BRITISH ARTISAN EXPEDITION TO AMERICA

Sir Frederick A. Abel Bart.
Imperial Institute S.W.

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TO

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DUNDEE COURIER and DUNDEE WEEKLY NEWS

NEWSPAPERS.

This Volume contains the following:—

OBJECTS OF EXPEDITION.
SELECTION OF DELEGATES.
REPORTS BY DELEGATES.

ALSO,

THE DUNDEE COURIER'S

SPECIAL AGRICULTURAL COMMISSIONER'S VISIT TO CANADA,

AND TRIP TO THE PACIFIC.

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PREFACE.

In response to numerous requests from readers, both at home and abroad, the reports of the members of the *Dundee Courier* and *Dundee Weekly News* Artisan Expedition, which have for some time been appearing in these newspapers, are now published in a more permanent form. By the aid of the classified indexes the information gleaned by the elected representatives of British wage-earners during their tour in the United States and Canada is rendered more accessible, the volume forming an altogether unique book of reference as to the conditions of wage-earners on the other side of the Atlantic. Some idea of the magnitude of the enterprise, and the distance travelled by the delegates in the course of their journeyings, may be gathered from the following list of the places visited, the main body of the Expedition having pursued their inquiries at Montreal, Toronto, Niagara, Chicago, Pullman City, Pittsburg, Washington, Philadelphia, and New York, while detachments on special missions called at St. Paul, Minneapolis, Orange, Holyoke, Bessemer, M'Keesport, Fall River, Providence, Paterson, N.J., Nova Scotia, St. John's, N.B., Banff, Chilliewack, New Westminster, Edmonton, Calgary, Regina, Brandon, Napinka, Winnipeg, Vancouver, and Victoria, B.C.

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ARTISAN EXPEDITION

TO THE

WORLD'S FAIR, CHICAGO,

ORGANISED BY THE

DUNDEE COURIER AND THE DUNDEE WEEKLY NEWS.

A TOUR OF OBSERVATION,

TO GET

"INFORMATION REGARDING THE CONDITIONS OF THE AMERICAN WAGE-EARNERS, HOW THEY LIVE, WHAT KIND OF HOUSES THEY HAVE, WHAT HOURS THEY WORK, WHAT LEISURE THEY ENJOY, WHAT KIND OF FOOD THEY GET, &C."—*(Mr. D. C. Thomson's Letter, 27th April.)*

TRIP TO THE PACIFIC.

The following pages contain a full account of the objects of the Expedition, the method adopted in selecting representatives, and sketches of the successful candidates.

DUNDEE:
W. & D. C. THOMSON, "DUNDEE COURIER" AND "DUNDEE WEEKLY NEWS" OFFICES.
1893.

NOTE.

The first announcement regarding the Expedition, of which a reprint is attached, was made on the 18th of March, and it was hoped the selection of members might be completed in a few weeks, but owing to the unexpectedly large influx of nominations—over 2500—the enormous vote in both ballots, and the great interest in the scheme manifested by the public in the shape of letters of suggestion, every one of which received careful consideration, it was quite impossible to arrive at the choice of members before 27th May. Probably there has never been before an election in which there were so many candidates. In a general election there is not half that number.

While the method of selection has entailed on the staff of the paper a large amount of extra labour, we have the satisfaction of knowing that the members of the Expedition are thoroughly representative men, and it is questionable whether a better system could be hit on to choose men who would have the confidence of fellow-workers than by organising the matter through the columns of a great paper like the *Weekly News*, with its 250,000 copies a week circulating not only all over Scotland but over large parts of England and Ireland.

It will be observed that a very important announcement is made regarding the *Weekly News* Workingmen's Tour in America, in the reprint from that paper of the 10th June. The result of the inquiries at present being made in America by Mr Frederick Thomson as to how to make the most of the opportunities that can be brought within the reach of the Expedition is that it has been decided to send a detachment of the members across the whole extent of the American Continent to Vancouver on the Pacific Coast.

People accustomed to reckon the length of the railway journeys by travelling in this country can form no conception of the enormous distance by a continuous route that must be traversed before Vancouver can be reached. The actual distance by rail from Montreal is 2906 miles, and the time required for the run from east to west is six days.

Anyone who wishes to form some idea of the space that has to be covered should get the map and see what a railway journey from Dundee, Edinburgh, or Glasgow, for instance, to any point of the compass 6000 miles distant would mean. Eastward it would bring you to the capital of China; holding south-west land you near the River Plate; southward set you down at the Cape of Good Hope; and if the route curved away to the south-east set your feet in the centre of our Indian Empire. The poet's conception of what were the extremes of the universe is expressed in a well-known couplet, but the journey to be undertaken by members of our Expedition, it will be observed, is equal to a trip either to China or Peru.

This important development is an evidence that the proprietors of the *Weekly News* are open to consider every proposal that seems calculated in any way to promote the success of the Expedition, or add to the comfort and pleasure of the members. In this direction they are fortunate in having the advice and assistance of many well-wishers on both sides of the Atlantic, so that the facilities which the members will have afforded them will be of an exceptionally favourable kind.

DUNDEE WEEKLY NEWS

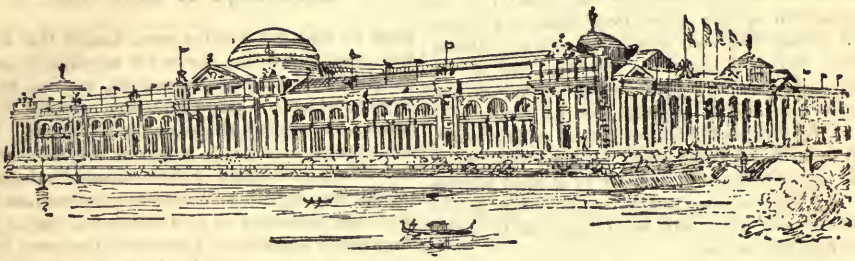
WORKINGMEN'S EXPEDITION

TO THE

WORLD'S FAIR, CHICAGO.

A TOUR OF OBSERVATION.

(From the "Dundee Weekly News" of 18th March, 1893.)



THE AGRICULTURAL BUILDINGS, WORLD'S FAIR.

Recently, while making an extensive tour through Canada and the United States, Mr. D. C. Thomson, of the *Dundee Weekly News*, conceived the idea that much might be done to raise the quality of skilled labour in this country, and to improve the social and physical conditions of life in an industrial community like ours, were British working men afforded an opportunity of inspecting and observing the methods of work as applied to their respective trades in America. The time has arrived which seems peculiarly favourable for the realisation of such a scheme. The holding of the Columbian Exposition at Chicago presents an occasion for yielding practical and immediate benefits to the vast body of the working classes such as has never before offered, and the proprietors of this paper mean to give readers the chance of profiting by the stimulus that is sure to be lent to all departments of human progress by this unparalleled undertaking. Chicago will this year be the Mecca of the universe. Every road will lead to that city, which is not extravagantly called "the Eighth Wonder of the World."

Can Working Men Go?

We answer yes. We consider that it will be for the lasting benefit of the country, for the good of the wage-earners, that Great Britain should be represented at the World's Fair by intelligent artizans or operatives, who, investigating and examining from the working man's standpoint, will be able to accumulate valuable information from new and outside influences. They will have the opportunity of becoming familiar with the productions of the various nations of the world, of inspecting the most recent developments of mechanical skill, of comparing the methods relating to their respective trades, and so be able to judge of the productive capacity of labour; and in a thousand other ways they will be able to discover something worth communicating or adopting. From these shores thousands of people will set forth to visit the Columbian Exposition, but these will be well-to-do people, most of them bent on a pleasure excursion, and able to pay the large cost of such a trip. But apart from the notion of the unique spectacle that the World's Fair will present to the sightseer, it appeals to a higher sense, for it is the biggest object lesson that the industrial world has ever beheld. That lesson working men can derive more advantage from than any other class of men, for there is the prospect held out to them that by increasing their skill they are able to

Command Better Wages,

and, consequently, an increased enjoyment of material comforts. Another advantage which is offered to the working classes is the facility which it affords of inquiring into the labour problem, into the cost of living, and the scale of wages as compared with the production of work. Then beyond that must not be forgotten that the representation of British working men at the World's Fair would tend in the highest degree to promote, strengthen, and extend those fraternal relations and mutual benefits which link together the two great branches of the English-speaking race. That the wage-earners of Scotland, England, and Ireland may not be excluded from participating in any of the

benefits enumerated, the proprietors of the *Dundee Weekly News* have decided to arrange a

Tour to America.

The cost of this expedition will be large, probably the largest of any expedition of the kind, but, adhering to the principle which has always guided the conductors of this paper never to shrink from spending on what would be for the good of the readers, they have drawn up a scheme which will enable the working classes of this country to be represented by men drawn from their own ranks, and animated by their own hopes and aspirations. These men will cross the Atlantic, and in the course of their tour in America see things and inquire into things, not from the rich man's point of view, not from the leisured man's point of view, but from the working man's point of view, from that aspect which will not only be of most interest to the wage-earning classes on this side of the Atlantic, but which will be of most use to them. The members of the

"Dundee Weekly News" Expedition

will have their routes, steamship lines, trains, and hotels chosen with a view to their having the maximum of comfort and satisfaction as far as it is possible in travelling the 8000 to 10,000 miles involved by the journey. They will have such facilities as will enable them to see the more remarkable scenery on the way, such as the Falls of Niagara, and other sights too numerous for mention here. At Chicago they will have facilities afforded them of making an exhaustive examination of the World's Show, and of devoting particular attention to those departments in which most information is to be gained for the use of fellow-readers of the *Weekly News* at home. Time will also be given to examine the varied industries of Chicago, such as the iron and steel works, the car-building works, the farm machinery works, the stock yards, the beef and pork packing factories, &c., &c.

A Chance Visit to Friends.

There may also be opportunities for short side trips to places of interest within easy reach of the route, and for visiting friends on or near the route, who will, no doubt, extend them a hearty welcome. rrangements will be made to assist them in inquiring into the conditions of labour, such as the rate of wages, factory regulations, hours of labour, hours of leisure, cost of food, cost of clothing, the rent, taxation, and transportation from house to work. They will have, likewise, all reasonable facility for making inquiry into any special question, such as the relations of capital and labour, railway systems, applications of electricity, system of government, land laws, &c., &c. From various points the members of the expedition will forward their notes to the Editor of the *Weekly News*, so that readers may not only know from time to time the progress of the party, but benefit through having their own representatives writing about what they see at the Show, and profit from the result of their investigations into the conditions of labour amongst "Our Kin Beyond the Sea." Those who can take

Advantage of This Offer

must be *bona-fide* working men, though this term may be applied to any person not an employé, such as a village blacksmith, cartwright, crofter, small farmer, or jobbing tradesman who executes work himself, and is not a large employer of labour. We insist that the candidate must bear a good character. The agricultural and the mechanical industries should have at least one representative each, as for the other industries to be represented that is for the readers to decide. Remember the entire cost of the expedition will be defrayed by the proprietors of the *Weekly News*, so that no working man need hang back from the fear of expense. The selection of representatives will be, subject to certain conditions, left to the judgment of readers themselves. There will be in it nothing of the elements of chance. The matter will be put to the vote. If one man finds that he cannot go he can help a friend to succeed in his attempt, and those who wish to promote the interest of their particular trade by hoping to gain a knowledge of the latest Yankee wrinkles can try to gain that end by their votes. If there is any obstacle in the way of any man who desires to take advantage of our offer, we shall be glad to hear what it is in case it may be possible to remove it. In making this important announcement, which we do with great pleasure, we desire to ask the hearty co-operation of our readers and all friends in bringing our proposal under the notice of all whom it may concern. We invite anyone who has a suggestion to send it n, and any point which has not been foreseen, and may be subject to difference of opinion, will be fully discussed in our columns.

No nomination can be accepted unless on the form given below to be cut out. Friends on same farm, or living in same hamlet, village or town, may enclose nomination papers in one envelope, and the voting is open to all readers of the *Weekly News*.

Further particulars will be given next week, but meantime any man who is a candidate may send in his nomination on the annexed form, signed by himself and two friends.

Those Who Want to Go

should secure recommendations regarding their character and fitness, and the subjoined form must be filled up and sent to the *Weekly News* Office without delay.

TO THE READERS.

ON THE SELECTION OF REPRESENTATIVES

(From Weekly News of April 29th.)

It has been suggested that a word or two from me at this stage of the election of representatives might not be inopportune. At the time of writing it is impossible to name even one man who will be in the first leet, but judging from the names of men who stand high by the votes already in, the readers are showing that they are taking an earnest and intelligent interest in promoting the election of delegates who will be not only a credit to themselves but to the wage-earners of this country. Everyone who has the welfare of the people of this country at heart must be anxious to see the right men chosen. The sum which the Expedition will cost this paper will be very large—nothing on such a scale has ever been attempted before by private enterprise—but that sum will be small as compared with the monetary advantage which should accrue to the wage-earners of this country if, through having the right men, we are enabled to carry the scheme to a successful issue.

If through the information got by the delegates the readers of the papers should benefit to the extent of only a pound each it would mean an increase in the wealth of the country of over a million sterling! This country is now passing through a period of great industrial depression, and many workers are feeling the brunt of it. If, through the information got, any means could be arrived at for dispelling or even decreasing this depression, which is now sapping every industry in the land, the advantages would be incalculable, the workers would get better wages, the unemployed would get employment, thousands now face to face with starvation might get the means of subsistence for themselves, their wives, and families. Apart from this other advantages are many. Information regarding the conditions of the American wage-earners, how they live, what kind of houses they have, what hours they work, what leisure they enjoy, what kind of food they get, should help our people to compare the respective conditions of the two peoples divided by the Atlantic and should point to the direction and show on what lines improvements on this side might be effected. Anything that can tend to increase the health and happiness of the people cannot be measured in money.

It is not to be supposed that immediately the Expedition returns from America this country is suddenly to be changed into an Utopia. Progress is often of slow growth. The acorn does not grow into the oak in a day, but any man who gives the matter a few minutes' serious consideration will readily see that reliable information on the conditions of our kin beyond the sea must be invaluable, and that, whatever drawbacks there may be to life in America, with such a go-a-head people as the Americans, there must be many methods and institutions, the introduction of which would benefit our country. With this fully in view, every reader will realise that the choice of delegates is a matter of the utmost importance. It should not be made in anv haphazard way. Even a single vote wrongly cast may cause a serious loss to the wage-earners, should it aid any one but a right man to go. No one should record his vote before first reading carefully every line concerning the Expedition.

I am satisfied that the great majority of the readers are fully alive to this, but I have before me complaints which I think call for mention. One is that the complainer has been asked to vote for a man who wishes to cross the Atlantic with the Expedition, and then desert it without sending the slightest report home, or returning communicate to his friends and fellow-workers the information he has gleaned in America. The other is that one party who is a candidate would require an attendant to look after him. I think there is little occasion for fear of any such men getting on the short leet if the readers will vote for steady, respectable men who are thoroughly competent to enquire and report, and who will return to give the benefit of their investigations to the people who elect them. In any case no candidate who is successful in the balloting, and can show that he is qualified, will have any hesitation in furnishing such information as to his record as will satisfy us. Meantime, while pushing on the arrangements with all possible speed, I may express the hope that every reader will vote conscientiously, and counsel his friends and neighbours to do the same, so that there may be no necessity for our intervention against anyone; and, if the results of the Expedition are as beneficial to this country as I anticipate, I shall consider the project amply justified, and look back to its conception and carrying out with the greatest pleasure and satisfaction.

D. C. Thomson.

THE MEN ELECTED.

SKETCHES OF THEIR LIVES.

INDUSTRIES REPRESENTED.

ACTIVE SOCIAL REFORMERS.

[FROM "DUNDEE WEEKLY NEWS" OF 27TH MAY.]

The announcement we now give of the candidates chosen by the readers of the *Weekly News* to represent the industrial classes of Scotland, north of England, and north of Ireland marks the first and and in some ways the most important step in the scheme—the choice of good men to journey to the great Exhibition on the shores of Lake Michigan. We think we can confidently congratulate the readers on the selection, which as a whole, is as representative as the most sanguine could wish for within the limits by which such a scheme is necessarily circumscribed. We only wish we could have sent ten times the number—there has been such a plethora of good men—but even a Chancellor of the Exchequer with a big surplus would hold his breath at that. The only expedition of the kind from this country we know of was one to the Paris Exhibition. We question whether that scheme cost anything like the money that the *Weekly News* Expedition will do. From London to Paris is not much more than a twentieth of the distance between London and Chicago. A visit to the French Exhibition meant a visit to one city—Paris. A visit to the American Exhibition means visits to Chicago, Montreal, Toronto, Niagara, New York, Philadelphia, and other large places. Did these men see anything outside of the Paris Exhibition? And what facilities had they for making inquiry amongst people speaking a foreign tongue? The Exhibition at Chicago is only one item, and the people in America speak English.

In the opening announcement it was stated "the selection of representatives will be, subject to certain conditions, left to the judgment of readers themselves." The principal conditions were :—(1) that no trade and no locality should have an undue preponderance, but that in the membership of the Expedition due consideration should be given to the fairest possible representation, both in trade and geographical aspects; (2) that due consideration should be given to what is to be seen and learned in America; (3) that candidates on reduced list should have an opportunity of demonstrating their fitness to represent their fellow-workers, and to investigate and report on the conditions of labour amongst our kin beyond the sea. In the opening announcement it was also stated that "the agricultural and the mechanical industries should have at least one representative each." That both these industries will be well represented is apparent. At first it was intended that we should send two or three men only in addition to the two industries mentioned, but the enthusiasm in the scheme so far exceeded our anticipation that we decided to carry the scheme out on a much larger scale, and in its extended form we present it to-day.

To a considerable extent we go on the lines of the departmental division of the Exposition itself, which we have already given. But in making the classification, which should help us to arrive at the best possible representation, we have had the assistance and advice of able experts, who have not only served regular apprenticeships themselves, but have come in contact with nearly every trade, and been to all parts of the world. Then we have arranged for an able and thoroughly qualified conductor of large experience to accompany the Expedition, so that the members while travelling in the greatest possible comfort, and having all arrangements made for them, will not only by division of subjects for inquiry make the most of their opportunities but also have such leisure by methodical expenditure of their time as will make the trip of a holiday nature as well. As intimated also in a previous issue, Mr Frederick Thomson of this paper, who is now on his way to America, and due in New York to-day (Saturday), has gone to further facilitate matters, so that nothing may be left undone which can contribute to the Expedition being carried to a successful issue.

Agriculture, &c.

First of all, then, in the classification we took all the trades included or allied with the tilling of the soil. Without agriculture life on this globe would come to an end, and therefore every industry is dependent on this. The United States stands at the head of all the countries in the world, with an annual production of over £600,000,000; while the United Kingdom only takes sixth place. As everyone knows, we are indebted to America not only for breadstuffs, but also for beef, and the condition, therefore, of farming and farmworkers across the ocean must be of great interest not only to agriculturists, but also to readers generally.

JAMES TAYLOR.

(Portrait from Photograph by Taylor, Arbroath.)

James Taylor, of Raesmill, near Arbroath, the representative of this department, was born in 1864 on the farm of Whitebrae, near Forfar, of which his father was for nineteen years tenant. The Taylors removed in 1874 to Raesmill, on the Earl of Northesk's Ethie estate. The subject of the sketch received the greater part of his education at the Public School of Inverkeillor, of which the late Mr James Bower was teacher. There he received a good solid education, and after one year at the High School of Arbroath he was taken home to work on the farm. He was first instructed in farm book-keeping, next discharged the duties of cattleman, and afterwards as ploughman became fully

qualified for every description of agricultural work. His father being unable through indisposition to manage the farm, appointed his son farm manager, but this did not imply that he should be done with manual labour. On the contrary, no one works harder, and he is ever ready to put his hand to anything. He is thoroughly versed in everything pertaining to a farm, "from the stock looking after to the clearing out of a pighouse," and the farm of Raesmill, in no small degree due to his industry and push, is known to be one of the best in the country. Thoroughly acquainted with the working and management of land, Mr Taylor recognises that in America he will find much worth inquiring into. He will devote special attention to all appliances connected with agriculture, note the differences that exist, and judge their merits. He will report on the breeding and raising of live stock, observe the condition of the farm labourer, and make every use of the opportunities that come in his way for the advantage of agriculture at home, and which can in any way promote the welfare of the farm servants.

ANDREW OSLER.

(From a Photograph by Mr Clark, Forfar.)

Mr Andrew Osler was born in the year 1841 on the farm of Mearns, on the Kinnordy Estate, near Kirriemuir—now famous as Thrums—which was tenanted by his father, the late Mr John Osler. For many years Mr Osler attended the school at Faskhillock, but received the latter part of his education at Kirriemuir Parochial School. He then served an apprenticeship in the office of the late Mr G. B. Brand, solicitor and banker—his office training proving most useful to him in after years. Owing to his father's failing health, however, Mr Osler left his desk to follow the plough at his father's farm. In 1865 his father leased the farm of Kintyrie, also upon the Kinnordy estate, and Mr Osler was sent there as manager, and latterly he became tenant. Mr Osler has led a most useful public life notwithstanding his agricultural pursuits, for he was for several years a member of Kirriemuir Parochial Board, and 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. Mr Osler, however, is best known in the district as secretary of the Kirriemuir Agricultural Association, to which Society he has acted as secretary for fifteen years. Mr Taylor is chosen as representative, as Mr Osler withdraws from competition for a place on the Expedition. He is, however, being sent part of the way with the Expedition to render assistance, and he leaves the party at Chicago on a special mission.

The following are the highest votes in the Second Ballot :--

ANDREW OSLER, Kintyrie, Kirriemuir, ...	1626
JAMES TAYLOR, Raesmill, Arbroath, ...	640
JOHN DUNCAN, Dundee, ...	533
NEIL M'LEAN, Paisley, ...	434
JAMES ALLAN, Glasgow, ...	422
A. BOWMAN, Glasgow, ...	331
W. T. REID, Dundee, ...	302
GEORGE ROSS, Keith, ...	247
HARRY HILL, Shian Bank, Scone, ...	222
ALEX. LOWE, Craigo Home Farm, ...	166
W. HASTINGS, Ayr, ...	153

Mechanical Industries, &c.

We next come to engineering and allied industries. Even the agriculturist does not manage to move far without the aid of the mechanic. The most primitive implement known—namely, the wooden plough—shows a striking mechanical advance from the spade, and now the agriculturist has got the mechanic to aid him in nearly every operation of cultivation, and has not only many labour-saving implements, but also steam, and in some parts electricity, at his command. There is hardly an industry, indeed, in which the mechanic does not play his part. Without him we could have no railways, no steamboats, no mills, no factories. In this department an engineer who has been through all branches of his trade heads the poll.

EBENEZER BENNETT.

(Photograph, by Electric Light, by Lyd. Sawyer, Newcastle.)

Ebenezer Bennett, engineer, Newcastle-on-Tyne, brings to the aid of this department an experience which amply justifies his selection. He is a Scotsman, having been born at Kirkcaldy in 1851. Having received the rudiments of knowledge at Abbotshall Parish School, he was entered as an apprentice for seven years to the Messrs J. J. Brown & Co. Kirkcaldy. This firm had a wide reputation for the production of general engineering work, and their specialty was printing machines. It was a splendid place for an energetic lad to learn his trade, and some of the men that it turned out rose to fill good positions. Not long after becoming a full-fledged journeyman, Mr Bennett was attracted to the Clyde, and he got employment in the workshops of Messrs Rankin & Blackmore, marine engineers, Greenock. His next employment was with Messrs Randolph & Elder, Glasgow, where he gained further experience regarding the construction of marine engines. Having decided to try his fortunes in England, Mr Bennett got employment with Messrs Clarke, Chapman, & Co, Gateshead-on-Tyne, general engineers and boilermakers. With this firm he was engaged for eleven years, and for nearly half of that time filled the position of outside foreman, which gave him abundant opportunity of obtaining a general acquaintance with other

trades, as he had members of other trades under his personal supervision. Seven years ago Mr Bennett entered into the service of Messrs C. A. Parsons & Co., electrical engineers, and at present he has charge of the dynamo department of that firm. Such a varied experience makes him well fitted to inquire into engineering matters, and his knowledge of the handling of tools suggests to him the advantage of investigation into the cause why American tools are far ahead of English ones. Writing on this subject he says, "as the tool exhibits are almost certain to form a very important feature of the Chicago Exhibition, I think that the opportunity for investigation therein offered will be of the most favourable character. A little judicious inquiry might enable us to come to some conclusion as to whether this superiority is due to any superior sharpness on the part of American workmen in improving or adopting our old-fashioned tools, or whether it is that patents are more easily procured in the United States than in Britain, or that our cousins are quicker in seizing ideas to their own advantage." Mr Bennett, outwith the sphere of trade matters, has led a busy life, and he has been an active worker in various social movements. He has taken a leading part in the friendly society movement since he went to Tyneside. Becoming a member of the Order of Druids (Newcastle Equalisation District), he held the office of secretary for nine years, and for two years he was District Grand Master of that powerful body. In 1887 he succeeded, after much effort, in getting a Burns Club established at Gateshead. It is now a thriving institution, and Mr Bennett still retains the post of secretary. He has been also four years treasurer of the Newcastle Scottish Association. In addition to all this he is a man of first class character, a man who is held in respect both by master and workmen for his integrity as well as ability.

The highest votes in the Second Ballot were :—

EBENEZER BENNETT, Newcastle, ...	545
WM. JOHNSTON, Newcastle, ...	497
ALEXANDER ANDERSON, Bonnybridge, ..	486
C. F. WHITE, Newcastle, ...	407
WM. M'LEOD, Glasgow, ...	403
JOHN M'EWAN, Glasgow, ...	399
JAMES RAMAGE, Greengairs, ...	361
NEWBY H. WILSON, Sunderland, ...	359
JAMES YOUNG, Kirriemuir, ...	355
THOMAS HAMILTON, Glengarnock, ...	350
ANDREW HALL, Dalmuir, ...	313
ANDREW M'CALL, Dundee, ...	301
WM. LAWRIE, Coatbridge, ...	290
WALTER S. COUPER, Glasgow, ...	257
JOHN BUCHANAN, Glasgow, ...	255
JAMES CRUICKSHANKS, Govan, ...	246
DAVID STEWART, Dundee, ...	244
JAMES PEATTIE, Tayport, ...	240

Mining, &c.

We come next to mining. Without mining we could have neither iron nor coal, and without coal engineering skill in the manipulation of iron would not have reached the high pitch of perfection it has now attained. Neither would we be able now without coal to be travelling so freely and rapidly by rail or sea as we do, or have such factories as we have. Without coal instead of six weeks an Expedition like ours would probably have occupied not less than four months in getting to Chicago and back. There is to be a large exhibit of mining appliances at the World's Fair, and between that and visits to a mining district we look forward to information which will benefit a large part of our population, whose occupation is not carried on under the most favourable conditions. It will be of special interest to know how the American miner fares and how his lot compares with that of his kin on this side of the sea.

ROBERT A. MUIR.

(From Photograph by Messrs Prophet, Dundee.)

Robert A. Muir, who has been chosen to represent this section, was born in Dunfermline twenty-nine years ago, and brought up in the small village of Hill of Beath, which is the centre of the Fife coal field. At the age of thirteen years, he ran away from school, and was sent to the pit. The first job he got was to keep a trap door, then driving a pony, and hang on hutches at the foot of an incline. After a time he was sent to the colliery office for about three years, and then sent back to the pit again, and has been constantly employed in and about the pit since that time, and during that period he has been at all the different kinds of work about a pit, both below and above ground. Since he was about twenty years of age he has attended the evening classes held in Dunfermline High School, where he has been taught arithmetic, algebra, geometry, freehand drawing, chemistry, machine construction and drawing, mechanics, steam, and mining. When the Fife Mining School was opened in 1890 he was among the first to be enrolled, and in that year he won the first prize for mining and the first prize for mechanics. In the following year he was able to obtain a first-class certificate of competency for colliery management. In the beginning of the month of March this year he was again brought out of the pit in connection with the drawing out of the arrangements of a large new colliery which is being put down by the Fife Coal Company at Kelty. This will be the largest colliery in Fife when completed, and probably the largest in Scotland. Mr Muir has visited most of the best collieries in Scotland. He is a man of varied accomplishments, and has a ready facility both with pen and pencil. The thorough grasp that he possesses of the practical and theoretical principle of mining is proved by excellent papers on "The Practical Application of Electricity to Mining" and "Coal Mining Past and Present." Speaking of the future of mining, Mr Muir points out in one of these papers that "there are large areas of coal below the sea which will require to be brought to shafts sunk on the land. This will require a special kind of haulage, and one which is now making rapid headway in mining matters—namely, electricity, will be called into requisition, because it is found that to put in ropes or chains heavy enough to do the work required there is a great amount of power absorbed in overcoming the friction of the heavy moving parts."

The following are the highest votes in the Second Ballot:—

R. A. MUIR, Hill of Beath, ...	1627
WILLIAM SIMPSON, Hill of Beath, ...	1010
WILLIAM HOLMAN, Cowdenbeath, ...	586
T. B. ANDERSON, Penicuik, ...	556
DAVID STODDART, Edinburgh, ...	525
WILLIAM M'ROBERTS, Carluke, ...	426
JAMES MURDOCH, Bellshill, ...	410
GEORGE M'MURDO, Catrine, ...	395
J. M'BRIDE, Airdrie, ...	333
JOHN SMART, Lochgelly, ...	294

Building, &c.

As far back as man's existence on this globe can be traced there are evidences of his being a house builder. At Chicago will be seen the greatest contrasts in house erection that have ever been brought together. There is to be an exhibit of the residences and buildings of all races, from the primitive huts of the South Sea Islanders to the Mammoth office buildings with a score or more storeys. In the Chicago buildings the engineer again plays a most prominent part, for these large piles are to a large extent constructed of iron and steel, like a series of bridges, or somewhat like the framework of an iron ship. By this method the stonework can be much lighter, as it bears a very small proportion of the weight of the building. Indeed, it is no uncommon thing to see the masons busy on the wall three or four storeys from the ground, while underneath nothing but a forest of iron columns and beams can be seen. In this department there are two representatives, but all the members of the Expedition will take an interest in the homes of the American people. Everyone is interested in having a healthy and comfortable and convenient house.

JOHN SINCLAIR.

(From a Photograph by R. Milne, Aboyne and Cambuslang.)

John Sinclair, mason, 8 Clydeford Terrace, Cambuslang, who has been elected to represent this department of labour is thirty-six years of age. He was born and brought up in Cambuslang, and was first sent to learn the trade of a blacksmith. Then he served an apprenticeship as a mason, and, as showing his adaptability, it may be mentioned that he has been employed for lengthy periods in both trades, though it is as a mason that most of his life has been employed. He is a man who can turn his hand to many things, and his taste for engineering and his capacity to use his hands is evidenced by the construction of many ingenious contrivances. One of the employments of his leisure time was to constuct a small locomotive engine which works admirably. The subject of horticulture is one on which Mr Sinclair is a keen enthusiast, and his fame as an amateur grower of flowers and fruits is known far beyond his native parish. When only thirteen years of age, with the help of a comrade he managed to erect a small greenhouse, and was rewarded in the following summer by securing three prizes at the local flower show—not a bad performance for a boy of fourteen. Since then Mr Sinclair has occupied a front place amongst amateur gardeners in the West of Scotland, and he has managed to carry off as many as thirty prizes in one season. He is an expert grower of vines, and at the great horticultural show in Glasgow took the first prize with his exhibit of grapes. As a man, Mr Sinclair is held in high respect for the great interest he manifests in religious, social, and philauthropic movements. He has appeared with success on the public platform, and has had considerable intercourse with various classes of people, a visit to the Paris Exhibition being amongst the experiences of his busy life.

The following are the highest votes in the Second Ballot:—

JOHN SINCLAIR, Cambuslang, ...	546
WILLIAM MITCHELL, Dundee, ...	386
JAMES FLEMING, Peebles, ...	242
JAMES DAVID, Dundee, ...	208
PETER CRUICHSHANK, Peterhead, ...	120
ROBERT LENNIE, Airdrie, ...	119
MICHAEL HIRSON, Stockton, ...	151
JOHN CROLL, Aberdeen, ...	106

Woodwork, Furnishing, &c.

THOMAS LOGAN.

(From a Photograph by Ovinius Davis, Glasgow.)

Thomas Logan, 157 Shamrock Street, Glasgow, is thirty years of age, and a native of Glasgow. He learnt his trade with Messrs Wylie & Lochhead, and then proceeded to Manchester, where he was for a short time in the employ of Messrs Kendel & Milne. Returning to Glasgow, he entered the workshop of Messrs A. M'Kay & Co., art furniture makers, and he has now been in the employment of that firm for nearly eight years. Mr Logan's qualifications are of the highest. A man of irreproachable character, and esteemed for his genial nature, he has the reputation of being a first-class workman

while the honours he has won testify to the possession of exceptional talents, and show how diligently he has applied himself to acquire a thorough technical training. Mr Robert Donnan, art master, Kent Road Art Classes, Glasgow, has among others written a strong recommendation in favour of the successful candidate. Mr Logan's work at these classes during the last five years, we are informed, "has been characterised by ability and care very much above the usual standard. This is evidenced by the fact that every session he has been successful in winning prizes. Last session, in addition to local prizes, he succeeded in gaining two 'National Book Prizes' for modelling from the life and designing. These prizes are competed for by students from all parts of the country, and I consider the gaining of two to be the best evidence of abilty a man could have." Mr Donnan concludes—"I am certain the *Dundee Weekly News* and the workmen of Scotland could not have a better representative." A perusal of the list of honours that have fallen to Mr Logan will strengthen this conviction. In Glasgow in 1889 he won first prize for modelling ornament, and at Glasgow, 1890, first prize for best design for surface decoration. The same year at South Kensington he gained a Queen's prize at the national competition open to Great Britain. At Glasgow in 1891 he had first prize for decoration, and in 1892 gained two prizes for modelling and design, also, as mentioned above, two national prizes at South Kensington for modelling from life and ornamental panel. Specimens of Mr Logan's artistic skill were shown at the Glasgow East End Exhibition, and at present he has a figure on exhibition at South Kensington, and a "Study of a Head" in the Glasgow Institute of the Fine Arts. Besides being master of his own trade, Mr Logan is qualified to speak with authority on sculpture, decoration, &c., while from his connection with art schools he will naturally take a deep interest in American technical institutions.

The following are the highest votes in the Second Ballot:—

THOMAS LOGAN, Glasgow, ...	1737
JAMES LENNOX, Beith, ...	978
PETER MEECHAN, Edinburgh, ...	932
A. B. FYFFE, Jun., Glendoick, ...	788
DAVID IRELAND, Dundee, ...	690
WM. LILBURN, Lochee, ...	545
H. M. BROWN, Beith, ...	510
THOS. CLARKE, Liverpool, ...	405
JAMES DEANS, Shotts, ...	398
ROBERT HOME, Glasgow, ...	305
JOHN KELLY, Anstruther, ...	288
ALFRED STURT, Newcastle...	215
J. S. ROGER, Glasgow,..	211

Textile Industries, &c.

We now come to the manifestation of increased civilisation and the consequently increased want of commodities, for increasing civilisation means increasing needs. The savage was usually content with some wild animal's skin wherewith to cloth himself, but civilised humanity must have all kinds of fabrics for personal comfort and adornment, and for the embellishment of the home. Only to hint at the subject, is it not the case that curtains for windows, and carpets and rugs for floors, have become almost absolute necessities of our modern life? Dundee is very largely engaged in two branches of textile manufactures—flax and jute—and these along with other textile industries, such as cotton and wool, make spinning and weaving together one of the greatest industries of Great Britain.

MUNGO SMITH.

(From a Photograph by Ferrier, Dundee.)

Mungo Smith is one of the working men stalwarts of the City of Dundee. A giant in stature, his soldierly figure and cheery face are quite familiar at public gatherings of working men, and in the famous fighting Fifth Ward he is an acknowledged leader. Born at Cluny, in Perthshire, he received his education at the Parish School of Lethendy, and when quite a young man he came to Dundee and served his apprenticeship as a powerloom tenter. He then entered the employment of Messrs Thiebault & Small, Rockwell Works, Dundee, and there for twenty-seven years he has been at his post, doing his duty in a way which has won him the respect and esteem alike of employers and employés. Some years after he entered Rockwell Works the concern was acquired by Mr W. L. Boase, and so the greater part of Mr Smith's active service has been under this well-known leading citizen. Away back in the days of the fight for the franchise, Mr Smith took his full share of the battle in the city, and was one of the speakers at the great Franchise Demonstration held on the Magdalen Green. When residing in the parish of Mains and Strathmartine he was elected by popular vote to the School Board, and served with credit the full term of three years, being publicly thanked for his services, and requested to permit himself to be again nominated, a request which, as he had then removed out of the parish, he could not well comply with. For over twelve years he has been connected with the Ancient Order of Foresters, and, of course, took a close and active interest in the affairs of the Order, serving as secretary, subchief, and chief, and being on various occasions sent to represent the city at Scottish conferences. A thorough believer in the value of co-operative effort, Mr Smith was one of the promoters of the Dundee and District Co-Operative Coal Supply Society for some years, rendering valuable aid as director and now its chairman, directing the fortunes of this Society. He was also one of the promoters of the Dundee Economic Building Societies, which have been enthusiastically supported and made successful by the working folks of the city, and he has served as director of all these societies, and is still a leading member of the Boards of two of the societies. As the positions of trust which Mr Smith has held, or still holds, are all elective, it will be seen that he has earned the esteem of those for whom he has worked. He is dourly tenacious of his opinions, but possesses a native shrewdness which prevents him from jumping to hastily-formed conclusions, Those who have met Mr Smith as antagonists aver that he will fight bravely for what he believes to be the right, but that without display of bitterness.

Mr Smith quite understands that all work and no play makes a man a dullard, and like most busy men he has learned to make the most of his recreation. For long he was an enthusiastic volunteer, and worked his way up from the ranks to the post of quartermaster-sergeant. He is also an enthusiastic cyclist, and can take a spin away into the country and get back to duty while some lethargic men are wondering how he can find time to do so much. A good all-round specimen of the Scottish working man, Mungo Smith will be a representative who will hold his own with the best of our cousins in the States.

Other Manufactures.

The next largest vote in manufactures is in papermaking. The papermaking industry has in recent years been making great strides, and nowhere so rapid as in America. With the effect of the School Board system and free education, the spread of night classes and technical institutes, the demand for reading matter, both in the shape of books and newspapers, is daily increasing. In this office alone there is sometimes as much as forty tons in a week consumed. It was therefore considered that there should be a representative of an industry, in the product of which all are interested, and by the cheapness of which all are benefitted.

WILLIAM SMITH.

(From a Photograph by Messrs Prophet, Dundee.)

William Smith, papermaker, Denny, is a man in the prime of life, having been born in the village of Juniper Green, Midlothian, in 1853. He received his schooling at the Parish School of Denny, and when thirteen years of age went to work in the papermills owned by Messrs Duncan & Sons. Afterwards he was employed for five years at Bonnybridge at moulding sewing machine castings, but, returning to the papermaking, he worked for periods of various length at mills at Bonnybridge, Denny, and Bathgate. He was also for some time in the service of the Clyde Paper Company, and is presently in the employment, which has extended over eight years, of Mr John Luke, jun., of the Anchor Paper Works, Denny. Mr Smith is held in high esteem amongst all classes in Denny, and he has the reputation of being a man of superior intelligence. He is in touch with every movement that affects the papermaking industry, and has followed with the closest interest every development which has influenced that trade in recent years. He is deeply sensible of the untiring industry that is needed to prevent the papermaking trade of Great Britain being swamped by foreign competition, and the new materials used in America to produce cheap paper, such as spent sugar cane, &c., affords opportunities for profitable investigation, which a man of his perception will make a good use of. Mr Smith will also avail himself of every chance that comes in his way of inspecting processes of light castings. Mr Smith has taken an active interest in the volunteer movement, having been for eleven years a member of G Company (Denny) 4th Volunteer Battalion Argyll and Sutherland Highlanders. He is also a dog and pigeon fancier, has identified himself with both co-operative and friendly societies, being a member of the Orders of Foresters and Shepherds. Mr Smith is likewise a member of the Stirling Economic Building Society, so that it will be seen he is in thorough sympathy with every movement for ameliorating the conditions of the workers.

The following are the highest votes in the Second Ballot:—

WILLIAM SMITH, Denny, ...	790
MUNGO SMITH, Dundee, ...	550
J. H. PERKS, Dundee, ...	349
WILLIAM SMITH, Bonhill, ...	221
W. M'ALPINE, Caldercruix, ...	215
J. M'NEIL, Airdrie, ...	204
JOHN C. HENDRY, Brechin, ...	166
A. SMITH, Hawick, ...	181
J. CAMERON, Greenock, ...	179
PETER M'LAREN, Galashiels, ...	163

Shipbuilding.

The pre-eminence of this country in the construction of ships is undisputed, and the industry ranks as one of the first importance. Since the adaptability of iron and steel for shipbuilding purposes has been demonstrated the progress and development made in this direction in various parts of Great Britain have been most marvellous, completely outdistancing all competitors. On the Clyde the industry has grown to such dimensions as almost to overshadow any other in importance, and it has made the city of Glasgow and its noble river famous throughout the whole world. Among the crowning achievements of Scottish shipbuilding are these colossal vessels built by the Fairfield Shipbuilding and Engineering Company for the Cunard Line—the Campania and Lucania. The Americans at one time had a large ocean tonnage, but through protective measures and otherwise her foreign-going fleet greatly fell off. In inland navigation, however, no other country can touch her. There are two great water systems in America—first the Mississipi and tributaries, estimated to have 15,550 miles navigable to steamboats and 20,221 miles navigable to barges; and, second, the St Lawrence and the Great Fresh Water Lakes from which and through which it flows. Close to or on this river and the lakes are many of the great cities. Chicago itself is on one of the lakes, and this has largely caused its greatness. There are also Detroit, Cleveland, Buffalo, Toronto, and Montreal between it and the ocean. It is in the plans, fittings, and furnishings of the splendid river boats of America that something may be learned. Many of these boats are got up like floating palaces. The fortunate candidate in this department is a workman in the far-famed Fairfield Shipbuilding Yard.

DAVID BROWN.

