish, and the fact that they have never rejected a single animal during all that period for unsound lungs shows how free the cattle of the district are from lung disease. Mr Ritchings, Wellington, came from England forty years ago, and has dealt amongst cattle for the last ten years; Mr Barnett, Toronto (an Irishman), has been in the cattle trade in that city for twenty years, handling 400 cattle weekly. Both these gentlemen are firm in their assurance that no infectious disease exists in the Province of Ontario. They have, however, no wish for the ports of Great Britain being opened for stockers, as they say it is bad policy for Canadian farmers to send their lean cattle out of the country. And in this theory, after careful study, I must say I distinctly agree. Coming to

The Province of Quebec,

I went to the Board of Trade Buildings in the City of Montreal, and met Mr Cunningham, stock agent. He says there has never been a question as to the health of cattle throughout the Dominion of Canada. The evidence submitted by the Dominion Government to the Home Government was most conclusive, and ought to have convinced the most incredulous that no disease existed. The Canadian cattlemen hold that the restrictions are not imposed as a safeguard against disease, but as a political movement in favour of Irish voters. "It is votes," said Mr Cunningham, "the Government want, not immunity from disease, and so long as Mr Gladstone depends upon the Irish party for his power and position, the restrictions will not be removed." Mr David Currier, agricultural editor of the *Witness*, Montreal, says:—"I have travelled over all parts of Canada, including Manitoba, and part of the north-west, and have constantly been visiting cattle markets for the last twenty years. I am in daily communication with cattle dealers and stock raisers, and have never seen or heard of a single case of pleuro-pneumonia outside the quarantine of Quebec. About eight years ago all the cattle in the quarantine there were slaughtered, and the carcasses burned, although there were only two suspected animals amongst them. This occurred in a consignment of cattle from Great Britain, which were

not allowed to come into contact with any of the stock of the Dominion. We never at any time import hides or feed or anything by which infection can be communicated, and there is

No Possible Way

by which infection could be introduced into the country, as all imported animals have to undergo a regular ninety days' quarantine, and are under strict veterinary supervision all the time. Some years ago cattle were allowed to be taken from the North-Western States for breeding purposes, but the quarantine rules now apply to these also, and are most rigidly enforced, although no disease has occurred in these North-West States for the last ten years. Tuberculosis does prevail here to a certain extent, but not nearly so bad as in the old country, and no case of Texan fever has occurred in the Dominion for ten years. Mr Harkin, city editor of the *Star*, Montreal, says no disease whatever exists amongst cattle throughout the whole of Canada, and the precautions against its introduction are now so strict that it could not possibly be introduced. Everywhere I visited I was most careful and exhaustive in my inquiries regarding the health of cattle, and took every possible opportunity of interviewing the best authorities on the subject, and the foregoing are only a few of the parties whose attestations I could give in proof of the freedom of the cattle of the Dominion of Canada from infectious diseases. All these parties

interviewed personally, and herewith give their evidence in as near as possible their own words. I can also give their names and addresses, so that should anyone in the United Kingdom doubt the veracity of the evidence adduced they can correspond with the parties themselves, when they will get the fullest confirmation of my statement. As at home there are all kinds of people in Canada, many of whom would have been only too ready

To Blacken the Character

of the cattle if there had been anything to say against them, but though I travelled through the Dominion from the Maritime Provinces of Quebec and Ontario on the east coast, to British Columbia and Vancouver's Island on the west coast—from the United States boundary on the south to Saskatchewan River on the north—through the Provinces of Manitoba, Assiniboine, Alberta, and Hudson Bay territories, and interviewed all kinds of people everywhere I went, yet I never heard a single whisper against the health of the cattle in any respect whatever. On the contrary, one and all bore ample testimony to their entire immunity from contagious diseases. The only trouble which seems to give them any serious bother is actinomycosis or lump jaw. This is a cancerous affection which affects the jaws and head, and by which the head is enlarged and deformed to a fearful extent. Amongst a batch of about three hundred beef steers rounded up for my inspection on the prairie I counted about half a score so affected. Nevertheless they were in good condition, so that it does not seem to affect their health much. Their flesh is not, however, considered fit for human food, and is condemned by law, and generally it is used as food for the ranch dogs. Throughout the Dominion I found the inhabitants remarkably loyal and faithful in their allegiance to the British Crown. But both with those connected with the cattle trade and those who are not, there is a deep-seated

Feeling of Disaffection

over the action of the home Government in regard to their veto upon Canadian stockers. Why, they ask, should the cattle of the Dominion be shut out, when they have been conclusively proved over and over again to be entirely free from contagious

diseases, and the cattle of the sister isle admitted when their health is far more dubious? And over and over again, everywhere I went, I was met with the assertion—an assertion which is a deep grounded belief—that the shutting out of the Canadian cattle is a political movement in favour of the Irish for the sake of their votes in support of the Gladstonian Government, and that had the Canadians had a vote in the Imperial Parliament as the Irish have, the embargo upon their cattle would never have been imposed.

SCENES IN THE ROCKY MOUNTAINS.

'MID GLACIERS AND AVALANCHES.

A CHAT WITH THE ENGINEDRIVER KING.

EXPERIENCES ON THE COW-CATCHER.

THE GREAT DIVIDE.

(From the Dundee Courier of September 19.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—

Before I left Scotland a friend of mine said "When you are going through the Rocky Mountains you are sure to see Mr So-and-So (naming a mutual friend), as he resides there." Little did he realise the almost boundless extent of these mountains, else he would have known how easy it is for two persons to be within their boundary and yet be thousands of miles apart. But the fact is that few persons who have not actually seen them can form any conception of their enormous magnitude and terrific grandeur, as no pen, however gifted, and no pencil, however perspective, can give to the mind's eye any idea of the reality. These mountains extend from Mexico to the Arctic Ocean, a distance of three thousand miles, with a breadth of 800 miles, covering an area of 2,400,000 square miles. Some of the peaks are very high. Mount Elias towers to a height of 17,800 feet, Mount Brown to 16,000 feet, Mount Hooker to 15,700 feet, and Mount Shasta to 14,000 feet. Their general contour is abrupt and precipitous, cleft to their very base, and towering towards the clouds in sharp, conical peaks, generally bare grey rock and craggy precipices, so vertical that no soil can be there, consequently

No Vegetation

of any description is to be seen more than half-way up their rugged sides. The curiously-contorted and folded strata of the huge rocks so visible to the eye all throughout their reaches bring home to us the mighty power of those convulsions of Nature which drew them into their present lofty position. They are composed of metamorphic gneiss, granite, porphyries, mica, and talcose slates, gold bearing quartz, with deposits of mercury, silver, copper, carboniferous limestone, coal, and petroleum. All along the valleys and half-way up the mountains are dense forests of tanarock, Douglas pine, cypress, cedar, poplar, birch, and cotton wood trees, the lower regions abounding with artemisia-odoriferous plants and sunflowers. The tops of the mountains are almost without exception covered with perpetual snow hundreds of feet deep, which with the intense frosts which prevail in these regions is frozen to the hardness of the superincum-

bent rocks. Glaciers of immense thickness are collected in the gorges, and the accumulating weight of succeeding winters crushes them over the overhanging precipices, and sends them down in terrible avalanches to the valleys below. The numerous bare strips or ribs down and through the mountain forests mark the tracks where

Huge Avalanches

have descended, tearing up by the roots the primeval giants of the forest and driving everything before them in their terrible and irresistible course. Forest fires are of frequent occurrence in these fastnesses, and it is lamentable to observe the great destruction which has been caused by this means, thousands upon thousands of square miles of the most valuable timber having been burned and destroyed. Some of the fires are of recent date. On our homeward journey we came through one large forest, at least twenty miles square, all ablaze, and the dense smoke arising therefrom darkened all the country for one hundred miles around. No sooner, however, is one growth of trees burned down than another spontaneously springs up and takes their place, and these young forests present a somewhat weird and woe-begone appearance, the tall, bare, dead trunks of the former occupants towering above the dense undergrowth like the ghosts of the departed. To bring the enormous heights of these mountains better home to Scottish readers, I may mention that the Law of Dundee is 525 feet high, so that it would require

34 Law Hills

piled on the top of each other to reach the height of Mount Elias. Craigowl, the highest peak in the Sidlaw range in Forfarshire, is 1200 feet high, and so it would require more than a dozen Craigowls to make a ladder to Mount Elias. Ben Nevis, the highest mountain in Great Britain, is 4406 feet, scarcely one-fourth the height of Mount Elias. It will be remembered that I left off the description of my journey at Banff on purpose to give an epitome of my inquiries into the health of the cattle of the Dominion, which I considered of primary importance at the present crisis. I will now return, and, taking up my journey where I left off, carry my readers in imagination with me over the heights of the Rocky Mountains. On reaching the station we found that the railway company had reserved a stateroom car for our accommodation, not the one we formerly occupied, but another equally as comfortable and commodious. Leaving Banff, we soon regain the Valley of the Bow River, which the railway had left for a time. The mountains gradually become farther apart, and the valley is covered with heavy timber, with a rich undergrowth of wild flowers and native grasses. We see numerous

Tribes of Red Indians,

their tee-pees forming frequent villages along the side of the track. The bucks are engaged on horse-back herding the bunches of horses, the rearing of which forms the principal industry of those children of the forest. A few bunches of cattle belonging to settlers are yet to be seen, but these are getting few and far between. By-and-by the hills close in around us, and we find ourselves in a narrow valley between two great mountain ranges, whose tops even in this broiling July sun are covered with perpetual snow, and tower to the clouds in serrated peaks and vast pyramids, down whose sides cascades fall for thousands of feet. Onwards and ever onwards speeds the train, twisting and turning in its course, the scene changing and rechanging, yet ever the same in its fearful and magnificent grandeur. Stopping at the little way-

side station of Laggan, we are introduced by Mr Pearce, Inspector of Mines, who has been our travelling companion for a time, to Charlie Carrey, the king and

Hero of Enginedrivers.

Many thrilling stories are told of Charlie's coolness and intrepidity in the hour of danger, and of his hairbreadth adventures and escapes, and he is credited with having by his great presence of mind and readiness to act, saved his train from imminent destruction on several occasions. Unlike most enginedrivers, Charlie is spick-and-span, without a speck of soot or dust upon his person or snow-white linen, and when stretching his legs on the platform, with gold rings on his fingers, he has more the appearance of an opulent railway director than an enginedriver. Indeed, it is openly whispered that he is quite as much the one as the other. Be that as it may, Charlie was very obliging and accommodating to us, and with a quiet smile invited us to take a ride upon the cowcatcher, a triangular frame attached to the front of all American engines, its purpose being to clear the track of cattle and other obstructions. And here I may observe that American railways are in most places entirely innocent of side fences, and even where they are fenced no gates are placed at the crossings, so that it is no uncommon thing to run into a bunch of cattle or horses. Charlie's invitation to ride

On the Cowcatcher,

although fraught with a good deal of danger, was too much in keeping with the spirit of adventure which then possessed us to be refused. So, pulling our caps firmly down over our brows, and feeling that our foggy was all right, we mounted to our somewhat novel position in front of the engine, and after being warned by Charlie not to attempt to jump off whatever happened, we resumed our journey. Here the ascent is very steep, and three engines are put on to propel the train, the one on which we are seated being in front, another in the middle of the train, and the third pushing behind, and all three puffing and straining with might and main. We soon leave the valley of the Bow, and join a tributary which comes down a gap in the Bow Range, and through this gap the huge peak of Mount Hector appears in view, a good view being here obtained of

The First Great Glacier.