David Brown, 20 Princes Street, Govan, is in his forty-fifth year, and is a native of Campsie, Stirlingshire. His parents removed to the Hamilton district. He received his education at St John's Grammar School, Hamilton, where he proved himself a scholar of no ordinary capacity. He was taught drawing, mathematics, Latin, and Greek, and evidence of his diligence is afforded by the fact that he succeeded in gaining the prize for Greek translation. Having displayed a constructive bent of mind, his parents decided to allow him to follow his natural inclinations, and accordingly he served his apprenticeship as a joiner and cartwright. When his time had expired he went to Glasgow, and worked for some years with Messrs Cowan & Sons, Waterloo Street, and afterwards with Messrs Bowie. He was determined to get a thtorough knowledge of his trade, and in both these employments he was entrusted with the charge of he work. His next employment was with the Fairfield Shipbuilding and Engineering Coy., Limited, the builders of the famous Cunarders Campania and Lucania. In this situation Mr Brown has remained for fifteen years. It will thus be seen that he has a wide range of subjects within his grasp. He can write as carpenter, joiner, or cartwright. Though latterly connected with the shipbuilding industry his early country training has not been lost, and he has followed with interest the progress that has been made in the manufacture of agricultural implements and machinery. Working in an establishment which keeps 600 joiners employed, he could not fail to be impressed with the important part played by wood-cutting machinery, and his own words on this subject may be appropriately quoted here—"The joiner trade has changed very materially during my experience, caused principally by the introduction of wood-cutting machinery wherever it could be adopted, whereby enormous labour is saved and many old fashioned methods done away with. In former years before wood-cutting machinery was developed, you might be safe in saying that the man who was gifted with the greater bodily strength was the better tradesman. Now all that is completely changed. The joiner who now fully comprehends the capabilities and requirements of the different machines he is brought to contend with has the best advantage. In passing I may remark that with the amount of experience I have gained in the Fairfield Company's joiner shop in Govan, where for fifteen years I have daily been coming into contact with one machine or another, I can confidently say that I am specially qualified to investigate and report upon wood-cutting machinery, in which I take a very great interest indeed."

The highest votes in the Second Ballot were :—

DAVID BROWN, Govan, ...	494
JOHN FULTON, Partick, ...	258
JOHN COPLAND, Govan, ...	367
ISAAC ANDERSON, Jarrow, ...	216
F. J. LEIGH, Whiteinch, ...	132
A. MOSSMAN, Leith, ...	179

Railways.

The swift appliances of modern civilisation—the locomotive, the telegraph, and the steam printing press, of which latter the great Quadruple Machine of the *Weekly News* is the most stupendous example in Europe—have effected a transformation of the face of the earth. New territories have been opened up, and an abundance of cheap land has in consequence relieved the pressure that existed in congested countries, and done not a little to promote the general welfare of the people. Barbarism has disappeared before their advance, and they have been able to impress their stamp upon the character of communities. The railway in our time has done more in one generation than the slow evolutions of many centuries had brought about, and in the Western States of America we have this illustrated. There was first the railroad, then the town, then the farm. Chicago itself owes more than any other city in the world to the locomotive, for it was the railway companies who chiefly helped to build it up. Fully one-third of the railway systems of the United States centres there, and, with its branches, comprises over 66,000 miles of permanent way. Here then is afforded an opportunity for investigating the methods of railway labour unequalled in the whole world. Such inquiry is of interest to the general public as having a direct bearing on its safety and its comfort. Public opinion claims a right to express itself regarding the hours of railway men, the fitness of appliances, and the facilities for rapid and comfortable travelling. These are matters that require looking into, for nobody pretends that there is not ample room for improvements and reforms; and it may be sufficient to mention that the systems of machinery in use in mines and private works are in many cases far more effective than those on our railways. Another matter of universal interest connected with this department is the working of insurance against death, accident, &c, something of which nature in a general way has been recently advocated in Parliament. The insurance of workmen by their employers is certainly worth knowing something about. It is also worthy of mention that the enginedrivers have one of the most successful organisations in America, and their Society has during its thirty years' existence evolved many difficult labour problems, and settled not a few. The successful candidate in this department is employed on a railway which has done much to open up Scotland and to connect towns communication between which was most tedious in bygone days. We refer to the North British Railway, by whose enterprise those two great monuments of engineering skill—the Tay Bridge and the Forth Bridge—have been erected, thus bringing the large cities of Scotland all within easy reach of each other.

DAVID G. WATSON.

(From a Photograph by Messrs Prophet, Dundee.)

The successful candidate, David G. Watson, locomotive driver, Dundee, is a native of Perthshire, having been born at Blairgowrie thirty-six years ago. He received his education at Forfar, and latterly Muckhart Parish School. When seventeen years of age he entered the locomotive department of the North British Railway Company, and has never been at any other employment. He has served through all the grades from cleaner to engine-driver, and has driven all sorts of engines and every description of train over all the North British system—from Aberdeen to Carlisle, Berwick-on-Tweed, Glasgow, &c. He is, indeed, familiar with about a thousand miles of road, over which he can run by night or day. Mr Watson is noted amongst his fellow-workers for his readiness to grasp details. He is quick to see a thing, but is not content till he feels that he has mastered it. He will make it his special object to secure information regarding everything relating to American railways. He will take note of the construction of locomotives, the sorts of couplings, the modes of signalling, the rate of speed at which trains run, the brake power used, the length of journey made in one day, and the rates of pay in the different grades. He will also try to find out what rates are charged for goods and passengers. Mr Watson hopes to enjoy a run on the engine along some of the American railroads.

The following are the highest votes in the Second Ballot:—

D. G. WATSON, Dundee, ...	730
JAMES TAYLOR, Glasgow, ...	522
ROBERT AITKEN, Glasgow, ...	430
JAMES HASTIE, Glasgow, ...	429
DAVID TODD, Dundee, ...	348
T. J. M'NAUGHT, Greenock, ...	266
WILLIAM NEIL, Carstairs, ...	240
J. T. WILSON, Washington Station, ...	214

Metallurgy, &c.

The greater part of the mechanic's work is done through the agency of that most useful of all metals—iron. (In this, of course, we include steel, which is but iron with a small percentage of carbon.) In no industry perhaps has America made such progress as in iron and steel production. Iron-ore is to-day mined in twenty-three States of the American Union, and Americans have boasted that they can lay down their steels in Sheffield. The mineral resources of the Great West are simply inexhaustible, and in Texas alone are great masses of iron said to be equal in quantity and quality to any deposits in the world, and such facts as those have encouraged the Americans to believe that for iron manufactures they are bound eventually to capture the markets of the world. In view of the strong competition the selection of a steel-worker is most appropriate.

ROBERT DUNLOP.

(From a Photograph by Messrs Hicks, Glasgow).

Robert Dunlop, Motherwell, is another man who may be counted on to do his best to make the Expedition a success, and those who know him will say that effort on his part will not be wanting to secure that end. Mr Dunlop is thirty-eight years of age, and a native of Motherwell. He attended the Motherwell Ironworks School, then began to learn the trade of a joiner, but leaving this served for four years as a puddler with the Glasgow Iron Company at Motherwell. After the expiry of his apprenticeship he remained in the employment of the same Company for eight years. He next found employment with Messrs David Colville & Sons, of which he has remained for nearly ten years, working as a steel-smelter. He has worked as third hand, second hand, and is now first hand on the furnace. He is not only able to speak with confidence on the various processes of steel manufacture, but capable of describing them in clear and lucid language. He has made himself familiar with the conditions that affect his trade, and as a leader he is trusted by his fellow-workers and respected by the employers. On three separate occasions he has been President of the British Steel Smelters' Amalgamated Association, has been almost continuously a member of Council, and only last week was sent as a delegate to Newcastle to represent the Motherwell steelworkers at a conference regarding the regulation of wages. As a trades leader he is shrewd, far-seeing, and practical, and the policy pursued by his Society is worthy of more general imitation. The relations between the employers and the workmen are, as Mr Dunlop points out, on the whole very satisfactory. "Any alteration required in the mode of work or the rate of wages is notified to the General Secretary, who immediately informs the Executive Council, who take measures to find out the feeling of the men on the point at issue. If they think the request justified they may agree to the change. If they think the employers' proposal unjust they ask the employers to meet them in conference and discuss the question. As a rule the masters agree to this, and always receive the men with courtesy. Nearly every dispute is settled by this means without a strike." Mr Dunlop from his official position has been in a way forced to study the social condition of the workers, and the experience thus gained he hopes to turn to good use in America. Besides endeavouring to find out all about the latest improved machinery used in the making of steel, he will devote special attention to the condition of life amongst the wage-earners in America, and the letter he has written on this subject shows that he will not approach it with a mind

warped by prejudice, that he will rely on no hearsay evidence, but will search out the truth for himself. It may be added in conclusion that, amongst other strong recommendations, is one from Mr John Hodge, the president of last year's Trades Union Congress, who, speaking from absolute personal knowledge, describes Mr Dunlop as a man who "is thoroughly steady and reliable, and would make an excellent member of the Expedition." He has been a life-long abstainer, and though his work is very exacting and exhausting he has never felt the need for stimulants. He is a co-operator, and may be said to have imbibed the principle by birth, for his father was one of the founders of Dalziel Co-Operative Society. Mr Dunlop is also a member of the Free Gardeners.

The highest votes in the Second Ballot were :—

ROBERT DUNLOP, Motherwell, ...	274
ROBERT WOOD, Glasgow, ...	168
WILLIAM WILKIE, Glasgow, ...	118
JOHN CRONIN, Glasgow, ...	115
JOHN M'ANNULTY, Mossend, ...	115
ROBERT CARSON, ...	10

The Conductor of the Tour.

JAMES MURRAY.

(From a Photograph by Messrs Prophet, Dundee.)

James Murray, who will act as Conductor of the Expedition, is a thoroughly trained journalist. He is also a practical printer, having served his apprenticeship in the office of the *Dundee Courier*. He afterwards joined the reporting staff of that paper, and eventually rose to the position of chief reporter.

A fact which will strike the reader who devotes any attention to the qualifications of the members of the Expedition is the all-round fitness that they possess. They are men who can turn their hand mostly to anything, and evidence of this may best be shown in the following list of departments of labour that they represent:—

Agricultural Machinemaker.	Mining.
Blacksmith.	Pit-Sinking.
Boilermaker.	Papermaking.
Builder.	Printing.
Cabinetmaker.	Ploughman.
Carpenter.	Powerloom.
Cartwright.	Puddling.
Dairying.	Railway Work.
Decoration.	Sculpture.
Electrical Engineering.	Shipyard Work.
Farming.	Stonemason.
Furniture Designing.	Steel-Making.
General Engineering.	Stock-Breeding.
Horticulture.	Steampower Application
Ironmoulding	Sanitation.
Ironworking.	Spinning of Yarn.
Joiner.	Technical Training.
Locomotive Enginedriving.	Tool-Making.
Machine Construction.	Weaving of Textile Fabrics
Marine Engineering.	Woodcarving.

It will be seen that most of the fortunate men have taken an active share in social reforms of various kinds. We have co-operators, members of friendly and building societies, men who are interested both in elementary and in technical education, who have busied themselves in the management of municipal affairs, and who are recognised leaders on labour questions. All, without exception, are men who have striven after self-improvement, and that, too, with success.

EXTENSION
OF
WEEKLY NEWS
EXPEDITION SCHEME.

NEW DEVELOPMENT.

TRIP TO THE PACIFIC.

A GREAT RAILWAY JOURNEY.

(From the "Weekly News" of 10th June.)

As readers of the *Weekly News* are aware, Mr Frederick Thomson is at present in America making arrangements for the management of the Expedition of Workingmen, which leaves this country about a fortnight hence to investigate into the condition of labour in America. On this side of the Atlantic, also, the work of perfecting the organisation of the tour is being actively carried on. Agricultural, engineering, and other experts have supplied much valuable information for the guidance of the members of the Expedition, and we also have to acknowledge the assistance so willingly rendered by railway, steamship, and passenger agents, prominent among whom have been Mr P. Fleming, of Messrs Fleming & Haxton, High Street, Dundee, and Mr Jas. A. Anderson, Panmure Street, Dundee, who have advised as to routes and other matters for the transportation and travelling comfort of the party. Many friends have offered their personal assistance as well as letters of introduction with the view of affording the most ample means of reaching those sources in America regarding which full and accurate information is most to be desired. The result of these various efforts is that already we find ourselves enabled to announce an

Important Extension

of the scheme as originally formulated. Mr F. Thomson has just cabled that he has concluded arrangements for a detachment of the Expedition to make a trip across the American Continent to Vancouver, on the shores of the Pacific, involving an overland journey of some 3000 miles. As indicating the enormous distance that will be

traversed it may be mentioned that the train leaves Montreal at half-past eight o'clock in the evening, on the Canadian Pacific Railway, and it is not till the afternoon of the sixth day that it reaches its destination—Vancouver City. The engine is changed at certain points, but the rest of the train goes over the entire route—all along the north shore of Lake Superior, across the thousand miles of western prairie, and through the Rocky Mountains and the Selkirks of

British Columbia.

Twice a day a halt of half an hour is made, affording passengers an opportunity to stretch their legs; but the journey is continuous, and the train rushes on through the dark hours of the night when the passengers have retired to rest, the same as it does through the bright hours of the day, and, as we have said, this is the longest continuous railway journey in the world, requires a week for its accomplishment. Of the advantages which will be derived from the journey over this route it is not necessary to speak in detail meantime. Western Canada has in recent years been that part of the world to which the Scottish agricultural labourer has directed his attention as the most likely to secure for himself indépendence and fortune. It is a new country, rich in natural resources, and a great service can be done by ascertaining what are the advantages that it can give to any who are disposed to make use of the opportunities that it has to offer. A portion of the journey lies through one of the finest wheat-growing areas in the world, while along the foothills of the Rockies, beyond the strictly agricultural lands, are large tracts of unoccupied grassy lands suitable for ranching purposes. The city of Winnipeg is a great mart of industry that will well repay a visit, for it promises to be one of the greatest outlets for the

Overcrowded Labour Channels

of Europe. It is noted for its marvellous progress, its prosperity, and the enterprise of its citizens. The route presents a variety of noble and ever-changing scenery, which has no equal in the world. A run across the Western Prairie gives an opportunity for inspecting the innumerable homesteads and farms dotted here and there. Later on the Rocky Mountains slowly rise into view, "and thenceforth scenes of Alpine magnificence surround the traveller" as the train speeds on beneath majestic heights, and through apparently impassable fastnesses towards British Columbia with its exquisite climate and unsurpassed beauties.

Other arrangements, directed to make the *Weekly News* Expedition as comprehensive and far-reaching as possible are in progress, and we are sanguine enough to believe that they will be crowned with success.

ANOTHER EXTENSION.

VISIT TO NOVA SCOTIA.

WELCOME FROM A SCOTO-AMERICAN POET

(From the Weekly News of 17th June, 1893.)

A Tour through Nova Scotia

It has now been found possible to include in the programme of the Expedition, so that while one part of it will be exploring in the extreme west of the great Continent the other will be in the extreme east inquiring into all that the Maritime Provinces of Canada have to reveal. What this may be can be conceived when it is remembered that Nova Scotia is in point of mineral wealth the richest province in the Dominion, having productive coal mines, manganese, gypsum, building stone, and petroleum. The coal areas cover something like 685 square miles, and the seams at present being worked are from four to nine feet thick in the Cape Breton or Sydney fields, from six feet to thirty-four feet in the Pictou basin, and from four to thirteen feet thick in the Cumberland district. Regarding iron ores, Sir William Dawson observes that "even in Great Britain itself the two great staples of

Mineral Wealth

are not in more enviable contiguity, and the iron ores of Great Britain are as a rule neither so rich nor so accessible as those of Nova Scotia." It is alone among all the provinces the one where the fuel fluxes and ore occur close together, and the ore beds are generally easy of access near water or railway transport. Blast furnaces have been erected, and it can hardly be doubted that the iron and steel manufactures of Nova Scotia are bound at no distant date to occupy a very important rank amongst the resources of America. Mr F. Thomson, who arrived at Chicago a few days ago, has cabled that he has completed arrangements by which it will be possible for a detachment of the Expedition to make a visit to Nova Scotia, while other important extensions are in progress.

The interest excited amongst Scotsmen in America regarding the Workingmen's Expedition is evidenced in the following graceful lines. The author is Mr. Charles Campbell, of Forbush, Appanvose Co., Iowa:—

Long a voluntary exile from "Auld Scotia's hills and dales," I still dearly love my native land, and take a deep interest in all that pertains to the welfare of her sons and daughters. Having been a reader of your paper for some time through the courtesy of a friend, and thoroughly admiring the patriotism and public spirit displayed by your generous gift to representatives of the working classes to freely view the great object lesson of the age, I have written the enclosed more in a spirit of certainty that such will be the conduct of your representatives than with any intention of giving advice.

When from thy varied page I scan
Thy gen'rous gift, thy noble plan,
Whereby a band of toilers free
This wond'rous World's Fair shall see,

I forward look with hopes of pride,
That, safely landed on this side,
Auld Scotia's world-wide fair renown
They with fresh laurels still may crown;

And with a manly, honest heart,
Each workingman will do his part
To add fresh lustre to her fame,
And brighten anew the Scottish name.

And when before their eyes are spread
This glorious feast, let it be said
By those who Scotia's sons discern
These men came here to see and *learn*.

Let prejudice be left behind,
Let liberal judgment rule each mind,
For thus "prepared" alone is he
Who seeks this World's Fair to see.

And when their glorious trip is o'er,
And back they seek their native shore,
May each a wealth of knowledge bring
From which great good alone may spring.

It will be seen that another important extension of the Expedition scheme has been arranged for, and that while one detachment will proceed to the extreme west of the American Continent another party will penetrate into the extreme east. Particulars regarding some of the circumstances that render desirable the inclusion of the maritime provinces of Canada within the scope of the tour of observation are given in another column, and the information that is likely to be gained from the visit to Nova Scotia is bound to add to the value and interest of the object aimed at by the Expedition.

A SPECIMEN OF THE COMBINED SKILL

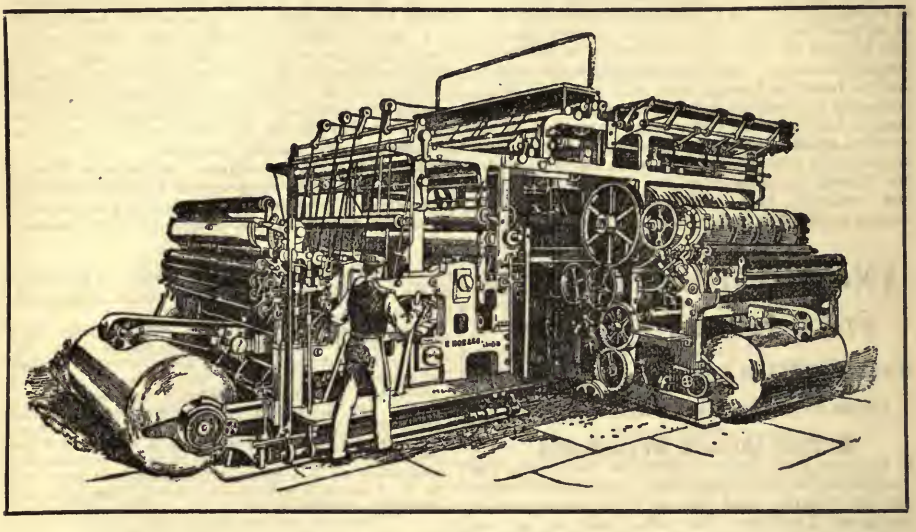
OF

BRITISH AND AMERICAN ENGINEERS

AND

PRINTING MACHINE MAKERS.

THE PIONEER QUADRUPLE PRINTING PRESS.



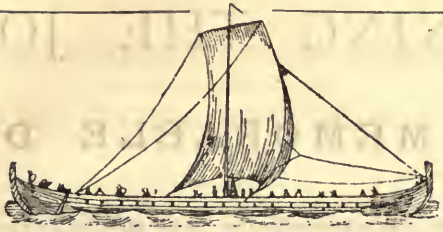
The above is an illustration of the large printing press now being completed by Messrs. R. HOE & Co., of London and New York, for the *Dundee Courier* and *Dundee Weekly News*, to print, fold, and count papers of 4, 6, 8, 10, 12, 16, 20, and 24 pages, at the rate of 48,000 8-page papers per hour. This machine will form the eleventh machine employed in the production of these papers.

Although built in London, the plans are the result of a most careful investigation by Mr. D. C. THOMSON into the best machines on both sides of the Atlantic.

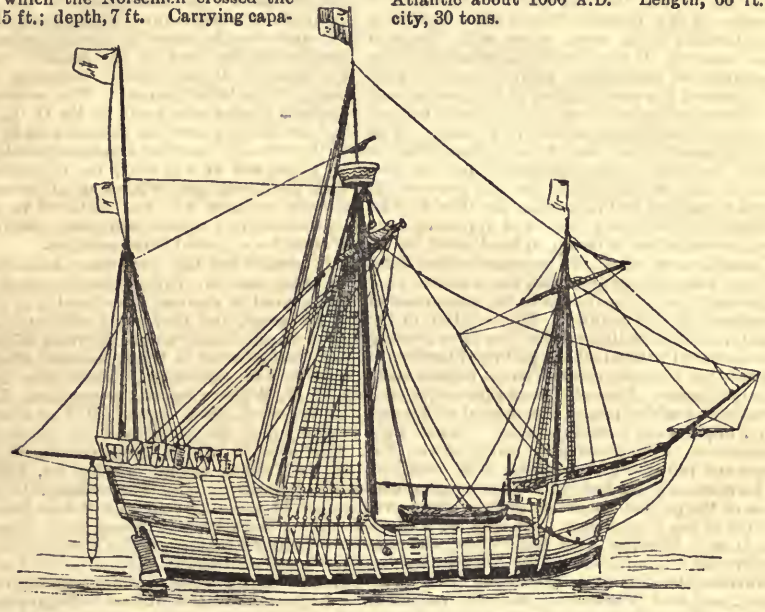
The above and preceding 16 pages is a reprint of the preliminary pamphlet, issued to show objects of Expedition.

LIBRARY FOR USE OF DELEGATES.

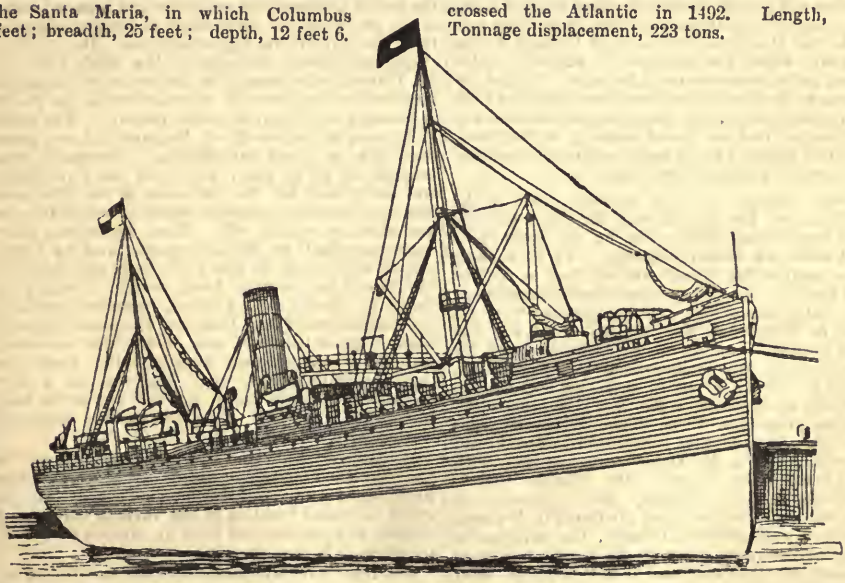
It may be mentioned that ample provision was made to enable the members of the Expedition to pass the time both profitably and pleasantly at sea. Quite a small library was provided for their especial use, amongst the books included being—"The American Commonwealth," by Professor Bryce, M.P.; "The Americans at Home," by Rev. David Macrae; "The Labour Movement in America," by Professor Ely; "America and the Americans," by Craib; "United States Constitutional History," by Sterne; "Profit-Sharing," by Gilman; "Wealth and Progress of America;" "Triumphant Democracy," by Carnegie; Booth's "Darkest England;" "United States Pictures;" U.S. and Canadian Blue Books, besides an extensive variety of lighter reading.



Viking Ship, remains of which are in the Christiania University Museum. Type of vessel in which the Norsemen crossed the Atlantic about 1000 A.D. Length, 66 ft.; breadth, 15 ft.; depth, 7 ft. Carrying capacity, 30 tons.



The Santa Maria, in which Columbus crossed the Atlantic in 1492. Length, 71 feet; breadth, 25 feet; depth, 12 feet 6. Tonnage displacement, 223 tons.



The Thomson Line Steamer "Iona," in which the Members of the Artisan Expedition crossed the Atlantic, in 1893. Length, 360 feet; breadth, 44 feet; depth, 29 feet 6 inches. Tonnage, deadweight, 5,200 Tons; displacement, 8,000 tons.

BEGINNING THE JOURNEY.

A MEMORABLE DAY.

Saturday, the 24th June, was a memorable day in the annals of labour in this country, and it was also the day which the hundreds of thousands of the readers of the *Dundee Weekly News* have been looking forward to for some weeks with the most intense interest. It was, besides, a memorable day in the annals of journalism, as it witnessed what may be termed the inauguration of the greatest and most unique enterprise ever undertaken in connection with any newspaper in Great Britain. This was the departure of the Artisan Expedition to America, organised and despatched by the proprietors of the *Weekly News* for the purpose—in addition to visiting and inspecting the World's Fair at Chicago—of inquiring into and reporting as to the whole conditions of labour in the United States and Canada, more especially as regards their bearing on our home labour problems, and with the view of improving the circumstances of the great mass of wage-earners in this country. The selection of the men to form the Expedition called into force a voting power compared with which the polling of the largest parliamentary constituencies of Great Britain sinks into insignificance. The outcome of this unique election was that working men of exceptional ability and superior intelligence were appointed. Since then arrangements for facilitating the work of the Expedition and promoting the comfort of its members have been actively pushed on, and the original conception of the project has been greatly outgrown. A portion of the Expedition, including Mr Andrew Osler, farmer, Kintyrie, near Kirriemuir, who is to act as Special Commissioner of the *Dundee Courier*, will traverse the American Continent from ocean to ocean, and visit Vancouver, and this enormous extension will permit of other places of interest being seen. Another detachment of the Expedition will include the Maritime Provinces of Canada within their tour, where the resources of mineral wealth are such as to deserve careful inquiry. Cordial invitations to the Expedition have been extended from all parts of America, and the great establishment of the Carnegie Steel and Iron Company, of Pittsburg, is only one amongst many works where the members are assured of a friendly welcome.

As was natural, the real starting point of the Expedition was Dundee, though Mr Osler was the first to leave home, setting out on his journey of 12,000 miles on Friday evening. At Kirriemuir station many of Mr Osler's friends had assembled to bid him God speed. A vigorous cheer was raised as the train moved off, and fog signals were exploded in honour of the occasion. At the Tay Bridge Station, Dundee, on Saturday morning Mr James Murray, the conductor of the Expedition, was the first of the party to make his appearance, but within a few minutes Mr D. C. Thomson, the managing proprietor of the *Weekly News*, who conceived the idea of the Expedition, arrived, and along with him was Mr Osler, who had been with Mr Thomson overnight. Mr Mungo Smith, powerloom tenter, Dundee, the representative of the textile industries; and Mr David G. Watson, locomotive enginedriver, Dundee, the delegate of the railway servants, were on the platform almost immediately afterwards, and a few minutes later the North British express steamed in with Mr James Taylor, Raesmill, Arbroath, who was elected by the farm servants to look after their interests. This completed the first section of the Expedition. The delegates were accompanied to the station by many of their relatives and friends, and amongst those who also attended to see them safely off were several members of the staff of the *Dundee Courier* and the *Dundee Weekly News*, including Mr Frank Boyd, of the latter journal. The necessary introductions having been made by Mr D. C. Thomson and the booking over the delegates took possession of the splendid corridor carriage specially reserved for them, and at 8.10 sharp the Expedition started with the hearty good wishes of all assembled, the railway servants who had gathered to give their representative a cordial waygoing, singling out Mr Watson for a special demonstration.

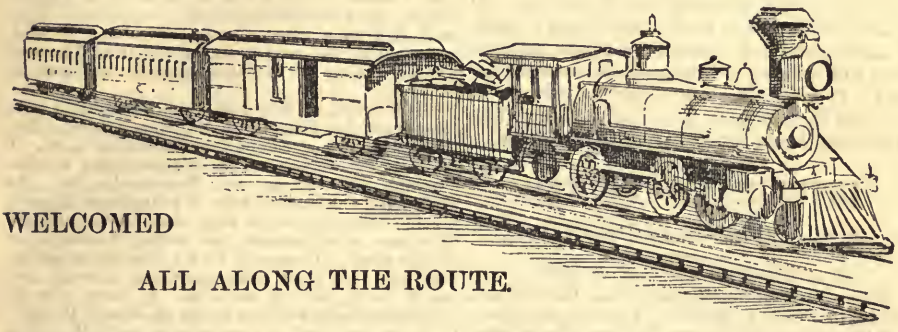
No sooner had the Tay Bridge been crossed than Mr Osler and Mr Taylor, true to their instincts, commenced to exercise their faculty of observation on the crops, and they noted with satisfaction the great improvement which the rains of the previous days had effected in the appearance of all kinds of cereals. At Edinburgh, which was reached at 9.40, Mr William Smith, papermaker, Denny, and Mr Robert A. Muir, miner, Hill of Beath, successively joined the party, and the express from the West brought with it a large contingent, consisting of Mr Thomas Logan, woodcarver, Glasgow; Mr John Sinclair, mason, Cambuslang; Mr D. Brown, shipbuilder, Govan; and Mr Robert Dunlop, steelworker, Motherwell. Along with these travelled Mr Andrew Anderson, of the *Weekly News*, by whom the western delegates were introduced and handed over to the conductor. Edinburgh was left at 10.10 a.m., ten minutes late, and as the train rushed through the fertile Lothians the condition and forward state of the crops elicited expressions of high admiration from the agricultural representatives. During this stage, and indeed throughout the whole journey, Mr Watson, who seemed to know every telegraph post on the line, was of great service to the party in locating the different places passed. The style of farming in the north of England did not, however, give so great satisfaction. Newcastle was reached at 12.45 p.m., and here the Expedition was completed by the inclusion of Mr Ebenezer Bennett, electrical engineer, many of whose friends assembled to see him off. From thence the delegates travelled to Middlesbrough, and by three o'clock were safely on board the large and splendid Thomson Line steamer Iona, which is conveying them to Montreal. Captain Sangster, captain-superintendent of the Thomson Line, and Captain Cummings, of the Iona, gave all a cordial welcome, and every arrangement having being made for their accommodation, each one was in a few minutes most comfortably berthed and in the best of spirits, and ready to commence the long sea journey before him.

Mr Andrew Osler, the Special Commissioner to the *Dundee Courier*, sent an interesting letter which appeared in that journal on Tuesday last, in which he makes mention of the various matters of interest to agriculturists that he intends to devote attention to in America.

The Iona left Middlesbrough at one o'clock on Sunday morning, and at 3.40 a.m. on Monday passed Dunnet Head at the entrance to the Pentland Firth.

SPLENDID PROGRESS IN AMERICA.

VISIT TO NIAGARA FALLS.



WELCOMED

ALL ALONG THE ROUTE.

From the Weekly News of the 15th July.

Mr Frederick Thomson, who remained in America to see the *Weekly News* Artisan Expedition fairly started, cabled to us as follows from Toronto :—"When I wired you on Tuesday last I expected the Iona would reach here on Wednesday night, but, owing to fog in the river between Father Point and Montreal, the steamer was delayed for over half a day, not getting up to the wharf at Montreal till the afternoon of Thursday. Notwithstanding the loss of the forenoon, the members have made good use of their time, and amongst other sights and industries they have visited at Montreal and here are the Canadian Pacific Railroad engine workshops, farm implement, electric, and furniture works ; also schools, newspaper and other public offices, so have made a good commencement. The Expedition goes on from here to Niagara, where the members will rest for a day, then proceed straight to Chicago, so as to have plenty time at the World's Fair. The members all express their delight with the passage across the Atlantic, being favoured with fine weather the whole way. They are all in good health and spirits, and thoroughly enthusiastic about the great mission they are setting out to undertake. I intend leaving Montreal for home on the 12th by the Iona, before which I expect to have completed all arangements. I am to travel with the Expedition to Niagara, where we part, and I go on from there to New York for a few days before sailing from this side."

The conductor of the Expedition cabled on Sunday as follows :—After completing visits to various industries and establishments in Toronto, the Expedition travelled on to Niagara, which town was reached on Friday evening, and since then the members have not only had every facility for seeing the Falls from various points of view from which they could be seen to advantage, but have been diligent in inspecting the various works carried on in the neighbourhood. The paper and pulp mills were of special interest to Mr Smith, the papermaker from Denny, while the electric works contained much to interest not only Mr Bennett the electric engineer from Newcastle, but all the others as well, and the whole of the members had the privilege of seeing the great turbine wheels which supply the motive power for all the factories and workshops in the town. They also inspected the Niagara Electric Railway, the power for which is got from the same source. The turbines are driven by water taken from the River Niagara above the Fall, and it is expected that in a few years Niagara will rank amongst the largest of the manufacturing cities of the Continent on account of the cheapness and cleanness of the motive power. The members are all well, but the weather in the meantime is very changeable. We are going straight to Chicago, which every one is eager to reach, so as to have ample time to see the many sights there. We are getting a hearty welcome all along the route, and are receiving every facility and freedom for examining and inspecting the various industries.

Mr Frederick Thomson telegraphing from New York on Tuesday night, 11th July, says:—Since I cabled you last Friday from Toronto, I travelled on to Niagara with the Expedition. The members were perfectly delighted with the sight of the great Fall. As intended, I left the Expedition at Niagara to come on to New York, but the Conductor will no doubt cable you regarding the visits to the waterworks, turbines, &c. Amongst other things, I have just arranged in New York for the

artisans visiting the great shipbuilding yard of Messrs Cramp, Philadelphia, and the great paperworks at Holyoke. I find it is impossible to complete matters in time to get back to Montreal to sail for home to-morrow, so I am to sail direct from New York on Saturday first by the steamer New York, and will reach Southampton in the end of next week. I am confident the members of the Expedition will give a good account of themselves, and if they get on as well for the rest of the journey as they have done for the start they will bring home much useful information.

INTERESTING LETTER.

A SUCCESSFUL DUNDONIAN.

SIGHTSEEING IN THE STATES.

Under date Baltimore, 30th June, Mr Frederick Thomson writes to Mr D. C. Thomson as follows:—"I arranged at Chicago to see Illinois Steel Works at South Chicago, and I saw Messrs A. H. Andrews & Co., 215 Wabash Avenue, who have a very large cabinet making manufactory, and they also agreed right off to show representatives whatever they desired. Then I went out to Fraser & Chalmers, who have the largest mining machinery manufactory in the world. Their place is in Fulton Street, Chicago. Mr Chalmers, a very pleasant man, the chief partner in this gigantic firm, is originally from Dundee. Mr Chalmers will be delighted to see our men and show them everything about his place. Mr Chalmers left Dundee fifty years ago and came out to Chicago. When he arrived Chicago could only boast of some 4000 inhabitants, and for the first three years he worked for a grocer who fed him but gave him no wages, and Mr Chalmers said if he had had the money he would have left the place, but he had nothing to leave with or pay to get out of Chicago, and so remained on. He has a very large place, about three or four times the size of Gourlay Bros'. Foundry, Dundee, with all sorts of different machines for making mining machinery. One driving wheel I saw measured 28 feet diameter and some 8 feet wide.

I have also got a letter of introduction for Mr Murray so that he may see Armour's elevators. Armours have the latest and most improved elevators at Chicago. When going through Armour's packing place, stockyards can also be visited. Then cable car and electric car stations can be seen. I called at the Chicago Business College, Randolph Street, where 300 or 400 boys and girls are taught daily all the year round. Shorthand, bookkeeping, banking, typewriting, and other branches are carried out systematically. The teacher of stenography and typewriting kindly offered to show the Expedition men over their place, explaining how it is conducted, and also take them to any of the other educational institutions in Chicago. I am giving Mr Murray his name and address.

There is so much to be seen in the Exhibition that beyond the things fixed on the men will find their time fully occupied. In every department there is much to be seen and learnt. In the Agricultural Department, even although Mr Osler and Mr Taylor divide it between them, they will have hard work to get over things. There is new machinery for sowing, digging, lifting weeds, ploughs of all shapes, reapers of all sorts. In the Canadian section alone there are some 130 different kinds of grain, suitable to all parts of Canada and North-West. Ohio has a good exhibit in agricultural section. Massey, Harris, & Co., of Toronto, have a capital exhibit of farm implements at the Fair. I am arranging for Mr Osler and the others to see their place at Toronto on way to Chicago. Massey, Harris, & Co. are the people who sell the "Brantford" reaper, which is now well-known in Forfarshire. They amalgamated with the Brantford firm, and their main place is now at Toronto. I have arranged for the party to stay at the Hotel Thomas, Chicago, about 100 to 200 feet from the entrance to the Fair.

At Niagara, if they stop over the night, I have arranged the Niagara Falls Hotel there. The papermaker can see the Pettebone Mills there. I saw Mr Porter, and am giving papermaker a letter to him. Others can see Waterworks, &c. At Pittsburg I arranged with Westinghouse Electric Light Company to see over their works, and Mr Torrance is to arrange for seeing Westinghouse Brake place. There will be no difficulty to get in. He can also show them glass and tobacco and snuff works, if they want to. If they stay at Pittsburg, they will stay at the St James' Hotel.

I saw and had a pleasant chat with Mr Carrol Wright, chief of Labour Department at Washington. He will be pleased to see and show all his Department to them. He is taking quite an interest in our scheme.

CROSSING THE ATLANTIC.

A SUCCESSFUL AND EVENTFUL VOYAGE.

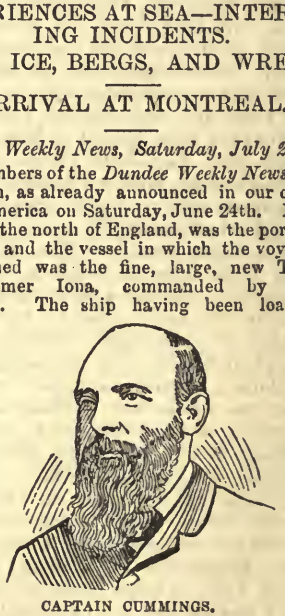
EXPERIENCES AT SEA—INTERESTING INCIDENTS.

FIELD ICE, BERGS, AND WRECKS.

ARRIVAL AT MONTREAL.

From the Weekly News, Saturday, July 22, 1893.

The members of the *Dundee Weekly News* Artisan Expedition, as already announced in our columns, left for America on Saturday, June 24th. Middlesbrough, in the north of England, was the port of embarkation, and the vessel in which the voyage was accomplished was the fine, large, new Thomson Line steamer Iona, commanded by Captain Cummings. The ship having been loaded up,



CAPTAIN CUMMINGS.

slipped from her moorings about midnight, and having cleared the dock—an operation which, in consideration of the great size of the steamer, necessarily occupied some time—she proceeded down the Tees. Her movement for some time was comparatively slow owing to the narrowness of the channel and the intricacies of the navigation, and it was about two o'clock on Sunday morning when the bar was crossed. At this time the delegates, all of

whom were still on deck, witnessed a beautiful display, made all the more striking on account of the darkness which then prevailed. At Hartlepool, on the north bank of the estuary, there are some large blast furnaces, and every few minutes waggons of red-hot "slag" were seen being hurled along to the top of a high bank and tipped over, the burning material then rushing down the declivity with great speed, leaving behind it a huge fiery trail, and on reaching the lower ground breaking out into a great flame, which for a few minutes brilliantly illuminated a large surrounding area. The effect produced was to some extent similar to that which might be caused by a well-charged rocket being shot downwards. As the morning advanced the delegates retired to their berths, which were in the centre of the vessel, adjoining the large, roomy, and beautifully-finished cabin, and of the most comfortable character, and thoroughly appointed in every way for the trip. "Rocked in the cradle of the deep," the delegates were quite refreshed by a few hours' good, sound sleep, and all of them were on deck at an early hour on Sunday morning to find the steamer off the coast of Northumberland, and making rapid progress to the northwards. A stiff head wind was blowing, accompanied by a heavy swell, but the vessel was behaving nobly, and although the most of the passengers had thus early acquired their sea legs, a few were constrained to pay devotion to old Father Neptune. The Longstone Lighthouse, the scene of Grace Darling's brave exploit, and the Farne Islands were the first objects of interest passed, and although we were too far out to see the May Island, the Bell Rock was within the visible horizon, and in steaming for Kinnaird Head a fine though distant view of the Forfarshire and Kincardineshire hills and coastline was obtained. The delegates were not long in discovering and fully appreciating the great advantages which the run out on a Thomson liner gave them over a trip in any of the ordinary passenger vessels, and everyone spontaneously acknowledged the foresight and consideration shown in their behalf by the proprietors of the *Dundee Weekly News* in so ordering the arrangement.

A Whale—No Jonah on the Steamer.

When off the Bell Rock about midday on Sunday the captain quickly brought all the delegates to the bridge deck by shouting "A whale!" And sure enough about 100 yards off on the starboard bow a stream of water was seen projected into the air to the height of 8 or 10 feet. This was repeated at short intervals, and between the "blows" the path which the fish was pursuing was easily traced by the oily appearance of the surface of the sea. On one occasion the whale in a sportive mood showed a large part of his body above the water. It was then seen that he was a huge fish, and the remark was made that with whales so near home there was no necessity for vessels going all the way from Dundee to the Antarctic Ocean in search of them, but Captain Cummings explained that this was merely what was known as a herring whale, and of comparatively small commercial value. A suggestion was made that if there was a Jonah on board now was the opportunity for getting rid o' him in an appropriate manner, but no one would own to any sort of connection with the historic individual of that name, and in a few minutes the fish, possibly scared by the propeller of the steamer, went down into the water, and totally disappeared from view. Some other whales and numerous porpoises were also observed in the course of the passage. A number of white porpoises were also seen in the St Lawrence.

Carrying the "Males."

Early on Sunday afternoon we sighted some distance ahead the Avlona, Captain Baxter, another steamer of the Thomson Line, and which had left the Tyne on Saturday evening also for Montreal. The Iona being the larger and more powerful vessel of the two gained steadily on the Avlona, and when opposite Peterhead the two steamers were almost abreast of each other. Seeing that he could not keep up with the Iona Captain Baxter ran up some flags, and these were found to read, "Can you take me in tow?" Captain Cummings we found to be one of the most obliging men on earth, but with such an important freight as he had on board he could not afford to lose the time which would be involved were he to comply with the request made to him, supposing, of course, that it was seriously meant. After cudgelling his brains for some minutes he hurriedly said—"I have it!" and certain flags were promptly run up by the officers of the Iona. These interpreted signified—"Sorry I cannot; I am carrying the mails." This, it may be explained, was a joke of the Captain's, as the mails which he meant were really *males*—the *Dundee Weekly News* delegates to the World's Fair at Chicago. But it passed muster with Captain Baxter, who at once hoisted "A pleasant passage to you," which was acknowledged with "Thanks" from the Iona. The Avlona made a plucky attempt to keep up with the larger vessel, but the sea and other elements were against her, and in a short time she had completely lost the advantage which she had gained in starting, and was following up as fast as her powers would permit in the wake of the Iona.

Chicago in Sight.

Considerable sensation was caused on the afternoon of Monday, June 26, when the Iona was steaming along to the north of the Hebrides by the captain reporting, as a piece of important information, that Chicago was only some distance off on the starboard bow. Those of the delegates who were below hurried up to the bridge in a state of some excitement expecting possibly that the city, which was their objective point, was thus early within sight, and those who were still suffering from the pangs incidental to what is known as *mal de mer* were congratulating themselves that by some miraculous intervention all their troubles were near over, and that they would soon again be on *terra firma*. These fond expectations were, however, quickly doomed to disappointment, and the captain and the others had a good deal of amusement at their expense, as what was reported to be Chicago was only a steamer of that name hailing from Sunderland, and also on the outward passage. Everyone at once realised that she could not have the World's Fair stowed away in any part of her, and made up his mind that the passage would have to be continued. The disappointment over, the delegates ventured suggestions as to the probable destination of the Chicago. In this discussion an appeal was made for assistance to Mr King, the chief officer, who appeared to be a good authority on not a few subjects even apart from those connected with navigation. This gentleman with a gravity which well became him said that he had made smoke analysis a special study, and that the conclusion which he arrived at after a close and careful observation of the smoke emitted from the funnel of the Chicago was that, like the Iona, she was bound for Montreal. Some were disinclined to accept this theory, and Captain Cummings, who formed his conclusions from other premises, declared his belief that the vessel was on her way to

some United States port. We passed some distance off, and as the Iona gradually showed her heels to the Chicago, the discussion slackened as that vessel fell out of sight astern.

A Large Addition to the Expedition.

When loading at Middlesbrough the officers exercised great vigilance in order to prevent any of the "wharf-rats" or "stiffs," as the sailors term them, from getting on board, and obtaining a free trip to America, but although they put ashore several who had, without permission, fixed up quarters on board, they were not altogether successful in this respect, this, no doubt, being due to the fact that the departure was made somewhat in a bustle and in the dark. On Sunday, June 25, a man, very much in the condition in which he was produced by nature, crawled out from amongst a quantity of bunker coal in anything but a fossilised state, and on the following day the Expedition was further augmented by the discovery of no fewer than four unaccredited members. One of those was found in a large barrel used for holding water for the cattle, and another in a ventilator fitted up for conveying fresh air to the cattle in the 'tween decks. The remaining two were stowed away in the forecastle—one underneath a fireman's bunk, and the other in the fore peak. When they were brought before the officers four of the men stated that they wished to get away from the old country because times were bad there, and they wanted to make a new start in the "land of the free." The fifth said that he was bound for Chicago, and that he would join the *Dundee Weekly News* Expedition if the Conductor would accept him, but, if not, he would beat his way there on the cars. This meant that he intended to conceal himself on the goods waggons or "freight cars," as they are called in America, and obtain a *gratis* ride over the second as well as the first stage of the trip. Suitable work on board ship was soon found for these adventurous, although poorly-provided-for, spirits.

Atmospheric Effects.

The delegates were privileged to witness some very striking and remarkable atmospheric effects in the course of the trip. On the morning of Monday, June 26, shortly after the Iona had passed through the Pentland Firth, a rainbow of great beauty and of exceedingly brilliant colours was visible right ahead. The rainbow was reflected in the sea in such a way as to appear an almost perfect circle, and when the Iona steamed in a manner right into the centre of it, it almost instantaneously disappeared. Some grand sunsets were also witnessed. On the evening of Wednesday, June 28, when the weather was bright and warm, with the sea like a mill pond—although, by the way, there was a fresh north-easterly gale with no scarcity of "white horses" or "cat's paws" on the preceding day—the sky in the north-west presented a scene of surpassing beauty. Just over where the sun had disappeared in a blaze of burnished gold, the clouds were so arranged as to represent a large and beautifully-arranged garden laid out according to strict geometrical lines with circles, oblongs, squares, triangles, &c., of flowers, bordered by perfect shrubberies, while a short distance to the north was what appeared to be a large lake with finely-wooded islands of various shapes and sizes. Such a scene will long live in the memory of those who witnessed it.

Passing the Time.

Those whose longest journey can be measured by hours can hardly realise what is involved in a passage of nine days in crossing the western ocean. The first day, when land is probably still in sight and everything on board ship is novel, passes quickly enough, but it is when the steamer is ploughing her way across the broad Atlantic with nothing but

Water, water everywhere,
And not a drop to drink,

that time, as a rule, begins to hang heavily on one's hands. If he is not overtaken by sea sickness, he invariably develops an appetite similar to that of a rhinoceros, but, although the eating of meals forms a considerable part of the daily routine on board a first-class liner, the passengers cannot be always at table, and, as he generally does not feel himself capable of digesting even the lightest novel, the time not given to sleep must be put in somehow or other. By the foresight of Mr D. C. Thomson, the *Weekly News* delegates were provided with a good selection of literature for consumption on the passage—literature both of an entertaining and instructive character—which was read with much interest, but there were what might be termed periods of relaxation, and in these the officers on board the Iona exerted themselves to the utmost of their powers. While Captain Cummings spared no pains in order to make the time pass pleasantly and agreeably, Mr Walker, the chief engineer, showed with pardonable pride the large and powerful engines of the steamer, and also the electric light fittings, which elicited unstinted admiration. Mr Dykes, the second officer, and Mr Ross, the third officer, were equally active and energetic each in his own particular line, while Mr

MR KING, CHIEF OFFICER.

King, the chief officer, kept the passengers in the best of humour. His "yarns," as might be expected, had almost all a nautical bearing, and these were spun at every hour of the day, and night too, when off duty in such numbers as to lead one to believe that the storehouse of his experience and memory, or, as his brother officers termed it, his "manufactory" was practically inexhaustible. Several of his stories were perfect "hair-raisers"—although it would have been impossible to affect himself in this way as he had a serious loss in a gale of wind—and his conundrums were equally entertaining. As an indication of the latter, and as a proof that he was well up in Scripture history, at least in so far as it was connected with his own profession, the following may be cited:—"When was salt pork first introduced into the navy?" No one ventured a reply, and when all had confessed themselves baffled, Mr King, smiling as "he winked the other eye," said the answer was "when Captain Noah took *Ham* into the Ark." Another was—"What did the whale say to Jonah?" the answer being "Come in out of the wet." It was in this way that the voyage was relieved of any monotony which it might otherwise have had. The only drawback felt in connection with the whole trip was the want of the *Dundee Weekly News* at the end of the week, and it was indeed much missed.

A Sea of Ice.

About one o'clock on the morning of Sunday, July 2, the officer on duty reported the appearance of an iceberg, and the delegates having, in accordance with a previous arrangement, been duly advised of the circumstances, rushed on deck with an eagerness and agility which some of them possibly would not have displayed in the matter of church attendance, in order to witness what was to them a novel spectacle. The berg was of large size, and in shape was somewhat similar to the roof of a house. The Iona was then about 100 miles to the

ICEBERG, 100 FEET (SKETCHED BY MR LOGAN).

eastward of the Strait of Belle Isle, and as the Strait was approached, the bergs became more numerous, until from 30 to 50 could be counted at the same time from the deck. These were of various shapes and sizes, some towering up like church spires to the height of about 100 feet, a few bore a striking resemblance to the Bass Rock, others had the appearance of rough jagged cliffs rising abruptly from the water's edge, while several presented large surfaces almost flat. A number might also be compared to volcanic mountains. All were, of course, given a respectable berth. Early in the forenoon the entrance to the Strait was made, and then the first field ice was seen. This was in pieces here and there, which were easily avoided, but as the vessel steamed into the Strait some thick bands were found, and eventually the ice became so densely packed that the engines had to be slowed down for the sake of safety, and the steamer crept along at the rate of from only three to four miles an hour. The blocks of ice were of greatly varying dimensions, and in many instances assumed most fantastic forms, whales, elephants, lions, swans, ducks, &c., being often represented, while

ICEBERG (SKETCHED BY MR LOGAN).

mushrooms, in particular, were very numerous. Some of the pieces presented a remarkably beautiful appearance, through the sun striking them, and giving them a bright green hue, with other tints. An idea of the density of the ice may be obtained from the fact that, when about a quarter through the Strait, we sighted the steamer Nithsdale, also bound for Montreal, steaming slowly back, having been unable to make a passage. Captain Cummings, however, carefully and skilfully navigated his vessel through the apparently impenetrable ice field, and at one o'clock in the afternoon, after four hours' slow steaming, he had the satisfaction of entering more open water, although ice floes were still quite numerous enough, and bergs, some of which were stranded on the Labrador and Newfoundland coasts, were frequently met with. Altogether the ice field was about 150 miles in width. One of the Radical members of the Expedition remarked that, if mariners were like British landlords, they would post a notice across the Arctic current to the north of Belle Isle with the legend—"Icebergs beware! Trespassers will be prosecuted." It may be mentioned that at this time we were in the latitude of London, and the readers of the *Dundee Weekly News* would, no doubt, be a little surprised if they were to find the Thames blocked with ice on the 2d of July. That it is not we have to thank the Gulf Stream, and we have

ICEBERG (SKETCHED BY MR LOGAN)

also to be grateful that as yet, at least, no vindictive Yankee has been able to divert its warm current from the shores of Great Britain. For a considerable time the thermometer stood at 38 degrees, or only 6 degrees above freezing point, and greatcoats and waterproofs were much in evidence.

The Perils of the Ocean—A Striking Illustration.

Scarcely had we passed through the Strait of Belle Isle than the delegates had a striking illustration of the perils of the ocean. On approaching Point Amour the steamer Sicilian passed the Iona homeward bound, and signalled to report the Lake Nepigon ashore. A short time afterwards a boat was seen approaching the Iona from Labrador, carrying a piece of bed linen as a flag of distress, and on coming up it was found to contain the captain of the Beaver Line steamer Lake Nepigon, another officer, and eight of the crew. The captain reported to Captain Cummings that he had left Montreal some days previous for Liverpool, with eighteen passengers, 331 cattle, 99 sheep, and a general cargo, and that on Saturday shortly after entering Belle Isle Strait he struck a piece of submerged ice, which knocked in some of the plates of his vessel, and allowed the water to enter No. 1 hold. Finding the steamer sinking, he turned round and beached her in Fortean Bay, a short distance to the west of Point Amour, at

the lighthouse at which the passengers found accommodation. Before being beached the forecastle head of the Lake Nepigon was level with the sea, and her forehold was full of water. At his request Captain Cummings agreed to forward at the earliest possible moment a telegram to Montreal for assistance in the shape of tugs, with pumps and divers, but so outlandish was the locality that some days would necessarily elapse before these could arrive. The Iona was remarkably fortunate in getting bright clear weather in which to pass through the Strait, as the captain of the Lake Nepigon stated that a dense fog had prevailed there for some days, and had lifted only about two hours before the arrival of the Iona. The Strait of Belle Isle, it may be explained, is frozen over every winter, and is rarely, if ever, open before the end of June. By taking it instead of going "south about," steamers save fully 200 miles on the passage.

The St Lawrence River.

After a good run Heath Point, the eastern extremity of the Island of Anticosti, in the Gulf of St Lawrence, was passed at 10.40 a.m. on Monday, July 3, and in the evening the Iona made Fame Point, the first land sighted on the south side of the St Lawrence. A little later we passed the Thomson Line steamer Fremona (Captain Stooke), home bound. Exactly at noon on Tuesday the vessel arrived off Father Point, 294 nautical miles from Montreal, and 1992 miles from Middlesbrough, the passage, notwithstanding the detention in the Straits of Belle Isle on Sunday, and another detention that morning, owing to a dense fog in the St Lawrence, having been accomplished in the remarkably short time of 9 days and 10 hours, which is the quickest on record. The run from land to land—Butt of Lewis to Belle Isle—occupied only 5½ days, or rather less time than that taken by the record-beater Campania on the New York passage, although the run of the Campania, it may be explained, is a good deal longer. On several days the log indicated that the vessel had run 300 nautical miles, or 345 English miles, in the 24 hours. After coming under the shelter of the land the thermometer rose suddenly to 75 degrees, the air coming as if from the funnel of a steamer. In running up the noble St Lawrence river a fine view was obtained of the land on the southern bank, which to begin with is thickly dotted with small houses, apparently those of fishermen, and in many places is densely wooded to the summit of the hills, some of which are about 2000 feet in height. The wind was coming from that quarter, and carried with it the sweet, invigorating perfume given off by the pine trees. By and by villages and towns—some of them of considerable size—were seen, and at remarkably short intervals churches with spires stood out boldly, indicating the pious character of the descendants of the original French settlers. At Father Point we took on board the pilot, and Captain Cummings despatched to Montreal a telegram announcing the stranding of the Lake Nepigon. Early in the afternoon another dense fog came down, and after the vessel had steamed slowly ahead for some hours it became so thick that at half-past four o'clock the anchor had to be dropped. The fog continued until 6.20 on Wednesday morning, when the voyage was resumed, and the river being now more narrow the grand scenery on both sides stood out in bold prominence and was greatly admired. The river here is thickly studded with islands, and these, while adding to its picturesqueness, constitute a source of great danger to navigation, several vessels coming to grief on one or other of them every season. This was painfully illustrated as we passed Red Island, on which a barque was seen to be stranded, and the steamer Crane, of Newcastle, was also observed aground in another place, but the latter got off and proceeded to Quebec. At the quarantine station, about thirty miles below Quebec, we were boarded by a medical officer, when the officers and the members of the Expedition assembled on the bridge deck, and the seamen and the firemen were drawn up on the deck; and all having been certified in good health the steamer proceeded. As we approached Quebec, a heavy rain set in, but, notwithstanding, a good sight was obtained of the famous Falls of Montmorency, where a great volume of water dashes over a precipice from a height considerably exceeding any of those at Niagara. Quebec was made at seven o'clock, and a short stoppage being required here for the purpose of shipping another pilot, the quaint old capital of the province, familiarly known as the "Gibraltar of America," and the only walled city on the Continent, was seen to much advantage. When here courtesies were exchanged with the Thomson Line steamer Hurona, the sister ship of the Iona, then lying at Port Levis. On resuming, the Plains of Abraham, where General Wolfe, by his grand victory over Montcalm, captured Canada from the French, was passed, and ten miles further up we dropped anchor for the night, the pilot deeming it imprudent to proceed farther in the rapidly-growing darkness. A heavy rain had been falling for some time, but at two o'clock in the morning when we again got under way the weather was bright and clear, and the run up the remaining part of the St Lawrence was accomplished under the most favourable conditions, the delegates viewing steadily for hours the magnificent and ever-varying scenery of the great river. A short distance to the west of Lake St Peter we met the Thomson Line steamer Dracona on the homeward run, and the vessels passed so close to each other that Captain Cummings warned *viva voce* Captain Thompson of the dangerous condition of the Strait of Belle Isle. The Iona was berthed at the Thomson Wharf, Montreal, at 4.15 p.m. on Thursday, July 6, and the delegates were welcomed to Canada by Mr Frederick Thomson, one of the proprietors of the *Weekly News*, who had been in America for some time arranging for the work to be undertaken by the members of the Expedition there. Mr Thomson brought with him a copy of the *Dundee Courier* of June 27th, which was instantly torn to pieces and eagerly devoured by the delegates. The members of the Expedition then left the vessel in order to have a run through the city, but before doing so Mr Murray, the conductor, tendered to Captain Cummings and the other officers of the ship the heartfelt thanks of the delegates for the great kindness and attention which had been shown to them throughout the voyage, the trip having been greatly enjoyed by all.

SIGHTS OF MONTREAL.

GREAT RAILWAY WORKS.

WORK AND WAGES.

CANADIAN LOCOMOTIVES.

CROFTERS IN CANADA.

AGRICULTURAL IMPLEMENTS.

PECULIARITIES OF FARMING.

(From the Weekly News of 29th July.)

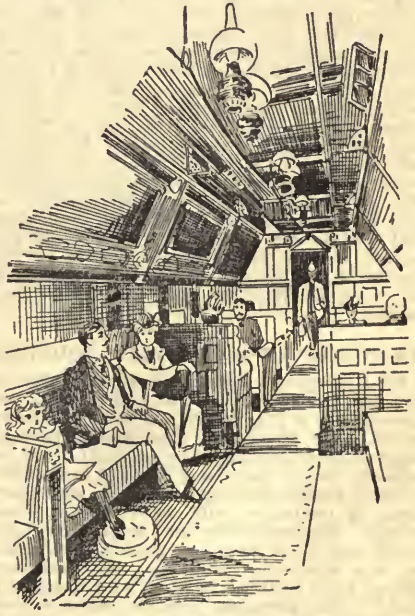
As they approached Montreal in the steamer Iona, the delegates obtained a splendid view of the commercial capital of Canada, and those from Dundee were struck by its remarkable resemblance to their native city. Spanning the river, a short distance up from the wharves of the great steam shipping lines, is the Victoria Bridge carrying the railway from the large island on which Montreal is situated to the mainland on the south. While rising from the level ground along the banks of the St Lawrence, on which the city is principally built, is Mount Royal, 700 feet in height. The Victoria Bridge, which is nearly two miles in length, rests on strong piers of solid masonry with gigantic buttresses on the upward side in order to protect the structure from being destroyed by the huge blocks of ice which are brought down from the upper waters in spring, and the trains run through a massive iron tube, similar to that which covers the Menai Strait, 22 feet high and 16 feet wide. The bridge cost altogether 6,300,000 dollars (£1,260,000). As a few hours intervened between their arrival and the hour fixed for their departure for Toronto, the delegates had

A Run Through the City,

and visited the large workshops of the Canadian Pacific Railway Company. Among the prominent buildings seen were Christ Church Cathedral (Episcopal), the finest specimen of English Gothic architecture in America; the Roman Catholic Parish Church of Notre Dame, the second largest on the Continent, and with sitting accommodation for from 10,000 to 12,000 persons; the Cathedral of St Peter, a still larger and more magnificent building, approaching completion; the City Hall and Court House, a large and handsome edifice; a splendid Post Office; and the Board of Trade and Young Men's Christian Association buildings, both imposing and well-appointed structures. In their tour through the city the delegates quickly noted some names in connection with laundries which appeared strange to British eyes, these being such as Long-Lee and Wang-Loo, and it was explained to them that Chinamen were what might be termed "washerwomen" to the whole of North America, all the laundries being practically in their hands. Great curiosity was also manifested in regard to the meaning of the sashes seen on a few house doors, and on inquiry it was ascertained that this was a custom connected with death in America. When a child under seven years of age died a white sash was fastened to the door; for a person between seven and twenty-one the sash is white and black, and for an adult it is wholly black. The day on which the delegates landed in Montreal was that of the marriage of the Duke of York to the Princess May, and testimony was afforded of the loyalty of the Canadians, flags and bunting being liberally displayed, and some fireworks were also seen. The population of Montreal, fully 250,000 in number, is mixed in character, the French being more numerous than the English-speaking citizens, but it is stated that the latter control both the commerce and manufactures of the city. A large number of the streets have distinctly French names.

RAILWAY WORKSHOPS DESCRIBED BY MR WATSON.

Mr Watson, Enginedriver, Dundee, visited the workshops of the Canadian Pacific Railway, and he states that the first in point of interest was the moulding department. Here they were making wheels for cars and brakeblocks for all sorts of freight and passenger cars. The most of their work was paid by piece. Most of the moulders made from 8s to 12s per day, while labourers earned from 6s to 7s per day. They worked 10 hours per day, starting at 7 a.m., dinner from 12 to 1 p.m., stop at 6 p.m. The same on Saturday. There were a good many Frenchmen and a few Scotchmen, the leading hand being a Kirkcaldy man, who was recognised at once by Mr Bennett. His name was Mr Mackintosh. He was very good in showing us round. He has been in America thirty-seven years, and said that their department was, in the meantime, very slack. I had not time to call at the engine shops owing to our short stay there, having to leave with the 9 p.m. express for Toronto. When arriving at the station, I was delighted to see such a nice entrance to the booking hall, but was surprised to find there were no platforms, only a deal floor about the height of the permanent rails; but, owing to the construction of the cars here, a high platform is not necessary. The cars on the Canadian Pacific Railway are something the same as the Pullman cars that run through our country. The 9 p.m. express was composed of six of these cars, which made a pretty long train. At 9 p.m. the engine bell began to toll, and the train moved away instantly. We were now seated in a very handsome car to take us on



INTERIOR OF CAR.

to Toronto, a distance of 338 miles. This distance was completed in nine hours, and three different engines were employed in this distance.

Canadian Locomotives.

In Toronto I went down to see the Grand Trunk engine shop, and had a survey of their engines. They differ in many respects in their construction from the engines in our country. They are all outside cylinders and no "splashers" over their wheels. They have a very large cab with windows in the side as well as in front. The foot plate round the boiler only extends about halfway forward. The smokestove is twice the length of the one on our engines. They have cow catcher in front, and wide-mouthed funnel with large lamp in front of it, and a large bell on top of boiler with a cord attached, which the fireman keeps pulling away at when moving near a station, or approaching level crossings. This avoids noisy whistling, but I would prefer the one about as soon as the other, for these bells do make a loud noise. When in bed I could hear them sounding nearly all the night. The most of the passenger engines are four coupled from 5½ to 7 feet driving wheels and two four-wheeled bogies under tender, all fitted with air brakes. They have not any side buffer. The buffer is in the centre, which serves as a drawbar as well. The cars are attached by one link and two pins, one at each end, put down through the drawbars and link. They have also some other kinds of couplings. The freight cars are nearly as large as the passenger ones, and are coupled much the same way. The employés are paid much higher than our home railway men.

Wages of Railway Men.

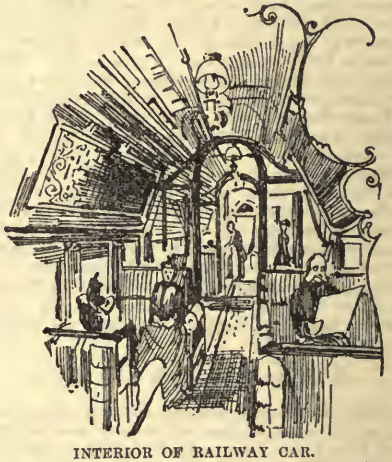
Fitters are paid 9d to 10d per hour. Apprentices serve five years. Their pay is—first year, 2d; second, 2½d to 3½d; third, 3½d to 4½d, and rise to 5½d per hour. They start work at 7 a.m., meal hour from 12 to 1 p.m., and stop work at 6 p.m. On Saturdays they stop work at 11 a.m., thus working a 54 hours week. Enginedrivers are paid by mileage, averaging 1¼d to 1½d per mile. The miles run are from 100 to 162. Men running 100 miles are expected to get four hours' rest before starting, and men running 162 miles get twelve hours rest before being called out. Drivers are paid for thirty minutes before train starting time. Overtime caused by detention is paid at the rate of 10d per hour, but nothing for the first hour. Firemen are paid at the rate of 47 per cent. of the drivers' wages, and are allowed 45 minutes before starting. They get promotion by servitude, firing eight to ten years before being promoted to driver. Cleaners are paid 3s 9d per day. Goods guards or freight conductors running 100 miles average 7s to 10s; porters 5s 3d per day; pointsmen from 6s to 7s; yardsmen 7s to 8s. All servants are paid monthly.

MR DUNLOP AT A CANADIAN FOUNDRY.

Mr Dunlop, of Motherwell, reports:—To the Canadian Pacific Railway Montreal workshops we drove by way of Papinane Avenue and St Catherine Street. Mr Mackintosh, the Scotch foreman, received the deputation, showing us all round the foundry, where they were casting car wheels, hammer blocks, locomotive cylinders, and everything in connection with their great railway system. The iron chiefly used is got from Three Rivers and other parts of Canada, but, pointing to a large cylinder just cast, Mr Mackintosh said—"There is 50 per cent. of good Coltness in that." The annealing furnaces, where the car wheels are placed for eight days, was a point of interest to the delegates. The tradesmen's wages are from eight to ten shillings a day; labourers, five shillings. They have no regular system of apprenticeship, and anyone working two or three years about the shop gets a place as a tradesman. This loose system helps greatly to keep down wages. The foreman advised no one to come to Montreal in winter, as there is always a scarcity of employment at that season owing to the navigation being closed for five or six months by ice. They employ 150 men in the foundry department. Their hours are from seven to six, and they work to six on Saturdays.

THE OXFORD OF CANADA.

The Expedition left Montreal for Toronto on July 6 by the 9 p.m. Canadian Pacific western express, starting from Windsor Street Station, a stately stone structure in Dominion Square. When walking along the platform here one could scarcely realise that he was 3000 miles from home, as the names of the stations shown on the boards appeared quite familiar, these including London, Peterborough, Perth, and even Newport.



INTERIOR OF RAILWAY CAR.

The run of 330 miles from Montreal to Toronto was most comfortably accomplished in the sumptuously-furnished sleeping cars on the Canadian Pacific Railway, and the delegates were set down in a thoroughly refreshed condition at 7 a.m. on Friday, the 7th, at the capital of the Province of Ontario. Toronto, which has a population of 200,000, occupies a somewhat low though fine situation on the north-west shore of Lake Ontario. Being to a large extent a modern city, it is laid out on the rectangular plan, almost universal in America, and its leading streets are wide and well paved, while some of them possess beautiful avenues of trees. Toronto, with good reason, is particularly proud of its educational institutions, and it has the noble aspiration of becoming the Oxford of America. At the head of these institutions is the University of Toronto, a group of handsome and well-equipped buildings, and as a seat of learning unsurpassed by any on the American Continent. After breakfast at Walker House, one of the best hotels in the city, and in close proximity to the railway station, the delegates separated in order to visit the various places of interest in the city.

Electric Light in Toronto.

Mr Ebenezer Bennett, Electrical Engineer, Newcastle-on-Tyne, reports:—The electric lighting and motive power in Toronto is upon the low tension

system, and supplied by two companies, one supplying current for incandescent lamps and private motive power, such as elevators, &c., in private buildings, the other for arc lamps for street lighting, and motive power for tram cars, &c. The Incandescent Lighting Company, at the present time, is supplying current for close on 13,000 16 candle-power lamps. The cost to the consumer is on an average 6-10ths of a cent, or fully ¼d per hour, for each 16 candle-power lamp. Its station is fitted on the Edison principle, having 10 dynamos, 6 of these generating a current of 600 amperes, and 4 at 400 amperes 120 volts. These are driven by five powerful steam engines made by the Armington & Sim Engineering Company, and run at a speed of 262 revolutions per minute. The other company, which is called the Toronto Electric Lighting and Power Company, make their own dynamos, of which they have no fewer than 60 at their station. These are driven from intermediate shafts, which are driven by leather belts, 36 inches wide, from six very powerful double cylinder engines, ranging from 500 to 1000 horse-power. They supply the current for arc lighting all over the city, and for the electric tram cars. These cars are fitted with an electric motor varying from 20 to 30 horse-power, and get the current from overhead wires. I think there is great room for improvement here. The first thing that strikes one in Toronto is the great number of telegraph poles that line the streets on both sides. These are for carrying the wires that convey the current for the electric tramcars. This would not be tolerated in any of our Scottish or English towns or cities, as at a very little extra cost they could be put underground. The people in Toronto whom I came in contact with were all very obliging and anxious to show me all they could, or give me all the information that was in their power to give.

A Fire Alarm.

Mr Donald Gibson, the city electrician, who was particularly attentive, showed me all round their fire station, or, as they term it, their fire hall. He very kindly introduced me to Mr Richard Ardagh, chief officer of the department, who, after a private consultation with Mr Thomson, his assistant, gave a false alarm. Everything being worked by electricity, the instant the alarm is given the stable doors fly open, the halter drops from the horses' necks, they bound forward to their places, and the men being already at their posts, the horses are harnessed as if by magic. From the instant the alarm is given till all is ready for the road is only 8 seconds. You can scarcely realise that an alarm has been given till they are on the road. There is only one weak point in the whole system that I could find. It is an instrument which registers the number of the box from which the message has been sent. The moment the push is touched the number of the box is thrown up, and at the same time all the other numbers are fixed in such a way that none of them can be worked until this number drops again into its place, which is done by means of a lever operated by clockwork. This takes one and a half minute, during which time no other message can be received. I pointed this out to Mr Gibson, and he admitted that it was a weak point, and that it had failed them twice to their knowledge during the last five or six years. This, I consider, is very serious in a large city. The first thing that the eye lights upon on entering the Toronto Fire Hall is a large notice board with the following :—

NOTICE.
Do Not Spit on the Floor.
Hands Off Brass Work.
The Lord Helps Them that Help Themselves,
But the Lord Help Them that Try to Help Themselves Here

TORONTO CONTINUED.

EDUCATIONAL INSTITUTIONS.

SCHOOL BOARD SYSTEM.

LARGE PUBLIC BUILDINGS.

STATE OF BUILDING TRADE.

EVANGELICAL WORK.

Y.M.C.A. AND Y.W.C.A. IN CANADA.

LABOUR LEADER INTERVIEWED.

WAGES, HOURS OF LABOUR, HOUSE RENTS, &c.

(From the Weekly News of the 5th August.)

TORONTO IN 1834.

Mr Robert A. Muir, Hill of Beath, miners' representative, writing from Toronto, July 7th, says :—To-day we visited parochial, normal, and model schools and school of practical science, and were agreeably surprised to be received with the greatest courtesy from all with whom we came in contact, from the principal downwards, all of whom did all they could to make our visit a success by showing us through the classrooms and giving information. The three main features of elementary, secondary, and higher education are adopted here, and no one system trenches upon the ground of the other. The system included the kindergarten, public, and separate schools, High Schools, and collegiate institutes, and the University. The child enters the kindergarten at perhaps four years of age, and the Public School at six, and is prepared at about the age of thirteen for the High School. Four or five years at the High School or Collegiate Institution enables him to enter the University, where he attends four years, and gains his B.A. degree. The principles of the system of

UNIVERSITY OF TORONTO.

national education favour no class or sect. The rich and the poor meet together. Private schools are not

successful. The High School is the poor man's college, on account of the general desire of the community to exact low fees from students, and in a great many instances to charge no fees at all, and it is worthy of note that the highest distinctions in the Universty are most frequently gained by the sons—and the daughters, too,—of working men. The ratepayers (men and women) elect the trustees, who, within the provisions of the provincial statutes or regulations of the Education Department, appoint the teachers, and determine the amount to be expended for buildings, equipments, and salaries. It thus follows that the system of education in Ontario, is essentially democratic, and in those matters which affect the sentiments or touch the

Pockets of the People

each locality has almost entire control. No religious body has any voice in the management of the High and Public School, or the University. These institutions are, however, far from being godless or irreligious. The doctrines of no Church are taught, but the principles of Christianity form an essential feature of the daily exercises. As an instance of this I may cite the first rule of the Regulation Act—"Every Public and High School shall be opened with the Lord's Prayer, and closed with the reading of the Scriptures and the Lord's Prayer or the prayer authorised by the Department of Education." But no pupil need join in any exercise of devotion or religion objected to by his parents or guardians. Of the 128 High Schools and Collegiate Institutes 48 are free, and the fees of the others vary from 10s to £5 per month. In a great many instances school books are given free, or at wholesale prices. It is held that compulsory education is necessary if it is given free, and any person employing a child under the age of fourteen years during school hours is liable to a penalty of £4. The school of practical science was founded in 1877, and large additions were made in 1890. The latter was set apart for work in chemistry, mineralogy and assaying, while the engineering and architectural departments were accomodated in the new building which is now of great size, and a large portion of which is occupied by the engineering laboratory. This laboratory has been equipped with the most modern machinery and apparatus for carrying on original investigations in steam engineering, hydraulic and electrical engineering, strength of materials of construction, standards of length, &c. In the department of mining engineering there are laboratories for assaying, blowpipe analysis, microscopic lithology, &c. For instruction in surveying and practical astronomy, the school is supplied with a good collection of the ordinary field instruments, transit levels, &c., also splendid theodolites for astronomical work. The departments for instruction are :—1, civil engineering, including sanitary engineering; 2, mechanical and electrical engineering; 3, mining engineering; 4, architecture; 5, analytical and applied chemistry —which are all fully taken advantage of, as in some of the departments they have actually had to put two pupils to work in the space which was originally designed for one.

Technical Training.

In speaking to professor Galbraith, who is the Principal of the Science School, and who belongs to the Lothians of Scotlands, on the subject of technical education, he said—We consider ourselves bound to give the young men a thorough technical education, because we find that men so taught have taken mostly all the highest situations, either at home or abroad. He said it is sometimes argued that it is a mistake for any particular place to go in for technical education, because you may be learning men who when learned may go to other towns or countries, and give them the benefit of education they received in their own country, and which may be taken as being in direct opposition to their own particular branch of industry at home; but he went on to say this is a very selfish, as well as a wrong view to take of the matter, and to prove such was the case he said that out of 101 students who had graduated in engineering only 24 had left the country. The others had remained, and had done, and were doing, good work. Besides the school of practical science there is a large building which they call the School of Technology. This is attended by the young working men in the evening when their ordinary work is done. The subjects taught are the same as the Science School, and only thoroughly qualified teachers are allowed to teach these and all the other classes, and all teachers who may come to this Province to fill situations are required to pass an examination in accordance with the rules of the Province. All the departments of this branch of education are thoroughly equipped with models and appliances for the proper teaching of the different subjects.

Board Schools in Canada.

Mr Mungo Smith, Dundee, reports a meeting with several members of the Toronto School Board in the Secretary's office and a visit to the Church Street Public School, there being present Mr Wilkinson, secretary and treasurer; Mr C. H. Bishop, superintendent of buildings; Mr J. Hambly. Mr W. W. Hodgson, and Mr Douglas, members of the School Board. These gentlemen gave us a hearty welcome, and we found in conversation that education in the Public Schools is managed with great care. The Board is composed of twenty-six members, one of them a lady (Mrs Mary M'Donell). There are six districts, and two members retire each year. All classes are taxed for education, and are entitled to vote. Education is compulsory from the age of eight to fourteen, and education and school books are free. There are in Toronto 48 Board schools, with 600 teachers. The salaries of pupil teachers are £60 and upwards. The salaries of headmasters are on a slid-

CHURCH STREET SCHOOL, TORONTO.

ing scale, commencing with £140 for the first three years, from three to seven years £240, and rising £30 a year until they reach £300, which is the maximum. Female teachers have the chance to the same salary if they can write B.A. to their name. The Board give notice to the Town Council at the beginning of the year what they want for school purposes, and the Council have to provide that amount, but if the Council think the Board is going too fast or acting extravagantly they can refuse, and if they do so a vote of the ratepayers is demanded on this grant, and their decision is final. The arrangements of the scholars are as near perfect as any one can conceive. The divisions or class rooms have every appliance for the carrying on of the work. Black boards are around in the whole of the rooms, and the desks, which hold two, are all facing the teacher's chair, each room having its own size of desks, acording to the age of the child. There is a complete speaking arrangement of tubes connecting the whole rooms, and there is also a fire alarm bell. If a fire should arise in any of the rooms the connection is pulled, and the alarm is given all through the school.

The Pupils Form Four Deep,

one of the teachers taking his position at the top of each stair to prevent crowding. The children immediately trip out and empty the school of 1000 in two minutes. They have a drill instructor, and great attention is paid to this; also a music master. The total number of pupils on the register is 32,017; average daily attendance, 21,585; value of school properties, £300,000. They paid in salaries during the year £58,860. Out of this amount there was paid for officers' salaries £3104. This is a very large amount of money, but I consider that they have a thorough educational system in Toronto, and must say I was very highly gratified with the kind reception we got and the readiness to give us all information. The School Board of Dundee should send a deputation out there to get a few wrinkles, and I guess they would get them. Toronto has an industrial school for truant boys. Their training is similar to our own. Sunday observance is very good; there are no public amusements on the Sabbath day. Toronto is styled the City of Churches, and it deserves the name, as they are very numerous. All the gentlemen I spoke to on the subject told me the seventh day was well observed by all classes.

The Licensing Question.

Mr Mungo Smith also reports:—The Town Council of Toronto have the power to limit the number of licenses. Questioning a friend—Do you find that properties rise in value when they get the license? A.—To a certain extent. But if an exorbitant rent be charged above the other shops they are told the license will be taken from the house. All publichouses shut on Saturday night at seven until Monday morning, and also shut on election days. The part of the town I saw on Saturday night was very quiet. Cooling drinks are as much run upon here as beer is at home. Sanitary arrangements are very well looked after in Toronto. The Board has great powers, and, what is more, they put them in force.

ONTARIO PARLIAMENT BUILDINGS.

Mr Sinclair, Cambuslang, representative of the building trades, reports:—I visited the Parliament Houses, Toronto, and inquired for the Clerk of Works, who very kindly took us over the buildings and gave all information regarding them. It is six years since they were commenced, and he made a boast that they were the only buildings of note in Canada or America that had been finished

ONTARIO PARLIAMENT BUILDINGS.

without any extras over the estimated cost of £250,000. (The architect, Mr Richard A. Waite, is an Englishman from the county of Kent.) The buildings are situated at the southern end of Queen's Park and have a total frontage of 500 feet, the main entrance forming a double letter E and enclosing within its walls over 76,000 square feet. In architectural design it is Romanesque. There is a great deal of carving all round the building done in a conventional style. It represents the Canadian maple leaf, the Scotch thistle, the English rose, the Welsh leek, and the Irish shamrock, the largest specimen of carving being a sculptured frieze 70 feet long, 15 feet high, surmounting the three great windows in the centre structure. The stonework represents in heroic size allegorical figures of music, agriculture, commerce, art, science, law, philosophy, architecture, engineering, and literature grouped on either side of the arms of the province. The stone used is reddish brown, and comes from Credit Valley, thirty miles from Toronto. The main entrance is composed of three noble arches, 18 feet by 26 feet high. These arches rest on six clustered columns, the caps being 9 feet long, 6 feet broad, and 2 feet 2 inches thick, all beautifully carved. Right through the corridor are the various offices in connection with various officials. On the second floor is the Legislative Chamber, which accommodates 91 members. It is elaborately fitted up with the electric light, has the best possible means of ventilation, containing a patent automatic thermometer which keeps the Chamber steady at whatever temperature is required. From the floor to the ceiling it is 52 feet. Each of the various Ministers has a fireproof room for all his papers and documents of value.

TORONTO MUNICIPAL BUILDINGS.

Mr Sinclair also reports:—On arriving at these buildings my first inquiry was for Mr Alex. Marshall, the head foreman, who gave me a very warm reception. Mr Marshall was for many years a foreman mason in the old country, being a native of Carluke. The Municipal Buildings have been four years in course of construction, and will occupy four years yet before completion. Mr E. J. Lennox, of Toronto, is the architect. They are to be used for City Hall and Courthouse. One fine feature of this building will be the tower, which is to rise to a height of 250 feet. The foundation for this tower, 76 feet square, is thirty feet below the level of the road, and built of solid limestone set in cement. The walls all round the building are 7 feet 9 inches thick at ground floor on each of the four sides of the building. There will be a frontage of 300 feet. There are two kinds of stone being used—one a brown stone, which comes from New Brunswick, travels 1000

TORONTO MUNICIPAL BUILDINGS.

miles by rail and 50 miles by water, and costs, laid down at building, $1.15 (4s 7½d) per cubic foot. The other stone is a grey stone, very hard and difficult to work. It costs 65 cents (2s 8½d) per foot. Stonecutters are the highest paid tradesmen in connection with the building trade. They receive 43 cents (1s 9½d) per hour, and work nine hours per day. Commencing work at 7, they work on to 12, then stop one hour for dinner, and stop on Saturdays at 12—working in all 50 hours per week. The stonecutters of Toronto are well protected from the sun's rays. They have comfortable sheds, well ventilated, and any who are working outside have portable shades, made with four light posts and covered with canvas. They have a rail track all round the building, and have no lifting as in Scotland, the cranes doing all that. They have 19 derricks all wrought by 6 stationary steam engines on the ground, avoiding the terrible noise we are so accustomed to at home at buildings where steam cranes are used. These buildings when finished will be the largest municipal buildings in America with the exception of those in Philadelphia. They were estimated to cost $1,500,000 (£300,000), but will exceed that amount before they are finished. The original contractors, Elliott & Neelon, having given up the contract, the Corporation are finishing the work themselves. There are 120 stonecutters, 30 bricklayers, 2 setters, and 2 stonemasons employed there. The trade society in each of these branches is very strong, and carries out the rules to the very letter. Bricklayers have 36 cents (1s 6d) per hour; labourers, 21 cents (10½d) per hour, also 50 hours per week. I asked Mr Marshall if he thought a working man was much better off here than in the old country. He said certainly, they had more money, more leisure, and more comfort every way. The sanitary condition of the town is fairly good, and the water supply comes from Lake Ontario.

TORONTO YOUNG MEN'S CHRISTIAN ASSOCIATION.

Mr Dunlop, Motherwell, reports:—Our deputation was received by Mr Scott, the assistant secretary, who hails from Edinburgh. He courteously conducted us all over the building. The Secretary (Mr M'Culloch) is also a Scotchman. The building has been erected at a cost of $110,000 (£22,000). The largest hall is the auditorium, where there is a fine organ. It is seated with light chairs for 1200, and all large meetings and important gatherings are held in this hall. They have also a lecture-room seated for 500, where lectures, &c., are delivered during the winter. They have a reading-room with all the magazines and weekly papers from the old country, a library with 1000 volumes, and a members' parlour with piano. The gymnasium for recreation is a fine hall, with walking or running track, dumbbells, trapeze, chest exercises, &c. Off this hall there are also swimming baths, &c. The work is actively engaged in, and special meetings are held often. There are gospel meetings every Saturday, and meetings for policemen every Wednesday at 3 o'clock. Young men coming from the old country are looked after, and they try to get them to join some of the churches in town. The membership consists of active or associate members. An active member must be a member of one of the churches. The terms of subscription are £1 per annum; boys, 10s. They have four branches in Toronto. The president is Mr D. M'Laren, who takes an active interest in the work. Any visitors from the mother country who take a part in evangelical work will be pleased to see the above institution, where they are sure of a hearty welcome.

TORONTO YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

Mr Dunlop also reports:—At the above Association in Elm Street we received a hearty welcome from Mrs Bailey, the lady superintendent. The object is the temporal, moral, and religious welfare of young women who are dependent on their own exertions for support. They have an employment bureau, and at present the demand for help is greater than the supply. Classes are conducted in cooking, general improvement, dress-cutting, and making, &c. The cooking classes are specially well attended. The boarding house is a feature of the institution. The price for board is from 9s to 15s per week, and about 60 boarders are at present there. They have a lecture hall, reading-room, reception-room, and sitting-room, all of which are splendidly furnished. The bedrooms are cheerful and bright apartments, with high ceilings, and perfect models of cleanliness and comfort. The whole arrangements are a credit to the lady superintendent. The same table is provided for all, the only difference being in the price of rooms. The board of management consists of a president, 6 vice-presidents, 45 directresses, a secretary, and treasurer. Their duties, assisted by all the members, are the seeking out of young women who come to reside at Toronto, securing their attendance at some place of worship, and surrounding them with Christian associates. On leaving the city they are furnished with letters of introduction from the Association. Any one who desires to see a model institution, if they are on a visit to the Dominion of Canada, should not fail to pay a visit to the above, where they are sure of a cordial reception from Mrs Bailey.

INTERVIEW WITH A LABOUR LEADER.