It is a broad crescent-shaped river of ice hundreds of feet deep. It seems quite close at hand and almost on a level with the track, but distance and altitude are very deceptive in these regions, and we learn afterwards that it is twelve miles away and 1300 feet above us. We are heading straight for it, and, as no way of avoiding it is to be seen, I find myself meditating as to the result of the mighty plunge which seems inevitable, when suddenly we turn a curve, sharper by far than anything I ever saw upon a home railway, and, skirting the base of the hill, we speed along in another direction. Now a glorious line of snow-clad peaks appears before us, rising straight from the plain and extending the whole length of the western horizon, seemingly an impenetrable barrier to our further progress. Peak rises above peak in rapid succession, then dark bands of timber that reach up to the snow line. At one time we are winding along the brink of a wild, foaming cataract; at another we are buried in the gloom of an almost impenetrable forest, through the vistas of which far up in the clouds ice fields and glaciers glitter in the sun. Again, the valley widens out, and we are smoothly rolling along the side of a placid lake, the margins

of which are decorated with wild flowers of every hue. Here we are reminded by the increasing nearness of the ice fields on the mountain slopes that we are reaching a great elevation, and on nearing the station of Hector we observe a mighty arch on the left side of the track, on which, in big letters shaped out of the limbs of trees, are the words,

"The Great Divide,"

which lets us know that we have at last reached the summit of the Rocky Mountains. But it is the summit only in so far as the railway is concerned, for the mountains still lift their white summits eight thousand feet above us, stretching away southwards and northwards, just, for all the world, like a great backbone which, indeed, they really are—the backbone of the Continent of America. Just at the Great Divide two little streams have their common source. One runs eastwards and joins the Atlantic by way of Hudson's Bay; the other runs westwards, and joins the Pacific by way of the Columbia River. The train draws up at Hector Station, and we jump off the cowcatcher, and on to the platform, where we draw a long breath of relief after our adventurous and dizzy ride. As Mr Taylor remarked, it was indeed a "hair-raiser," and he thought his cap would be lifted off his head by his hirsute appendage; but, as my scalp is somewhat destitute of its natural covering, I felt no forebodings in that respect. We are now just half-way across the Rockies, and in my next letter I will continue the journey, and endeavour to describe the terrific sublimity of the scenery, and the exciting adventures we passed through, besides giving a description of the inhabitants and industries which are to be found in these fearful solitudes.

MORE ABOUT THE ROCKIES.

MARVELS OF RAILWAY ENGINEERING.

THE INDUSTRIES OF THE MOUNTAINS.

A GIGANTIC LUMBER TRADE.

DEMAND FOR AGRICULTURAL PRODUCTS.

(From the Dundee Courier of September 26.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—In my last letter I narrated the experiences of Mr Taylor and myself on the cowcatcher, and our interview with Charlie Carrey, the king of enginedrivers. At Hector, after Carrey had got his engine watered and oiled, he kindly invited us to come up beside him on the engine, on purpose, as he said, to give him a better opportunity of showing us the beauties of the road. American engines are fitted with a covered compartment on each side of the boiler, and we were instructed to take a seat in one of these, along with two young ladies, who were up before us. The track being for a time downhill and quite within the power of two engines, Carrey had his engine detached, and started without the train, telling the conductor not to start for half an hour after we left. Passing three large lakes which wash the perpendicular base of the mountains, we follow the west-bound stream down through a tortuous, rock-ribbed cañon, where the waters are dashed in incessant leaps and whirls. The track and the

river are side by side, and we know by the mad impetuosity and wild rush of the waters that the descent is very steep, and are told by Carrey that the railway gradient here is

240 Feet in the Mile.

We are now in the Wapta or Kicking Horse Pass, and the scenery is sublime and terrific. The mountains rise straight up from the river on both sides, and they are so near that one could toss a biscuit from one to the other. Looking up we see their tops piercing the clouds thousands of feet above us. The track runs on a narrow shelf cut out of the mountain side on the left, and the valley on the right gradually deepens until the river is seen glistening like a silver thread a thousand feet below, with the head of Mount Stephen on the left



MOUNT STEPHEN.

towering 8000 feet above us. Charlie stops his engine, and points out on the bare face of the almost perpendicular mountain the zigzag lines of a tramway coming down from a silver mine away up near the sky-line. Starting again, we round the base of Mount Stephen, and soon stop again to observe high up on its shoulder, and almost over our heads, a glacier, whose shining green ice, 500 feet thick, is slowly crowded over a sheer precipice of dizzy height, and crushed to atoms below. At Field the train stops half an hour to give time for passengers taking dinner in a commodious and well-appointed hotel, belonging to and conducted by the Railway Company. When we start we take our seats in the observation car—a carriage with open sides, specially designed to enable passengers to have a good view of their surroundings—and still following the Kicking Horse River we soon join the Columbia. The gorge through which it runs gradually deepens until beyond Palliser the mountain sides become vertical, rising straight up thousands of feet, with only room for the river between. Down through this terrible cañon go railway and river together, the railway crossing from side to side, clinging to ledges cut out of the solid rock, and twisting and turning in every direction. We soon reach the Beaver Valley, and commence the

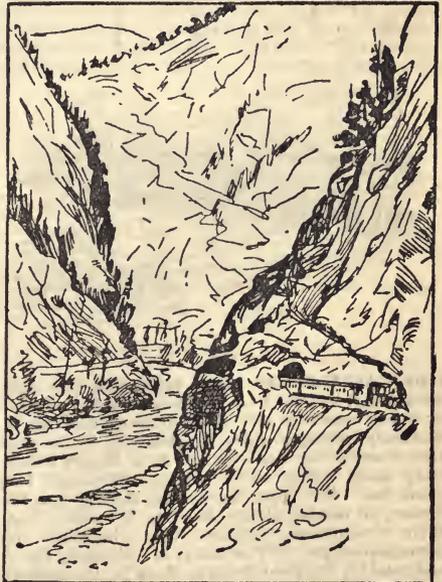
Ascent of the Selkirk Range

of mountains, and then for twenty miles we climb along their sides, through dense forests of enormous trees. The engineers encountered enormous difficulties in constructing the railway here, because of the great torrents, many of them in splendid cascades, which come down through narrow gorges cut deeply into the steep slopes of the mountain, along which the train runs. These

gorges are crossed by trestled bridges of enormous height. At Stoney Creek the track crosses a bridge 295 feet high, one of the highest in the world. We are now in the region of the great snow sheds, scores of miles of which have been erected to protect the railway from the heavy falls of snow which frequently occur in this district. A sharp curve brings the train in front of the great glacier, which is now very near us on the left—a vast plateau of gleaming ice, extending as far as the eye can reach, and larger, it is said, than all those of the Alps put together. We are now far up the mountain side, and suddenly behold the broad waters of the Columbia River, gleaming like a sheet of burnished steel far, far below us. Down the mountain side, between us and the river, we see half a dozen parallel lines of railway, and puzzle our brains to know what can be their purpose there, but soon learn that we have to wind

Like a Corkscrew

along these, the train doubling and turning upon itself until it reaches the level of the river, 500 feet below. For some time the shades of evening have been gathering around us, and it now becomes quite dark. The conductor tells us it is *twenty-two* o'clock, and that our beds are prepared; so, retiring to our state-room car, we undress ourselves and go to sleep. All night long the train speeds on its westward course. We rise with the dawn, and just as we reach the observation car the train pulls up at Kamloops, the principal town in the interior of British Columbia. Here we are given half-an-hour to stretch our legs on the platform, a luxury for which we were very thankful. A new engine is attached to the train, and we again resume our journey, following the shore of Kamloops Lake and the mighty Thomson River, through tunnel after tunnel, and then the valley shuts in, and the scarred and rugged mountains frown upon us again. For hours we wind along their sides, looking down upon a tossing, tumbling river, its waters sometimes almost within our reach, and sometimes lost below. We suddenly cross the deep black gorge of the Fraser River on a massive bridge of steel, seemingly constructed in



THE FRASER CANYON.

mid-air, plunge through a tunnel, and enter the famous cañon of the Fraser. The view here changes from the grand to the terrible. Through this gorge, so deep and so narrow in many places that the rays of the sun hardly enter it, the black and ferocious waters of the great river force their way. We are in the heart of the Cascade Range, and above the walls of the cañon we occasionally see the mountain peaks gleaming against the sky. The railway is hundreds of feet above the river, notched into the face of the cliffs, and now and then crossing a chasm by a tall viaduct, or disappearing in a tunnel through a projecting spur of rock. On the opposite side of the cañon

The Old Government Road

is seen along the Fraser and Thomson Rivers twisting and turning amongst the cliffs. It sometimes ventures down to the river's side, whence it is quickly driven by an angry turn of the waters, thence to mount to a dizzy height and wind along shelves cut out of the solid rock, crossing the gorges which come down the mountain side on bridges of huge undressed trees, seemingly very precarious and dangerous. Along this road until the advent of the railway all the merchandise and freight going up the country had to be conveyed on bullock waggons. For hours we are deafened by the sullen roar of the water below, and we long for the broad sunshine once more. The scene is fascinating in its terror and we finally leave it gladly, yet regret



YALE.

fully. At Yale the cañon ends, and the river widens out, but we have mountains yet in plenty, at times receding and then drawing near again. Suddenly turning a curve, a gleaming white cone rises towards the south-east. It is Mount Baker, sixty miles away, and fourteen thousand feet above us. We cross large rivers flowing into the Fraser, all moving slowly here as if resting from their tumultuous passage down between the mountain ranges. The waters are all dark, thick, and muddy, the river being in flood by the melting of the snow on the mountains. As the valley

widens out, farms and orchards become more and more frequent, and our hearts are gladdened by the sight of broom—the first we have seen since leaving the old country—and other shrubs and plants familiar to our eyes, for, as we approach the coast, we find

Climate Like that of Britain,

but with more sunshine. By-and-bye we reach Harrison Station, where we "lie over" on purpose to visit the fertile valley of the Chilliwack, the great productiveness of which will form the subject of a future article. It may be imagined, after such a description, that few people would take up their abode in such an inhospitable region as the Rocky Mountains, but the numerous villages we pass along the side of the railway, and the busy passenger traffic at the stations, show us that a vast population obtain a subsistence in these wilds. We see tribes of Indians herding bunches of cattle and horses along the sides of the rivers, and every jutting rock at the rivers' sides is occupied by Indians fishing with dip nets, the numerous salmon hanging on the trees alongside showing that this industry is very successful. Clusters of tee pees, or wigwams, browned and blackened with exposure and smoke, occur at frequent intervals, alternated with collections of huts, where the Chinamen congregate, great numbers of these Chinamen being employed by the Railway Company in altering the construction of the track, renewing bridges, and widening the embankments so as to make the railway more substantial. Bands of Chinamen are also to be seen on the bars of the river washing for gold, an industry which is said to be very lucrative. Numerous sportsmen wander through the mountains in search of buffalo,



MOOSE DEER.

moose deer, elk, bighorn sheep, caribou, wolves, and bears, wild fowl, such as ducks and geese being also very abundant. Whole

Armies of Lumberers

are employed cutting down the timber and dragging it to the river, where it is floated down to the sawmill, hundreds of miles away. The most valuable timber obtained to the east of "The Great Divide" is the tall and gracefully tapered tamarack, which in appearance very much resembles our home larches, quite as gross as the largest of them, but

much taller and straighter. The only trees I ever saw at home that could compare with them were those fine larches which are to be found in the Den of Glamis immediately below the milldam. Tamaracks also abound on the British Columbia slopes, but there they are completely thrown into the shade by the enormous Douglas pines which grow there in great plenty—numbers of them being 240 feet high and 50 feet in circumference—their trunks as straight as a plumb line finely tapered and clear from branches to almost the very top. Cedars are also numerous, quite as gross, but not so tall, and, being clothed with branches, have a great resemblance to our spruce trees at home. The timber of the cedars is very valuable, large quantities of it being cut up into shingles for roofing purposes, much in demand all throughout Canada and the United States. Immense numbers of workmen also find employment at the numerous mines which are wrought in the mountains, silver, copper, and coal being the principal output. Such a numerous population creates a constant demand for