Mr Murray, the Conductor of the Expedition, reports:—

During the stay of the Expedition in Toronto I was fortunate in obtaining an interview with Mr Alfred F. Jury, a tailor. Mr Jury is one of the most prominent labour leaders in the city, and is a member of the Executive of the District Assembly of the Knights of Labour, a body with a broad, Radical platform, very similar to that of the Labour party in Great Britain, and he is also a member of the Legislative Committee. The

Prospects of Artisans in Toronto

at present are, he stated, far from bright. The labour market is overstocked, and the building trades are particularly dull, except as regards the stonecutters, in connection with whom there is just now a little stir on account of the erection of a new city hall and Courthouse, and the departure of a large number of men for the States last fall and this spring through the long delay in starting work.

The Tailor Trade.

Concerning his own trade, he said the tailors were paid on a time-log resembling that in operation in Glasgow and other large towns in Great Britain. In one or two shops the men were paid 21 cents (10½d) an hour, while in other first-class shops the rate was 20 cents (10d) an hour. Pant-making was almost wholly in the hands of girls. A man received the cloth from the shops, and hired roomy and well-ventilated workshops in which the girls sewed the garments for which they were paid from 50 cents (2s) to $1¼ (5s) a day according to their ability, the contractor getting for his superintendence, &c., a sum ensuring him a good living. Girls themselves took out vests to make, and were paid from $1 (4s) to $1.50 (6s) by the good shops.

Labour Organisations.

Several trades were well organised, amongst the strongest of these being the stonecutters, who had an eight hours day, while others, and particularly those in the iron trade, wrought 9 to 9½ hours a day, or 51 and 52 a week, and finished at noon on Saturday. The bakers were amongst the worst off of all, and had to labour 70 or 80 hours a week; in fact, they had just to work as their employers ordered them. They had a good organisation some years ago, when they had a nine hours day, but as soon as they got a little power they were like a good many other people, and did not know how to use it judiciously. Consequently they lost the sympathy of the public, and being split up by internal dissension, they were now working all kinds of hours. The male tailors were well organised, but they had not been so successful with the female operatives. As an instance of the advance which had been made in his own trade, he mentioned that in 1873 the maximum price paid on an ordinary tailor's log was 15 cents (7½d) an hour, while now with no better log it was, as he had said, from 20 cents (10d) to 10½d. A large number of females were also employed in boot and shoe manufactures and in bookbinding, stationery, and printing establishments, and likewise in stores, but, excepting the wife of a liquor seller, there was practically no woman employed at a publichouse bar in the whole country.

Labour Representation.

On the question of labour representation, he said that the Technical Schools Board, which was appointed by the City Council, was composed to the extent of one-third of the representatives of labour. At the last municipal and School Board elections labour candidates, of whom he was one for the Council, were run in every ward, but none of them were successful. The poll, however, closed at five o'clock, so that working men did not get a fair chance of recording their votes. "I wish," he said ardently, "we had the polling hours that you have in the old country. You are ahead of us there." In continuation, Mr Jury said that his expenses were paid, but if elected he would have given his services without any remuneration. For the Provincial Parliament they had manhood suffrage, and for a vote in the Federal Parliament election a man had to earn $300 (£60) a year, or rent a property of the annual value of $20 (£4) in the cities, the rents required to be paid in the towns and villages being lower.

House Rents and Living.

As regards rents in Toronto, they were, he said, at present at the fag end of a real estate boom, and good houses could be got for a comparatively small sum. The rents of working men's houses in ordinary times ran from $7 (£1 8s) to $12 (£2 8s) a month, these figures including taxes, which were paid by the landlord. For the former figure an artisan would get a back-lot house of four or five small rooms, while for the latter he would get a small house of five or six rooms, with a bath and water closet. A single man who did not rent a house was liable in a statute labour tax of $2 (8s) annually, but it was evaded by 99 out of every 100. Asked if working men could save more in America than in the old country, Mr Jury said that altogether depended upon whether a man was provident or not. Being questioned as to whether the conditions of labour generally were better in America than in the old country, Mr Jury said that employers of labour seemed to have the faculty of getting more out of men on that side of the Atlantic than on the other. Q.—Do you think this is due to any superiority in the tools used? A.—I don't think there is much in that, although there may be something in the subdivision of labour and in the way things are run here. They drive at a fast rate, and the difference mentioned may be due in some way to the want of organisation in certain trades. Altogether, however, I think that employers here are meaner than those in the old country.

IN A FURNITURE FACTORY.

WAGES OF CARPENTERS.

DELEGATES AT NIAGARA.

IMPRESSIVE SPECTACLE.

THE ELECTRIC RAILWAY.

UNDER THE FALLS.

ELECTRIC AND WATER POWER.

FEAT OF A MODERN BLONDIN.

(From the Dundee Weekly News of 12th August.)

Mr Thomas Logan, Glasgow, woodworkers' representative, writes:—On arriving at Toronto Mr Brown and I visited the furniture factory of Messrs J. Rodger & Co. On our explaining the object of our mission Mr Rodger was delighted to meet a deputation of workmen from Scotland, at the same time stating he was a Scotsman himself, and came from Glasgow. Mr Rodger states that the cabinet trade is very dull at present in Toronto. The average number of men in his employment is about 40, which includes cabinetmakers, carvers, upholsterers, varnishers, and machinemen. The building consists of two flats. On the ground floor the machinery for the preliminary processes is placed. The other flat is occupied with the cabinetmakers and carvers. The class of work that was being manufactured was what I consider second-class, and does not call for any special mention. Oak is the principal wood that is used in the manufacture of furniture of every description. The following is a list of the wages in the furniture trade in Toronto:—

Cabinetmakers, 22½ cents per hour (11¼d); carvers, 21 to 30 cents according to ability (10½d to 1s 3d); upholsterers, 25 cents (1s 0½d); varnishers, 18½ cents (9¼d). The number of hours wrought is 55 per week, 9½ hours per day, and a half-holiday on Saturdays. No piecework is wrought in Toronto, and there is scarcely such a thing as an apprentice to be met with in the furniture trade of Toronto. Employers find they do not pay, and prefer workmen ready made.

Carpenters' Wages.

Mr Brown, of Govan (representative of Carpenters), has prepared the following tabular report :—

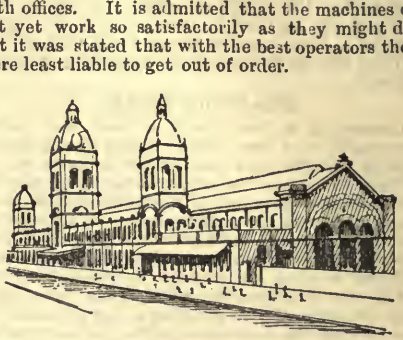
CANADA.

Towns.	Day or Hour.	Hrs. of W'rk		Wages.							
		Summer.	Winter.	Summer.				Winter.			
				$	£	s.	d.	$	£	s.	d.
Hamilton,	hour	55	47	12.38=2	9	7		10.57=2	2	4½	
London, (Ont.),	,,	54	48	10.80=2	3	4		9.60=1	18	6	
Montreal,	,,	60	48	11.25=2	13	0½		9.00=1	16	0	
Toronto,	,,	50	44	12.50=2	10	0		11.00=2	4	0	
Vancouver,	day	54	48	18.00=3	12	0		16.00=3	4	0	
Victoria,	,,	54	48	18.00=3	12	0		16.00=3	4	0	
Winnipeg,	hour	53	48	14.57=2	18	4½		18.20=2	12	10	

In Toronto they have no half-holiday on Saturday afternoons. Their wages are paid fortnightly —on Mondays. They are *not* allowed anything extra when working overtime—bare time only. They do not join apprentices to the trade. Young men are paid according to their ability. They begin work at 7 a.m. till 12, dinner till 1, and work till half-past 5 p.m. A five-roomed house rent costs $9 or $10 (£1 16s to £2) a month, and young men pay for board about $3½ a week (14s to 16s). Trade is not too good for carpenters at present here, and work scarcely to be had in winter at all. I would not advise anyone to come here at present.

The Newspaper Offices—Type-Setting Machines.

Several good newspapers are published in Toronto, and these are well supported. Among the leading journals are the *Mail*, the *Globe*, and *Empire*, all with fine offices, which I had the pleasure of a run through. The *Mail* and *Empire* are set up by means of Roger's typograph, which is wrought by means of a keyboard, similar to that of a typewriter. As a key is pressed the type falls down into a mould, and when a line is completed it is adjusted through the spaces, which are wedge-formed, being made to revolve until the exact length is secured. It is then cast, and the types are at once distributed, returning to their former respective positions to be reset when required. The wages paid by the *Mail* are as follows :—Night operatives, 48 hours per week, $15 (£3); students, for a period of six weeks, same hours, $12 (£2 8s); day operatives, 48 hours, 30 cents. (1s 3d) per hour. In addition, a bonus of ten cents. (5d) per 1000 is paid for all work over 100,000 ems a week. As an instance of the speed of the typograph, it may be mentioned that nineteen operators, only six of whom had been on machines for more than three months averaged 1600 ems per hour, but the average speed of fair operators is 2000 to 2500 ems an hour. The *Globe*, on the other hand, is set by means of Linotypes, and the wages paid are also $15 (£3) per week, with a bonus of 12½ cents. (6¼d) per 1000 ems in excess of 120,000. The foreman mentioned that in the previous week a man set 48 columns (200 13-pica lines) in 48 hours, and earned a bonus of $12·50 (£2 10s.) The Linotype is larger than the Typograph, but it is operated on somewhat the same principle. Electricity is the motive power in use in both offices. It is admitted that the machines do not yet work so satisfactorily as they might do, but it was stated that with the best operators they were least liable to get out of order.



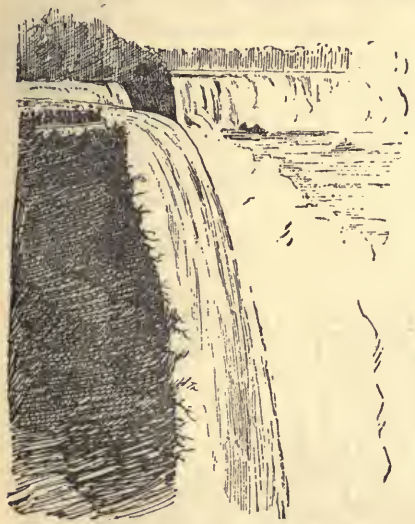
UNION RAILWAY DEPOT, TORONTO.

Leaving Toronto on the afternoon of Friday, July 7, the delegates proceeded to visit the Falls of Niagara. The trip to Queenstown was accomplished in the large and splendid saloon steamer Chicora, belonging to the Niagara Navigation Company. From Queenstown, which is situated on the Niagara River, at the south-west end of Lake Ontario, a new electric railway runs all the way along the very edge of the deep gorge of the Niagara River to Chippewa, about four miles beyond Niagara Falls, and it was by this means that the delegates travelled to their destination. In winding up the steep incline from Queenstown numerous large peach orchards and gardens of grapes were passed, and as the darkness came on myriads of fire-flies were seen darting through amidst the bushes and trees. We saw very little of the great river, but we could easily hear the noise of its waters rushing along at headlong speed about 200 feet underneath us. The fact that we were running along on the very brink of the almost precipitous bank with absolutely no protection between us and engulphment in the raging torrent should any accident overtake our jerking car was only too apparent, and more than one gave vent to a sigh of relief when the party was safely set down at the end of the fine new foot and carriage suspension bridge, with its span of 1268 feet. From this point the delegates obtained their first view of the great falls, and, although all that was visible in the darkness were two great white sheets of water, illuminated by electric light lamps, the noise was almost deafening, and one can easily understand how the Indians gave to the falls the name Ni-a-ga-ra—"the thunder of waters.'

SUSPENSION BRIDGE.

After crossing the bridge we set foot for the first time on the soil of the United States, a fact at once made evident to us by a customs official demanding to know from whence we came and what our baggage contained. That right, we all sat down to supper in the Cataract Restaurant, in Niagara Falls City, which is "run" by Mr Geo. E. Allen,

who is also manager of the Niagara Club. Mr Allen was formerly in Dundee, but has been about five years in the States, and during half that time he has been located at Niagara Falls. He reports that he is doing well. After a good night's rest at Niagara Falls House, a very comfortable hotel, the delegates on Saturday morning proceeded to view all the features of the most gigantic natural phenomenon on the American Continent. Re-crossing to the Dominion side, they drove through the Queen Victoria Park to Table Rock House, where the Canadian, or Horse Shoe Fall as it is termed on account of its form, was seen in all it beauty and grandeur. The great volume of water was pouring over the precipice into the fearful depths below with almost deafening noise, and the spray was rising in a dense mass to about 100 feet higher than the tumultuous torrent before it takes its dreadful plunge completely concealing the lower part of the fall. The wind was blowing hard down the river, and at Table Rock House, as well as in crossing the bridge, the delegates came in for a good share of the spray. The sun was shining brilliantly at the time, giving to the falling water a beautifully bright green appearance, and several grand rainbows were also witnessed. A good sight was also obtained of the American fall on the other side, and the little steamer, the Maid of the Mist, was observed to steam right up into the spray of this fall, and then



FALLS FROM PROSPECT POINT.

crossing to the Canadian side proceeded towards the stupendous cataract until the terrific current compelled her to turn round and return to the other bank. The Canadian fall is 2000 feet in width, and 154 feet high, but the American fall, although 9 feet higher, is only 1100 feet wide. It is calculated that about 100,000,000 tons of water come thundering down over these vast precipices every hour, and the action of the water is wearing away the rock at the rate of about one foot every year, the recession in the memory of even middle-aged persons being considerable. Donning oilskin suits the delegates descended by means of an elevator to the level of the river, and following a narrow pathway under the edge of the overhanging cliff, they entered a small tunnel cut out of the solid limestone rock. After penetrating its gloomy recesses for some distance they came to a point where they stood right behind the great cataract, which was falling down in one vast mass of bright green water close to their very faces. Some of the more adventurous spirits placed their dripping heads out beyond the face of the precipice in order to have an upward glance, but were constrained to depart without having their desire gratified. In returning several also proceeded out on shaky planks, and climbed the slippery stairs in order to reach a large rock at the very edge of the fall, but the blinding water and the raging winds allowed them to retain their foothold for only a few seconds. While in their oilskin suits the delegates were photographed along with Mr Frederick Thomson, one of the proprietors of the *Weekly News*, and Mrs Thomson, who accompanied them all the way from Montreal to Niagara Falls. Returning to the other side, the party drove through Prospect Park, belonging to the State of New York, and round Goat Island, which divides the Canadian from the American fall. When at the lower end of Goat Island the American fall was viewed to much greater advantage, and numerous beautiful rainbows were seen. From Goat Island the delegates visited the Three Sisters, connected with each other, and the Goat Island by means of neat, substantial wooden bridges and standing out in the rapids where the waters rush along in a wild, mad, tumultuous race tearing themselves into foam and fury every few yards before plunging themselves into the horrible abyss below the Falls. Some distance beyond the outermost island, and driven hard against gigantic blocks of rock, which had so far baffled the seething torrent to hurl them over, was a large log on which several daring visitors had carved their names, but such was the position of the log that one could not help feeling that some of these in returning had paid with their lives for whatever fame they might have achieved. Some of the rocks on the margin of the rapids were visited by a few of the delegates, but no one ventured more than a safe distance.

The Falls could not have been seen under better conditions, although it may be necessary to explain to some of your readers that Niagara was not specially turned on for the benefit of the delegates of the *Weekly News*. They were not turned on, for the simple reason that they could never be turned off by mortal hand. The first view, it must be confessed, was to some extent disappointing, the vast breadth of the river making the Falls seem of much less height than they really are, but after one had descended to the level of the river and explored the wonders of the place from various standpoints, he stood impressed with his own insignificance and the omnipotence of the Creator who formed them. It may be interesting to mention that one of the hackmen engaged in driving the party round was a negro who made his escape from slavery in Old Virginia forty years ago, and after travelling 2000 miles and crossing the St Lawrence, reached British soil. Then he said, "Golly, massa, me danced and sang with joy when I got under de British flag, and I never cease to bless it yet."

In the course of the day the delegates also visited a paper mill and the electric and water power works in connection with the Falls, and in the evening they returned by electric car and steamer to Toronto, the 40 miles' sail on the lake in the cool of the evening being greatly enjoyed. When the car was between the railway bridge and the old suspension bridge over the Niagara River two miles below the Falls it was stopped for some minutes and the passengers had an opportunity of witnessing a wonderful performance by Calverley, a young Canadian, who is said to outdo Blondin, the great rope walker. At the time the car halted the delegates saw Calverley walking on a wire rope

stretching over the gorge, with the river rushing along 200 feet below. The daring performer then executed some bold gymnastic feats, including the suspension of himself by his toes with his head downwards. At this stage many of the spectators, thinking probably of the dreadful consequences of the slightest slip, turned away shuddering from the sight, but the bold gymnast pulled himself up again and safely reached *terra firma*. In running down to Queenstown a good view was also got of the famous whirlpool rapids—where the unfortunate Captain Webb was drowned in his attempt to swim them—and also of the whirlpool itself, round the brink of which the electric cars run. Every one of the delegates noted that throughout the whole day and during the run back to Toronto on a steamer, with several hundreds of passengers, not one person the worse of drink was seen, and in answer to inquiries on the subject they were informed that in Toronto the publichouses were closed from 7 p.m. on Saturday to 8 a.m. on Monday—although they were open later on the other evenings of the week—and the want on Saturday evenings of the accommodation afforded by these establishments was not felt either in the great warmth of summer or the sharp cold experienced in winter.

Niagara Falls Railway.

Mr Ebenezer Bennett writes:—This railway, which is electrical, is worked upon exactly the same principle as the electric tramcars in the streets of Toronto, the current being taken from overhead wires on the one side and from the rails on the other. The railway is laid along the edge of the bank from Queenstown to Chippewa, a distance of about thirteen miles all uphill, the grade being about 1 in 20. The cost of travelling the whole of the distance is 30 cents single, 50 cents return, and for short distances, such as from one station to another, the fare is 5 cents. The conductors and drivers on these cars work ten hours per day, and are paid from $45 (£9) to $60 (£12) per month.

Mr Muir. Mr Murray. Mr W. Smith.
Mr Osler. Mr M Smith. Mr Brown. Mr Watson. Mr Taylor.
Mr Logan. Mr Bennett. Mr Dunlop. Mr Sinclair.
Mrs Thomson Mr F. Thomson.

THE POWER HOUSE.

Mr Muir writes :—The Company's electric power house stands close to the side of the Falls, and has a capacity of 3000 horse power. In its construction many difficulties were met with, but all were overcome. The water is taken from the rapids just above the Falls by a flume 200 feet long to the gates. Here it plunges through three tubes 7½ feet diameter to a depth of 62 feet on to the turbines, below, which are 45 inches in diameter. It is then carried away by a tunnel 600 feet long, discharging underneath the Falls. The power is conveyed from the turbines by means of vertical shafting, which gears by means of heavy cog wheels into a horizontal shaft, and from there into the dynamos, in such a manner that a great number of these machines may be used as necessity demands. In designing the house, provision has been made for dealing with the great quantities of ice which come down the river in winter by providing a large overflow, which can be used as required.

The Paperworks at Niagara.

Mr Smith, Denny, writes on Saturday, July 8 :—I had a run through the Niagara Wood Paper Company's Mill at Niagara Falls. They used to make wood pulp, but they started about two months ago to make paper, and are putting in splendid new machinery. They are at present driving all the mill with steam power, but they are constructing a new canal in order to get a driving water supply, and are putting in three turbine wheels, which will give them 1100 horse power each—in all 3300 horse power. The turbines are sunk down 175 feet below the water level, which will give them a water fall of 160 feet, this being equal to ½-lb. to the square inch of power. The pit is 175 feet deep, 45 feet wide, and 55 feet long, and the water is taken away by a tunnel. There are twelve sluices in the new canal, and every work will have its own supply from the river. The cost will be something like 1½ million dollars (£300,000). The Company has one machine running making cardboard paper. There are eight making drums on the machine flat strainers, first and second press rolls, forty-five drying cylinders, but no dry felts ; two sets of calenders, seven rolls in each set ; a fine slitter and winding machine. It is a splendid machine, 120 inches wide, and was running at the rate of 130 feet per minute. It is driven by a Corliss engine, and speed is regulated by cone pulleys. The machinehouse is built of brick, with iron joisting. It is well-lighted and well-ventilated. The back shafting is all above, but they have one pulley for each section, which is a great improvement by the back shafting being all on the floor. The beaterhouse is on a level with the machinehouse, and they work the Horne beating engine in a well-lighted and ventilated house. It is all wood pulp they work, sulphite and mechanical. The building is able to hold four machines, and the Company is putting up another one. They have ten wood grinders, so that they can grind their own wood ; three steam boilers with mechanical stokers, which they say do well. The building is well-situated, with a grand water supply and a railway into the works, and with the splendid machinery the Company is putting in, they should have a magnificent mill, and be able to point to it as a model establishment. The prices of wood pulp they were using were as follows :—Mechanical, $1.5 (4s 4d) per cwt. ; sulphite, nearly 3 cents (1½d) per lb.

Canadian Paperworkers' Wages.

The shift men work 12 hours the first five days of the week, and on Saturday they work till eleven o'clock at night—17 hours. The labourers and day's men work 10 hours for the first five days, and 9 hours on Saturday. Machinemen's wages run from $2 (8s) to $2½ (10s) per day ; beatermen's, $1.75 (7s) to $2¼ (9s) ; assistant machinemen, $1¼ (5s) to $1.35 (5s 6d) ; assistant beatermen $1¼ (5s) to $1½ (6s) ; labourers, $1 12½ cents (4s 6d) to $1¼ (5s). Females on piecework cutting rags have 20 cents (10d) per cut. They have no finishing house overhaulers. Boys and girls must be sixteen years of age before they get into work in the mills, there being no halftimers such as we have at home. Scotchmen are very well liked in the paper trade, and they are well to the front in holding good positions. There is no trade society or union among the papermakers in Canada. They employ their leisure in games of lacrosse, base ball and cricket. Horse-trotting is also a favourite sport.

Carpenters' Wages, &c., at Niagara, U.S.

Mr Brown reports carpenters work 60 hours per week, they have no half-holiday on Saturdays. Some are working even 12 hours daily. There is at present a large job (Tower Hotel) going on, employing upwards of 30 carpenters. A Boston firm has the contract. They pay only $2¼ (9s) for a day of 10 hours here, while the same firm pay the same amount for a day of 9 hours at Boston. Wages are paid fortnightly (Mondays). Apprentices are not recognised here. Young men are paid some thing like $1 (4s) a day to begin, and are expected to pick up the trade for themselves. They have little or no union amongst them, and trade is not very brisk at present. They do not get any allowance if they work extra hours. The cost of living at Niagara for tradesmen is very dear.

On the Way to Chicago.

The journey of 500 miles from Toronto to Chicago was made on Sunday, July 9, on the Canadian Pacific and Wabash Railroads, and occupied about sixteen hours. Toronto was left at 7.20 a.m., and very soon after their departure the delegates had more evidences of the superiority of the American to the British system of railway travelling, although it has to be borne in mind that at home provision has not to be made for the running of so great distances as occur on the Western Continent. Scarcely had they taken their seats when the conductor announced that breakfast was to be served, and Sunday morning newspapers were offered them for sale, while books, fruit, confectionery, &c., were laid down on seats beside them to induce them to make a purchase. About mid-day, also, they sat down in dining cars to a meal which, as regards service and the variety and quality of the viands, would have done credit to any restaurant. After a pleasant run through a rich fruit-growing and agricultural district of Ontario, the train arrived at Windsor, and here we had another annoying experience with the U.S. customs officials, every bag having to be opened, although the examination was of a mere formal character. Windsor was left at 2 p.m., and we were timed to arrive at the important and flourishing city of Detroit, the terminus of this section of the Canadian Pacific Railway, at 2.30, but many may be surprised to learn that, when we reached Detroit, the railway clocks showed that the time was only 1.30, this being due to the difference between what is known as the Eastern and Central

time, which latter takes effect at this point. At Detroit a stoppage of about 45 minutes was made, and, shortly after resuming the journey, the delegates passed the scene of a somewhat serious collision, two freight trains having been both wrecked through trying conclusions with each other. As they approached Chicago, which was reached about ten o'clock in the evening, they witnessed the great World's Fair in full swing, with the grounds brilliantly illuminated, the shops or stores, as they are called in America, open, the cars running, and nothing to indicate that there was any rest for either man or beast in that great Western city on Sunday. The delegates took up their quarters in the Hotel Thomas No. 1, a large, new building in 60th Street, close to the grand central entrance to the Exhibition.

AT THE WORLD'S FAIR.

AN IMPOSING SHOW.

THE TERRIBLE FIRE.

MINES AND MINING.

COAL-CUTTING MACHINERY.

HOLING LONG WALL WORKINGS.

TRANSPORTATION BUILDINGS.

REMARKABLE LOCOMOTIVES.

IRON AND STEEL.

THE MONSTER STEAM HAMMER.

A BIG STEEL BAND SAW.

THE TINPLATE INDUSTRY.

(From the Dundee Weekly News of August 19.)

Writing from Chicago on July 11 the Conductor says :—The members of the *Dundee Weekly News* Expedition have now had two days' experience of Chicago. It is a huge city, with several splendid parks, handsome boulevards, and huge buildings, and is about 22 miles long by 9 or 10 miles broad, embracing a population now estimated at about 1,600,000, and composed chiefly of Germans, Americans, and Irish. The Columbian Exposition, or World's Fair as it is familiarly named here, is located in Jackson Park, nearly 600 acres in extent, on the shore of Lake Michigan, six or seven miles south of the business portion of the city in which are the celebrated "sky scrapers" or "neck-breakers" of buildings 12, 14, 16, 18, and 20 storeys in height. Connecting the World's Fair grounds with Washington Park, a recreation ground with an area of nearly 400 acres, is the Midway Plaisance, a mile in length, containing representations of various nationalities. The total cost of the Exhibition, including the laying out of the grounds, came to about $30,000,000 or six millions sterling, and Chicagoans freely admit that the receipts so far have been disappointing. This they attribute to the railway companies having declined up to the present to reduce their rates in order to induce outsiders to visit the Fair. The daily working expenses have now, it is stated, been cut down from $28,000 (£5600) to $13,000 (£2600), while the average daily attendance has risen to about 100,000, and all look confidently forward to a large increase of visitors in autumn, when it is expected the railroad companies will reduce their fares. The Exhibition is now also practically complete, the Viking ship being expected to-morrow.

The delegates were eye-witnesses of the great conflagration which yesterday destroyed the cold storage warehouse—a building within the grounds but quite distinct from the Exhibition buildings proper—and which caused the loss of about fifty lives, including twelve firemen and four Columbian guards. The scenes witnessed in the Fair grounds during the conflagration were positively indescribable. The firemen, some of whom had bravely ascended the tower and the roof of the warehouse in their efforts to save comrades and the workmen in the building, acted like heroes, but without avail. The building was a complete shell, and when the flames ascended, and cut off the escape of the men who were on the tower, the scene was sickening. About 100,000 visitors were within the grounds, and while women were screaming and fainting in great numbers all around, almost all the men were also greatly excited, and shouting wildly. Some of the firemen escaped by ropes, although they were fearfully burned, but the fire quickly increased its grasp of the tower, and then a girdle of fierce flame barred the way to the safety of those who remained on the balconies. A few attempted to reach the ground by means of ropes, as others had done before them, but the fire had now burned these through, and then they fell about 80 or 100 feet into a burning oven. Others retained their foothold until their hair and their clothes were burning, when in sheer desperation they leapt into the air and shared the fate of those who had gone before them. A small number stood out to the bitter end, and these went *en masse* with the whole upper part of the tower, when, amidst a piercing scream of horror, it toppled over and fell into the blazing furnace beneath. Such a scene is one which can never be forgotten by those who witnessed it. As instances of American *sang froid* under such circumstances, it may be mentioned that during the exciting and heartrending scenes above depicted some artists were observed coolly sketching the various incidents of the catastrophe, while others were busy with cameras. Everything was in full operation to-day as if no such disaster had just occurred. The heat during the past two days has been intense, and even the natives are complaining of it. Appended are the reports of the delegates on the Expedition.

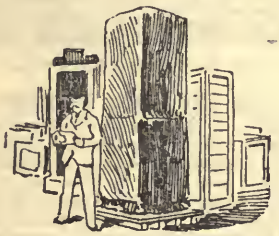
MINES AND MINING BUILDING.

Mr Robert A. Muir, Hill of Beath, Fifeshire, who made an inspection of this department at the World's Fair, reports :—The Mines and Mining Building is located at the southern extremity of the Western Lagoon or lake. It is 700 feet long and 350 feet wide. Its architecture has its inspiration in early Italian renaissance. There are entrances on each of the four sides, those of the north and south fronts being the most prominent. To the right and left of each entrance inside start broad flights of easy stairs, leading to the galleries. The galleries are 60 feet wide and 25 feet high from the ground floor. The interior space enclosed is 630 feet long, 100 feet high at the centre, and 47 feet high at the sides. This space is spanned by steel cantilever trusses, supported on steel columns. The clear space in the centre is 115 feet. The cantilever system, as applied to roofs, was never used on so large a scale before. The cost of erection was £50,000. Entering this building by the northern

entrance, the first exhibit that takes the eye is a large obelisk representing the valuable minerals of Pennsylvania in their order of stratification. Further along we come to West Virginia's exhibit, which shows samples of the famous coal from the Pocahontes Colliery, which in some cases is mined for from 40 to 45 cents (1s 8d to 1s 10½d) per ton; in fact, it is

Lying on the Surface

in some places and only required to be quarried. It was from this colliery that the Majestic and Teutonic steamships got supplied for their record passages across the Atlantic. In the British exhibit the most notable was the large piece of cannel coal, weighing 11 tons 14 cwts., from the Wigan Junction colliery. This piece of coal, if



made into gas, would be equal to 182,344 cubic feet of gas of 40·74 candles per cubic foot. Another exhibit which took the eye in this section was a large milk cow carved out of salt rock. Africa was well represented by washing plant from De Beers diamond mines, Kimberley, which could be seen in full operation from the shovelling in of the ground to the washing out of the diamonds. In the Ohio section the system of working the coal was shown by having a short length of roadway formed in the seam and the working face at which men were represented as working and having all the tools and appliances necessary for getting the coal.

Coal Cutting Machinery

was in great abundance, some of which were adapted for narrow work and some for long wall system. In talking to the attendant of the Jeffrey Coal Cutting Machine used for narrow work, he said he would guarantee his machine to cut 6 feet deep by 3 feet 6 inches broad in five minutes, and that it would take one minute to shift it for taking another cut—that is to say the machine could cut, or as we term in Scotland "hole," in a narrow place of 14 feet wide and 6 feet deep in about 25 minutes. Of course the coal had to be blasted down after the machine had cut it. This machine is attended by two men when in operation, and is driven by compressed air or electricity. It has been in use for fourteen years, and costs about $1400 (£280), and is used very extensively in the States. There is another machine exhibited which is called the Stanley Coal Heading Machine. This machine instead of making a horizontal cut makes a circular one, and leaves a solid core which is taken down by hand labour. These machines form a circular roadway: but sometimes two are put together and work side by side, and form a roadway of rectangular section with rounded corners. This machine is driven by compressed air, and with two men attending is capable of cutting in a distance of 30 feet in ten hours, or I may say 8 narrow places of about 4 feet each. The machine exhibited would form a roadway 6 feet diameter—cost of machine, $3000 (£600). There were several other machines shown for

Holing Long Wall Workings,

and one of them called the Mitchell mining machine was capable of cutting 2000 square feet of coal in ten hours, with two men operating—that is to say, it would make a cut of 4 feet deep along a wall face 500 feet along in that time. The cutters of this machine were set into a strong bar, which projected about 5 feet from the side of it, and which was revolved at a good speed by suitable gearing driven by compressed air. The machine was driven forward by fastening the end of a chain to a prop, and winding the other end on a drum which was placed on the framing. There was also a great variety of hand power drilling machines, also rotary and percussion drilling machines, driven by compressed air and electricity, and I saw one of the cores from a diamond bore, which was 20 inches in diameter. In another department I saw a model of the kind, chaudron method of boring and tubing a circular shaft, all the men and machinery being at the surface, and no water pumped until the shaft was completed through the watery strata. This method is used only when the rock is very hard and a great quantity of water given off. There was also a few exhibits showing the method of

Sizing and Cleaning the Coal

and dross, also of electric locomotives for conveying the coal underground, some of them being 60 horse power; also methods of elevating and conveying the coal, &c., above ground. There is also a machine which is said to be able to pump the coal from the mines to the market, and I cannot do better than give a copy of the notice which was put on it and leave the reader to draw his own conclusions:—"This mixture is one-half coal and one-half water. The water is vehicle of carriage. Its feasibility has been fully demonstrated by experimental tests of pumping the various kinds of coal an aggregate of over 10,000 miles. These tests indicate that coal can be carried to market from the mines for 1-10th the present average charge by railroad. It is also in better condition for all the principal purposes of use." The construction of the machine is simply a ram pump, having suction and discharge pipes in the ordinary way. I don't suppose it is in actual use in any place. I saw another instrument called the

Shaw's Standard Gas Test

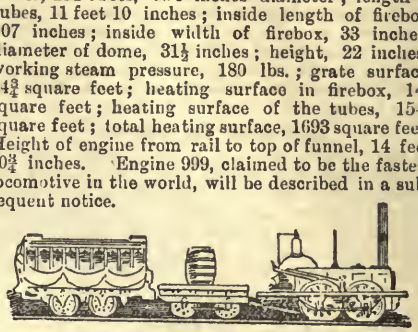
and detector for fire damp in mines. It was so sensitive as to be able to register to the 1-1000th part of a mixture of gas and air. It could also give the proportion of chokedamp and air, but it was so large and delicate that it could not be taken down a mine, so that samples of suspected gas had to be taken to it in bags, and pumped into it along with air. There was also a display of winding engines and pumps, some of them in use. There was also some splendid models of collieries, one of the best and most complete being one from H. C. Frick Coke Company, the construction of which had been carried out under the supervision of their superintendent, Mr Robert Ramsay, who is a native of Crossgates, Fifeshire, a man who, by his own personal effort, has risen to one of the highest positions of mining in the States.

TRANSPORTATION BUILDINGS.

Mr D. G. Watson, representative of the Railway Servants, writing on July 10, says:—To-day I had a visit to the World's Fair. On entering the grounds I held for the Transportation Buildings, which are situated at the southern end of the west side, near the Horticultural and the Mining Buildings. This building is easily recognised by the large entrance, which is very richly decorated and painted. On entering you can see all sorts of the very best plant used for transport by road, rail, and sea. The railway plant is especially well represented. There are a great many locomotives,

some from France and England, and all places in America. There is one built for the New York, Erie, and Western Railway by the Baldwin Locomotive Shops, Philadelphia, U.S.A. This is the largest engine to all appearance in the Exposition. Its dimensions are as follows:—Cylinders—High pressure, 16 by 28 inches; low pressure—27 by 28 inches. Driving wheel, 50 inches diameter. weight in working order, 195,000 lbs.; weight on driving wheels, 172,000 lbs.; total weight engine and tender, 284,420 lbs.; total base of wheels, 27 feet 3 inches; driving wheel base, 19 feet 10 inches; engine truck wheel, 30 inches; boiler and firebox, both steel tubes, iron; diameter of boiler outside, 76 inches; tubes, 12¼ feet long; firebox, 10 feet by 11 feet, 8 feet 2½ inches inside; Working steam pressure per square inch, 180 lbs.; water capacity in tender, 4500 gallons; coal, 8 tons; diameter of tender wheels, 33 inches; metallic packing, two injectors, all fitted with the Westinghouse air brake. This engine is 10-coupled, with small wheel in front; four cylinders. Both piston rods are wrought on the one connecting rod; two four-wheeled bogies under tender. This engine is built with a cabin for the driver on the centre of the boiler, on which all the handles can be wrought. The fireman has his own place, and two firebox doors, a steam gauge, and a set of fire bar shakers, that is all that is on his footplate, with the tender behind. This engine is designed for

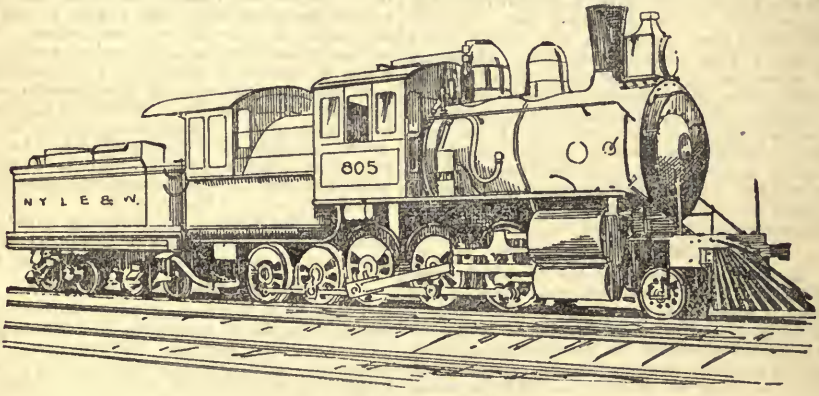
driving springs to centre of hanger, 4 feet; steel boiler, 251 tubes, two inches diameter; length of tubes, 11 feet 10 inches; inside length of firebox, 107 inches; inside width of firebox, 33 inches; diameter of dome, 31½ inches; height, 22 inches; working steam pressure, 180 lbs.; grate surface, 24⅝ square feet; heating surface in firebox, 149 square feet; heating surface of the tubes, 1544 square feet; total heating surface, 1693 square feet. Height of engine from rail to top of funnel, 14 feet 10¾ inches. Engine 999, claimed to be the fastest locomotive in the world, will be described in a subsequent notice.



OLD LOCOMOTIVE JOHN BULL.

IRON AND STEEL EXHIBITS.

Mr Dunlop, of Motherwell, representative of the ironworkers, reports in connection with the iron and steel department:—The manufacturers of Great Britain have made no show whatever, very few of them being represented at the World's Fair. Perhaps they think it does not pay, and then there is always an enormous expense in connection with

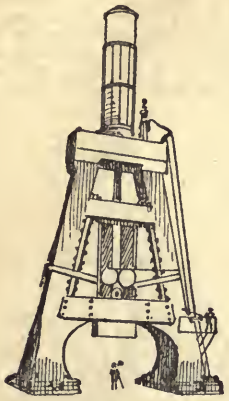


BALDWIN LOCOMOTIVE.

Very Heavy Lifts,

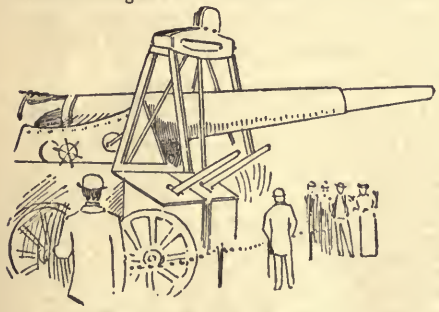
but not for a great speed. There is a four-wheeled coupled bogie express engine named the Director-General, built by the Baldwin Locomotive Works from designs, other than the compounding of the cylinder, by Mr George B. Hazlehurst, general superintendent, motive power, B. & O.R. The Director-General will at the close of the Exposition be assigned to serve on the Royal Blue, Limited, between Washington and New York, and it is believed will equal, if not eclipse, the record now held by a Royal Blue engine of a mile in 37 seconds, which is at the rate of 97 3-10 miles per hour. The Director-General's actual weight in working order is 126,780 pounds; weight of tender with fuel and water 72,080 pounds, making the whole weight in service in round figures 100 tons. The wheel base of locomotive is 22 feet 4 inches, and of tender 17 feet. Total length of engine and tender over all is 59 feet 6½ inches. The diameter of the high pressure cylinder is 13½ inches, of low pressure cylinder 23 inches, stroke 24 inches, steam ports 24 inches by 1½ inch, circular exhaust ports the same piston valves; diameter of driving wheels, 6 feet 6 inches; truck wheels, 3 feet; length of a large stall. But no matter what our manufacturers think there is one thing sure, that is—our enterprising friends the Germans must find it pays well, as they undoubtedly have the finest and largest exhibit in connection with the iron and steel trade. In the exhibits in the iron trade the Farnley Iron Company, Yorkshire, show some good examples of their products, and although steel to a large extent has superseded iron the continual use of this iron proves that it gives entire satisfaction. The special fitness of some classes of iron for special purposes, as safety in welding, and where resistance to sudden shocks is important, still keeps the trade in the hands of a few. The statistics of the British Iron Trade Association prove that in spite of bad trade Britain produced 1,500,000 tons of puddled bars last year. The exhibits of Stumm Brothers, of Germany, have a splendid appearance, and they have displayed great tact in the manner of exhibit. Wm. Jessop & Sons, Sheffield, and John Brown & Co., of the same place, have a good show, but the fact is plain to anyone who knows the extent of our iron and steel trade that as a rule our manufacturers have stayed away. Among American manufacturers the best exhibit is undoubtedly that of the

Bethlehem Iron and Steel Company, Pa. On the centre of the floor they have a full-size model of their steam hammer,



The Largest in the World.

It is a great piece of mechanical skill. The weight of the piston rod and tup falling parts is 125 tons. The piston rod is 40 feet, with a full stroke of 16½ feet. The total weight of the hammer and foundations is 2400 tons. The same firm also make it plain that they can turn out anything in that line, as they have a fine show of armour plates, breech-loading guns, and a model of a huge steel ingot for an armour plate, 18 feet by 8 feet 6 inches by 4 feet 4 inches. From Sweden the Sandvik Steel Works have some splendid exhibits. They show a steel band-saw, the largest in the world; it is 220 feet long 12 inches wide and number fourteen gauge. In the above department there is no mistaking the fact that Krupp, of Essen, Germany, have the largest and best exhibit at the big show. They have a splendid building for their own ordnance, and to place such a large amount of material of such great dimensions away one thousand miles inland on the American Continent only tends to show that they are determined to fight their way in and keep abreast of all their competitors. In the centre of this building sits



The 120-Ton Krupp Gun,

the largest in the world. The difficulty of shipping such a large piece was great. It was sent on a special truck to Hamburg, where there is a large crane, and again they had to find a place on the coast where there was a heavy crane to lift it. One of the great railways had special trucks made in America ready to take it on its long journey, where it is now surrounded by crowds of persons daily. They also show two fine ship guns, one a 65-ton and one a 45-ton. Men-of-warsmen are there daily working the guns, and showing their method of loading and working. The big gun has a range of 20 miles, and the smaller ones of 14 miles. The large shaft with great propeller blades fixed on end is a great attraction for the visitors, also the big cast steel stem for an armour-clad vessel. They also show a boiler end plate 12 feet in diameter, 1¼ inch thick, weight 3 tons; and also a plate 65 feet long, 11 feet 3 inches wide, 1⅝ inch thick, weight 16 tons. One of the departments of industry in which America is behind ours is

The Tin Plate Industry.

They are trying to establish it, but so far it has not been a great success. At the same time they are pushing on, and there are five or six American manufacturers with good samples of their work to be seen in the Mines and Mining Buildings, showing the process from the black sheet to the finished article, and some of them have a capacity of 3500 boxes per week. Another thing of special notice is the gradual advance of aluminium. This metal is shown by the Pittsburg Reduction Company. The metal is made ductile and malleable, and made into all sorts of articles, useful and ornamental, and nicknacks of every description, one large case being filled with horse shoes. They have an establishment in England as well as in the States, and there is no doubt but what the metal has a great future before it.

PAPERMAKING AT THE WORLD'S FAIR.

Mr William Smith, papermaker, Denny, reports:—In the World's Fair there is a papermaking machine making paper out of wood pulp; that is, wood boiled with a very high pressure and a certain amount of chemicals added, so that when it comes to the paper mill it is very white. Thus it does not take much work before it is made into paper. It is put into the beating engines, and is beat in them for three hours; then it is run down into a chest or vat, where there is an agitator going round so as to keep the pulp well mixed up. It then runs into another beater, called the Marshall perfecting engine—that is, a beater for clearing out any knots or long fibre that have passed the other beaters. It is then pumped up into a service box by a centrifugal pump, then run into the strainers or screens—that is, brass plates with very narrow slits in them. The pulp goes through these slits, and leaves any dirt or knots out. It then passes into the breast box at the end of the machine, then on to the wire cloth. As the wire runs on the pulp flows on to it as it moves along. So much of the water runs through the wire into the save-all. It then runs across two vacuum boxes. To these vacuum boxes is attached a pump, which draws the water out of the pulp as it goes across them. It then passes on through the coucher rolls, and then on through the press rolls on the top of a belt. The press rolls are for taking the water out and firming up the sheet. It then passes on to the drying cylinders. There are seventeen of them heated up with steam, and as it passes along it gets entirely dry when it comes to the colander rolls. There are two sets of rolls. One set has five rolls, the other set has nine rolls, all running on top of each other. It then passes in through each of these rolls, and comes out with a fine, smooth surface. The paper next passes on to the slitter and winding machine. It is there cut into certain breadths, and worn into webs 3 to 4 cwts., and is now ready for the printer. There is also some very fine samples of paper on exhibit of ledger, writing, printing, and parchment paper. There is also a good assortment of water-

proofing, paper building, and sheathing papers. There is a telephone cable made with paper, with a lead shell over it, with the wires in through the paper, which shows that the capabilities of paper for scientific purposes have by no means been exhausted.

AT THE WORLD'S FAIR.

(Second Report.)

THE NAVAL EXHIBITS.

THE WHALEBACK STEAMER.

HORTICULTURAL BUILDINGS.

PROFITS OF FRUIT-GROWING.

PROSPECTS OF GARDENERS.

THE ELECTRICAL BUILDING.

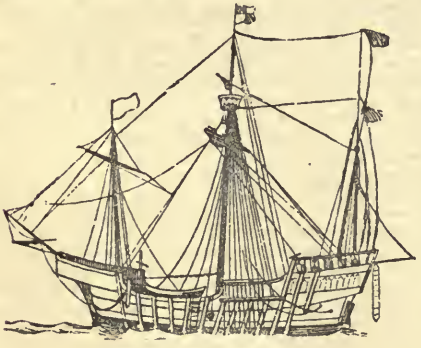
AN INTERESTING EXPERIMENT.

FURNITURE AT THE FAIR.

(From the Dundee Weekly News of August 26.)

Sailing Ship Santa Maria.

Mr Brown, of Govan, shipbuilding representative, writes:—I was all through the full-sized model of the Santa Maria. It is a *fac-simile* of the ship in which Christopher Columbus sailed when he discovered America. It is 71 feet long, 25 feet beam, 12 feet 6 inches depth of hold, and has a displacement of 223 metric tons. There is a crew at

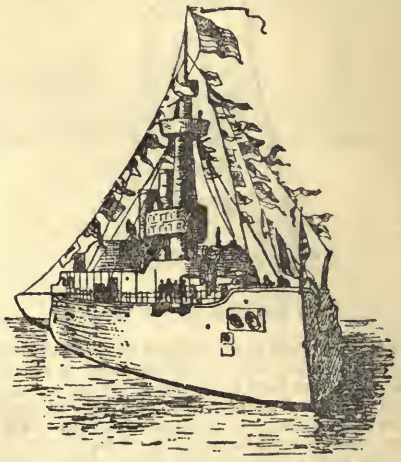


THE SANTA MARIA.

present on board of fifty-two all told. In the after part there is what is called a half deck about six feet high, on which is placed the Admiral's cabin, which has two large windows right in the stern. Over the cabin is the poop or quarterdeck, which stands very high, and on the rails of which are two small cannons. The forecastle is very high also. The ship appears to have been built very strong, the ribs or frames being very thick, and must have been seaworthy.

Man-of-War Illinois.

The full-sized model of the U.S. man-of-war Illinois is really a most remarkable exhibit. It lies (or is built rather) close to the pier as if it were moored to the wharf. It is built on a foundation of piles, and above water-line has all the appearance of a real man-of-war line of battleship. Officers, seamen, mechanics, and marines are detailed off, and the discipline and mode of life on naval vessels are completely shown. Her dimensions are:—Length, 348 feet; width amidships, 69 feet 3 inches; and from the water-line to that of the main deck, 12 feet. Right amidships on this deck is a superstructure 8 feet high, with a hammock berthing on the same, which is 7 feet high, and



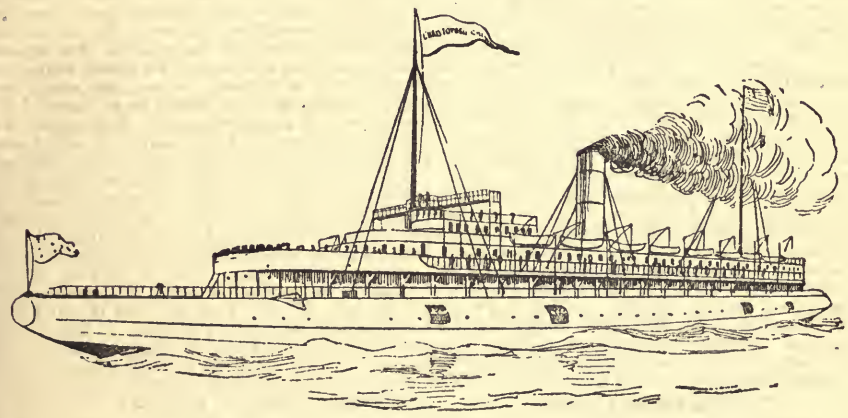
WARSHIP ILLINOIS.

above these are the bridge, chart-house, and the boats. At the forward end of the superstructure there is a cone-shaped tower called the "Military Mast," near the top of which are placed two circular "tops" as receptacles for sharpshooters. There are rapid-firing guns on each of these tops. The height from the water-line to the summit of this military mast is 76 feet, and above is placed a flagstaff for signalling. The mounted battery comprise four 13-inch breechloading rifled cannons, eight 8-inch do., four 6-inch do., twenty 6-pounder rapid-firing guns, six 1-pound do., two Gatling guns, and six torpedo guns. All these are placed and mounted as in the genuine battleships. On the starboard side is shown the torpedo protection net, stretching the entire length of the vessel. Steam launches and cutters ride at the booms, and all the outward appearance of a real ship of war is imitated.

Whale-Back Steamer.

I had the opportunity of seeing the whale-back steamer Christopher Columbus, which is plying in Lake Michigan. It is claimed to be the newest thing in transportation. As its name implies, it is not unlike a whale. It is cone-shaped at each end, 362 feet in length, with 42 feet of beam. The hull is entirely built of steel. There are nine water-tight compartments, and it carries 960 tons of water ballast. The Christopher Columbus is built so as to offer the least possible resistance to the water, and floats like a duck, there being hardly a ripple caused by her motion through the water, attaining a speed of 20 miles per hour. There are five decks, affording room for no less than 6000 passengers. There are the main, promenade, turret, and hurricane decks above the steel shell, and in the shell another deck for the refreshment-rooms and dining-rooms. The grand saloon is on the promenade deck. It is 225 feet long by 30 feet wide. The ladies' cabin is aft; this saloon

and the ladies' cabin are finished in oak and mahogany, and are luxuriously furnished—cushions, curtains, hangings, and easy chairs being part of the furniture. In the centre of the saloon rises a beautiful fountain, from which the water trickles back to an aquarium below. The windows are engraved with a series of designs which form a complete history of navigation, embracing designs of every sort of ship from Noah's ark to the whaleback. Seven turrets support the decks far above the lashing of the waves, no matter how high they roll. She carries no less than sixteen large lifeboats, besides a number of life-buoys in the form of settees. The steel shell is equipped with triple-expansion engines with cylinders of 20, 24, and 70 inches. The engines have a capacity of 2600 horsepower and are capable of developing a speed of twenty miles an hour. She was built in the yard of the American Steel Barge Company, in West Superior. The steel shell was completed and launched in seventy days. It cost nearly $500,000, equal to £125,000 sterling. The whaleback vessel is an invention of Alexander M'Dougall, a Glasgow born and Canadian nurtured Scotchman. Captain M'Dougall has been for twenty-five years a well-known man on the great lakes, where he arose from the position of common seaman to that of captain or master of the larger passenger and freight steamers, until finally in the early seventies he abandoned "sailing" to become a vessel or shipping agent at Duluth, in order to carry out an idea he had long entertained that he could effect a revolution in vessel architecture and construction. In the summer of 1888, after having spent ten years in experimenting and getting together enough money to build a steel vessel according to his completed model, he launched the "101," a steel tow barge capable of carrying about 40,000 bushels of wheat. It was a success from the start. One short season with the "101" enabled him to secure capital to extend his operations. After building six or seven vessels the next year at his old yard in Duluth, Minn., the American Steel Barge Co., which he and his associates had organised, removed to West Superior, Wis., in the spring of 1890, where they equipped one of the largest and finest shipyards in the United States, covering at the present time, with its dry docks, fifteen acres of land and water slips. At this yard, shipbuilding has ever gone steadily forward, until now the American Steel Barge Co. is the largest owner of freight boats on the great lakes, the Christopher Columbus being the first whaleback passenger boat, and numbering twenty-eight in the list of boats built.



WHALE-BACK STEAMER CHRISTOPHER COLUMBUS.

FURNITURE AT THE WORLD'S FAIR.

Mr Logan, Glasgow, reports:—After walking through the various furniture courts of this great Exhibition, where nations have met on common ground to compare notes, the first thing that struck me was the poor show made by Great Britain in comparison with France and Italy, thus losing a splendid advertisement. However, we must be thankful that there are a few who have had the courage and enterprise to enter into this great international contest, and to them is due every praise for saving this portion of the British section from being desolate. What the British haven't in quantity they have in quality. This is shown very strikingly in the style, decoration, and workmanship of our furniture. The principal exhibitors in the British section are Messrs Hampton & Sons, London. They give a reproduction on a reduced scale of the banqueting hall of the famous

Hatfield House,

the residence of Lord Salisbury. It is constructed of solid oak, in the Elizabethan style, and is intended to exemplify the application of high art to house decoration. This Hall is acknowledged to be the finest specimen of Elizabethan work in existence. The space at my disposal would not allow me to speak of all the exhibits in the British section. The one I have singled out will serve for comparison. On passing through the French section the first idea that strikes the mind is the magnitude of the exhibits. The show of furniture and woodcarving is of the richest kind. The French designers seem to confine themselves almost entirely to the styles of their country (Louis xv. and xvi.) They show great ability in reproducing the work in those styles, and practice in that class of work gives them an advantage over all other countries. It seems to me that the French manufacturers consider the style and beauty of a piece of furniture of the most importance; its usefulness being quite a secondary matter. The display of woodcarving in the French department is of a very high order of merit, which indicates a profound knowledge of art.

I now turn my attention to the Italian division, and here, as I expected, found furniture and

Carved Woodwork

of rare excellence. The Italians do not appear to be particularly good at ordinary decorative carving —certainly not equal to the French—but in their own particular specialty they distance all competitors. In representing Nature in any of its varied forms, especially the human figure, they are always excellent, but when they descend to conventional ornaments they are not usually so successful. There are many articles of furniture decorated, and in some cases overdone, with carving. This applies to cabinets especially. The furniture is almost exclusively of one character, which is Italian renaissance, although it is somewhat different in detail from what is commonly called Italian renaissance in this country. In comparing the work shown by

France and Italy

in the carving, with the Italians smoothness of surface is kept almost entirely for the figure, foliage, flowers, and ornament being treated quite differently, with tool marks in them distinctly shown and emphasised. With the French carver, on the other hand, nearly all the work is finished with a monotonous smoothness, which proves great manual skill, but which destroys most of the charm and effect. I then passed to the American courts, where I expected to see a good display in the American furniture department on account of the artistic tastes of the people; also, because the Americans being at home, it was natural that they should make a strenuous effort to produce a creditable collection. All the manufacturers of any note in America appear to be represented. Some of them showing splendid specimens of art. Most of the furniture exhibited is after the French renaissance style, preference being given to it probably because it is effective and beautiful in detail, and affords a wider scope for the woodcarver. By far the largest and best exhibits of furniture are shown by the Grand Rapids, Michigan. This is a place on the shores of Lake Michigan, and about 100 miles from Chicago, which claims to have the largest factories in the world, of which there are 62, and employ 9000 men. Grand Rapids is

The Furniture Centre

of the United States. Speaking of the American exhibits as a whole no one can deny that there is a fine collection of artistic furniture produced by judiciously combining the various branches of the trade, but when compared with the British exhibits there is certainly little that our first-class workman can learn from his American cousin. Among the exhibits in the American section there is one of the most recent triumphs of the cabinet-maker's art. It is a combination folding bed, billiard table, settee, and chest of drawers. The whole thing doesn't take up more room than an ordinary upright piano.

HORTICULTURE AT THE WORLD'S FAIR.

Mr Sinclair, of Cambuslang, a most enthusiastic and successful horticulturist, made an inspection of this department, and reports as follows:—The horticultural building forms a great conservatory 1000 feet long, with an extreme width of 286 feet. The general plan is that of a central pavilion, with two end pavilions each connected with the central pavilion by front and rear curtains, forming two interior courts, each 88 by 270 feet. The courts are beautifully decorated in colour, and planted with ornamental shrubs and flowers. The central pavilion is roofed by a dome 187 feet in diameter and 113 feet high. This dome is utilised for the display of the tallest palms, bamboos, and tree ferns that could be procured. There is certainly under this dome a number of very large specimen palms, but the variety is not what one might expect to see at a World's Fair. Being introduced to Mr George T. Powell, of New York, Director of the Department of Horticulture of that State, he kindly consented to take me round the various departments of the fruit exhibits, each State having its own separate stall. Going over the exhibits from the State of New York, it was astonishing to see the varieties of canned fruits and also the fine exhibits of ripe fruits, especially among the tomatoes. They had a specimen tomato which weighed 4 lbs. In coming to the State of California stall, there is a large monument done up from top to bottom with oranges, a true representation of the Bunker Hill Monument, Boston, 16 feet square at the base, and rising to a height of 30 feet. The exhibits here of all kinds of fruit were very fine. In conversing with Mr Goodman, who had charge of the stall for the State of Missouri, he said he believed that what they wanted in America was to get the people skilled in how to grow fruits of all kinds profitably, and for this purpose they had formed a society so that in each State two lectures could be given every year on how to plant, prune, and keep in a healthy condition their orchards. He said that twenty-one years ago he planted five hundred budded peaches, and some of his friends warned him that it was a mistake, because they would never bear. Others said they would be so plentiful they would not sell at a paying price. But in spite of all these predictions the fifth summer he netted a crop of $475, and they continued to pay well for a number of years, but hard winters set in and proved very fatal to many of his peach trees, so that of late his peaches have not paid. In the conversation I had with Mr Goodman, I could clearly see that the various goods exhibited were fruits gathered far and near in every State, clearly showing that in America, as well as at home, if any one plants a fruit tree of any kind and lets it stand to the autumn without care or attention and then goes and seeks fruit, he need not be disappointed at finding none. Passing along in this department we find that every stallkeeper is certain that his State is the best and his exhibits the finest in the Exhibition. We now come to the department illustrating the appliances, methods, &c. I inquired at Mr Powell what were the wages of men employed in gardening. He told me the average wage of gardeners well up in their profession would be from $50 to $60, or £10 to £12 per month. Mr Powell, who is superintending New York exhibits, has all its varieties of fruit correctly named, and each one described as to the soil and climate it is most likely to do well in. Great credit is due to Mr Powell for the pains and trouble it must have given him to go over all the varieties under his charge. In the canned goods department alone it is valued at $10,000.

FORGING BY ELECTRICITY.

Mr Ebenezer Bennett, electric engineer, Newcastle-on-Tyne, reports regarding the Electrical Buildings:—I am really surprised to find such a poor show as there is in this department after all we have heard. The only exhibit worthy of notice (that is where anything new is to be seen) is that of the Electrical Forging Company of Boston. An exhibition of the process of forging and tempering by electricity of metals is here given with great success. Metal that is heated by electricity and forged under that heat is stronger than similar metals heated in the fire. A claim they hold for their process is that it wastes little or no material,

and is so quick and accurate in its operation that its productive capacity is far in advance of any other process in mechanics.

It Saves Labour,

material, and time, and so reduces the cost of production that it must inevitably control the manufacture of any article that can be produced by it. The secret of electrical forging lies in the fact that by this process metal is heated all through evenly, whereas in an ordinary forge a bar of iron or steel is in danger of burning on the outside before the inside of the metal gets hot enough to work. I saw an exhibition of forging to-day which showed perfect control over the degree of heat. It also has the advantage of adding no gases or other impurities with the metal. The exhibition to-day was the heating of a bar of iron to a white heat in water. The current is passed through an ordinary pailful of water, and the iron being plunged becomes

Red-Hot in Less Than Thirty Seconds.

The current was then turned off, and the iron was cooled in the same pailful of water. This exhibition gave general satisfaction to the great crowd of onlookers, many of whom carried away pieces of forgings as a souvenir of the Exhibition. Mr Geo. D. Burton, of Boston, claims to be the inventor of the electrical forging. That I question. If my memory serves me right, it was a Scotsman of the name of Thomson who was the inventor. Be that as it may, the economy of electric forging is a subject well worth studying.

BUILDING MATERIALS.

Mr Sinclair reports:—Side by side with the Electrical Building stands the exhibition hall of mines and mining. The building is but one-storey in height, the main cornice being 65 feet from the ground. Its design follows no arbitrary lines, but in simple and straightforward elegance is all that a great exposition building should be. The entrances are upon each of the four sides of the building, the principal ones upon the ends. These are each 110 feet high and 32 feet wide, opening into lavishly-decorated vestibules 88 feet high. Part of the mining exhibits consists of marble blocks of about 10 inches square of various hues of colour, also granite and sandstone in great variety. Messrs Auld & Conger, of Cleveland, Ohio, have a beautiful class of

Exhibits in Slate.

They are from ⅜ inch to 2 inches thick, and are greatly used in schools instead of plastering or wood lining, the walls being lined with this slate are used for figuring or writing upon instead of black boards, and from what I saw of it, I consider it well adapted for that purpose. The gentleman who looks after this stall is an Edinburgh man, but has been with the above firm in Cleveland for several years. On inquiry as to the rate of wages in that district, he said masons were paid 40 cents per hour, and wrought ten hours per day and eight on Saturday. Speaking of his own experience, he said that he was

As Comfortable in Edinburgh

as ever he had been in America. He also told me he had one of the most economical and industrious wives that was to be found in America, and she could not keep his house and four children on less than from $10 to $12 per week, and that sum did not include clothing. On account of the great loss of time in the winter it made it sometimes very difficult for a man with a house and family to get along as he ought without saving money at all. Another speciality in this department was the splendid assortment of pressed brick, both plain, ornamental, and moulded. These bricks were said to be homogeneous, and could be carved more easily than stone. They are of an exceedingly rich bright cherry colour, and are all made from natural clay. They have a closeness of texture and uniformity of colour, which makes them very suitable for facing good jobs. They are largely used in building both in and around this great city that the Americans boast of as having grown up like Jonah's gourd.

AT THE WORLD'S FAIR.

(Third Report.)

WORLD'S FASTEST ENGINE.

A FAMOUS SNOW PLOUGH.

WEAVING AT THE FAIR.

MECHANICAL NOVELTIES.

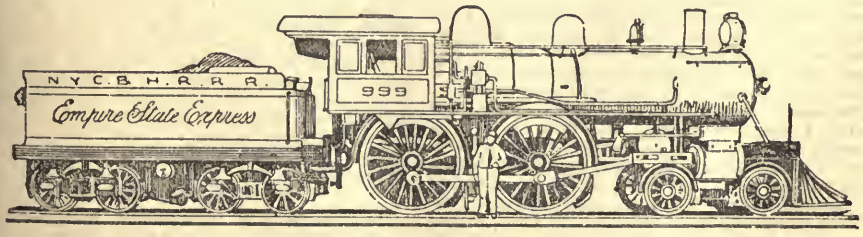
THE WOMAN'S BUILDING.

THE FISHERIES EXHIBITS.

PRINTING MACHINERY.

(From the Dundee Weekly News of September 2.)

Mr Watson, Dundee, reports:—Engine 999, built by the New York Central and Hudson River Railway Company, exhibited at the World's Fair in a shed adjoining the Transportation Buildings. This locomotive, which has great attractions for the public visiting the Exhibition, seems a likely enough engine to run at a high rate of speed. It is well finished, and looks very well, but, like the most of the American express engines, the boiler stands very high in the framing. For a few weeks before being sent to the Fair, 999 was run on various trains to test her power and speed. On May 9th she ran the Empire State Express right through from New York to Buffalo, a distance of 440 miles, and ran time. She is said to have run



FASTEST LOCOMOTIVE IN THE WORLD.

69 miles in 68 minutes. On one part of the journey one mile was run in 35 seconds. It seems to be from that one mile she gets the credit of running

102 Miles Per Hour.

The train run on the above date consisted of four cars, and the total weight of the train was 362,000 pounds. Engine 999, as will be seen from the illustration, is an eight-wheeled engine, or four-coupled, with bogie in leading end, standing very high on her wheels, and very plain, although very handsome in appearance. The cylinders are 19 by 24 inches. The valves are Richardson-balanced, and the driving wheels are 86 inches in diameter, the tyres being 3½ inches thick and 5¾ inches wide, secured to cast-iron centres by Mansell retaining rings, the total wheel base being 23 feet 11 inches. The engine bogie wheels are 40 inches diameter, with cast-iron spoke centres and tyres, also secured by the Mansell retaining rings. The weight on the four driving wheels loaded is 84,000 pounds, and on engine truck or bogie 40,000 pounds. The boiler is what is termed the waggon-top style, 58 inches diameter at the smallest end, being much wider at the fire-box end, and having

268 Two-Inch Tubes,

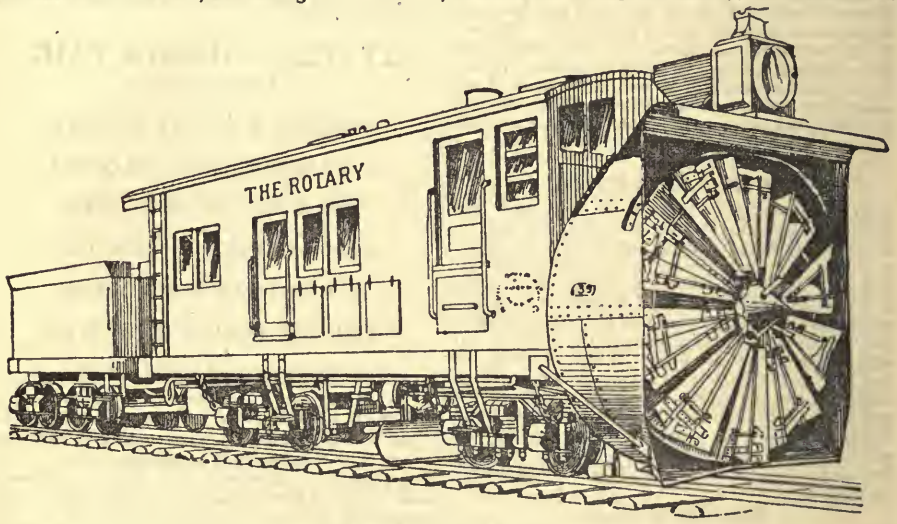
twelve feet long. The fire-box is about 9 feet long and 3 feet 4 inches wide, and has the Buchanan water arch. The grate area is 30·7 square feet, and the total heating surface of the boiler is 1·930 square feet, 232·92 of that being in the fire-box. The boiler has an extended smoke-box, and is fitted up with a deflector and perforated steel plate spark arrest. The exhaust nozzles are double, and 3½ inches in diameter. The boiler and fire-box are made of steel pressed at 190 lbs. per square inch. Ajax metal is employed for all bearings, and runs very cold. The tender has room for tons of coal and capacity for 3587 gallons of water, and is fitted with a scup for lifting water when running. The tender rests on two four-wheeled trucks, each with 4 feet 5 inches base and steel tyres. The weight of the tender when loaded is 80,000 pounds, making the total weight of the engine and tender 204,000 pounds. The engine and tender are fitted with the Westinghouse quick action automatic air-brake and signal, fitted with injectors and Nathan sight-feed lubricators. This engine is said to run very smooth, and steams remarkably well. Like all other American engines, 999 has a very comfortable cab which protects men both from stormy weather and intense sunshine.

British Locomotives.

Amongst other exhibits in the Transportation Hall which are worthy of note is Mr Webb's engine and carriages from the London and North-Western Railway. This engine is a three-cylinder compound, with five driving wheels 7 feet 1 inch diameter. The front pair are driven from the low pressed cylinder, which is 30 inches diameter and 24 inch stroke. The hind pair are driven by the two high pressed cylinders, 15 inch diameter by 24 inch stroke. The carriage which is attached to the engine is also well finished, and everything of the newest invention has been adopted. It is fitted with both Westinghouse and vacuum brakes. Their appearance is attracting the attention of the many visitors, and, I am safe to say, they are likely to be highly awarded in the official judging. A little further round stands

The Great James Toleman.

This engine is a great novelty, and attracts as



THE ROTARY SNOW PLOUGH.

much attention as anything to be seen in the Transportation Buildings. It was designed by Mr Winley, of London, and is intended to run fast, heavy trains. The builders were Messrs Hawthorn, Leslie, & Co., Newcastle-on-Tyne. This is a four driving-wheeled engine, with four-wheeled bogie in front, four high-pressed cylinders—two outside, which drive the pair of trailing wheels, and two inside, which drive the pair of leading driving wheels. The diameter of the driver is 90 inches; size of inside cylinder, 17 × 22; outside, 12½ × 24 inches. The boiler is very large and is oval-shaped, being stayed across the centre, and has 235 2-inch tubes 14 feet 9¼ inches long, with very large fire-box. The James Toleman is a very handsome-looking engine and should do good work, although our cousins in America strongly maintain that the Buchanan's large engine will beat him in a race with a heavy train. However, that has to be decided yet.

Other Locomotives.

Other exhibits of note are by the Pittsburgh Locomotive Works. There are a number of very handsome engines exhibited from these works, the

smallest one being a little four-wheeled saddle tank engine for working about the shops. Her track gauge is only 24 inches, and weight 12,500 lbs. The largest one is a six-wheeled coupled engine, with four-wheeled bogie in front. She is 4 feet 9 inch gauge, has 20 × 26 inch cylinder, driving wheels 72 inches diameter, and weighs 139,000 lbs. Another group of engines are exhibited by Roger's Locomotive Company, Paterson, New Jersey. They vary in size and dimensions, and altogether make a very good show. The next thing of importance is

America's Famous Snow Plough,

called the Rotary, for clearing snow from railways. The "plough" consists of a steam engine and driving gear inside of a strong built car run on two four-wheeled bogies. At the front end there is a large wheel fitted with sharp, cone-shaped scoops and automatic reversible knives. This wheel is driven by a shaft from the engine inside, much the same as a boat's propeller, with a tender attached behind to supply water. When the "plough" is pushed against the snow the wheel cuts it and throws it clear of the railway. This style of a "plough" has been in use for some years, and has encountered some of the most severe snowstorms ever experienced. The last one it cleared was in March, 1893, when the snow was 45 feet deep on the rails, accomplishing in six hours and thirty minutes what the officers of the road claimed could not have been accomplished in any other way in less than four or five days. This "plough" was made in the Leslie Brothers Co. shops, Paterson, New Jersey, and is adopted on many different roads in America.

The Fisheries Building.

Mr W. Smith, Denny, reports :—

The Palace of Fisheries is a very picturesque structure, which contains more than three acres of the most interesting exhibits pertaining to live fish and prepared products of the finny tribe, In the east annex is the aquarium, containing thirty tanks of deep sea monsters and aquatic fauna. Herrings are to be seen swimming about, and salmon-hatching in all its different stages is also shown. Almost every country in the world sends samples of fishing boats and the vast variety of appliances used to catch fish, besides pictures of fishing scenes and an infinite number of fish products. Norway is to the front in fisheries. In the exhibit of that country are models of the boats and the weapons used in assailing the walrus, the seal, and the polar bear. Gloucester is strongly represented, a large model of the harbour showing warehouses and the fish docks with all the usual accessories. There is an interesting model of a fishing scene in Boston Bay. The water on which the boats float is well imitated. Down in the depths the nets may be seen, and on the floor of the bay there are the fragments of wrecks, the debris of a roadstead, and marine plants peculiar to the locality. In the same building are models of whales, sharks, devil fish, mammoth lobsters, sword fish, sturgeon, &c. A novel way of advertising a fish glue may here be observed. Two pieces of belting, glued together, suspend an old rusty cannon taken from a British frigate that had been sunk in the St Lawrence nearly two centuries ago. To add interest and variety to this part of the show there are introduced eel traps, lobster pots, and machines which automatically remove the scales from fish. Great Britain sends a fine display of hooks and every variety of angling tackle, but in regard to angling it must be admitted that the appliances shown by America for novelty and ingenuity are far ahead of all other competitors.

TEXTILE FABRICS.

Mr Mungo Smith, Dundee, reports :—On entering the Machinery Hall, be sure I was looking for looms, and almost by instinct I heard the clicking a good way off. Going forward and looking over the railing, I spoke to one of the men in charge, who opened the gate and asked me to go in. There were ten looms in operation, two working cloth for men's clothes. I asked the attendant if it was all worsted, and he said yes. "How much wages could you earn with that yarn?" I asked. "I could make nearly $3 (12s) a day, but we don't have it so good at home," he replied. One of the looms had 26 leaves of a camb and the other 18. Four were working gingham, and the woman in charge of them came from Glasgow. She told me she liked to work in the old country best, though she made bigger wages here—from $11 to $12 (£2 4s to £2 8s) a week, holding on four looms. The remainder of the looms were working bright dress stuff. Further along I watched the weaving of silks in beautiful designs, and there were several exhibits in which silk badges, with

Pictures of Columbus,

President or Mrs Cleveland, as souvenirs were made; also figured silk handkerchiefs and other fabrics. Schaum & Uhlinger, of Philadelphia, occupy a large space in which they weave these and other souvenirs and also weave silk cloth in a design and at the same time put over the groundwork figure another figure which gives the work an effect of hand embroidery. Another interesting exhibit was that of the Star and Crescent Mills, of Philadelphia, by which Turkish towelling is made in various sizes, and young women operatives tie the knots in the fringes with surprising rapidity. The Willimantic Thread Company occupy a large space with several machines. The thread is received here either in the hank or on bobbins. If in the hank, the thread is wound on bobbins and is rewound from those bobbins on spools. The spooler is

An Automatic Machine,

which requires only that the spools be fed into a trough, and that the thread be fastened on the spool. The machine automatically takes the spools one at a time from the trough, and, after the thread is fastened, winds until the spool is filled, then catches the thread, drops the spool into a receptacle, then takes up an empty spool, and proceeds as before. Another machine pastes the labels on the ends of the spools, requiring no more attention than that of feeding the spools into a trough. The Lowell Machine Shops, Lowell, Mass., illustrate the processes of weaving cotton cloth, beginning with the bale of cotton and ending with the finished cloth, marked, stamped, and ready for market. The baled cotton is opened, and the cotton run through the several operations, from the picker through the spinning of the yarn, then is transferred to the looms and woven.

The British exhibits looked rather tame beside the other stalls. Mr M'Gregor, Glasgow, showed clan tartan making.

Other Manufactures.

Aberdeen represented the comb trade, Sheffield cutlery, and Birmingham guns. Ireland, with linen, made a good show. English pottery-makers made a grand display. The most interesting exhibit, I think, was in heating and cooking stoves. They looked like ornaments for a drawingroom, as I believe some of them were. They resembled large sideboards or cabinets. Sanitary appliances in great variety, of the newest description, were also shown.

United States Building.

The United States Government Building, reports Mr Smith, had great attractions, and it was the only place that seemed crowded. The exhibit of the War Department is most interesting. By means of dummy figures the costumes of all the officers and privates of the different grades of the service are shown. There are models of the principal Government forts to be seen, and there are displayed figures of every noted Indian that has given the army trouble during the last twenty years. An Arctic scene, in which the Eskimos are shown with the dog-sleds and snow-houses is extremely natural, the dogs and figures being mounted in a manner that nearly approaches life. Besides the figures, the War Department has a complete display of small arms and field ordnance. Papier-mache horses are hooked up to the gun carriages, and the gunners are in their proper places. The Smithsonian Institution has a wonderful exhibition of taxidermy, and the Post Office Department has to show every stamp issued by the Government. Coins and bank notes of every issue are shown by the Government Mint.

The Women's Building.

Mr Mungo Smith, describing this department, says: — This building, appropriately enough designed by a lady, is one of the finest examples of architecture at the World's Fair. Many of the rooms are exquisitely frescoed, all of the work being done by artists of the gentler sex. In this connection the exhibit of the British women is acknowledged on all hands to put all others in the shade. The British exhibits of art comprise six water-colour drawings by the Queen, two oil paintings by Princess Christian, one water-colour by Princess Louise, and one oil painting by Princess Beatrice. In the Gallery of Honour the walls are hung with the art productions of the women of the world—British women being here again foremost—and an attractive feature is the collection of portraits shown by Miss Hellen Blackburn of women who have achieved distinction in different channels of the world's advancement. A table made of historic woods, contributed by the women of Pennsylvania, is also very interesting. The main assembly room is particularly worthy of attention and notice, as it is ornamented by panels of carved wood work, contributed by women from every State in the Union. Other interesting exhibits are the model of a co-operative household built of Colorado marble, also model of ragged school for children whose mothers have to go to work, the children being looked after from eight in the morning to eight at night.

PRINTING AND PRINTING MACHINERY.

Mr Logan, Glasgow, reports:—This department is located in the Palace of Mechanic Arts, and from an artistic and mechanical standpoint is very complete. Two very old printing presses are shown, one of which was made in Boston in 1742. The other old press is of similar type, and is almost identical with the old Benjamin Franklin press which I saw in the Smithsonian Institution while in Washington. This press is believed to be 150 years old, and was in use at the time of the Revolution, and was also used during the Rebellion for printing Confederate money. General Lee's farewell address to his army was printed on this press. Outside of these two ancient models, the other presses exhibited illustrate every variety of press that is in successful operation up to the present time. These include presses for every purpose and of various speeds, from the small press for printing cards or circulars to the

Monster Quadruple Presses

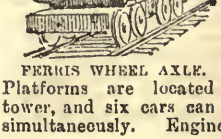
such as in the *Dundee Weekly News* Office, that print newspapers of eight, ten, twelve, or more pages at the rate of about 48,000 an hour. Many of these presses are shown in operation. There is one large lithographic press that prints pictures in colours of the Exposition buildings and grounds. The Chicago evening papers print editions each afternoon in this department. In the stereotyping department no new processes are shown, but complete outfits of different type and manufacture of the generally used processes are exhibited. Type-setting machines of four different styles are also shown in this department in operation. These include both the machines that set ordinary type as well as those that cast the entire line from matrices. The *Daily Columbian*, the official organ of the Exposition, is printed in this department, and the composition is done on one of these type-setting machines. Printing several colours at the same time is also illustrated by several exhibits of presses for this purpose.

Type-Making Illustrated.

The art of type-making is illustrated in a manner that makes it one of the most complete exhibits in this building, as the process of type-making is fully shown by exhibiting machines illustrating the development of this art. This interesting exhibit begins with the old hand moulds, such as were used one hundred years ago, each letter or type being cast in a slow and uncertain manner. The next step in advancement is in the rotary type-casting machine invented in 1840, which was operated by hand. Thirty years later steam power was applied for this purpose, making a machine that seems remarkable even in these days, were it not for the type-perfecting machine of 1893, which is shown alongside the machine of 1870. This latest invention casts type at the rate of 160 to 180 a minute, each type being perfect in every respect and ready for use. It is a machine of marvellous ingenuity. Wooden type, presses, bookbinders' machinery, thread and wire stitching machines, cutters, perforating machines, and all other devices used in printing establishments, are likewise shown.

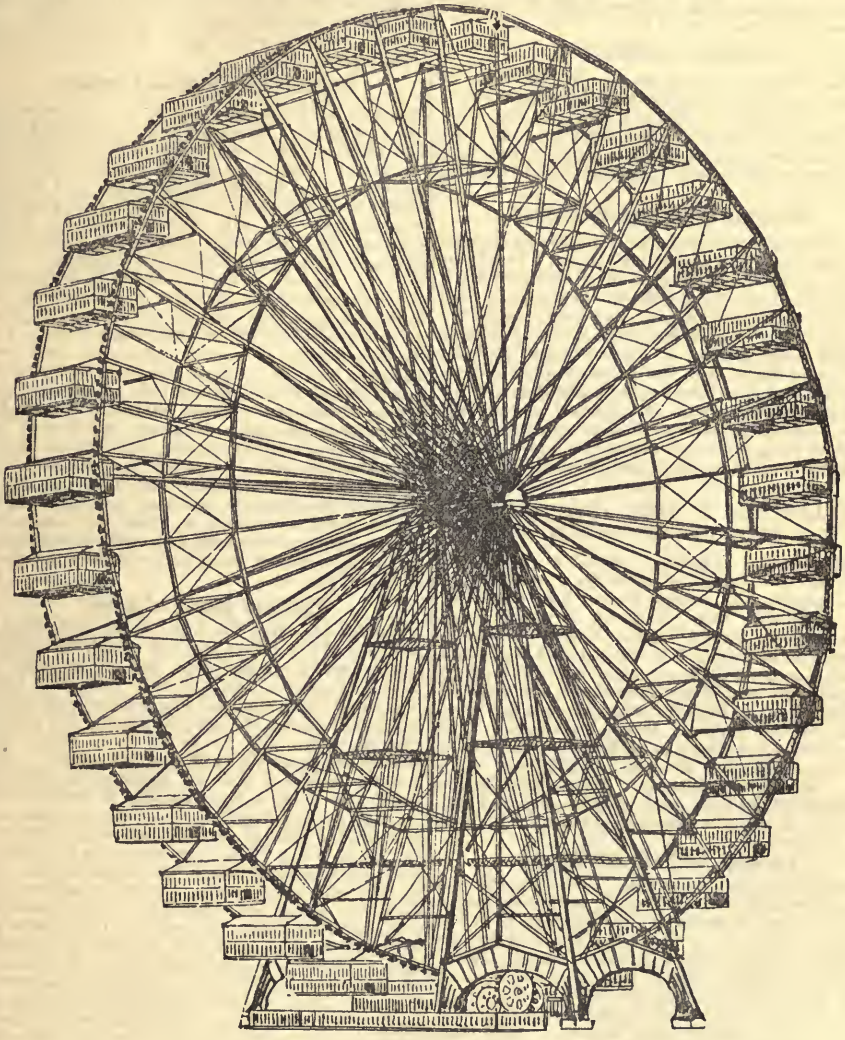
THE FERRIS WHEEL.

The Ferris Wheel, reports Mr Dunlop, Motherwell, built entirely of steel, is regarded as the greatest triumph of engineering skill at Chicago Exposition. Imagine a monster wheel resembling a huge bicycle wheel revolving between two towers, the wheel being 250 feet in diameter. Around it suspended by great steel trunnion pins are 36 passenger coaches, each as large as a Pullman car, capable of seating fifty persons. Then with its freight of 2000 people it slowly revolves, and the passengers have an unparalleled view of the Fair grounds, a bird's eye view of Chicago and Lake Michigan for miles. A remarkable piece of work in connection with the erection of the wheel was the placing in position of the great axle, seventy tons in weight, one of the largest pieces of steel ever forged. It was placed in its position, 150 feet from the ground, without any accident. The total weight of the structure is 4300 tons. Platforms are located on both sides of the tower, and six cars can be loaded and unloaded simultaneously. Engines of 1000 horse-power



FERRIS WHEEL AXLE.

furnish the means of propulsion, the time for each trip being about 25 minutes. Its total cost was $400,000 (£80,000). The inventor is G. W. Ferris, Pittsburg, head of a great firm of bridge engineers.



THE FERRIS WHEEL.

AGRICULTURAL MACHINERY.

Mr Taylor, Raesmill, Arbroath, says:—There is a very large show of agricultural machinery of every kind, and many new inventions that have not as yet been introduced into Britain. The implements are mostly made very light, and generally would not be very well adapted for Scottish farmers. The Carver Header, by Carver Steel Nigg Company, is a novelty, the cutting bar being twelve feet wide. The machine is drawn by four horses. The driver stands upon a raised platform, and works a steering handle. The machine is so constructed that the horses go behind it, much in the same manner as the old Bell Reaper of Scotland, and practically push the machine in front of them. Messrs Massey, Harris, & Co., Brantford, have a fine show of very well-finished implements. Among them is a threshing machine of a novel kind. It is mostly worked with wooden spring cranks instead of belts. It is a very smart-looking machine, only I think it wants length of shakers. The Platform Binder shown by Mr Davis, Cleveland, Ohio, is a good finished machine. It has strips of cloth for conveying the grain to the binding gear, instead of a solid cloth, which, I think, is an improvement. The strips are three inches apart, and have brass spikes fixed in them for keeping the grain from slipping back. Gaar, Scott, & Co. show a very good set of threshing machinery and traction engines. Their engines are well finished, and are from 6 to 15 horse-power. They also show a self-feeder and band-cutter, a new invention, with a governor to regulate the feeding. The Freeman Manufacturing Company have a splendid show of hay and straw cutting machinery, oilcake, crushers, and pulpers—the last very well finished machines. The Chatta-

nooga Plough Company have a very large show of chilled ploughs, which seem to be all the kind used in America. Some good specimens of old American ploughs are shown. Some 250 years old are shown to illustrate the contrast between them and the ploughs of the present day.

Garden Implements.

The Yankee is before us in the invention of garden tools, everything being of the most improved type. They have small hand machines for sowing all kinds of garden seeds that seem to work very well, distributing the seed more equally, and to a more regular depth than could possibly be done by hand.

Machinery Characteristics.

Mr Brown, Govan, remarks :—In passing through the Machinery Hall of the Exhibition, I could not fail to notice the display from a national standpoint, there being four different countries in competition—Britain, France, Germany, and the United States. It is generally conceded that in point of excellence and as regards beauty of finish the United States will easily outstrip all others, while for actual service and durability Britain's display will rank second. In delicate and artistic finish and embellishment France greatly excels, while for rugged strength and in many new devices Germany is certainly most worthily represented.

THE LEATHER EXHIBIT—THE LARGEST BELT IN THE WORLD.