Agricultural Products,

and, though grain cannot be successfully grown, dairy produce and beef are largely produced. Wherever practicable, clearings have been effected and the land cultivated. The only grain crop which I saw attempted was oats, which do not ripen well, sometimes not at all, but are cut green and converted into hay, which, when mixed with native hay cut from the swamps, forms a very grateful and nutritive bit for winter feed. Potatoes and turnips are also grown, though the crops appear very diminutive, but small though they be, they are very valuable where better cannot be obtained. The cattle are grazed along the sides of the lakes and rivers and on level spaces between the mountains, and appear to be thriving and in fair condition. They are a scrubby, lanky breed, but are good rustlers, and well adapted for a district where food is so precarious. Each cow has a bell attached to her neck, which, by its constant ringing, lets the whereabouts of the herd be known when concealed amongst the thick scrub. The demand for the produce being always in excess of the supply, there is at all times a ready sale at remunerative prices, the average price of butter being 1s 3d per lb., and cheese from 6d to 8d per lb. Stores are to be seen at every station, where provisions of all kinds and hard as well as soft goods can be purchased. And, besides all this, the railway across the mountains is fast becoming a regular highway for the conveyance of passengers and goods from Australia and China to the eastern provinces of Canada, and, in numerous instances, even to Great Britain.

SOJOURN IN BRITISH COLUMBIA.

CLIMATIC CHARACTERISTICS OF THE PROVINCE.

ITS GREAT LUMBER INDUSTRY.

SOMETHING ABOUT ITS FISHERIES AND CANNERIES.

THE ELYSIUM OF FISHERMEN.

(From the Dundee Courier of October 3.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—

On leaving the train at Harrison, we found that the news of our coming had gone before us, several Scotsmen being waiting at the station to bid us



CATHEDRAL ROCK, ROCKY MOUNTAINS.

welcome. Foremost amongst them was Sandy Macdonald, a typical Scotsman, who, despite his thirty years' residence in the Province, still speaks his native Doric with the broadest of Scottish accents. "Mac," the name he is locally known by, is a rancher and farmer, local postrunner, and ferry boatman, and a general favourite in the place. Sandy knows everybody, and everybody knows and respects Sandy. He had been expecting us for some days, and had been constantly in waiting on the arrival of the trains on purpose to boat us

Across the Fraser.

a river almost as broad as the Tay at Dundee. But, unfortunately for us, a number of ladies who arrived by the same train claimed Sandy's patronage to row them over, and as he was too gallant to refuse, and there being no room left for us, we had to seek another boat. The one we got scarcely commended itself to us as a model of safety, it being an Indian "dug-out"—that is, a canoe dug



CANOING ON FRASER RIVER.

out of the trunk of a single tree, and so small and slim that it seemed scarcely possible for it to carry us along with the two Indians who were to row us across. It had neither oars nor rudder, and as there were no thwarts on which we could seat ourselves we were told by the Indians to sit right in the bottom, it being so narrow that when I extended my arms over the side both hands touched the water within three inches of the gunwale. One Indian stood in the prow, another at the stern, and sculled us across with scoops shaped like a farm labourer's shovel. However, we got over in safety,

and "Mac," having landed his ladies, met us on the left bank with his buckboard, and drove us all around

The Chilliwack Valley,

in the province of British Columbia. British Columbia is the most westerly province of the Dominion of Canada. It is situated in latitude 49°—55° north, and longitude 115°—132° west, its latitude being analogous to Britain and the north of France. It measures 700 miles in length from north to south, and 420 miles in breadth from east to west. It is bounded on the north by Alaska, on the south by the international boundary, on the east by the watershed of the Rocky Mountains, and on the west by the Pacific Ocean. As a rule the climate is more like that of Great Britain than any of the other Canadian provinces, but it varies considerably in the different districts as influenced by local causes, such as proximity to the Ocean, altitude, and the contour of the mountains. Along the coast, and for a good distance inland and especially along the deltas of the great rivers, the climate is mild and equable, being tempered by the warm waves of the Pacific, just as the climate of Britain is tempered by the warm currents of the Gulf Stream, with this difference, however, that a cold Arctic current runs south along the coast, which renders the air colder than that of Britain for the first half of summer, but which, when heated by the long summer days of bright sunshine which prevail in the Arctic regions, renders the latter half of the summer warmer than that of Britain, and very congenial for the maturing and ripening of crops and fruits of every description. The cold Arctic current has also the effect of condensing the warm vapours passing over the Pacific, causing

Plentiful Rainfalls

during early summer, when moisture is most needed. Heavy falls of snow frequently occur, but are quickly melted by the warm Chinook winds from off the Pacific, so that stock grazing outside have never much difficulty in obtaining their food. Away back from the seaboard is an extensive elevated terrace of a lava formation, well adapted for cultivation and pasture. It is abundantly stocked with forests of timber, which draw down the rains in sufficient abundance, the formation of the mountains arresting the air currents and rain-dearing clouds, and rendering the district well adapted for growing and maturing all kinds of agricultural produce, and for grazing purposes.



THRESHING ON A RANCHE NEAR FRASER RIVER.

Farther back still, and elevated on a third and higher terrace, is a district composed of equally as good soil, but where the rainfall is not so generous, and which is, therefore, not so well adapted for cultivation, except where irrigation can be adopted. Where this can be done splendid crops of every description can be produced, but, as the rivers in many parts run along deep gorges, irrigation schemes are difficult to accomplish. Consequently this belt is better adapted for grazing purposes than for cultivation. The famed bunch grass, which grows abundantly here, resists the drought well, and is said to be more nutritive than even the far-famed Kentucky

blue-joint. Farther back still is the mountain district, comprehending a very extensive area, amongst which are many sylvan retreats and level passes, where crops can be successfully grown. Generally speaking, however, this district is of a wild, forbidding aspect, and very sparsely inhabited. The lofty ranges of mountains that tower above the whole Province on the east and north, act as windbreaks, and shelter it from the cold, chilling blasts which come from that direction. Throughout the whole Province forest lands are of vast extent. The principal trees are the Douglas pine, cedars, yellow firs, hemlocks, maples, alders, and cotton wood. The Douglas pine is almost universal on the West Coast, and up to the Cascade Range. The cedar, white pine, and maple are found everywhere, and the Scots fir, willow, and cotton wood on the bottom lands.