The leather exhibit holds a prominent place in the Fair. Wax leather, which, it is said, excels all other kinds for durability and serviceable wear, is shown in small quantities by the United States, France, Germany, Japan, and Mexico. It is claimed that the States is second to none here, and also that the Western tanners, who have better processes of tanning, and pay better wages to their workmen, far excel those in the Eastern States. Belting is forward from only Austria and Japan in addition to the States, and the samples are of single, double, and three ply. All are oak tanned. Although small, the Japanese exhibit is of fairly good quality, but here again the Americans claim an easy first. What is said to be the

Largest Belt in the World

is seen in the machinery hall. Of three-ply and waterproof, it is 203 feet long, 8½ feet wide, weighs 5176½ lbs., and is composed of no fewer than 569 hides. The next largest belt, which is in the leather and shoe trades building, is 144 inches wide and 200 feet long. Both these come from New York. No refractory American boy would care to make a close acquaintance with either of these belts. The boys, however, may feel confident that they will not be brought into unpleasant contact with them, as the Americans have not yet produced a man or a machine capable of wielding such belts against tboys. The Americans again contend for the leading place in sole leather—of which Pennsylvania, California, and Ohio send some particularly fine examples—where their competitors are again France, Germany, and Japan. Some exceptionally well-finished, fancy-coloured enamel and shoe leather is shown by the firm of Halsey & Smyth, of Newark, N.J., and the American Oak Leather Company, of Cincinnati, Ohio, the leather covering of a beautiful pavilion 50 feet by 20 erected by one of these concerns being so finely done as to lead even experts to believe that they were looking upon real oak. France and Germany are about level in the matter of morocco and dongola leathers, small grains, and fancy goods, the exhibit of the former country, however, being more extensive. The Yankees frankly admit that the morocco made in Philadelphia and Newark, N.J., cannot, so far as appearance at anyrate goes, at all compare with the French and German stock. France, Germany, Austria, Russia, and Japan all compete closely with America in the

Section for Harness Leather.

Alligator and kangaroo skins are on view in some numbers. The former are principally used for valises, pocket-books, reticules, and occasionally for shoes. Kangaroo leather is much in evidence at present, but, except for its novelty, it is said that it has nothing else to recommend it, as a good wax calfskin shoe will, it is claimed by skilled curriers, last much longer, and keep its shape better than one made from the skin of a marsupial. One working man was, however, heard to declare stoutly the very opposite in the Fair, his reason for his contention being the strange one that, as a kangaroo was a strong animal, and could jump so far, its skin would, of course, make the best and strongest leather. One of the greatest curiosities in the leather exhibit is the hide of an elephant, which, when green, weighed 800 lbs., and tanned—an operation occupying two years—weighs 500 lbs. It is 20 feet long, 16 feet wide, and 3 inches thick. Several walrus hides, which are used for polishing purposes, are also shown. This industry, more, perhaps than any other, has been revolutionised by labour-saving machinery, in which the Americans excel. Amongst the machines used for currying is an improved belt or band knife-splitter, the knife of which is an

Endless Band of Steel,

which revolves with the edge of the knife close to the side of the rollers through which the leather passes, and is so perfected that it can take off several thin splits from a hide. The lower roller is made of rings, and each ring is capable of springing, so as to allow the unequal parts of the hide to pass through. By means of hand screws the splitter can gauge the thickness of the split. The scouring machine, now in operation in all large shops, also saves a great amount of hard labour. No machine has, however, yet been invented that can take the place of skilled hand work in whitening, which is one of the four particular branches of currying. Nevertheless Yankee ingenuity has produced a whitening machine, which is used successfully on heavy solid leather. This machine is armed with oblique knives, and its cylinder revolves at the rate of 2500 revolutions per minute, making a level, smooth surface on the leather. Previous to the whitening process there is that of stuffing, which consists in filling the leather up with oils and tallow in order that it may be made firm, pliable, and heavy, and by the improved methods adopted in this departure, fully 100 per cent. of material can be worked into the leather, whereas by hand it was difficult to work in 50 per cent. On the newer lines hides are tanned in from a half to one-third of the time formerly occupied, but repeatedly during their tour the delegates were informed that the life of American shoes—the term "boots" is given to a description of what we term Wellingtons—was, unless in cases where $5 (20s) and $6 (24s) were paid for a pair, of comparatively short duration.

BOOKS AND BOOKBINDING.

It is a somewhat difficult matter getting round the bookbinding exhibit on account of the manner in which it has been "spread-eagled." America and Germany are the only countries which show machinery for the

manufacture of blank books and edition binding, and the exhibit on the whole is disappointing in view of the fact that practically no new principles are seen. The only exceptions in this respect are two paper-ruling machines, one a German, and the other an American invention. Both are self-feeders, and in each the old-fashioned brass pen is discarded for a brass disc. It is apparent that here at least the Yankee, generally well ahead in the matter of ingenuity, has been completely beaten by the phlegmatic but philosophic German, as the Fatherland machine is in several respects superior to the American. It occupies less than half the floor space of its rival; it is stronger, better, and more neatly made, and many of the more important operations are more quickly and more accurately performed. Both machines are also alike in ruling two sides of the paper in one operation, and it is claimed for the German machine that it can turn out

4000 Sheets Per Hour,

with the attendance of only one person. Chicago comes to the front with paper-cutting machines, and New York shows a good embossing and inking press, a clever automatic book-trimmer, and a very rapid-working signature press. Germany and America are well represented by wire-stitching machines, the latter country also having on view a new model of an ingenious machine, which both saws and sews on tape or bands, or without either blank catalogue or edition work. Notable examples of this work are forward from France, Australia, and Canada, and with one exception, where thorough bad taste is manifested, Chicago has also itself a good display. The French exhibit is admittedly first for pure taste and skill. No better collection of printed books has perhaps ever been seen. It is contributed to by America, Mexico, Britain, Germany, France, Italy, Bohemia, Denmark, Norway, and Sweden. The samples of multi-coloured printing on cloth shown by Germany are not only novel and unique, but remarkably striking. Of fine hand-tooled leather binding, the exhibition is magnificent.

Britain's Examples of Art Binding

are solely from the hands of Zaehnsdorf, of London, whose case contains a Tennyson in blue morocco, choicely finished in Derome style, and a beautiful specimen of renaissance work in dark green crushed levant; but the most striking exhibit is the "Art of Bookbinding," in crushed brown levant, illuminated in olive green, with a bold and graceful floral design in gold, and the back panelled with choice foliage. Conspicuous in the German collection is a book belonging to the Emperor William, with his initials and a crown in gold on the side, and bound in brown morocco in the Harleian style. A jewel casket in white morocco, finished and illuminated by Herm Graf & Son, of Altenburg—another very beautiful exhibit—is valued at $750 (£150). Léon Gruel, of Paris, shows, amongst some other magnificent works, a book bound in brown morocco in the Grolier style, and costing $1100 (£220). From Rome there are some very fine vellum books, illuminated and finished with great taste and skill, while Bohemia contributes good prayer books in leather and ivory. The books from the Scandinavian countries are striking on account of their beautiful inlaid calf work of Gothic design. The Mexican "show" acts as a foil to the others.

VISIT TO PULLMAN CITY.

THE FAMOUS CAR WORKS.

HISTORY OF THE FIRM.

LIFE IN THE MODEL TOWN.

PUBLIC INSTITUTIONS.

HOW CARS ARE BUILT.

WAGES OF WORKMEN.

THE GREAT CORLISS ENGINE.

A PALACE ON WHEELS.

DESCRIPTION OF CARS.

A CANADIAN PACIFIC TRAIN.

(From the Dundee Weekly News of 9th September.)

Mr Logan, Glasgow, thus describes his impressions:—Among the countless industries and enterprises of the United States there are none which attract more universal attention than the Pullman Car Works and the model city built and owned by them, which forms so delightful a suburb to the city of Chicago. The result of all this

PULLMAN OFFICES, CHICAGO.

gigantic work is due to the inventive genius and power of one man—Mr George Pullman. The idea of constructing a palace car, or one where more comfort could be had in travel than in the very crude cars then in use, was that of Mr Pullman. In the spring of 1859 he left his New York home to seek his fortune in the then "Wild West." Chicago even then promised to become the metropolis of the West, and it was here, with limited capital, he made the first step, which has resulted in such grand achievements by remodelling two passenger coaches into sleeping cars. The public were not prepared for such an innovation, and the

initial attempt met with but partial success. He, by persistent efforts, obtained the permission to use an old abandoned shed, in which he built the first regular Pullman parlour and sleeping car, costing the then extraordinary price of 18,000 dollars, and this was the foundation of the great institution which proudly bears his name to-day. In April, 1865, this same coach was used as the funeral car of

The Murdered President,

Abraham Lincoln. The principal works of the Company are located on the side of a small lake fourteen miles south of Chicago. Some idea of the magnitude of the Pullman Car Company may be formed when it is learned that they employ in their regular service 2135 cars. They have built and placed in service during the past year 150 sleeping, parlour, dining, special, and tourist cars, costing on an average $13,519.83 each per car. The total number of persons in the employ of the Company in its manufacturing and operating departments is 12,367, and the wages paid during the past year averaged nearly $600 per each person employed. The business is not confined to the construction of palace, dining, and sleeping cars. They manufacture cars of every description, such as passenger coaches, freight cars, street cars, and motors, and in this last branch of industry alone employ over 400 men. The Company also have large works at Wilmington, Del., and in their plant include the Union Foundry, Union Car Wheel Works, the Pullman Iron and Steel Works, also a brass work, which employs 250 men, and which turns out over one half million dollars worth of manufactured brass annually. The capacity of the works at Pullman is three sleeping or palace cars, ten ordinary passenger, and 240 freight cars per week.

Mr George Pullman

was born in the town of Brocton, Chantauqua County, New York, March 3, 1831, and has but passed his threescore years, and in them has confined work fit for an army of workers. He was the third oldest in a family of ten, and at fourteen accepted a humble position in a store of his native village. Three years of this work and he joined his older brother in the cabinetmaking busi-

MR GEORGE M. PULLMAN.

ness. Force of circumstances compelled him at this time to sell his cabinet shop. He then accepted a contract on the Erie Canal to remove from its route a large number of houses. Having accomplished this, and made some money at it, he started for the West with $6000 in his pockets, when he reached the wind-swept prairies about Chicago. From this time his history has been that of the city of his adoption, energy, industry and prosperity.

The "Weekly News" Delegates

were shown through this great establishment by Mr D. Doty, of Pullman, who explained everything of interest to the members of our party. It is almost superfluous to state that the works at Pullman are provided with an abundance of the best machinery for working iron and wood. In all there are about 900 machines. Of that number, 79 are wood-working machines, including 12 carving machines, and throughout the whole buildings the subdividing of labour is very apparent. Ten hours constitute a day's work, Saturdays included, and, as far as possible, piece wages are paid. The following is the average weekly wages in some of the departments:—Car body makers, 1s 4d per hour; cabinet and chairmakers, 1s 7d; upholsterers, 1s 6d; painters and decorators, 1s 8d; carvers, 1s 8d; carpet sewers (female), 6d. Some men in the above trades make as much as 2s 3d per hour, while others can only earn 9d or 10d. The sanitary and ventilation arrangements throughout the whole of the Pullman buildings are as near perfection as can be. All the works and shops are kept in the neatest possible order. The machines are all fitted with blowers and exhaust-fans for taking away all shavings and dust as fast as they accumulate.

Passenger Car Building.

An outline of the manner in which passenger cars are built, says Mr Logan, cannot but be of interest, as this class of car construction constitutes the most important work done at Pullman. There are 35,000 passenger cars in use on the 175,000 miles of railroad in the United States, and these cars have cost over $200,000,000 (£40,000,000). An ordinary day coach costs from £1000 to £2000. When an order is received for a given number of cars it is accompanied by carefully-prepared drawings of every detail, and by specifications which even enumerate the quantity and quality of screws, nails, bolts, castings, trimmings, &c., which are to be used. Those unfamiliar with this class of work would be astonished at the elaborate nature of the drawings, with all dimensions marked on them, so that no mistakes may occur. The specifications aim to contain a clear statement of all the materials to be used, their quantity, quality, and sizes; and the manner in which they are to be treated and built is also carefully described; even the paint and varnishes are specified, as well as the number of coats on each, and the length of time each coat is to be given to dry. Thus it will be seen that a car is first

Carefully Thought Out

in the mind of the designer, and all details put upon paper. When an order for cars is placed, bills of the materials required are made in each department, and patterns for the iron and woodwork are made to guide the foremen in laying out their portions of the work. As speedily as possible departments are furnished with the raw or finished materials called for on their bills of materials with which to make their portions of the car. As an illustration, the wood-machine shop gets out the exact number of pieces of wood of every kind and form called for, and the blacksmith shop gets out the forgings required. The bolt department makes the exact number of bolts of the various kinds needed, and the brass foundry fills its order for the necessary trimmings, which trimmings, when specified, are taken in hand by the electro-plating department, and plated nickel, silver, or gold.

The Glass Department

cuts the glass, etches it, and silvers it when required, and makes and furnishes all the mirrors. When everything is ready the prepared materials are delivered as needed at the compartments where

the cars are to be erected. First the bottom, such as sills, floor joists, flooring, and transoms arrive, and are taken in hand by the bottom builders. At the completion of the bottom of the car it is turned over to the body-builders, who put up the frame-work and complete the body of the car, their work consisting of applying posts, bracing, filling, belt-railing, panelling, car-lining, &c. The car is now taken by the roofers, who apply the roof boards, mouldings, &c., and then the tinners put on the metal covering. After inspection the car is taken in hand by the outside painters, and is entered at the same time by inside finishers, who put in and finish the inside woodwork, such as mahogany, vermillion, oak, cherry, ash, basswood, beech, cedar, birch, cypress, hickory, maple, sycamore, poplar, &c. The piping for heating and lighting is set in before the seats are placed in position. The cars can either be lighted by oil, gas, or electricity. When the inside work is all fitted up—and some of it is beautifully carved and decorated—the inside painters go over the entire interior, and make the car ready for the trimmers, who place the bronze or plated trimmings upon doors, sashblinds, and walls. The upholstering, draperies, seat coverings, carpets, &c., which have all been previously prepared, are now put in, and when the finishing touches are added the car is ready for delivery to its purchaser. All work in the construction of these cars is sub-divided, and they are turned out with surprising quickness; the capacity of the works is twelve new passenger cars a week.

Freight Car Shops.

All kinds of cars are built at Pullman—parlour cars, passenger, mail and baggage, freight, and street cars. The building where the freight cars are built is 1350 feet long and 200 feet wide, and has a capacity for turning out fifty cars a day, or a finished car for every twelve minutes of working time. The raw material goes in at one end of these shops, and comes out at the other end in the form of completed cars. These cars are about 30 feet long, and are covered in like the guards' vans that are attached to the passenger trains in Scotland. To build forty of these cars in a day requires the labour of 500 men and the work of a large amount of machinery. The mill has 130 men, the erecting shop 270, and the paint shops 100. Ten hours constitute a day's work, Saturday included. Three-fourths of the operatives are paid by piece, and earn from £2 8s to £4 16s per week. Wages are paid once a fortnight. Like all other large works in America, the workers at Pullman are principally composed of foreigners. The following table shows the countries where they were born.

America, ...	1796	France, ...	26
Sweden, ...	1163	Bohemia, ...	26
Holland, ...	753	Belgium, ...	16
Germany, ...	732	Asia, ...	14
Ireland, ...	402	Russia, ...	12
England, ...	365	Hungary, ...	11
Canada, ...	264	Africa, ...	3
Norway, ...	169	Australia, ...	2
Scotland, ...	131	Mexico, ...	2
Poland, ...	116	East Indies, ...	2
Italy, ...	99	Finland, ...	1
Denmark, ...	89	Greece, ...	1
Austria, ...	66	Spain, ...	1
Wales, ...	34		
Switzerland, ...	28	Total, ...	6324

300 of those enumerated are women and girls.

Motive Power.

Mr Watson, Dundee, who devoted notice to the driving power, says the steam engines working through the Pullman shops are as follows:—The large Corliss engine, rated at 2500 horse-power; Buckeye No. 1, 700 horse-power; Buckeye No. 2, 350 horse-power; street car shop engine, 300 horse-power. The largest engine at the freight car shop is 900 horse-power. There is a vertical Corliss engine in the new repair shop 150 horse-power; upholstering department, 60 horse-power; paint shops, 30 horse-power; five at dry kilns, 115 horse-power; hammer shops, 50 horse-power; sawmill, 65 horse-power; iron department, 50 horse-power; carving, 20 horse-power. The new engines at the new power house are one of 150 and two at 270 horse-power each—a total of 5980 horse-power—besides the brick yards engine of 400 horse-power. The iron and steel works, or rolling mills, have engines capable of developing 2000 horse-power. There are transfer engines at 156 horse-power. The foundry and car wheel works have engines of 426 horse-power; also some other small ones. The total horse-power of all the steam engines at present is 9500.

The Great Corliss Engine.

This remarkable mechanism is a simple condensing engine with the Corliss valve gear and cut-off adapted to a vertical engine. It was built in Providence, R.I., by the late Mr George H. Corliss. It was finished in 1876, and required seven months in building, and furnished power for running the machinery at the Centennial Exposition in Philadelphia in 1876. At the close of the Exposition it was taken back to Providence, and was purchased by Mr Geo. M. Pullman in 1880. It required a train of 35 cars to bring it to Pullman. It was set up in

CORLISS ENGINEHOUSE AND WATER TOWER.

its present place during the autumn of 1880 and the winter of 1880 and 1881, and was started for the first time on April 5, 1881, in presence of a great many visitors. Miss Florence Pullman opened the steam valves and started the engine in the midst of great rejoicing, thus starting the Pullman Car Works. The engine has run successfully since that date. The total weight of the engine is 700 tons.

The Engine-Room.

The engine-room is 84 feet square and 68 feet high. The platform upon which the engine stands is 26 inches above the floor of the room, and no visitors are allowed upon it. The frame is shaped

like the capital letter A, and is very strongly braced. The height from the floor to the top of the walking beam is 40 feet. The ladders leading to the upper portion of it constitute strong braces, and are also very ornamental. The cylinders are 40 inches in diameter, affording a 10-feet stroke. The steam pipes are 18 inches in diameter. The cylinders are jacketed with live steam. The ordinary pressure is 32 lbs., and the piston rods are 6½ inches in diameter. The walking beams are of the web pattern, 25 feet in length and 9 in width at the centre, and weigh 11 tons each. The length of the connecting rods are 25 feet 10 inches in the centre and tapering to 6 inches diameter at the ends. The cranks weigh 5 tons each. Diameter of crank shaft, 19 inches; length, 12 feet. The bearings of the crank shaft are 18 inches in diameter and 24 inches long. The diameter of the fly-wheel is 29 feet. It is built in twelve segments, and weighs 56 tons. Steam is supplied to the engine by two steel boilers. They are horizontal, tubular in construction, 18 feet in length, and 6 feet in diameter.

THE TOWN OF PULLMAN.

Mr Bennett, engineer, Newcastle, reports:—Pullman is emphatically a new departure in city building. It has not only bettered labour, but added to it a dignity which it did not before possess. The improved homes and the healthful and convenient shops of Pullman were created in advance of any expressed demand by the workmen for them. Men can and do exist in cellars and garrets, and do work in sheds and uncomfortable shops and factories, but when they are given such improved homes and surroundings they are able not only to do better for themselves and their families, but better in every way for their employers. On arriving at the railway station of Pullman the first building that presents itself to notice of the visitor is the Arcade. This building is the principal market-place of the town. It is 250 feet long and 154 feet wide. The central portion is three storeys high. There are 1,800,000 cubic feet of space in the building. The structure covers nearly an acre. The first floor is occupied by the bank and post office, and by the following kinds of shops:—Dry goods, groceries, boots and shoes, china and glassware, clothing, household furniture, hardware, tobacco and cigars, a newsagent, a restaurant, drugs and medicine, and clock, watch, and jewellery. The second storey contains a

A Large Public Library

with over 8000 volumes, and over 100 of the best journals, magazines, and reviews of America and various countries of Europe. It also contains a theatre, the town offices, three halls used for churches, lodgerooms, office for doctors and dentists, two barber shops, and the rooms of the Young Men's Christian Association. The third storey has handsome lodgerooms used by the Freemasons, Oddfellows, Ancient Order of United Workmen, and other friendly societies. Pullman has its athletic association, which consists of about 150 members, has handsome grounds, and every modern convenience for athletic and aquatic sports. The playgrounds contain about ten acres, and the island five acres. Athletes from all parts of America are said to have competed here for the beautiful medals awarded. The cricket team at Pullman boasts to being the best one west of Hudson River, and holds the championship of the West. They have also a baseball team, which they claim to be one of the best out of the professional nines. Pullman has become the centre of athletic sports in the West. Annual regattas are held in the spring and autumn, and athletic games are given which attract the best amateur athletes of the land. Every facility is afforded at Pullman for rational amusements and recreation.

The Savings Bank

is largely taken advantage of by the workmen, the amount deposited in the bank by 2249 depositors from August, 1892, up to April 10, 1893, was 636,889 dollars, which is equal to 283 dollars for each depositor. In cases where accidents of a serious nature occur, such as broken limbs or any other accident whereby a man is laid off work, the company pay him his wages. With the exception of seventy dwellinghouses these structures at Pullman are all of brick. The houses are provided with all modern improvements such as gas and water, and ten per cent. of them with baths. Nearly all the houses are faced with red pressed brick, and they are all on broad, well paved streets and shaded with trees. The last census of Pullman, taken in August, 1892, shows that there were then 11,702 men, women, and children. The entire number of tenements is 1831, some families using more than one tenement for the accommodation of lodgers, there being on an average 2500 bachelors at the works. Half of the people are American born, Swedes come next, and Germans third. At the time of taking the United States census in 1880 the town of Pullman was only a matter generally talked about, for workmen had only begun preparations for building, and no one resided there. Workmen's trams and cars run morniug and evening from Chicago. The place today presents a busy scene of industry, employing over 6000 persons in its shops and factories, and no less than 849 of these wage-earners own their houses.

The Churches in Pullman.

An inquiry in reference to the church preferences of families in Pullman shows that 75 families lean towards the Baptist Church, 250 incline in the direction of the Presbyterian, 125 the Methodist Episcopal Church, the Swedish Methodists claim 125, the Elim Swedish Lutherans 100 families, and they have a fine church of their own; the Swedish Baptists 50 families, the Holy Rosary Church 375 families. This congregation has one of the finest brick churches in the country. The German Lutheran claim 75 families, and the German Reformed Church 100 families. the Swedish Mission

PRESBYTERIAN CHURCH.

Church 125 families, and the German Catholics 50 families. Ten of these denominations are provided with ministers and churches. The Greenstone Church, which is leased by the Presbyterians, is the finest structure in the town of Pullman. It is built of stone of the Serpentine Rock. This rock is crystalline, occurring in masses which commonly present dark green colours. Some authorities have classed it as a marble, from the fact that it is often sculptured. Its fancied resemblance from its mottled appearance to the skin of some serpent gave the rock its popular name.

Drainage System.

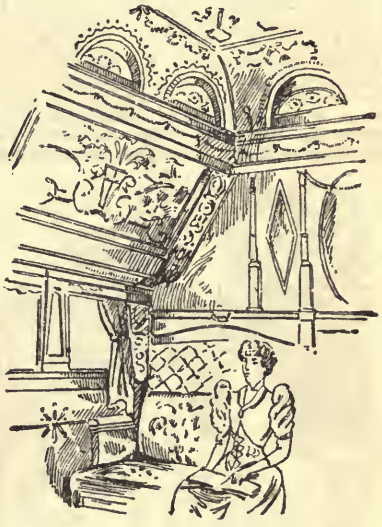
The storm or atmospheric water goes from roofs and streets through one system of pipes and large drains directly into Lake Calumet. This water, of course, contains no sewage. Brick mains are built in alternate streets, running east and west, the intermediate streets being summits from which the surface water flows into the main drains or sewers. The fall is sufficient to secure good cellars or basements for all the dwellings of the town, the drain pipes being at least 18 inches below the cellar bottoms. A two-feet cobble-stone gutter borders either side of every street, leading, at short interval of about 160 feet, into catch basins, these basins connecting either with laterals or main drains. 28 miles of drains and drainage piping have been laid in Pullman. No sewage goes into these drains as they are intended to carry nothing but rain water. These laterals and house drains are of vitrified piping, and serve for draining over 1800 houses.

Disposal of Sewerage.

An entirely separate system of pipes from the drainage piping is here used. These sewers are laid deep enough to pass under all the surface drains, and sewage in them from houses and shops goes by gravity to a cistern or a reservoir under the water tower at the works, entering the cistern 16 feet below the surface of the ground. The capacity of this reservoir is 300,000 gallons. The sewage is pumped from here as fast as it is received through 20-inch iron pipes to a sewage farm three miles distant. At the farm end of this pipe the sewage goes into a receiving tank made of boiler plates, which is set a few feet above the surface of the ground. Through the centre of this tank there is a screen in an oblique position, through the meshes of which substances more than half an inch in diameter cannot pass and get into the piping in the farm. The sewage water passes through this screen, and thence into the distributing pipes, a pressure of not more than ten pounds being allowed upon these pipes. The sewage is sent from the reservoir so rapidly that there is not sufficient time for any fermentation to take place, and there is not the least perceptible odour from it at the pumping station.

A Palace on Wheels.

Mr Logan, Glasgow, reports:—While visiting the Pullman works, the car of most note that the delegates were shown through was one owned and used by Madame Patti whilst travelling through the United States. There was nothing very striking about it, only that it contained a piano and a neat little inlaid cabinet. Mr Doty, the gentleman who showed us round, explained that the finest and most elaborate cars that the Pullman Company ever built are shown at the Exhibition, at the same time advising us strongly to see them before leaving Chicago. On visiting the Exhibition next day, I went straight to the Transportation Building, when I had the pleasure of seeing through this most magnificent train. This train, I was told, was expressly built for the Exhibition quite regardless of cost. It consists of a ten-wheeled engine of a very striking appearance. Next the engine is a United States mail car, which is vestibuled to the tender. This car is 69 feet 6 inches in length, and is fitted up with the most approved mail fixtures. The postal authorities who have visited the car say it is the best equipped postal car in the world. The next is a first-class day coach 68 feet 11 inches in length. The car is finished in vermillion wood that looks like dark mahogany, with a grain resembling rosewood. The car has 28 Hale and Kilburn double seats, which are notable for the easy way they can be turned and the comfortable seat they afford to the traveller. The upholstering of these seats is unusually rich, being an embroidered haircloth, with a gold-like hue. Each section of seats is divided by an arched crown, which seems to give the car the appearance of a series of arches that are beautifully carved and richly decorated with floral work.



CORNER OF PULLMAN STATE ROOM.

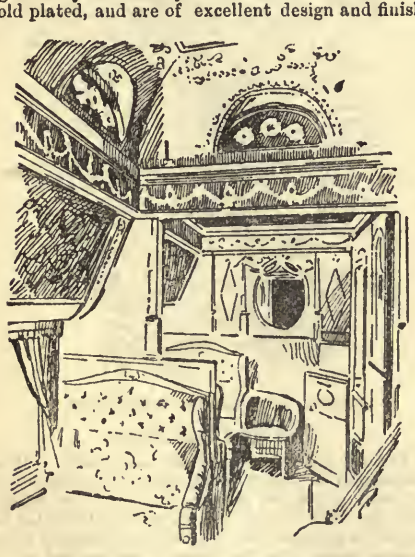
The Smoking-Room

in this car is a very handsome apartment. It is upholstered in olive leather, the wall panels being finished in decorated stamped leather. The ceiling is in the shape of an ellipse, and is decorated to match the upholstering. The windows opening from smoking-room into the passage are draped with heavy silk plush curtains of a very artistic design. Passing from the body of the car through the smoking-room passage, the gentlemen's toilet-room and lavatory is reached. They are also fitted up in the same sumptuous manner. The wash-hand basins and water-coolers are of a pretty design, the metal work being all highly electro-plated. The ladies' rooms at the other end of the car are similarly fitted up. Passing through the vestibule from the day coach, the parlour car Santa Maria is reached. I may here state that every Pullman car that has been built is named by the Misses Pullman. The parlour of this car is finished in vermillion wood, and is designed in the sixteenth century style, with curtain rods and ornamental metal work all gold-plated. The ceilings are handsomely carved, with the ground-work coloured a natural green. The windows are built in bay form, the upper part

being glazed with the most delicate patterns in stained glass. The upholstering of the revolving seats and sofas is of Persian blue and gold. The design of the chairs is very graceful and delicate, while the carpets are of the finest Winton. Passing through the passage towards the gentlemen's end of the car is a library well stocked with expensively bound books. Next to the library, at the end of the car is the gentlemen's lavatory and toilet room. The floor and wainscoting of this room are constructed of handsome tileing. The wash-basin is of Mexican onyx, and is beautifully shaped. All the plumbing fixtures, &c., are of plated gold. At the other end of the car is a drawing-room

Finished in Ivory and Gold

of exquisite design and workmanship. The ceiling is coloured in pink, and is beautifully carved and decorated in gold. The upholstering of this room is of silk plush, coloured to harmonise with the walls and ceiling. The room also contains a comfortable sofa and two easy chairs upholstered in delicate silk plush. The window curtains are of Pompeiian pink silk, richly flowered in silver, white, and gold. At the end of this room is fitted a circular bevelled miror, and the carving of the frame is simply a work of art, and by far the finest piece of decorative carving seen in the American section of the Exhibition. The entire train is lighted by electricity. The electroliers are all gold plated, and are of excellent design and finish.



CORNER OF PULLMAN SLEEPER.

I paid special attention to the workmanship of these cars, and I must say that the cabinet work, upholstering, and decoration could scarcely be surpassed. Everything that wealth, taste, and ingenuity could think on appears to have been used in the manufacturing of the handsome cars. The above description conveys but a poor idea of what these cars are really like, even with the aid of photographs, as they would fail to give the brilliant colours which have so much to do with successful interior decoration. The designing of the interior decoration of this wonderful train, it may be of interest to mention, was done by Mr Frank Jobson, a school companion of Messrs D. C. & F. Thomson of this paper, and now a rising young architect in Chicago. Pullman also exhibits a number of electric street cars, and a model of the town of Pullman, showing all the buildings and dwellings.

A Canadian Pacific Train.

The Canadian Pacific Railway Company also exhibit a train similar to the Pullman, only not quite so elaborate. All the cars are vestibuled, and lighted by electricity. The finish and decoration of the diner is superb. White mahogany, with bronze tablets for ornamentation, with linen, silverware, crystal, and china on the spread tables, create a pleasant effect of light and cleanliness. Thirty persons can be seated at the tables. The sleeping-car is a model of comfort, of the type familiar to all travellers, but brought up to date by modern improvements. The finish of the first-class day coach is in quarter-sawed oak, the seats having backs arranged rather for comfort than economy of space. This car is divided into three sections by two arches, which create an impression of spaciousness foreign to cars of the usual pattern. There are two smoking compartments, one at either end of the car, and the usual toilet conveniences. In the colonists' car, which is called in this country an emigrants' sleeper, many improvements are found. The seats are comfortable, and the beds furnished with good bedding. In finish and decoration the car is superior to many first-class day coaches. All the cars are finished without and within with oil and varnish, no paint being used in any form. This is a specimen train, being a duplicate of those now in service on the road. Each of the cars are 14 feet 10 inches high by 10 feet 3½ inches wide. The sleeper is 78 feet long and weighs 98,000 pounds. Steam from the boiler heats the train, and the customary bell-cord is replaced with a pneumatic device. Electricity is provided from storage batteries charged before the train starts.

THE PROSPECTS OF WORKING MEN IN AMERICA.

AN INTERESTING NARRATIVE.

FREE TRADE AND PROTECTION.

WAGES OF SHOEMAKERS.

COST OF FOOD AND CLOTHING.

RENTS AND TAXES.

REMOVING BUILDINGS.

WOMEN'S TEMPERANCE UNION.

CHICAGO'S LIQUOR LAWS.

THE KEELEY CURE FOR INTEMPERANCE.

SCHOOL SYSTEM OF CHICAGO.

(From the Dundee Weekly News of September 16.)

The question—Do working men rise to better positions in America than at home? was answered in a very emphatic manner by Mr James Sinclair Thomas, the proprietor of the hotel in Chicago in which the delegates resided when prosecuting their inquiries in that city. Mr Thomas, who said he had a Scotchwoman for his mother, left Cong, County Mayo, Ireland, in 1854, when hardly sixteen years of age. After a six-weeks' passage in a

FORT DEARBORN IN 1830.

sailing vessel, he reached New York, and on the first day of his arrival there, when walking along the street in company with a friend, he found a parcel containing $57 (£11 8s) in paper money—a very encouraging omen to him, he thought. The "find" was advertised, but the money was unclaimed, and he divided it along with his friend. Although so young, he was considered a first-class carpenter, and being also a good draughtsman, he obtained work immediately on his arrival, although the wages then were only $1¼ (5s) a day. In the following March he went west to Chicago, a place of 45,000 inhabitants at that time. He secured employment with a man named Jonathan Clark, whose foreman started business on his own account. Shortly afterwards Mr Thomas was placed in charge of the shop, with fully fifty carpenters under him. Working about three years with Mr Clark, he saved some $1100 (£220), sent for his parents and brothers and sisters, and in 1857 he started business as a stair-builder, at which he was looked upon as an expert. Then came the great panic, and his money went in the "burst." Leaving Chicago, he travelled to St Louis, Missouri, and in two years he made $4000 (£800) at his own business. The Civil War breaking out, he organised a company of Irishmen, 100 strong, fought on the Confederate side for sometime, and in one day was in three heavy skirmishes, and was twice wounded. His colonel being killed, he had for some time the command of the regiment. Returning home, he took $200 (£40), and started for California in December, 1861. There he opened a school for the teaching of stair-building, and made $1500 (£300) in three weeks. While in California he hit upon a new plan of setting up rails for all kinds of stairs, and published a book on the subject, for the copyright of which he received $16,000 (£3200) in gold. In 1864 he returned to St Louis, started speculative building on a considerable scale, and also ran a planing mill, and a lumber yard, and made a quarter of a million of dollars (£25,000). Every year at that time he built twenty or thirty first-class houses—very few cheap ones he ever built—and sold them from $20,000 (£4000) to $30,000 (£6000) a piece. He was not, however, often paid in cash for the property, and the result was that when the panic of 1873 came he lost nearly everything he had. From 1875 to 1880 he was in Texas—a State in which jails were very much required—and during that time he built no fewer than 22 of these useful establishments. Not liking the State, he came back to St Louis, and recommenced building on his own account, accumulating property of the value of $130,000 (£26,000) in four years. After this he returned to his first love—Chicago—and has done well up till now. The Hotel Thomas occupies a site opposite the main entrance to the Exhibition, with 100 feet of frontage and a depth of 150 feet, and cost $33,000 (£6600). Working men, he said, could do well in America if they kept away from the saloon, and people should come out when they were young, as they "caught on" more readily to the customs of the country than older persons. The education system was the best in the world, and was free to all. His own daughter could earn $60 or $70 a month at teaching if anything came over him, and the same prospect was open to the daughter of every working man. There was always employment for steady men, and no man required to take off his cap to any one. They lived on the very best food that was to be had—meat was cheap—and mechanics and labourers, provided they kept from drink, had carpets on their floors, and many of them had pianos. Scotchmen generally did well, but Irishmen were not behind, and many of them had risen to the highest professional and social positions. As a striking instance, he mentioned the Brothers Cudahy, who, starting as butchers with a couple of dollars a day twenty years ago, now lived in palaces, and had horses, carriages, yachts, and all the other luxuries of millionaires. In concluding on this subject, Mr Thomas said—"If I had stayed in the old country I would now have been looking forward to being a burden on my family, or spending my last days in the poorhouse, but, thank God! there is nothing of that here."

Free Trade v. Protection.

On the subject of protection, Mr Thomas holds very pronounced views. The victory of the Democrats, he said, had paralysed trade in Chicago for the time being. A country's prosperity depended upon its manufactures, and the manufacturers of America did not know but that they might be blotted out with foreign good should the tariff be reduced or abolished. "If we are to have free trade in this country it will," he said, "ruin us. England is a great country because of its manufactures, but it is being gradually ruined to-day by importing free from Germany and other countries what it can itself produce. Take this for an illustration. In our country convict labour is let out to contractors, who pay the State 40 to 45 and 50 cents a day for the work of each convict. These convicts are employed in making hats, clothes, &c., which compete with and keep down the price of free labour. At present this is done only on a comparatively small scale, and it is not generally seen, but let us have Free Trade for two years and the fellows who are now crying for Free Trade would soon have their wages reduced to European level, and would be searching for all the ropes they could find in order to hang the Congress men. Chicago has been for some years the natural home of the builder, but there is no house-building going on in Chicago at the present time. On an average I employ from forty to fifty carpenters, but at present I have only four, and in a fortnight I shall stop altogether. I anticipate, however, that there will be a clean sweep round, and that the Democrats will be at the bottom of the bag at next poll." It is a singular fact that the delegates heard views similar to those held by Mr Thomas expressed by scores of skilled tradesmen in America.

Hard-Headed Scotsmen,

who in the land of their birth would have been red-hot Radicals, were as emphatic as Mr Thomas in their condemnation of Free Trade as the policy for the American Government to follow. They were met with everywhere—in the workshop, on the street, and in the cars—and according to them all, without exception, Free Trade would be the ruin of America. Several hot arguments took place on the subject, and the Conductor in particular was not slow in showing how unjust and one-sided their tariff laws were. He pointed out that really only

certain industries were protected against foreign competition, and asked the Americans if they were prepared, for instance, to give bounties to the farmers who had to sell their produce at Free Trade prices, and practically pay a sum equivalent to the tariff on everything they bought. He also pointed out that America was a great country with enormous natural resources, that the Americans were not slow in boasting of their ingenious labour-saving machines, and of the greater amount of work they could turn out in a given time than the Britisher, and remarked that if the Americans with all these advantages on their side—not to speak of the matter of ocean freight which had to be paid on imported goods—could not hold their own against British working men employed in industries crippled by royalties and subject to other impositions peculiar to a country with all the burdens of a monarchical form of government, they were a very sorry lot indeed. The contention hit them hard, but they would not be convinced. They stubbornly asserted that, with Protection, the mechanics of America had pie three times a day, that no European mechanic fared so well, that if America adopted Free Trade they would have no pie three times a day, and some of them fiercely declared that rather than want their pie they would have another civil war. The Southern and other States where unskilled labourers are in the majority are strongly Democratic, and, judging from the feeling displayed on the subject, it would not be surprising if serious disturbances occurred before the question of tariff reform is settled by the Government. The delegates found America in a deplorable financial condition—works of all descriptions being closed, tens of thousands of skilled artisans unemployed, nearly two hundred banks with closed doors, railways in the hands of receivers, and trade completely paralysed—this to a large extent being due, of course, to the policy which has hitherto been followed by the Government, as it could not be attributed to Free Trade, seeing that has not yet been tried.

House Rents and Taxes in Chicago.

The rents of the houses of working men in Chicago, who live almost wholly in flats, vary according to the locality, and also according to their size. In the north they range from $9 (£1 16s) to $14 (£2 16s) a month; on the west side, five to seven rooms, $20 (£4) to $30 (£6) per month; and on the south side, where ground is still dearer, from $30 (£6) to $40 (£8), including taxes in every case. Property in Illinois is taxed in a peculiar way on the capital value. For instance, a gentleman interviewed on the subject stated that he was the owner of a farm in Illinois. Its capital value was $30,000, but the assessment was imposed on only $6671, and while the total tax in 1879 was $138.92 (£27 16s 4d), it amounted in 1892 to only $92.8 (£18 8s 4d). In the city a property in Wabash Avenue of the current value of $100,000 was assessed for $7688, and the taxes on it came to $533·51. The following is given as a sample of the assessment on a house assessed at $100 as equalised by the State Board:—State tax, 31 cents; county tax, 77 8-10 cents; city tax, 4.77 2-10 cents; town tax, 13 5-10 cents; boulevard and park tax, 5 cents; park tax, 35 cents; bonded indebtedness west parks, 5 cents; sanitary district tax, 50 cents; public library tax, 21 1-10 cents; new sinking fund, 15 cents—total, $7 30 6-10c. (£1 9s 3d). The water tax, which is also paid by the landlord, is levied separately and fluctuates. If it should not be paid by a certain date no notice is given, and the first intimation that the landlord has on the subject is a published announcement that the property has been sold to pay rates.

Prices of Food and Clothing in Chicago.

The delegates were also successful in obtaining reliable information as to the cost of food and clothing. The rates given were as follows:—Flour for bread, $4.50 (18s) per 196 lb. barrel; potatoes (new), 30 cents (1s 3d) per peck of about 14 lbs.; sugar (granulated), 6 cents (3d) per lb.; butter (best), in summer, 25 cents (1s) per lb., in winter, 35 cents (1s 5d); prime roast beef, 11 cents (5½d); mutton, 12½ cents (6¼d); pork, 12 cents (6d); best steak, 15 cents (7½d); tea, 25 cents (1s) to $2 (8s) per lb.—average, 75 cents (3s); milk, 6 cents (3d) per quart; American cheese, 14 cents (7d) per lb. Ice forms a considerable item of consumption in summer—everything in Chicago at that season being iced—and the daily supply of this necessary to an average family of a working man costs 5 cents (2½d). Working men's clothes range in price from $15 (£3) to $25 (£5), the highest price being paid for imported woollen goods. Shoes range from $2 (8s) to $5 (£1). Cotton goods are usually cheap. In answer to a question whether the standard of living in America was higher than in Great Britain, the informant said that if a man earned $4 (16s) a day he usually lived up to it, and if he earned only $1 (4s) he had just to live down to it.

THE WAGES OF BOOT AND SHOE MAKERS.

The specially revolutionising character of new machinery in the boot and shoe industry has been already referred to. According to Mr Carroll D. Wright, the U.S. Labour Commissioner, the facts collected by the agents of the Bureau at Washington in 1885 showed that one man could do the work which twenty years before required ten, whilst a Philadelphia firm testified that the introduction of new machinery within the preceding thirty years had displaced six times the amount of hand labour required, and had reduced the cost of the product by one-half. Numerous prolonged strikes have occurred through the introduction of new machinery, and in connection with these the contentions generally have been—on behalf of the employers, that though prices had been reduced the improved machinery caused wages to be higher than they had ever been; and on behalf of the men, that the effect of machinery is to displace skilled labour, and consequently to lower the rate of wages. Much friction still exists on the subject. Boot and shoe operatives, and more especially men in their own homes, work long hours. Wages have been greatly reduced, although Labour organisations have succeeded to some extent in maintaining the rates of payment. The system of piece work prevails, and the daily average wage for skilled hands is said to run from $1.50 (6s) to $3 (12s), according to the skill and speed of the individual operative. The highest wage paid to non-Unionists is said to be about $12 (£2 10s) per week.

Railwaymen in Chicago.