Huge Industries in Lumbering

have been established all over the Province. The trees are cut in the mountains and floated down the rivers, sometimes for hundreds of miles, to the sawmills below, large booms being erected across the rivers immediately above the mills to divert and guide the logs into the bays where the mills are situated. It is quite a common sight to witness miles of timber covering the rivers from side to side waiting to be operated upon. At New Westminster we visited two large sawmills—the Royal City Mills and the Brunette Sawmills—each with a daily cutting capacity of one hundred thousand feet of one-inch boarding, cut from enormous trees of cedar and pine, some of the trees being 10 to 14 feet in diameter and 250 feet in length. A sloping platform or gangway connects the saw-shed and the river. Along the centre of the platform runs an endless chain, with notched teeth like hooks or claws. Several men armed with boathooks take their stand upon the floating logs, and guide them end-on to the lower end of the platform, where they are caught hold of by the elevator hooks, and slowly dragged up the platform to the saw-shed. The touch of a spring raises and guides great levers, which, with human-like precision and superhuman power, lift the tree on to the saw-bench, and adjust it as precisely and as deftly as if it were a small batten. Circular saws square it and cut it up into boards of the desired size, and the boards, running along automatically, are cut into proper lengths by another machine, and, still passing on, are planed, dressed, and tongued. In

Making the Roofing Shingles,

so largely used instead of slates throughout America, the dressed logs are cut into blocks about 18 inches by 9 inches. These are carried automatically against rapidly revolving circular saws, which slice the tough wood as if it were a turnip. Down a hopper into a lower chamber the stream of shingles is delivered, and there they are squared, edged, tested, and tied into bundles. The saw-dust, shavings, and other refuse is run down hoppers, and on to the furnaces which supply the driving power to the two hundred horse-power engines, situated in the sheds below. The outside slabs are run out of the way, and stored alongside to be sold as fuel, and the boarding is piled up into huge stacks to dry before being used. Immense quantities of the sawn timber in the form of boarding and scantling are used in the Province for housebuilding purposes. There is a steady demand for it at all the American ports south the west coast. South America and the Sandwich Islands take large quantities, and a good trade is being established to Australia, Japan, and China, lots of it going even to Great Britain by way of Cape Horn. The shingles, being light and easy of

carriage, are sent by train east through the Rocky Mountains, and distributed all through Canada and the United States. Shingles made from the British Columbia cedar have the reputation of being the freest from warping, and the most durable of any.



A GRAIN ELEVATOR.

The Fisheries of British Columbia

are undoubtedly, without exception, the richest in the world. Whales and seals abound off the northern coast. Sturgeon from 500 to 1000 lbs. are plentiful in the rivers. Black cod, a superior food fish, abounds from Cape Flattery north. Halibut of fine quality and large size are plentiful in the inner waters. The surf smelt and common smelt, so valued for the table, are abundant. Herring is also abundant, and both lake and brook trout are found on the mainland, but the most valuable of all is the salmon, of which there are several kinds which frequent the rivers at different seasons. They literally teem in the Fraser and Columbia rivers, and it is said that passengers on the Canadian Pacific Railway are sometimes astonished by the sight of broad expanses of river, or deep pools, packed almost solid with a wriggling mass of splendid fish. Those of the Fraser are found 600 miles up the river. The greatest number of canneries are on the Fraser, but there are many farther North. At New Westminster there is a salmon-canning establishment where about six hundred thousand salmon are annually prepared and put into half-pound and one-pound tin cans. Between this city and the mouth of the Fraser River, a distance of twelve miles, there are twenty similar canneries, the revenue from which averages from one and a half to two millions of dollars annually, and gives employment to about ten thousand people during the canning season, which lasts about two months. Amongst those employed are whites, Italians, half-breeds, Indians, Japanese, and Chinese, the last-mentioned being very expert at the business, and a very industrious, sober, hard-working people. From all I could see and learn this is

The Very Elysium of Fishermen,

and I would strongly recommend it to our hardy, industrious fishermen at home, who struggle on from year's end to year's end for an uncertain and

scanty pittance. Here, in British Columbia, Nature deals out her rewards with no niggard hand. There is no rent to pay, no leave to ask to run a boat along the shore or on the rivers, the fish belong to the man who takes them, and a man who in British seas toils year out and year in for others, may own his own home, his own piece of land, and his own boat by no man's favour. The native Indians, whose principal employment is fishing, are far happier and more prosperous than many a fisherman at home, and, when we find even Indians able to accumulate sums of money which would appear fortunes to the average fishermen of Scotland, surely this is an inducement for them to go and do likewise.

RESOURCES OF BRITISH COLUMBIA.

FACTS ABOUT AGRICULTURE.

LORD ABERDEEN'S EXPERIMENTAL FARMS.

HINTS TO INTENDING EMIGRANTS.

(From the Dundee Courier of October 10.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—It is to its mineral resources that British Columbia mainly owes its present position, it being the discovery of gold in 1857 that led to the establishment of the Colony in 1858. Gold may be said to be universally diffused throughout the whole Province. Mines have been opened at Cassiar, Carriboo, Okanagan, Koolney, and many other districts, and have been wrought with universal success. Indeed, it would be difficult to say which are the most successful, as new discoveries are being constantly made, and the richest mine of one season may be surpassed the following year. These bars along the rivers' banks are thickly impregnated with gold dust, which is easily and profitably washed out. Silver has been discovered in several places. The best known of the

Argentiferous Localities

is that about six miles from Hope, on the Fraser River. Iron deposits exist on Jaxada Island, and copper deposits have been found at several points on the coast of the mainland. Bituminous coal has been worked for many years at Nanaimo, on Vancouver Island, and several veins have been discovered and wrought on the mainland. Furs and peltries are amongst the most valuable articles of export, the capturing of the animals affording splendid sport. Amongst the most valuable are the



ROCKY MOUNTAIN SHEEP.

black, red, and silver foxes, sea otters, fur seals, mink, marten, beaver, black and brown bears, panthers, lying elk, caribon, mountain sheep and goats. Wild duck, geese, grouse, and snipe are abundant everywhere. The valley of the Chilliwack, which we inspected very minutely, is, perhaps, one of the most productive districts under the sun. It is twenty miles long and ten broad, situated along both sides of the Fraser River, about 70 miles from the coast. The soil is of rich alluvial deposit, composed of the silt of the river, and very deep and fertile, and, being of a somewhat sandy nature, is easily wrought. All kinds of crops are cultivated, the general productions being wheat, oats, barley, rye, and peas. Beans, buckwheat, and Indian corn are cultivated, but not with great success. The Indian corn is generally reaped green and cut up into chop for ensilage. Timothy hay of excellent quality and large yield is extensively cured. The valley is eminently adapted for fruit-growing. Apples, prunes, pears, cherries, peaches, apricots, nectarines, and quinces are all grown with the greatest success, together with small fruits such as strawberries, raspberries, gooseberries, and currants, the yields of which are phenomenally large.

Stock-Raising

is being largely gone into, and, as the cattle are being carefully graded up with pure-bred imported bulls, mostly of the shorthorn and Holstein breeds, the young stock is very promising. Cattle are housed during winter, and fed upon hay, meal, and a few roots. Three-year-old steers feed to 1400 lbs. on the hoof, and realise £12 to £13 per head. Hog-feeding is being largely prosecuted. The pigs are excellent sorts, mostly pure Berkshires. They are grazed in the orchards under the fruit trees, and are fed with skim milk and bruised grains. It is said that 5 lbs. of wheat, bruised and made up with skim milk, will produce one lb. of pork. The pigs, when sold, average from 16 to 30 stones, and bring from 4d to 5d per lb. of dressed carcase. Mutton is sold at 5d per lb., and young lambs, fat, bring from 1s to 1s 8s each. Veal sells at 4½d to 5d per lb. Dairy produce finds a ready and lucrative market in Victoria and Vancouver, butter selling at from 1s to 1s 6d, and cheese at from 4½d to 7½d all the year over, and eggs from 1s to 1s 6d per dozen. Wheat produces 35 to 40 bushels per acre, and sells at 2s 6d to 3s per bushel. Oats produce 60 to 80 bushels per acre, and sell at 2s to 2s 6d per bushel. Hay yields from 2 to 3½ tons per acre, and sells at from £2 to £3 per ton. Potatoes produce 6 tons, and sell at 4s per bag of 90 lbs. Cherries sell at 2½d per lb.; apples, 1d; pears, 1½d to 2d; rasps, 2d; and strawberries, from 4d to 5d. The profit on small fruit is phenomenally large, the yield running from £30 to £50 per acre, while large fruit orchards realise from £20 to £40 per acre, besides affording a rich crop of grass underneath, either for grazing or laying. It will be seen from these figures that farming, and especially fruit-farming, in British Columbia is

Very Lucrative,

and would be a very desirable location for emigrants were the present state of matters to continue. The colony being comparatively new, the cultivation of the land has not kept pace with the growth of the towns. Victoria, the capital, has a population of 25,000. Vancouver has a population of 20,000, New Westminster 6000, and many other inland towns are increasing remarkably fast. This vast urban population creates a greater demand for food stuffs than the cultivated area is yet able to supply. Consequently, instead of having a surplus to run down prices, it has up to this time had to import large quantities of grain and beef from the

Canadian Provinces to the east of the Rocky Mountains. There is a doubt, however, if these prices will long continue, as there are already signs of a large import trade springing up from Australia and other eastern countries. Just as the soil is productive and the prices lucrative, so is the land dear in proportion. Improved farms sell at from £16 to £25 per acre, while unimproved lands, generally thickly studded with Douglas pine and cedar roots, and which would require an expenditure of from £5 to £10 per acre to clear, cost from £4 to £20 per acre, according to location and the quality of the soil.

Advice to Intending Settlers.

I would not, therefore, recommend farmers to think of taking up land there unless possessed of a good round sum of money. But to those possessed of the necessary funds, tired of the trammels of tenancy at home, and desirous of becoming their own landlords, I could recommend nothing better. Money judiciously invested is sure to yield a good return; and, besides, 50 acres well laid out and well attended to would be as much as any man need possess, as it would bring in more cash annually than four times that number of acres at home. It must not be supposed, however, that British Columbia is in general such an El Dorado, as this favoured valley of the Chilliwack, although there are many large areas along the deltas of the great rivers equally as good. About nine miles east from the city of New Westminster we crossed what is known as the Pitt Meadows. This is a tract of about 30,000 acres of splendid meadow land that is overflowed for about two months of the year by the rise of the Fraser River. The river is now being dyked out by the Government at a cost of £75,000. Already 2500 acres have been reclaimed, show; the dyking is to be successful. This land has been formed through ages by the river deposit, and is therefore inexhaustible. It is now being sold out to settlers at £10 per acre, fee simple, and is considered the cheapest land in the Province. Away back in the Second Terrace, already referred to, in the Nicola and Okanagan valleys of the Yale district, and in both the Kootnays there are large extents of very good soil, in some parts, as in the Okanagan section, requiring irrigation, and in others visited with a sufficiently abundant rainfall.

Lord Aberdeen's Enterprise.