Mr Watson, enginedriver, Dundee, writes:—I made a visit to one of the principal railway depots in Chicago—the Grand Central, situated at the corner of Harrison Street and Fifth Avenue. This is a very large station, and has splendid accommodation for passengers. At this station there is a signalman's tower. I went and had a look into it, and found it was wrought by the Pneumatic Interlocking Westinghouse Patent, erected in 1890, fitted up by the Union Switch and Signal Company, Pittsburgh, Pa. In this tower there are fitted 24 signals, 26 switches, being 44 in all. It is not like the cabins in our country. In the first place, there is not a lever to be seen. It is wrought with compressed air, regulated by electricity. The air is

GRAND CENTRAL DEPOT.

compressed by an engine in the station, and travels in pipes to all the connections. To shift points a small valve is shifted, which is so easy that one can shift it with his fingers. This admits the compressed air which shifts the points. The signalmen here work a day of eight hours, and are paid at the rate of $60 (£12) a month, while signalmen at small roadside junctions are paid from $60 to $75 (£12 to £15) a month. Shunters are paid at the rate of 25 cents to 27 cents (1s to 1s 1d) an hour, and work a ten hours day. Porters are paid from $30 to $50 (£6 to £10) a month. I had a talk with all classes of men. One driver of the Baltimore and Ohio informed me that drivers are paid at the rate of from 3 cents to 4 cents (1½d to 2d) per mile, and firemen from 2 to 2½ cents (1d to 1½d) per mile. Surfacemen, he said, were the worst paid in the service. They averaged $1.10 (4s 6d) per day of ten hours. Freight conductors, or, as we call them, goods guards are paid from $70 to $75 (£14 to £15) per month. Passenger conductors are paid as high as $100 (£20) per month. A working man pays from $12 to $15 (48s to 60s) a month for a house of four rooms. Street tramcar drivers and conductors work 10 and 12 hours a day, and are paid at the rate of 21 cents (10½d) per hour. Cable grip-car drivers and conductors get 23 cents (11½d) per hour, run on Sunday, and are paid common time for Sunday duty.

EDUCATIONAL SYSTEM OF CHICAGO.

Mr Muir, Hill of Beath, reports:—The first school taught in Chicago was opened in the fall of 1816 by a discharged soldier in a room in a log house located near the Fort Dearborn, and since

CHICAGO IN 1833.

that time the schools have increased as the city has grown, until in 1840 there were 4479 of a population, 317 pupils enrolled, 4 teachers, costing $2000 total expenditure; in 1892 with 1,438,010 of a population there were 157,743 pupils, 3300 teachers, costing $4,562,840 total expenditure. To give the reader some idea of the increase of pupils in one year, it has been found necessary to build about 12 large schools each year to supply accommodation for the increasing population. Between four and five hundred new teachers are required annually, and at least one-third must be experienced. Education is free, and children must attend the school at the rate of 16 weeks per year until they reach the age of 14 years. This is not very strictly enforced, but no child is allowed to be employed at any work until over fourteen years of age. There is no corporal punishment in the schools here, so that if a child gets refractory the parent is sent for and informed of its conduct, and a promise obtained of better conduct for the future; but if he should continue refractory, he is suspended for a time, but must be reinstated again, and if he commit a crime he is sent to the reformatory and educated there for one year, when the parent can remove him again. If an orphan he is kept until he reach the age of 21 years, but the superintendent may arrange to send some of these boys as messengers for the telegraph or printing establishments, and their earnings at this work go to keep up the establishment. The educational system is nearly the same as our own except that

The Kindergarten Method

of teaching the young is adopted generally throughout. This consists of arranging about a dozen children of from four to six years of age around a table at which a female teacher sits. They are provided with pieces of coloured cut paper which they arrange into geometrical figures, and which are pasted on to leaves of a book, and some of those I saw were very pretty. Others are provided with pieces of wood made into blocks of different sizes and shapes, of which they construct small models of houses, &c.; in fact, nearly anything is calculated to instruct and amuse them until they reach the age of six, when they enter another grade. Then for those who may have left the school, and want to prepare themselves for the work of business life, there are the

Business Colleges,

at which, besides the usual courses of education, there is a course of special instruction given in book-keeping, commercial arithmetic, commercial law, writing, rapid computations, correspondence, wholesale, banking, real estate, insurance, shipping, shorthand, typewriting, spelling, grammar, and office work, and at one of these colleges in Randolph at which I called I saw great numbers of young men and women going through the above course of instruction. There is no special tax for education, but it goes in with the other taxes, which amount in all to $85.46 for every $10,000 worth of property, so that it is only proprietors who are taxed directly for education.

The Women's Christian Temperance Union.

The Conductor reports:—Few, if any, buildings in Chicago surpass in point of nobility of purpose, beauty of design, and splendid appointments the erection in La Salle Street, known as the Women's Temple, in which is the home of the headquarters of the Women's Christian Temperance Union, the largest numerically, and the most influential of its kind in the world. Miss F. E. Willard, the president, to whose executive ability much of the success of the Union is due, was in Europe on sick-leave when the *Weekly News'* delegates called, but they met Miss Margaret E. Sudduth, the managing editress of the *Union Signal*, the principal publication of the Association, and which has a circulation of 75,000 copies weekly. We heard a good deal of

the precocity and smartness of American girls, but the young lady who introduced us to Miss Sudduth stated, although she had a card and explanatory pamphlet, that it was an *Arctic* Expedition, and Miss Sudduth accordingly seemed in doubt for some minutes as to the object of the call. After a hearty laugh, she readily gave an explanation of the work being carried on by the Union, which is world-wide in its character. With its national, State, district, county, and local unions, it has in the United States 150,000 members paying 50 cents (2s 1d) a year, which, according to a carefully-formed financial plan, is divided between the national, State, and local unions, and there is, besides, an affiliated membership of 200,000. There are five national-paid officers, all females, and some of the States have

THE WOMEN'S TEMPLE.

similar officers. The Union has in all 42 departments under the following general heads:—Legislative, preventive, educational, reformatory, and social. Through the efforts of the Union the teaching of temperance from a scientific standpoint has been made compulsory in all the public schools in 38 States of the Union, a fine being levied for non-compliance. Homes for sailors have been established at seaports. Special provision has also been made for soldiers and lumbermen, and in the large city prisons, through the agency of matrons, the Union has succeeded in getting the female separated from the male prisoners. An important and useful agency in connection with the Union is the Anchorage used for the protection of strange girls coming to the city until they find places. These are brought in by what are called station matrons, and about 2000 are accommodated annually, a great amount of good being done in this way. The Union has also under its wing city missions, reading-rooms, night schools, and day nurseries. In addition to a special intermediate branch for young women designated the "Y's" there is a juvenile Loyal Temperance Legion with an active membership of at least 15,000. The Union publishes separate papers for the "Y's" and the Legion, and a large amount of temperance and other literature. The Temple has a frontage of 190 feet and a depth of 96 feet, while it is 13 storeys in height, the fleche rising to 262 feet. The building cost $1,200,000 (£240,000), and although the Union is not the sole owner it has the controlling influence. The site itself is valued at $1,000,000 (£200,000), and is leased for 200 years at a rental of $40,000 (£8000) a year. This will give some idea of the value of ground in the business part of Chicago. The Rev. John M'Neill is at present conducting daily prayer meetings in the Willard Hall.

The Liquor Laws of Illinois.

In the State of Illinois the well-known system of local option prevails in regard to the liquor trade. The Prohibitionists have not yet the majority in the city of Chicago, but it is a singular fact that there are some districts, including that in which the *Weekly News* delegates resided during their stay in the city, in which there is no license for the sale of intoxicating liquor. This is due to the circumstance that the laws in force in these districts before they were included within the city have not been altered. It is not, however, to be understood that there is no drink in the district, as it is stated that those who want it generally soon come to know where it is to be found. Every license in Chicago costs the holder $1000 (£200) per annum, payable in quarterly instalments in advance, and this money is devoted to city administrative purposes. When it is mentioned that there are about 7000 or 8000 saloons in the city, it will be seen that the Corporation derives a large revenue from this source. Licenses are granted by the Mayor on the recommendation of the Chief of Police or of other citizens, but where a protest is lodged, and it is ascertained to be well founded, the license is withheld. Besides, a license will only be granted when it appears that a saloon is required for the convenience of the locality. For instance, no issue will be made if the saloon is to be in the vicinity of a church, or in a high-class residential district where a saloon would be more or less of a nuisance. The saloons are opened at 5 a.m., and are required by law to be closed at midnight, and on Sundays to be open in such a way as not to give offence to churchgoers—that is, the blinds must be drawn down—but these regulations are not strictly enforced.

The Keeley Cure for Intemperance.

The delegates had been only a very short time in Chicago when they began to hear of the marvellous cures wrought by the Keeley method of treatment for intemperance; and, impressed by its importance, they promptly made inquiries with the view of securing full and trustworthy information on the subject. All interested in the great question of temperance will no doubt be desirous to hear about this wonderful cure and its equally wonderful results. The cure is the discovery of Dr Leslie E. Keeley, and is the fruit of many years of patient and industrious research and experiment. Dr Keeley grew up with the idea that drunkenness was a disease, and might be cured like other complaints; indeed, this idea was a sort of family inheritance—both his grandfather and his father, physicians also, having spent many years of their lives in the investigation of the subject, but without discovering a sure remedy. The great discovery by Dr Keeley was made about fifteen years ago, and since then several thousands of men of all classes and conditions have, from being the most abject and miserable slaves of drink, been restored to their families and relations with the craving for liquor wholly eradicated and with the best prospects of leading healthy, happy, useful, and prosperous lives in the future. Dr Keeley's establishment is located at Dwight, a village with about 2000 of a population, situated about 150 miles to the south-west of Chicago, and is in a manner an hospital, with the combinations of a reformatory and a sanatorium, associated with which are hotels and boardinghouses and places of innocent amusement. Drink

has its victims in all classes of society, and those who resort to Dwight for the purpose of trying the cure include physicians, preachers, judges, lawyers, legislators, authors, engineers, bankers, merchants, army and navy officers, contractors, mechanics, &c. Nearly everyone goes to Dwight with the intention of keeping his visit a secret, but in some way or another the secret always comes out, and the strange part of the story is that after the first week no one wants to hide the fact that he has passed through the hands of Dr Keeley. Although a quiet one the daily life at Dwight is not dull, there being no chance for dulness and stagnation where so many men of so varied talents and abilities are assembled together. The rules connected with the establishment are strictly enforced. The treatment adopted consists in the hypodermic injection of bi-chloride of gold, and the taking of what is termed the remedy, every patient having to submit to the injection four times a day, and to use the remedy regularly every two hours. The injections are given in the left arm, and at each operating table there are two physicians, one to use

KEELEY TEMPERANCE CURE.

the needle and the other to see that patients are provided with remedies for minor indispositions. The former observes closely the pupils of the eyes of every patient as he approaches, and regulates the injection accordingly. A third physician stands in the rear of these, who takes each patient by the wrist as he passes out to note the temperature of the body, condition of skin, dilation of pupil, &c., and also inquires regarding the general health of the subject. A peculiarity of the treatment is that the patients are allowed to imbibe whisky freely after their arrival, but they gradually lose the appetite for it, and usually by the second or the third day they turn away from it with loathing and disgust. The shortest period of residence required is three weeks, and in from this time to six weeks it is claimed that 95 per cent. of the patients leave Dwight permanently cured, the most of the remaining 5 per cent. being, it is said, those who have been foolish enough not to follow out the treatment. Persons suffering from opium, morphine, tobacco, and similar habits are also received for treatment. The charge for all is 25 dols. (£5) per week, to which board, which costs from 5 dols. (£1) to 21 dols. (£4 4s), has to be added. The U.S. Government has recognised the Keeley treatment, and has authorised the use of the remedies in 28 National and State Soldiers' and Sailors' Homes, while branch institutes have been established throughout the country.

REMOVING BUILDINGS.

Mr Sinclair, Cambuslang, reports :— Having often heard of how easily the Yankees could remove a building from one street to the other, I thought I would like to see this wonderful undertaking. After making a few inquiries if there was any such thing being done in Chicago I learned that there waa a house being removed in 503-505 W. Van Buren Street. So Mr Brown and I set out for that locality. Nor were we disappointed when we got there, for sure enough there stood before our view a three-storey building that had been removed from the opposite side of the street, and was now resting upon a new foundation that had been built for it. In the first storey, almost in the centre of the building, there has been inserted what we might call a memorial stone bearing the following inscription :—

> THE NORMANDY
> Removed from Nos. 116-112 Lafiln Street
> To this site in June, 1893.
> L. P. FRIESTEDT,
> Contractor, Chicago, Ill.

Behind this block stands another that had been removed about fifty yards, but had not yet reached its permanent site, while a little further down the same street there was another on the rollers and almost ready to move. Mr Brown and I had to wait about two houra in order to see this block of brick buildings, three storeys high, move along. Four great jacks were put at each side of the building, and all wrought at the same time until the building began to move on the rollers. Then two horses at the end of the street began to pull the chains that were attached from the building round a windlass that was erected for that purpose, and so

The Building Moved Slowly

but surely along the street. This block that we saw move was not only to come up the street, but was also to turn the corner. In removing these buildings the first thing to be done is to get a hole put in the walls and solid foundations put in for the jacks. In heavy buildings as many as 200 jacks will be used. When the jacks have raised the building fully one foot, cross beams are put through 12 inches square of hard wood. On these the building rests, when the jacks are taken to the inside and employed in raising the building to admit of 18 inch square beams running the full length of the building. All along the way the building is to pass founds are laid, and beams on top of founds for rollers to run on. There are a great many block chains underneath the building so that in pulling it along no extra stress is brought to bear upon any one part of the building. From the enormous plant required, the number of hands employed, and the time it takes to move these houses (for we learned that they had been working at them for nearly two months, and to all appearance it will be a month or two yet before they are finished), I fail to see any great saving in not taking them down and rebuilding them.

CHICAGO'S FIRE BRIGADE.

BRAVERY OF FIREMEN.

THE BOARD OF TRADE.

PUBLIC HEALTH DEPARTMENT.

WATER SUPPLY AND DRAINAGE.

LIBRARIES OF CHICAGO.

(From the Dundee Weekly News of September 23.)

THE FIRE DEPARTMENT OF CHICAGO.

Mr E. Bennett, Newcastle, reports: — This department, which so ably distinguished itself at the great fire at the World's Fair on Monday, July 10, is really worthy of notice. I was an eye-witness of this fire, which broke out in the Cold Storage plant, and completely destroyed the whole building and its contents. The fire alarm was given a few minutes before two o'clock, and in less time than it takes me to write it there were engines rushing to the scene of the fire from all points of the Fair grounds. They rushed and had a ladder run up the side of the building, and Marshal Murphy and his men were on the roof in an instant. They apprehended no trouble in putting out the fire, as a similar one had broken out in the same place about a month ago. But this fire proved itself to be a very different one from that, for it spread with alarming rapidity. Captain Fitzpatrick, with a number of his men, were very soon on the tower, a distance of 220 feet above the ground, little dreaming of the awful fate that awaited them. Fitzpatrick was standing on the ledge near the top of the tower with the hose in his hand, and was just in the act of calling something to Marshal Murphy, who was on the roof below, when a deafening explosion was heard, and one side of the tower was blown out, and flames shot out in every direction. The tower very rapidly became a mass of flames, and the poor fellows huddled themselves close together on the east side, with death of the most horrible kind staring them in the face. There had been life-lines fastened to the tower, but now they had caught fire and were burned away. It was a choice then between death by jumping or death by burning, and the poor fellows seemed to chose the former. Captain Fitzpatrick was the first to take the awful leap, and as he sprang into the air

An Agonising Groan

went up from the crowd. Men stood with blanched cheeks and eyes nearly starting from their sockets, while women cried and wrung their hands, and a great number fainted. I shall never forget the awful scene, first one fireman, then another jumping into eternity. As one after the other took the fatal leap, the groans that went up from the horror-stricken spectators was heartrending. Poor Fitzpatrick, on striking the roof, crushed only half-way through, and there he hung. He was then quite conscious, and cried for help, and here a most daring act of self-sacrifice was witnessed. Murphy had no sooner called for volunteers to go and assist him in rescuing their captain than four of the men were on the ladder. Everybody who saw this deed of heroism seemed to shudder; to ascend to that roof meant certain death, as the flames were roaring underneath it. Heedless of all danger they ran to where Fitzpatrick lay, and tied a rope round under his arms, and lowered him to the ground. Cheer after cheer was given as he was lowered, and immediately this was followed by shouts to the brave men to save themselves. Murphy and his men then made a

Rush Through the Flames

to the ladder, and an instant later they were out of danger. Scarcely had the ladder been removed than nearly the whole of that side of the building fell in, sending flames and sparks high in the air. According to report, there have been twenty-seven lives lost, but I really do not think anyone knows how many were lost. The fire department of Chicago is generally acknowledged to be the best equipped and the most efficient in the United States, which means that it is the best equipped and most efficient in the world. The firemen of Chicago are called upon to be prepared for and to meet emergencies which do not rise in any city in Europe, and is said to have been brought to its present high standard of discipline and efficiency by the two chief marshals, who have had charge of the department since the great fire of 1871. The names of these gentlemen are Bunner and Swinie. The former retired from active service about ten years ago after reorganising the department upon a basis which has served as a foundation for the growth and character it has since attained. Mr Swinie was Mr Bunner's chief assistant, and therefore filled his place on his retirement. He was largely instrumental in suggesting and carrying out many of the reforms and improvements that characterised the latter's administration. Since the succession of Mr Swinie the department has quadrupled its machinery and its forces. In Mr Bunner's time Chicago was a city covering an area of something less than forty square miles with a population of 500,000. Now the city covers an area of 181 square miles, and has a population of 1,250,000. The strength of the department at the present time is

1000 Men and Officers.

72 steam engines, 24 chemical engines, over 100 hose carts, 30 hook and ladder trucks, one water tower, and three fire boats for river and harbour service. The stations are all worked by electricity, and the moment the alarm is given everything springs into motion, the stable doors fly open, the bridle falls from the horse's head, and they, being trained, bound forward into their places. The harness is dropped on them, and by this time every man is in his place, and they are out on the road in eight seconds. Some of our party saw an engine going to another fire this week, and they tell me that it was all draped with crape, and the firemen had crape badges on their arms, showing as tributes of respect for their fellows who had so nobly sacrificed their lives in an endeavour to save life and property.

THE PUBLIC HEALTH.

Although the city of Chicago occupies a flat site, raised only a few feet above the level of Lake Michigan, it is far from being unhealthy. The climate, as a rule, is invigorating, notwithstanding that the temperature is usually down to zero in winter, and is sometimes very high in summer. Last winter 16 degrees below zero were recorded, being the lowest temperature registered in the city for a considerable time, and during the visit of the *Weekly News* delegates the thermometer on two days stood at 98 in the shade. Gentlemen in their offices were found working without coats or vests, and even the negroes were perspiring heavily when only employed in fanning themselves. One negro with beads of sweat of the size of small marbles on his face remarked to a delegate—"My golly! me not live much longer if it gets hotter dan dis." One gentleman was also heard to remark to another—

"Warm, isn't it?" The answer was—"Warm; it's red-hot." Several persons succumbed to the heat, and a great many had to be removed to the hospitals. A man who had been 30 years in the city said he had never experienced such a temperature. Returning to the matter of health, it may be mentioned that the highest death-rate recorded was in 1882, when it stood at 23·60 per 1000 per annum, while in 1878 it was as low as 15·70. As elsewhere mentioned, the health of the city is under a Commissioner appointed by the Mayor, but he must always be a man credited with some knowledge of hygiene and sanitary matters, not only as a practising physician, but as a man having a good practical acquaintance with sanitation. The Commissioner has charge, in addition to other matters, of the inspection of tenement houses and factories, and of plumbing, &c., and he is voted from $3000 (£600) to $35,000 (£7000) a year for the purpose of dealing summarily with any case of emergency in the health of the city, but if a larger sum is required he has to apply to the City Council. The members of the numerous classes of inspectors belonging to these departments receive salaries ranging from $900 (£180) to $2500 (£500) a year.

WATER SUPPLY AND DRAINAGE.

The waterworks of Chicago, like everything else in the city, are on a very gigantic scale. The supply is taken from the great inland sea of Lake Michigan, and so crude were the works for some time that the inhabitants, like those of Dundee, as alleged, in the spring and early summer months of this year, frequently drew fish from the hydrants. But all this has now been changed, and the quality of the water, although perhaps not exactly so good as it might be, has been greatly improved. In former years the water was conveyed from inlets at cribs about two miles out from the shore by means of large tubes or tunnels, and then pumped by steam power from towers nearly 200 feet in height into the mains, which distribute it througout the city; but a new tunnel capable of furnishing about 100,000,000 gallons a day and running four miles out was lately constructed, and the total daily capacity is now about 250,000,000 gallons, with 1400 miles of piping. For fire purposes there are no fewer than 13,411 hydrants. The system has cost altogether about $18,000,000 (£3,600,000). In addition to these works there are about 40 artesian wells, from some of which the stockyards and other establishments are supplied. In this connection it may be mentioned that the World's Fair has an independent pumping station capable of giving 53,500,000 gallons per day. The sewage of the city is taken by means of pumps from the Chicago River, which by this means is now made to run from the lake into a canal connecting the above-named river and the Illinois River with the Mississippi, and thence to the Gulf of Mexico, the garbage being destroyed in a furnace which can consume 150 tons per day. The canal is being deepened, and Chicagoans look confidently forward to a time in the near future when large vessels will be able to pass from Lake Michigan down to the Gulf of Mexico. The southern part of Chicago is still, however, drained into the lake.

THE BOARD OF TRADE.

The Conductor reports:—The grain and provision market of Chicago is located in a large and handsome grey granite building known as the Board of Trade, and occupying a prominent situation in Jackson Street, at the south end of La Salle Street. The structure, which is only about ten years old, is surmounted by a tower 304 feet high containing the largest clock in the United States, and cost about 1,800,000 dollars (£360,000). In it very large quantities of grain and produce are disposed of every business day. The trading hall has a magnificent interior, 175 feet by 155 feet, and 80 feet in height, and contains three small circular pits devoted respectively to wheat, corn, and provisions. These are filled by the dealers, who are practically either auctioneers or purchasers, and when business is in full swing the scene is simply indescribable, resembling to some extent that in which a large number of bookmakers are pursuing their calling at a race meeting, and a stranger quite fails to understand how the screaming and shouting men in the pits can keep a record of what is passing. There are, of course, "bulls" and "bears" in any number, and when a "break" takes place in the rates, a scene of the wildest excitement and apparent confusion occurs. A grain dealer may shout, "I'll sell 5 Sept. at 80 cents," meaning 5000 bushels for September delivery, whereupon if this be under the former price a hundred hands go up, and

A Hundred Voices Shout

"I'll take it," and the transaction is properly booked all round. One man may sometimes sell and buy back several millions of bushels in a few minutes. The galleries are open to visitors, and when the *Weekly News* delegates looked down from them, they saw the grain pit crowded with shouting and gesticulating dealers, mostly with straw hats, but several with none at all, and others, on account of the great heat, *minus* also both coats and vests. The corn and pork men were conducting their business in a quieter fashion. The hall contains numerous black boards, one showing the weather in the United States on the previous day, and the others giving comparative tables of the receipt of stock and grain, and the latest closing prices in the London, Liverpool, New York, and other markets. A staff of upwards of 100 telegraph clerks and operators is required for the work connected with the market, and all these carry on their work on one side of the hall. The Board has a membership of about 2000. The admission fee is $10,000 (£2000), but tickets are

NEW BOARD OF TRADE.

transferable and command only from $2500 (£500) to $5000 (£1000.) Nothing less than 1000 bushels of grain or 250 barrels of pork changes hands. An authority, writing on the Chicago Board of Trade, says, "It exercises a wider and more potential influence over the welfare of mankind than any other institution of its kind in existence, for it practically regulates the

Traffic in Breadstuffs

the world over. Its transactions are of far more importance to humanity in general than are those of the Exchange of London, the Bourse of Paris, or the Stock Exchange of New York. Notwithstanding the severe criticisms to which the methods of the Board have been subjected from time to time, the commercial honesty and personal integrity of the members are recognised everywhere. On the Board of Trade there is a code of moral ethics which cannot be violated with impunity. The member who is not known to be commercially honourable, or whose word has once been broken, or who has been detected in a disreputable transaction, loses caste among his fellows, and is shunned for all time. Men lose fortunes here because they risk them, not on a game of chance, but on a trial of judgment."

GOVERNMENT OF CHICAGO.

The government of Chicago and its million and a half of inhabitants is vested in a mayor and 68 councillors or aldermen. The Mayor is elected directly by the people, and sits for two years, which is also the term of office of the aldermen, one of whom retires in each of the thirty-two wards every year. The present Mayor is the Hon. C. H. Harrison, general manager and editor of the *Chicago Times*, who was elected some months ago by the largest majority ever recorded in Chicago, although his candidature was practically opposed by every newspaper in the city except his own. He has started on his fifth term, although he passed some years out of the chair after his fourth. He is undoubtedly a strong and popular man. Democratic in politics, he takes a broad and liberal-minded view on all subjects. The salary attached to the office is $7000 (£1400) per annum, and about $15,000 (£3000) is distributed amongst the aldermen, who receive a certain sum per day for their services. The Mayor has the right to appoint the chief of police ($5000—£1000), chief fire marshal ($5000—£1000), commissioner of health ($4000—£800), and other officers, but the city clerk ($3500—£700) and the city treasurer, who hold office for two years, are elected by the people. The Mayor has also the patronage in the appointment of the ten Police Court justices who sit in the eight district Courts, and are paid from $1200 (£240) to $5000 (£1000) a year. The City Hall and Courthouse, occupying the square bounded by Washington, Clark, Randolph, and La Salle Streets, are very handsome twin structures of four storeys and a basement, and are connected with each other by means of a rotunda. The building is French Renaissance in style, and the facades are of fine Bedford sandstone, while the massive Corinthian columns of the Peristyle are of polished Maine granite.

THE LIBRARIES OF CHICAGO.

Chicago is proud of its libraries, and not without good reason. The principal institution of this kind is the Public Library, free to all, and at present located in the top floor of the City Hall Buildings. But the foundation of what is to be a massive fireproof block, estimated to cost $3,000,000 (£600,000), has just been laid in Michigan Avenue. The library, which is increasing by about 10,000 volumes annually, now contains 200,000 volumes in several languages, and reading cards were held during the year ending March 31, 1892, by 21,895 males and 21,333 females. In connection with the library there are 24 delivery stations from which 294,880 volumes were issued in the year mentioned. The average annual cost of operating the library is about $100,000 (£20,000). In addition there is the Newberry Library, which is of a very high-class order and endowed by a bequest ultimately reaching about $6,000,000 (£1,200,000), by the late Mr Walter L. Newberry. A few days ago, as the result of a legal decision, the trustees of the late Mr John Crerar, who left about $3,000,000 (£600,000), will establish a third library.

COUNTY COURTHOUSE AND CITY HALL.

THE DARK SIDE OF CHICAGO.

AMONG CHINESE GAMBLERS.

IN AN OPIUM DEN.

DOWN "THE SHOOT"

"TOUGHEST" PART OF THE CITY.

(From the Dundee Weekly News of September 30.)

The delegates had been impressed by the greatness and the granduer of the Fair and the grounds connected with it; they had traversed the handsome boulevards and admired their beauty; and they had been shot up and down, and stood, in sheer amazement, at the base of the Rookery, the Woman's Temple, and other magnificent office buildings, but they concluded unanimously that in the great and growing metropolis of the West, comparatively young as it was, and notwithstanding the great energy of the citizens, there must be a shady side not visible to the ordinary visitor. An important factor in determining this conclusion was the marvellously composite character of the population. Men of almost every nation and race on earth have established homes in Chicago, and, as the people in Britain are well aware, it is not always those with the most approved characters who, finding circumstances against them in the old country, act on the resolve to make a new start on the great Western Continent. Deeming that their visit would be incomplete without obtaining an idea of the darker side of Chicago life, the delegates expressed a desire to view for themselves some of what are known as the rougher quarters of the city. From representations made to them they concluded that it would be unwise to carry out their determination even in daylight unaccompanied by an officer of police, and steps to secure such assistance and guidance were accordingly taken. Towards this

ROOKERY BUILDING.

end the Conductor of the Expedition, accompanied by Mr Macdonald, the agent of the Anchor Line in Chicago, who kindly rendered many valuable services to the delegates, called upon a gentleman in his office in the Rookery with the view of obtaining his co-operation in the matter. It was explained to this gentleman, whose position and abilities gave him a commanding influence in Chicago, that what was desired of him was a letter of introduction to Major M'Claughrey,

The Chief of Police.

"And you shall have it at once," he replied. Having written the letter, he said, in a tone and manner which admitted of only one interpretation, "Now, you will take this to him, and if he does not do what you want, come to me to-morrow, and I will give him a dressing that he will never forget." This, it may be here explained, is only typical of the reception and the assistance extended to the delegates in every place in America which they visited. Armed with the letter, the Conductor, along with Mr Mungo Smith and Mr Dunlop, proceeded to the City Hall. Here they were directed to Major M'Claughrey's secretary, to whom the letter was handed and the object of the visit explained. "You desire an officer to accompany you in a visit to the slums. I'll easily arrange that," he said. "But," he added, "I had better take your names first, for the purpose of identification should you require a carriage back." The suggestiveness of this remark rather staggered the delegates, and caused their faces, bronzed as they were by this time, to blanch a little, but they had Scotch and not craven hearts, and looking to the big, robust figure of Mr Smith, and his wonderful walking stick made by himself out of a part of one of the railway carriages wrecked in the Tay Bridge disaster, they took courage and resolved to proceed. The chief's secretary, seeing that they were not to be

MR SMITH'S STICK.

deterred, called and introduced to the party one of the smartest and most experienced officers of the detective staff—Sergeant Belasky. "Come with me," said the sergeant, "and I will show you

"Some of the Toughest Places of Chicago."

Accompanied by the sergeant, we proceeded northwarda along State Street for some distance until we reached a locality inhabited principally by Chinese. There was indeed no occasion to mention to us the nationality of the population of this district. John Chinaman, with his flat, yellow, almost expressionless face, his long pigtail of coal-black hair, his feminine-looking garments, and his peculiar shoes was everywhere in evidence. The legend, "Fine laundry," was of frequent occurrence on the walls and windows, and signs with Chinese characters were abundant. Pointing to a man standing amidst a group of natives of the Flowery Land, the sergeant informed us that he was one of the wealthiest Chinamen in Chicago, and asked us if we wished to be introduced to him. Nothing, we replied, would give us greater pleasure, whereupon the sergeant took us over and went through the civilised ceremony of introduction. The Chinaman cordially shook hands with us, and having given us a warm welcome to Chicago, asked the sergeant in very good English if we had ever seen "Bang-Loo." Having received a negative reply, he said—"Jamie, take them in to

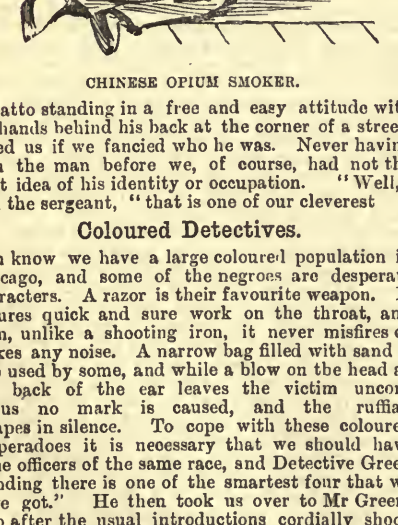
See "Bang Loo."

Thus invited, we passed through what was ostensibly a cigar store—or "segar" as it is often spelt in America—and entered a large inner saloon. Here there were several long tables, and round one of these were fully a dozen Chinese all keenly absorbed in playing a game which we did not understand, and of which we could get no intelligible explanation. Before each player was a pile of silver dollars and half-dollars, larger in some cases than in others, as denoting the wealth or poverty of the owner, or the varying fortunes of the game. Button-shaped pieces with small strips of ribbon of different colours were used by the players, and as the game proceeded the croupier, sitting at the head of the table, raked in the round metal discs which appeared to be used as counters. These discs were about the size of a penny and had square holes in the centre. At the end of each game the croupier settled with the gamblers, according, of course, to whether they had won or lost. During the progress of the game the faces of the Chinese clearly exhibited the intense excitement under which they were labouring, and one, on watching them for a few minutes, could easily understand how men might wildly risk their all when seized by a fit of gambling fever, and then after a fatal turn of Fortune's wheel, with ruin and beggary staring them in the face, bring their own lives to a sudden and tragic end. More Chinamen were lounging around some of the other tables in the saloon apparently waiting for a sufficient number to start a game. Interested, but far from edified by the spectacle which we had witnessed, we turned our backs on the Chinamen and their gambling hell. When in the lobby on our way out the sergeant said—"Look in here," and opening a small door we had

An Opium Den

in full view. The den was of small dimensions, being only a few feet square, and lying on the couch was a Chinaman preparing to indulge in his Lethean opium smoke. Reposing on his side with his head resting on a large pillow the Chinaman, without raising his eyes to us kept steadily twist-

ing for some time a small piece of opium over a burning lamp. At length he placed the opium in the bowl of a pipe, and putting the end of the tube in his mouth, the poor infatuated wretch, with evident satisfaction, took several long inhalations of the smoking drug. "Now," said Belasky, "he will lie there for fifteen or twenty minutes, and he will fancy that he is in Heaven, or that the whole of Chicago is his own." As the Chinaman was placing the opium in the pipe he caught sight of us watching his movements, and the expression of his face was such as will never fade from our recollection. As the result probably of the vice in which he was indulging, the man was reduced to a mere skeleton, and his eyes, which were sunk far into his head, had the dull glassy,like stare of semi-imbecility. Almost sickened by the sight we hastily retired, leaving the Chinaman undisturbed in the heaven of his own imagination. After passing some distance along the street our guide, directing our attention to a young and vigorous-looking



CHINESE OPIUM SMOKER.

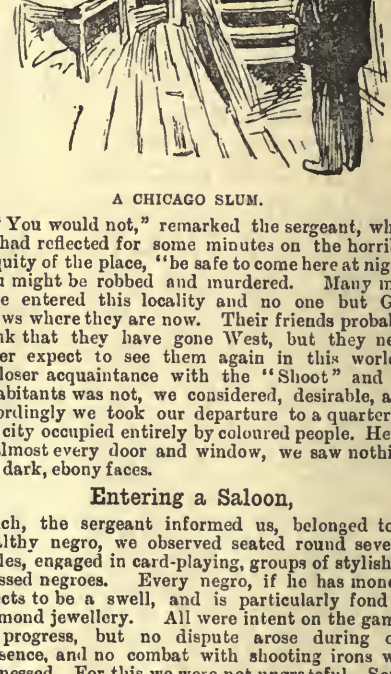
mulatto standing in a free and easy attitude with his hands behind his back at the corner of a street, asked us if we fancied who he was. Never having seen the man before we, of course, had not the least idea of his identity or occupation. "Well," said the sergeant, "that is one of our cleverest

Coloured Detectives.

You know we have a large coloured population in Chicago, and some of the negroes are desperate characters. A razor is their favourite weapon. It ensures quick and sure work on the throat, and then, unlike a shooting iron, it never misfires or makes any noise. A narrow bag filled with sand is also used by some, and while a blow on the head at the back of the ear leaves the victim unconscious no mark is caused, and the ruffian escapes in silence. To cope with these coloured desperadoes it is necessary that we should have some officers of the same race, and Detective Green standing there is one of the smartest four that we have got." He then took us over to Mr Green, who after the usual introductions cordially shook hands with us, and said he was very pleased to meet some of the members of the *Weekly News* Artisan Expedition, of which he had heard. Mr Green inquired as to the cities from which we came, and we spent some minutes pleasantly with him talking about the old country, and in making comparisons, not always, of course, in favour of the new. On leaving him he said—"Take them down the 'Shoot,' Belasky." "That's where we are bound," replied the sergeant. Going down through Dago Alley, a rather unsavoury thoroughfare, our conductor halted at the "Shoot," and said—"Now you are in

"The Toughest Part of Chicago."

Pointing to some blocks of houses, he mentioned that they were entirely occupied by immoral women, thieves, and criminals of the worst class on earth. One respectable-looking house of four storeys he singled out in particular, and stated that it was owned by the woman who resided in it, and who had about forty girls living with her. There was little or nothing outwardly to indicate that we were in such a quarter of vice and crime, but the appearance and conduct of some of the denizens quite removed from our minds any doubts which might have existed as to the truth of the statement of the sergeant. Some villainous-looking men, whom we should not desire to meet in the dark, indicated sufficiently the character of the male population, and the life of the women who came out on the street could be easily guessed.



A CHICAGO SLUM.

"You would not," remarked the sergeant, when we had reflected for some minutes on the horrible iniquity of the place, "be safe to come here at night. You might be robbed and murdered. Many men have entered this locality and no one but God knows where they are now. Their friends probably think that they have gone West, but they need never expect to see them again in this world." A closer acquaintance with the "Shoot" and its inhabitants was not, we considered, desirable, and accordingly we took our departure to a quarter of the city occupied entirely by coloured people. Here, at almost every door and window, we saw nothing but dark, ebony faces.

Entering a Saloon,

which, the sergeant informed us, belonged to a wealthy negro, we observed seated round several tables, engaged in card-playing, groups of stylishly-dressed negroes. Every negro, if he has money, affects to be a swell, and is particularly fond of diamond jewellery. All were intent on the games in progress, but no dispute arose during our presence, and no combat with shooting irons was witnessed. For this we were not ungrateful. Some negroes, farther down in the world than their fellows, were busy cleaning the boots of the swellish card-players, but even some of these ape the manners of those higher up in the social scale, and it is not uncommon to see a negro shoeblack wearing a gold ring set with diamonds, or what appears to be such. Some other saloons were entered during our tour—the weather that day was "red-hot," as

the Chicagoans termed it, and the delegates, to tell the truth, were repeatedly attacked by a thirst which had to be quenched with soda water (or something else)—and in most of these we witnessed men in every stage of intoxication, from the slightly inebriated to the dead drunk. In one saloon we counted no fewer than half a dozen of the latter class all lying on the floor with their heads towards the back wall, sleeping off the effects of their debauch, and no one taking any heed of them. During our tour we could not help noting that our guide was thoroughly well known. In every saloon we visited he received a familiar nod from the bar attendant, and on the street the men and women, observing him, seemed to slink away with guilty fear. Remarking this to him, he replied, "Oh, yes; when anything is done and comes to our ears, we know where to look for our 'bairns.' We usually get admission to their houses at any hour of the night, but if we are once refused all that we have to do is to bring up a waggon, and, using it as a battering-ram,

Knock in the Door.

We can always manage to keep the criminal class well in hand in Chicago." Other demands now pressing upon us, we thanked the sergeant for his kind attention and services, and, when giving the parting handshake, he said—"Come back in the evening, and I will show you Chicago by moonlight, when everything here will be in full swing, with people going to the devil at a thousand miles an hour." We had, however, been able, from what we had seen, to form a good idea of the character of the social and moral sores of the city, and had no desire to probe deeper into its gruesome abscesses.

NEW CRIMINAL COURT.

ITALIAN LODGINGHOUSES.

THE BLACK HOLES OF CHICAGO.

SLEEPING IN FRUIT CARTS.

THE CHICAGO POLICE FORCE.

PINKERTON'S DETECTIVES.

HOW PAUPERS ARE TREATED.

THE ITALIAN LODGINGHOUSES.

Another aspect of Chicago life was laid bare in a visit paid to the Italian lodginghouses in the company of the Inspectors of the Health Department. These lodginghouses are situated chiefly in the neighbourhood of Ewing and Jefferson Streets.

Stopping at a long, low, ramshackle erection at the corner of Ewing and Jefferson Streets, the officers ascended a few ricketty wooden steps, and entered a room 10 feet by 6 and 7 feet in height. It was dark and foul, and the only other occupants in addition to the sleeping men, who literally covered the floor, were beetles and rats. The only opening, except another doorway giving access to a slightly larger room, from which the door was missing, was a small window, tightly closed, looking out on the court in rear. Removing a stable lamp and holding it through the doorway, Inspector M'Donald saw before him nine men stretched on a bed of rags on the floor, and poorly covered by dirty-looking quilts. The sleepers, who rubbed their eyes and seemed frightened by the sudden interruption, were partly in underclothing and partly in their everyday clothes. The atmosphere was close and stifling. In another small room containing a little stove, and used as a kitchen, more men were found in bed. In these three boxes or rooms, with neither water, sanitary arrangements, nor ventilation, there were upwards of twenty-five men living. What had next to be done was to find the padrone or landlord and serve a notice on him ordering the premises to be vacated. It was then found that whatever knowledge of English the tenants had was now lost. But closely adjoining the lodging-house was a saloon, and to it the inspecting party resorted in their quest for information. After a lot of questions, a spare man with sharp features and a gold chain hanging from a broad-cloth vest, acknowledgod that he was the lessee of the lodginghouse visited, whereupon Inspector M'Donald promptly gave him notice that no more than five persons could legally sleep in the house across the street. "Dat's all right," said Padrone Maglietta, smiling, "dere's only two dere now," and he held up two fingers to the Inspector. "Let's see," said Inspector Connell, and he led the way back. The men were still on the steps. They grinned as

The Padrone Entered

with the Inspector. "Two, eh?" remarked the Inspector. Maglietta threw up both hands when he saw the rooms packed like barrels of herring. He recovered speech instantly, and swore at the occupants in Italian dialect. When the inspecting party was half a block away the padrone's voice could still be heard scolding the labourers. Bernard Rosa, whose saloon and lodginghouse occupy the frame building at the corner of Canal and Ewing Streets, was fined the other day, and it was not a particularly pleasant greeting that he extended to the Inspectors. He had obeyed the law, however, and the lodgers who formerly occupied the hole in the ground called a cellar had all been sent away. To get to this cellar, in which thirty or forty men slept, you had to pass through the saloon and down a ladder stairway. At the bottom there is an accumulation of smells impossible to catalogue. A broken window front of a twelve-inch aperture facing the side walk was the entrance for air and sunlight. Landlord Rosa pointed to the hole and exclaimed, "By jimney, there's plenty air, plenty ventilation." Then he added, "I was fined twelve dollah, and the Judge would not suspend. Why doan he fine someone else, eh?" He kept on asking this question as long as the Inspector remained, and he looked savage when no satisfactory reply was forthcoming. On a hot night the side walks on Ewing Street are densely packed with Italian labourers from the lodginghouses. They sit on the garbage boxes and listen to the music of concertinas. It is curious that a hurdy-gurdy or

mechanical piano are never heard on the streets in the Ewing district.

Two Hundred People in One House.