In the Okanagan district the Earl of Aberdeen has purchased a large tract of land, which he intends to apportion out to settlers. His Lordship has started two large farms there on his own account, which are giving good results. He has gone largely into fruit-growing and hop culture, and this year the crops are remarkably rich. He is shortly to erect a fruit cannery, which will afford a ready market for the fruit grown in that neighbourhood. At Agassiz the Dominion Government has established an experimental farm. Every kind of grain, vegetable, and fruit likely to succeed in a temperate climate is tried here, and settlers can obtain free such seeds and cuttings as have proved suitable to the country. In the best districts the good land is mostly all sold to settlers, or is in the hands of speculators, who sell it out to new-comers at the prices already indicated, but further up the country the Dominion Government yet possess millions of acres, which they offer to settlers free, in farms of 160 acres, with powers to purchase at very low prices up to 640 acres. A good deal of difficulty must be encountered in clearing these lands, but, the clearing accomplished, the abundant yield and good prices obtained for agricultural produce on the west coast, together with a reasonable amount of industry, steadiness, and perseverance,

are sure to command success. There is a steady

Demand for Labourers

all throughout the Province. White labourers are preferred, but the scarcity of these causes great numbers of Chinamen to be employed. Farm servants are paid from 4s to 6s per day, with rations, and Chinamen from £3 12s to £4 per month, also with rations. Ten hours per day, or sixty hours per week, are supposed to be the hours of labour, but in busy times the rule is from sun-up to sun-down, without any extra remuneration. Emigrants going to British Columbia are best to take ship to Montreal, a steerage passage for an adult costing £4, children from five to twelve half-price, under five years of age free. Thence they go to Vancouver by the Canadian Pacific Railway. The railway fare is £7, the distance between Montreal and Vancouver being nearly 3000 miles. Rations are supplied free on shipboard, but on rail passengers have to purchase their own food, facilities for which are given at suitable stations on the route. The whole distance from Britain to Vancouver, nearly 6000 miles, occupies about eighteen days. In concluding this letter, I would return my best thanks to Mr De Wolf, a large and successful rancher and fruit grower in the Valley of the Chilliewack, who afforded me most valuable information as to the prospect and capabilities of the land for farming purposes. Mr De Wolf met us by mere chance when being ferried across the Fraser River, and on learning that we came from Scotland surprised us by asking if we knew the firm of Messrs Thomson & Sons, proprietors of the *Courier* and *Weekly News*, Dundee, when we were proud to confess ourselves the representatives of a firm so well and favourably known, even at the very gates of the Orient.

VISIT TO VANCOUVER ISLAND.

ITS AGRICULTURAL FEATURES.

INTERESTING STATISTICS.

CHINAMEN IN AMERICA.

(From the *Dundee Courier* of October 17.)

Mr Andrew Osler, the *Courier's* Agricultural Commissioner to America, writes:—

Putting up all night in a commodious wooden hotel in the little town of Chilliewack, I asked a waiter to have my boots blacked and ready for me in the morning. He looked indignant at the request, but showed me a shed outside where I got blacking and bushes and performed the operation myself. This was the first Canadian hotel in which they refused to do the shining process, but when in the States I found that the blacking of boots was not included in the hotel arrangements, there being separate establishments for hairdressing and boot-blackening. At Chicago I went into a barber's shop, the floor of which was actually paved with real silver dollars, and got my boots "shined" by a darkey whose fingers sparkled with gold rings, and who charged me 25 cents for the operation. But to return to Chilliewack. After breakfast, who should step into the room but our quondam friend Sandy Macdonald? He told us he had his buckboard at the door, and would drive us to a jetty on the Fraser, where we would get on board a flat-bottomed steamer, propelled by a single broad paddle wheel in the stern, and be steamed to New Westminster. When going along to the jetty

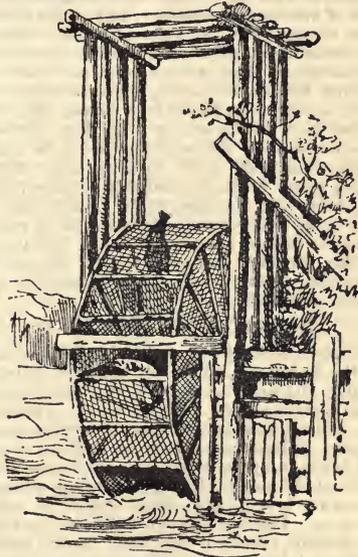
Sandy pointed out a piece of pasture ground which showed

A Perfect Sward of Clover,

and explained that about twenty years ago he accidentally got a large section of the timber part of his ranch burned. He got a parcel of clover seed, the first ever sown in the province, and strewed it amongst the ashes, where it struck root, and has flourished luxuriantly ever since. On the steamer there were about three score of cattle being conveyed to the fat market at Vancouver. They were mostly shorthorn and Hereford grades, would weigh about 10 cwts. on the hoof, and were in what we at home would call good store condition. I was told by a local dealer that they would realise about £11; they were merely grass fed. A good many carcasses of calves were hanging in the hold of the boat, and they appeared to be well fed and good weights. I was told they had all been sucklings. The general cargo of the boat was Timothy hay, which was being sent to Victoria, where it would bring from £2 10s to £3 per ton. Stepping off the boat at New Westminster, where there was a commodious, well-equipped harbour, we went straight to the Government Land Office, where we were courteously

Received by the Crown Agents,

who kindly gave us all the information in their power, and showed us round the town. I have already said the chief industries of this city are its lumber mills and salmon canning establishments,



SALMON WHEEL ON COLUMBIA RIVER.

nearly all the tinned salmon imported into Great Britain coming from here. From New Westminster—or, as it was formerly called, the Royal City—we went by electric railway to the enterprising City of Vancouver, a distance of 12 miles, up and down some very steep gradients, in little over half an hour. From Vancouver, which is the terminus of the Canadian Pacific Railway, we crossed the Gulf of Georgia, on the magnificent steamer Premier to the great city of Victoria, the capital of the province situated in the south east extremity of the Island of Vancouver. Victoria has a population of 25,000, is principally built of granite, and contains many