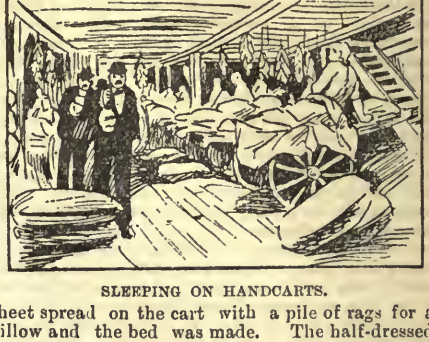
An Italian tenement house at 125 and 127 Ewing Street contains two hundred people. It is a three-storey building with forty-eight separate apartments. There is a light shaft in the centre, but there is no ventilation. The plumbing and sanitation are extremely defective. Michael Buonanus rents the building for $85 a month, and he says that he receives $104 from his tenants. "Michael" can't talk good English, but he has two boys going to the public schools who explained things to the Inspectors. One of the rooms on the ground floor, 13 by 10 feet, had accommodation for a dozen roomers. A family of kittens rested contentedly under the long bunk. Sewer gas came up from the sink in the corner, and dirty water dripped down from the sink overhead. When the officers went upstairs a swarm of women and children crowded to the landings. Every room held a family and beds fitted up on chairs, tables, and everything else available. In some rooms two stoves were seen, one for the family and the other for the lodgers, who do their own cooking. While the atmosphere was almost unbearable, the rooms showed rude attempts at cleanliness and comfort. In one room the beds had white coverlets and Biblical pictures hung on the walls. Though the Inspectors entered at an unseasonable hour they were received with courtesy and shown everywhere. Louis Castlingilecci had a lodginghouse in his cellar at 203 Taylor Street. To reach the place the visitor has to double up and creep down the stairs. The landlord was ordered to close the place, and he has complied with the order. Twenty men slept on the floor.

Lodged in a Basement.

The saloon kept by Michael Dicosola at 107 Ewing Street was crowded with men. A few stood at the bar drinking. These paid 5 cents a glass for beer. The men at the little round tables playing cards got their drinks at half rates. The landlord said this was the rule of the house. At the back of the saloon a cellar lodginghouse exists. Beds for forty men were ranged around the walls. A dozen men were abed when the officers entered. Clothing hung on lines stretched across the room. Insects crawled over the clothing. A cooking stove stood against the wall. Near by was a water faucet and sink connected with the open sewer. The exhalations were simply awful. Some loaves of bread were on the table. The floor was grimy with a thick crust of dirt on the broken boards. "Pretty good place, eh?" said the sleek, well-fed padrone. He was surprised when a notice to vacate was handed to him by the Inspector. He grumbled, but said he would obey the law.

Slept in Their Fruit Carts.

A fruit shop kept by Greek merchants at 337 Desplaines Street afforded some interesting revelations. In the basement below thirty or forty Italian labourers were found huddled together in dirt and misery. There was no plumbing to speak of, and the smells were encyclopædio in character. The men in the place said they were out of work and could not afford better accommodation. "It costs about 20 cents a day," said one of them. "But I don't live here," he added proudly; "I have a room to myself." The fruit store was jammed with peanuts in bags, and hundreds of bunches of bananas hung from hooks on the walls and ceiling. A row of push-carts or barrows, which fruit pedlars use on the street, were ranged along the shop. Instead of bananas or peals the push-carts held men. The carts in the day hold fruit. A thin



SLEEPING ON HANDCARTS.

sheet spread on the cart with a pile of rags for a pillow and the bed was made. The half-dressed men rubbed against the bananas as they slept. One of the men said his name was "Gentleman George." "I come from Athens," he remarked in very good English. In the rear of the store is the kitchen. The ceiling is not to be seen everywhere, for double-decked beds cover half of it. Men were asleep in these beds. The sanitary arrangements are horrible. A notice to vacate was served on the proprietor. "Gentleman George" sang, "I Had a Sweetheart," &c, when he saw the notice. Outside, on a garbage box, an Italian boy was warbling "Home, Sweet Home."

THE CHICAGO POLICE SYSTEM.

The natives of Chicago claim for their police system, as indeed for everything else, that it is the best in the world. There is certainly no doubt that it has attained a high degree of perfection, and that it has been adopted by several other large cities in the States. The force, of which Major R. W. M'Claughrey is the chief, numbers altogether about 2800 men, and costs annually about $3,000,000 (£600,000). A large proportion of the force is Irishmen, and several of the natives of the Emerald Isle have risen to the higher positions, but almost every nation except China is represented, there being even some negroes on the strength of the establishment. The men, more especially in the city, are usually stationed at street corners, but there are also patrols who report themselves at intervals to their stations by means of the telephones fixed in boxes at convenient corners. From these boxes also officers can at once communicate with the stations when they have a prisoner in custody or when anything serious happens, and in a remarkably short time the patrol waggon, with manacles or ambulance appliances and four or eight officers if necessary, is on the spot. About 80,000 to 90,000 persons are apprehended every year in Chicago, and it will be understood how important it is that officers should not be off their beat. The police have always

Their Baton in Hand

when on duty. In addition to the patrol system there is a Bureau of Identification, which is a valuable adjunct to the Detective Department, and in connection with which there are portraits of more than 12,000 criminals. A policeman must be 5 feet 8 inches in height, and weigh about 145 lbs., and 5 lbs. more for every half-inch in excess of the minimum. Any man who has been five years in the country possessing physical qualifications may be a member of the force. The salaries paid are good. Second-class men receive $60 per month (£12); first-class men, $83⅓ (£16 13s 8d); sergeants, $100 (£20); lieutenants, $125 (£25); captains, $180 (£30); inspectors, $250 (£50); and substitutes

receive $28. A second-class man may rise to the first class after only nine months' merit service. There are also 25 matrons for attending female prisoners and children, and these are paid $130 per annum. The pension system is in full operation, as after being twenty years in the force a man can retire and obtain an annual allowance for life of one-half of the salary of which he was in receipt at the time of his retirement.

CHICAGO POLICEMAN.

PINKERTON'S DETECTIVES.

Mr Logan, Glasgow, reports: — Pinkerton's National Detective Agency was founded by Allan Pinkerton, a native of Glasgow, Scotland, where he served his apprenticeship as a cooper. Shortly after coming to America, and still working at his trade, one day, while selecting wood in a thick forest, he discovered a gang of highwaymen. He managed to get away without being seen, and informed some Government officials. The place was surrounded by soldiers, when the whole party was either killed or taken prisoners. Pinkerton, as a reward for his cleverness got a handsome sum from the Government. The present business is divided into two separate and distinct branches, although both are under the same management. The Detective Bureau has nothing whatever to do with the employment of watchmen. The detective business was founded in 1850 by the late Allan Pinkerton, the father of the present managers, and shortly afterwards he began to furnish watchmen for banks, private residences, warehouses, &c. The reputation of the agency grew and the business developed. During the war Allan Pinkerton acted as chief of the United States Secret Service. Since his death in 1884 the agency has been continued by his two sons, the present managers. The organisation is a simple copartnership, consisting of Robert A. Pinkerton, of New York, and William A. Pinkerton, of Chicago. The principal offices are at New York and Chicago. There are also six other branches in America. The branches are in charge of superintendents, who have been in their employment for from fifteen to twenty-five years. Mr Robertson, general superintendent in Chicago, stated that they have been connected with about seventy strikes during the last eighteen years, which is a very small percentage of the total number of strikes during that period in the United States. This agency is independent of Government control, and there are several States in the Union that prohibit their employment.

RELIEF OF POOR.

Mr R. A. Muir, Hill of Beath, as the result of inquiries made by him at the County Agent's Office in Chicago, reports:—When the poor make application to the agent for outdoor relief he hears what they have to say regarding their state. Then he or some of his assistants visit them, and see for themselves whether their statements are true, and if it is considered that they require relief; and if their family is not more than three he gives them what he terms a single ration. This in summer consists of 1 bar soap, 5 lbs. of peas or oatmeal, 3 lbs. of rice, ½ lb. of tea, ½ lb. of coffee, 24½ lbs. of flour; and in the winter 5 lbs. of meat and ½ ton of coal. This they may receive once a month. Then, when the family consists of more than three he gives then a double ration thus:—2 bars soap, 10 lbs. of oatmeal, 6 lbs. of rice, ½ lb. of tea, ½ lb. of coffee, 49 lbs. of flour; and in winter, 10 lbs. of meat, ½ ton of coal. Some make application to be entered into the Poorhouse or Hospital, but before this can be granted they must attend at the agent's office and be examined by a medical practitioner, who calls there every day at ten o'clock to examine applicants, and if he considers their case requires the Hospital, Poorhouse, or free medical treatment in their own home, he advises the agent accordingly. The law of the States in regard to the poor is that they must be resident one year in the State before they can claim relief, but this is not enforced, as none are ever turned away on these grounds. In December of 1892, when the weather was very severe, 2158 families obtained outdoor relief. 364 made application for the poorhouse, but only 273 were sent. In the same month $80,000 were spent in supplies for the poor, and $22,500 spent in salaries—this in a city of over 1,500,000 inhabitants. The agent gets in a supply of all the provisions necessary to supply the wants of the poor, and a stranger to the city entering the office would take it for a grocer's shop.

THE CITY OF PALACES.

AN ARTISTIC CREATION.

SCULPTURE AND ARCHITECTURE AT THE WORLD'S FAIR.

THE COLUMBIAN FOUNTAIN.

CHICAGO CHAMBER OF COMMERCE.

THE MASONIC TEMPLE.

THE AUDITORIUM BUILDING.

FIREPROOF CONSTRUCTION.

NEW FIELD OF EMPLOYMENT.

EARNINGS OF TYPEWRITERS.

(From the Dundee Weekly News of October 7.)

Mr Logan, Glasgow, reports:—On entering the Exhibition for the first time I was very much impressed with the grandeur, beauty, and general

effect of this city of palaces, and must say it completely surpassed my fondest expectations. The "White City" is the title I have often heard bestowed upon the groups of buildings known as the "Columbian World's Fair," and a beautiful city it is, in spite of its rapid growth, a city of palaces, artistic and beautiful. The growth of this city has really been marvellous. One can hardly realise that in two years a dreary, marshy waste has been converted into a splendid park full of buildings, the grandeur of which must be seen to be appreciated. The most casual observer, as he enters the gates, is impressed by the artistic taste and architectural skill which have produced the imposing collection of buildings which greet the eye. Not only is each building a thing of beauty in itself, but, in addition, the various structures have been so grouped as to give to all a most pleasing appearance. Great praise must be given to the landscape gardening of the Exhibition grounds. The conversion of the rude tract of marshy land into a splendid system of terraces and gardens, lakes and driveways, was a tremendous undertaking. The grounds are beautifully laid out with fountains, statuary, trees, and flower beds, which excited the admiration of us all. The Exhibition is situated in Jackson Park, about seven miles from the business portion of the city, and has an area of 633 acres, presenting a mile and a half of frontage on Lake Michigan. The largest and most conspicuous building in the grounds is the Manufactures and Liberal Arts Building. It measures 1687 by 787 feet; height of roof over central hall is 237 feet, and covers nearly 44 acres. This building is the largest in the world, and is the largest under one roof ever erected. It cost $1,700,000. This mammoth building contains every kind of manufactured article, from the richest and most elegant furniture to the finest cambric needle; also woven goods of cotton, linen, wool, and mixtures; jewellery and watches; carvings in marble, wood, ivory, and various other materials; furniture of all descriptions, &c. Nearly every nation in the world is represented in this vast building. France makes by far the finest display of any country. Her show is the most comprehensive, and certainly the most artistic. She easily distances all competitors in the race for public appreciation.

Administration Building.

By popular verdict this building is pronounced the gem and crown of the Exhibition palaces. The general design is French renaissance. It covers an area of 262 square feet, and consists of four pavilions 84 square feet, one at each of the four angles of the square, and connected by a great central dome 120 feet in diameter, and 277 feet in height. The four great entrances, one on each side of the building, are 37 feet wide and 50 feet high, deeply recessed, and covered by semi-circular arched vaults, richly carved. The interior features of this great building even exceed in beauty and splendour those of the exterior. Between every two of the grand entrances is a large hall or loggia 30 feet square giving access to the balconies above. The interior of the dome is enriched with deep panellings, richly moulded, and with sculpture in low relief and immense paintings representing patriotism, tradition, liberty, joy, commerce, art, industry, and abundance, all of heroic proportions. The architect of this building was Richard Hunt, of New York, president of the American Institute of Architects. This beautiful monument of architecture with its gilded domes is profusely adorned on the outside with twenty-six groups of allegorical statuary of exceptional merit, and cost $555,000.

Machinery Building.

The Machinery Hall has been pronounced by many second only to the Administration Building in the magnificence of its appearance, and is in many respects the most beautiful of all the buildings, with its pleasing combination of classic and Moorish architecture. This building measures 846 by 492 feet, and cost about $1,200,000. It is spanned by three arches, and the interior presents the appearance of a large railway station. Here the machinist, and indeed anyone interested in manufactures, can find enough for weeks of study and observation. Here are steam, water, air, and gas engines and boilers, water wheels, shafting, belting, pulleys, cables, and machinery for transmission of power by compressed air, ice machines, machinery for working in metals, for making silk, cotton, woollen or linen goods, paper, tapestry, &c.; woodworking machinery of every description, printing presses, type-setting machines, lithographing and all kinds of colour-printing, photo processes, and other methods of illustrating; machinery for making watches, jewellery, buttons, needles, laundry work, grinding cereals, refining sugar, and evaporating milk. These are but a few of the kinds of machinery that are to be seen, but indicate the variety and extent of the contents of this immense building.

Art Palace.

The Art Palace is, to my mind, the most beautiful building in the grounds. It is Grecian Ionic in design, and a most refined type of architecture. Its shape is oblong, and is 500 feet long and 320 feet broad. The dome is 125 feet high, and is surmounted by a colossal statue of Winged Victory. The main building is entered by four great portals, richly ornamented with architectural sculpture, and approached by broad flights of stairs. The frieze of the exterior walls and the pediments of the principal entrances are ornamented with sculptures and portraits in bas-relief of the masters of ancient Art. The building has the most beautiful situation in the grounds. It is separated from the lake by

STATUE OF THE REPUBLIC.

beautiful terraces, ornamented with balustrades, with an immense flight of steps that lead to the water's edge. The interior of this fine building contains the masterpieces of the world's greatest painters, sculptors, etchers, carvers, and other artists. The cost of this building was $670,000.

There are close on fifty buildings throughout the Exhibition grounds, of which a great deal could be written and said of them from an artistic point of view. The four I have chosen will give the reader a fair idea of the beautiful buildings that are to be seen in this "Dream City" by the lake.

Decorative Sculpture.

The statuary throughout the grounds is all distinguished by a certain bigness and freedom of execution, which are no doubt very much in keeping with the national feeling and the purpose for which they were designed. In a prominent position at the water entrance to the Exhibition is a colossal draped figure of "The Republic," which

HEAD OF STATUE.

stands over sixty feet high. To convey an idea of its size I have given a reproduction of the model of the head with one of the sculptures standing beside it. From the chin to the top of the head is fifteen feet, the head itself is twenty-four feet in circumference, the nose is sixty inches long, and the arms are thirty feet from shoulder to finger tips. A band of electric light encircles the brow. The Columbian Fountain is by far the finest group of sculpture that adorns the Exhibition grounds, and merits much more than a passing notice. It is the design and workmanship of Mr Frederick M'Monnies, an artist of Scottish descent. This fountain is the principal object of interest on the evenings of illumination, and the artist may be considered to have obtained through it enduring fame. There

GROUP ON AGRICULTURAL BUILDING.

are some splendid examples of the modeller's art in the Administration Building. A group called the "Glorification of Discovery" is a beautiful piece of work. It is a boat with three figures, the centre figure stands on a globe of the world, and is supposed to point to the land. The other two figures are sitting on the prow ready to spring from the galley and claim the new territory. This, and a group called the "Spirit of Fire Controlled," form good illustrations of the quality of the work exhibited, which meets the purpose for which it was intended. The Agricultural Building is decorated with an immense amount of statuary. All through the main vestibule statuary is designed to illustrate the agricultural industry. Similar designs are grouped at the grand entrances in the most elaborate manner. To one group I would call special attention, of which the above is a reproduction. It is a figure representing "Agriculture" standing between a yoke of powerfully horned oxen sweeping to the right and left.

"TRIUMPH OF COLUMBUS."

Women's Building.

In the Women's Building there are some splendid statuary and ornamentation. The long classic-looking front with its pillars and arches is surmounted by a richly-modelled pediment. There are eight winged groups of female figures—two at each corner of the building—typifying the virtues and graces that are supposed to belong to the fair sex. The design of this beautiful building is the work of a clever woman architect, Miss Hayden, of Boston, while the sculptor was Miss Rideout, of San Francisco. The Exhibition may be a financial failure, or it may not, but there is one thing certain that as an artistic creation it is a decided success, and I believe the most magnificent group of buildings to be seen in the world at the present time. Unlike any city which ever existed in substance, this one has been built all at once, by one impulse, at one period, and at one stage of knowledge and arts, by men almost equally prominent and equally developed in power. No gradual growth of idea is to be traced. The whole thing seems to have sprung into being fully conceived and perfectly planned without progressive experience. This "Dream City" is foredoomed to vanish in a few months, when its purpose has been fulfilled, when these imposing temples will come one by one to the ground, and their valuable contents be scattered all over the country. Chicago is sure to come in for the lion's share of everything. Its art galleries, public libraries, university, and every great building belonging to the city, is sure to be enriched with paintings, sculpture, and other works of art, and in this way Chicago will benefit far beyond any mere commercial advantage by having possession of the exhibition.

Chamber of Commerce, Chicago.

Mr Sinclair, Cambuslang, reports:—When the Chamber of Commerce Building was first erected it was but eight storeys high, and was known as the Board of Trade. The organisation, however, grew so rapidly that it found these quarters too limited, in consequence of which it was decided to build

their present commodious Exchange on Jackson Street. After some time the old Board of Trade Buildings fell into the hands of Messrs Hannah, Lay, & Company. From an architectural point it was an ornament to the city, but was far from a paying investment. Yet, situated on a valuable site, it was capable of earning a profit for its owners, and so, to meet the requirements on it that had been unforeseen by the original builders, they decided to raise it to the enormous height of thirteen floors. From the primitive log cabin to the grand structures that adorn Chicago has been, so to speak, but a step. During the last half-century all classes of architecture have been represented. At the present time the absence of classic architecture especially in commercial structures, is notice

CHAMBER OF COMMERCE.

able. Modern necessities require modern architecture. The Chamber of Commerce Building is strictly modern, no attempt having been made to follow any particular class of architecture. The entrances might be termed Corinthian, and the building itself described in a similar manner to a column. Thus the lower portion or ironwork would represent the pedestal or base, the terra-cotta of the upper floors the frieze, and then the elaborate cornice surmounting it. The exterior presents a massive, and, at the same time, an artistic effect. Inside the arrangement of the building, the grand galleries, and beautiful designs, all respond to the one word—originality. Beyond doubt Chicago surpasses all other American cities, and has been for several years the pioneer in the erection of lofty buildings. The old building was put upon screws where it remained for two months. The entire foundation was taken out and a new one substituted, which now stands 13 feet below the side walk. The cost of reconstruction was fully $1,000,000, and the time spent upon the work was two years.

The Masonic Temple.

The majestic and artistic pile of stone, terra-cotta, marble, and steel, that stands at the corner of State and Randolph Streets in Chicago will be eloquent in description of a wonderful human energy and enterprise for many generations. The highest business building in the world, built by an ancient and honourable fraternity, comprehensive in design, and impressive in appearance, it will prove an object of interest to all who admire the magnificent architectural achievements of our century, and to those who feel a pride in the power of human intellect and the patience of human perseverance. It cannot be expected, however, that the toil and sacrifice of the promoters of such a colossal enterprise will be appreciated and considered by the multitudes who, in the years to come, will gaze on this artistic monument to man's conception and execution. The world relishes the luscious fruit of the vine with little or no thought of the hand that planted the vine, so we sometimes look with wonder and admiration upon these buildings without ever thinking on the lives that were worn out upon these stupendous erections. The exterior walls of this building have the very appearance of simplicity, but in this particular they will stand as a perpetual monument to the master mind of the architect who designed them. The eye of the observer leaves the ornamented granite base, and passes along the shaft with nothing to arrest its progress till it reaches the ornamentation at the top. This serves to deceive the eye and mislead the judgment as to the altitude of the building. The tower on the Auditorium looks high, yet the Masonic Temple is by actual measurement thirty-two feet higher than any point of observation on the Auditorium Tower, and is twenty-eight feet higher than any point of observation in the city of Chicago. Entering under a granite arch forty feet high, and thirty-eight feet in width, is a rotunda, with walls of Italian marble and a mosaic floor. On either side of this spacious rotunda, stairways of marble ascend to the floor above, and coming together into one staircase, constructed of ornamental iron with marble tread, ascends between columns of bronze through the twenty floors to the roof. At the further end of the rotunda, in a semi-circle, are fourteen passenger elevators, which are indispenable to those whose business it is to go to the various floors of this sky-scraping building. This great building is said to be the highest commercial building in the world, and cost four-and-a-half million dollars, is 302 feet above the sidewalk, and twenty-one storeys high.

The Auditorium Building.

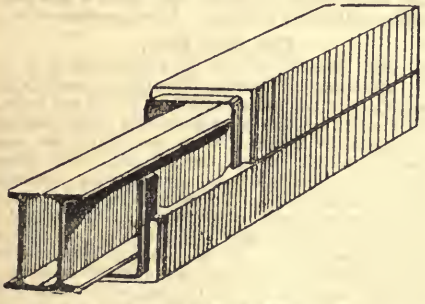
This is another of Chicago's sky-scrapers, and is situated near the Masonic Temple. It has a total frontage (fronting Congress Street, Michigan and Wabash Avenues) of 710 feet, and is built externally of granite and Bedford stone. The height of the main building (ten storeys) is 145 feet; tower above main buildings (8 floors), 95 feet; lantern tower above main tower (2 floors), 30 feet—total height, 270 feet; size of tower, 70 × 41 feet. The foundations cover about two and a half times a larger area. The weight of the entire building is 110,000 tons; weight of tower, 15,000 tons. The interior material—iron, brick, terra-cotta, marble, hardwood finish, &c. The ironwork cost about $600,000. Number of bricks in building, 17,000,000; number of square feet of Italian marble mosaic floors, 50,000; number of square feet of terra-cotta, 800,000; number of square feet of wire lath, 175,000; number of square feet of plate glass, 60,000; miles of gas and water pipes, 25; miles of electric wire and cable, 230; miles of steel cable for moving scenes on stage, 11; electric lights, 12,000; dynamos, 11; number of electric motors for driving ventilating apparatus and other machinery, 13; number of hydraulic motors for driving machinery, 4; number of boilers, 11; number of pumping engines, 21; number of elevators, 13; number of hydraulic lifts for moving stage platforms, 26. The permanent seating capacity for conventions,

AUDITORIUM.

&c., is over 4000, and the building contains a complete stage and organ. The Recital Hall has seats for over 500. The business portion consists of stores and 136 offices, part of which are in the tower. The hotel has 400 guest rooms, and the dining-room is 175 feet long. The kitchens are on the top floor. The magnificent banquet hall is built of steel, on trusses, spanning 120 feet over the Auditorium. There are a few other sky-scraping buildings in Chicago, such as the Rookery, which is 159 feet high; Grand Central Passenger Station tower, 200 feet; Owing's Buildings (top of Fourteenth Street), 158 feet; Tacoma Buildings, 164 feet. It must be very gratifying, however, for those who do not care to live so far up in the world to know that in future no building will be allowed to go beyond a height of 130 feet in Chicago.

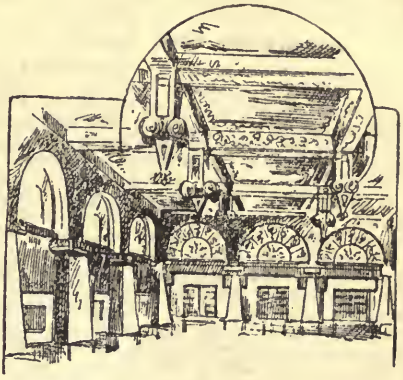
Fireproof Building.

The subject of fireproof construction is growing in favour all over the States. The necessity of fireproof buildings in large towns and cities is demonstrated daily, and nearly all the large new buildings are being built more or less fireproof. For beams



FIREPROOF GIRDER.

steel is now being substituted for iron. Steel recommends itself not only as being cheaper, but having greater strength. Lighter sections can be used, thus considerably reducing the cost. Steel is now being used as columns instead of cast iron, the cast metal being sometimes dangerous on account of honeycomb and blow-holes. No such danger exists in the steel, and it is now used in all the large buildings. The need of such buildings is obvious. Great buildings are burnt down daily in the States, some of them causing no more remark than a few lines in the papers, headed—"A Big Blaze at———." One notable building of steel is worthy of mention as being absolutely fireproof. This is the publishing house of Rand, M'Nally, & Co., Chicago. The framework is entirely of steel, firmly bolted and riveted and so proportioned that the stress is evenly



BANQUET HALL.

distributed. The fronts are fireproofed with terra-cotta, and the interior is fireproofed with hard burnt fireclay, no part of the steel being exposed. There are 15 miles of steel rails in the foundation, besides the 12-inch and 20-inch steel beams. In the building there are 12 miles of 15-inch steel

HOLLOW TILE ARCH.

beams and channels, 2½ miles of tier and angles in the roof, 7 miles of tie rods, 10 miles of Z steel in the columns, 12 miles of steam pipe, 370,000 rivets and bolts. The amount of steel in the foundations is 1000 tons; beams, &c., 2000 tons; columns, 700—making a total of 3700 tons of steel in this giant structure.

STENOGRAPHERS AND TYPEWRITERS.

With the invention and improvement of the typewriter and the teaching of shorthand, a new field of employment has been opened up, more particularly for women, and it is widely increasing in area. There are several thousands of stenographers and typewriters in the United States; in fact, there is scarcely an office of any size in which business men of all kinds have not proved the exceeding great value of such servants in carrying on their correspondence. Not only do they get through far more work by the employment of stenographers, and save themselves much irksome labour, but with the typewriter there is no caligraphy which the author himself could not decipher, the letters being in reality printed. A large proportion of the typewriters are young women, and a business gentleman in Chicago, with whom the writer conversed on the subject, said emphatically that they were by far the best clerks. He added—"You never get any impudence from them, and they always attend to their work. They never think of going home until they have finished what they have to do, and there is no such thing as having their friends calling upon them during business hours and asking them out to have a drink." Stenographers are run with several trains for the convenience of business men. Good typewriters in Chicago are usually paid from $10 (£2) to $12 (£2 8s) a week, and beginners about $7 (£1 8s), but if clerks have a fairly good education and can spell well, they usually attain considerable pro-

ficiency with the typewriter in a very short time. Some female stenographers are in receipt of

Remarkably Good Salaries.

As instances of these, it may be mentioned that a firm of provision merchants in Chicago pay their most expert stenographer and typewriter, $1500 (£300) a year, while a similar firm pay one of their staff $1800 (£360), and give her a carriage in which to drive to and from the stock yards. In New York stenographers and typewriters receive from $8 (£1 12s) to $20 (£4) per week according to ability. The systems of stenography chiefly in use are Pitman's and Graham's. There is said, however, to be one serious and growing trouble in connection with the typewriter. As a rule she is young, and she is generally also good-looking, of attractive manners, and well-educated. The American woman, on the other hand, after marriage usually ages very early, and through the use of powder her skin rapidly loses its freshness, and, according to common report, she settles into a rocking-chair with its associations of lager beer, chewing-gum, and novel reading. The typewriter is in close communication during the greater part of the day with her employer—sitting, in fact, for long spells at his very elbow—and the knowledge of this, coupled with the slackening of attentions at home, often arouses the green-eyed monster in the breast of the wife. Therefore when the husband is longer than usual in returning in the afternoon, he is invariably put through a domestic catechism, and the explanation of pressing business does not, to all accounts, always remove the suspicions of the wife, the very sound of the word *pressing*, especially if frequently repeated, often causing the fire to burn more fiercely than before; and while the office work, no doubt, proceeds smoothly and expeditiously the current of the home life grows more and more turbulent until, as sometimes happens, one or other of the parties petitions the Divorce Court for a dissolution of their partnership.

IRON AND STEEL.

ILLINOIS STEEL COMPANY.

CONDITION OF IRONWORKERS.

MINING MACHINERY.

SCOTTISH CLUBS IN CHICAGO.

OFFICE AND BANK FURNITURE.

THE CHICAGO PRESS.

MODEL NEWSPAPER OFFICES.

WAGES OF COMPOSITORS.

RAILWAY CAR COUPLINGS.

SHUNTING OPERATIONS.

FALLING FROM TRAINS.

RAILWAY CROSSING GATES.

(From the Dundee Weekly News of October 14.)

Mr R. Dunlop, Motherwell, reports:—The most important iron and steelworks in or near Chicago are those of the Illinois Steel Company. This Company is a corporation formed by the consolidation of the North Chicago Rolling Mill Company, the Joliet Steel Company, and the Union Steel Company. This brought under one control no less than five plants. Other property, such as coal lands and coke ovens, &c., belonging to the separate companies was included, the whole comprising a property which is capitalised at £10,000,000. The five plants occupy 500 acres of ground, and the coal lands consist of 4500 acres, with 1150 coke ovens. The Company have 1500 cars in the coke trade, and the internal transportation at the different plants require the use of forty-two locomotives of the standard gauge, and seventeen narrow gauge locomotives for special trucks. There are sixty miles of standard and seven miles of narrow gauge. The output of finished iron and steel is over 680,000 tons per year. In one year (1890) the output was:—Rails, 539,603; rods, 49,800; bar iron and steel, 56,415; billets, 29,295; beams and channels, 5161—total, 680,274 tons. The blastfurnaces produced during the same period:—Pigiron, 614,240; spiegel, 32,777. The Bessemer Works (four plants) produced 751,833 tons of ingots. About 10,000 men are employed in the mills of the Company when they are fully employed, the annual pay-bill being over £1,200,000. All the works were originally built to make rails, and for many years the activity in that trade was such that no other product was thought of, but the increase in the demand for other forms of steel made it necessary to diversify the product, and the Company now make billets, rods, and beams as well as miscellaneous bar iron and steel. They are presently laying down a large open hearth plant and plate mill, and when all the additions are complete with four new blast furnaces the annual capacity will be enormously increased. One of their plants is at Milwaukee, ninety miles from Chicago, and one at Joliet, forty miles south. All the works are connected with the central office in Chicago by telegraph and telephone service. The South Chicago Works which I visited are the largest of the Company's works. Finely situated on the lake for the receipt and shipment of material, they have excellent facilities. The largest steamers plying on the lakes bring ore to the yards, and there is also connection with three railways. In connection with

The Rail Mill,

the plant consists of four blast furnaces, 21 × 75 feet, a Bessemer plant with three 10 ton vessels, a 40 inch 3 high blooming mill, a 27 inch 3 high rail train. The metal from the blastfurnaces is used direct in the Bessemer Works. There are three ten ton vessels working to one casting pit, three laden cranes, four ingot cranes, two blowing engines, pressure pumps, &c. The steel is cast into ingots 16 inch square, making six lengths of rails, all the rails being flat-bottomed. From the casting pits they are conveyed to the gas-soaking furnaces containing ten ingots. A craneman, without assistance, takes the ingot out of the furnace, and dropping it into a square-formed box on its end, it is conveyed by machinery to the blooming train, where it is upset on to the table. A few passes here, and it is reduced to a bloom 8 inch square, and cut into two, each making three rails. Usually these are rolled direct to rails, but a furnace is here provided for any that may be too cold. Any of them too cold are here dropped on to a pair of suspended hooks, and carried across to a table. Here they are picked up with an ingenious machine, one man taking them up and placing them in the reheating furnace without the help of anyone. The machine can lay hold of the bar at the end or the middle, wherever the operator wishes. The latter does everything himself—pulls up the door of furnace, and draws the bars out again, and places them on the table for the rolls. The finished rail passes to the saws, where all three saws drop

ILLINOIS STEEL COMPANY'S WORKS, NORTH PORTION.

on it at once; then, travelling on to the hot bed, the rails are pushed by machinery right over to the cars; then to a complete finishing-house, where they are straightened, drilled, inspected, and loaded on the cars. The whole plant runs like clockwork. The mill never ceases from Monday till Saturday. All tonnage men work an eight hours day. As there are three sets of men, the mill can turn out 1200 tons per twenty-four hours. The whole mill is worked by machinery, and although the men's work is constant and hot, still it is not laborious or exhausting. The men have good wages, as the large output enables them to

Earn Good Wages

on low tonnage rate. The method of regulating wages here is by a sliding scale, said scale being mutually agreed upon by both employers and workmen. It stands good for a year. If the prices rise 5 or 10 per cent., the men get an advance in wages to that amount, or if they fall, they submit to a corresponding reduction. The employers' contract books are shown to the men's Committee, and there is very seldom any trouble. The number of workmen here is about 3500, and great numbers of them own their own houses. The mode generally adopted to become owner of their own house is by the aid of building societies, although some of them purchase their houses right out. I think it only right to say that Mr Walker, the general manager, was very courteous when I called upon him and explained the object of our visit. He very kindly accompanied me round the works, and explained the systems of work, &c. All the other plants of this Company are shut down just now. Trade is not the best at present. The money market, the tariff question, and other things are helping to keep things quiet. Prices are cut keen, and there is great competition for the orders that are going. Mr Walker takes a kindly interest in the welfare of his workmen. Through his agency a special building has been provided for the care of any of the workmen, sick or injured, where they have medical attendance, food, &c., free until they are recovered. He is presently arranging for another building, to be used as a library and for recreative purposes. Below you will find the earnings of the workmen occupying some of the important positions in the works. These figures are the average earnings of three months:—Blower, £80 per month; pourer, £32 per month; 1st spiegel-melter, £42 per month; 2d spiegel-melter, £26 12s per month; 1st vessel-man, £42 per month; 4th vessel-man, £21 8s per month; 1st ladle-man, £42 per month; 4th ladle-man, £20 12s per month; 1st pitmen, £42 per month; 4th pitmen, £21 12s per month; stageman, £31; mechanics, from 10s to 14s per day.

MINING MACHINERY.

Mr R. A. Muir, Hill of Beath, reports:—I visited the works of Messrs Fraser & Chalmers, mining machinery makers, in Chicago, and was very hospitably received by their manager, who sent one of his assistants round the works with me, and who gave me an explanation of all the different pieces of machinery which we came in contact with. The works are of great size, covering a large area of ground, and employing a great number of hands. Mr Chalmers, a very pleasant man, the chief partner in this gigantic firm, is originally from Dundee. They have not only supplied machinery for mining plants and smelting and reduction works in every State and territory where mining is followed in America, but have many plants in operation in Alaska, Canada, Nova Scotia, Australia, Spain, Russia, and South Africa. Their annual consumption of pig-iron, sheet iron, and steel, merchant bar iron, &c., is about 13,000 tons, and their product comprises steam engines, boilers, and machinery for the systematic milling, smelting, and concentration of ores. As an instance of the size and weight of some of the pieces of machinery which they manufacture here, I was shown a hand wheel in the act of being turned, the diameter of which was 24 feet, the breadth of face 76 inches, weight 65 tons, and I was informed that they made larger ones than that.

OFFICE AND BANK FURNITURE IN CHICAGO.

Mr Thomas Logan, Glasgow, reports:—Among the many industries of this teeming city of business there is one that deserves special mention, viz., that of fitting and furnishing banks, offices, and saloons in an artistic manner with that taste and completeness which fulfil the demands of the present age of progress. I visited the warehouse of Messrs A. H. Andrews & Co., Wabash Avenue, bank, office, and school furnishers. We were very courteously received and shown over the building by

ILLINOIS STEEL COMPANY'S WORKS, SOUTH PORTION.

the manager, Mr Halbrock. This firm is the largest of its kind in America, employing over 1500 hands, which includes cabinetmakers, chairmakers, upholsterers, carvers, varnishers, map and black board makers, &c. Mr Andrew, who is a thoroughly practical and expert cabinetmaker, is the inventor of several roll top desks of a very attractive design. One feature in connection with these desks is that one lock and key is all that is required for about twenty drawers. The lock is fixed in the centre drawer, and by locking it the others become locked at the same time. This is done by an automatic arrangement, which cannot be seen from the outside. Mr Andrew is also the inventor of a folding bed, which is a very attractive piece of furniture for the parlour, and is much used by the people of Chicago. They cost from £5 to £60, which I consider very dear for the money. This firm also shows something new in metal chairs, piano stools, tables, and easels. These articles are newly invented, but is now past the stage of experiment, and are exceedingly popular wherever seen. They are made of steel wire, properly tempered, finished in brass, nickel, or antique copper, and are indestructible. This kind of furniture is sure to become very popular. The wages that this and other firms pay in Chicago are as follows:—Cabinetmakers, 1s to 1s 5d per hour; upholsterers, 1s 8d per hour; carvers, 1s 4d to 2s 1d per hour—according to ability. Varnishers, as a rule, are very low paid, ranging from 10d to 1s 2d per hour. The hours wrought in the above trades in Chicago are 9 hours per day, Saturdays included. Some of the small carving shops work 8 hours per day, or 48 per week. There is also a great deal of piecework done in connection with the furniture trade in Chicago. I may state that the trades mentioned above are in a very bad state at present, and I am told that it is likely to be worse before it improves.

UNITED CARPENTERS' BROTHERHOOD.

Mr David Brown, Govan, reports:—I had the pleasure of calling upon Mr James B. Cogswell, president of the United Brotherhood of Carpenters in Chicago. After informing him of the object of our visit, he was very pleased to see us. The wages of the carpenters are 35 cents per hour. They were receiving 40 cents some time ago, but the surplus labour thrown on the market has caused a reduction to be made, and wages were pending arbitration. They work 48 hours per week, and have no half-holiday on Saturdays. Their weekly wage is $16·50 (£3 10s). There is no such thing as apprentices in the trade. They hardly understand you when you ask how long do apprentices serve to learn the trade. Young men are paid beginning at $1 per day, and afterwards are paid according to ability. They are not allowed to work overtime, but should any emergency arise necessitating overtime, the men are paid time and half, and on Sundays double time. There are upwards of 12,000 members in Chicago alone. There are embraced in the United Brotherhood twenty-three branches. There is also affiliated with it the Knights of Labour Carpenters' Assemblies, four branches, while the Amalgamated Society of Carpenters has also in affiliation five branches. These have an agreement with each other, which took effect on April 3d this year, and remains in force till April 3d, 1895—"For the government of Union carpenters under the jurisdiction of United Carpenters' Council, with directory of organisations affiliated." For some time back the Masters' Association of Carpenters in Chicago have held that it was impossible for them to live up to the agreement made with Carpenters' Council last April. They say that through the stringency of the money market and the great falling off in building operations they are unable to comply with them. They are as follows:—"Article 3—That the minimum rate of wages be 40 cents per hour. Article 9—All members of the Master Carpenters' Association shall employ none but Union men of good standing. Article 10—That no Union carpenter affiliated with the United Carpenters' Council shall work for any one who is not a member of the Masters' Union." The carpenters had a right to expect that the masters would carry out their part of the contract in good faith. This the masters claimed they were no longer able to do, the fact that they were forced to compete with non-Union employers who paid their men from 25 to 35 cents per hour adding materially to the difficulty. Their case was submitted to arbitration, with the result that the minimum rate of wages for three months from July 1st will be 35 cents per hour; and also that Union carpenters may be allowed to work to any employer provided they are paid the standard rate of wages. The carpenters, at one time the poorest organised, are now among

The Best Organised

in the whole line of labour's field in the city of Chicago. The organisation has the honour of having the largest membership and the greatest number of local Unions of any one trade Union in the entire world. It dates its existence from a meeting held for organisation in the city of St Louis, Mo., in the spring of 1881. Previous to the meeting in St Louis, two attempts had been made at uniting the carpenters of the United States in a general Union. Both attempts had been signal failures. One of them had been made in 1854, the other in 1867. The growth of the Order has been gradually increasing. In the year of 1881 the number of Unions was 13 and the membership 2042, while in 1892 the number of Unions was 802 and the membership 51,313. The Brotherhood has been very active for the past six years in reducing the hours of labour. In the four years (that is from 1886 till 1890) they succeeded in reducing to eight hours a day's labour in no less than 36 American cities. In the four years ending July, 1890, a nine-hour day was established in 234 cities, and in the next two years this number was increased to 393. The Union exists in 724 cities. The amount of the reduction of hours was sufficient to give employment to 11,550 carpenters more than would have found work if all had been working a ten-hours day. Where wages, eleven years ago, were 6s to 10s per day they have been advanced to 9s to 14s per day. Within the last five years wages have so much increased that in 531 cities it has been computed that no less than five and a half million dollars have been earned by the journeymen carpenters where they have Unions.

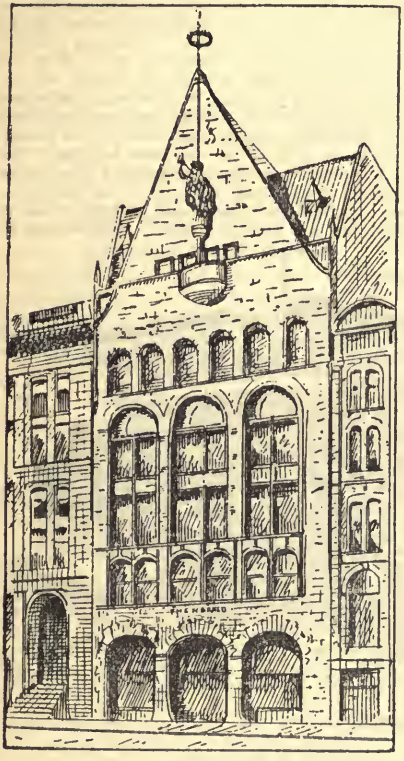
AMERICAN NEWSPAPERS.

American newspapers, Europeans would consider, are conducted on peculiar lines, but it has to be borne in mind that the Americans are a go-a-head people in every respect, and that they would not be content if they did not, as regards their journalistic literature, have a way of their own. Britishers when they see some samples of American journalism will generally be inclined to let them have their own way all to themselves, although, no doubt, the Yankee thinks that he is much the smarter of the two. The American reporter, as a rule, does not, like his brother in Britain, give plain unvarnished narratives of speeches or occurrences; what he supplies rather appears to be his own interpretation of the motives of the speaker or of the actor, with reflections of his own

as well. You can dispense with these interpretations and reflections, however, by merely reading the head lines, which usually give all the solid information you can find in a column of matter. These headings are generally very sensational. For instance, on the morning after the great conflagration at the World's Fair one Chicago newspaper headed its report—

"In Graves of Fire,"

while another had "In Hell's Fiery Blast." There can be no doubt, however, that in the kindred art of illustration the Americans are considerably ahead of us, as by the processes which they adopt they get a much finer finish on their pictures than we do. On the morning following the Exhibition fire several of the papers had numerous striking pictures of the occurrence. The newspapers of Chicago are, without doubt, smartly conducted, and have enormous

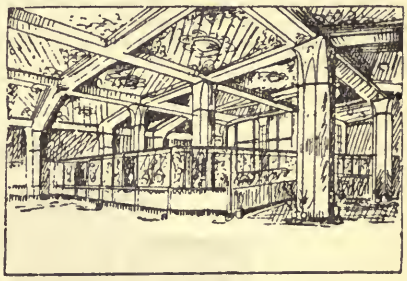


CHICAGO HERALD BUILDING.

circulations. The daily issues number 24, and the weeklies 260, while there are also several bi-monthlies and quarterlies. Some of these are in German, there being about 400,000 "Dutch," as the Germans are usually styled, in America. The office of the *Herald*, situated in Washington Street, is a magnificent building of six storeys, and is fitted and equipped in the most sumptuous style that the human mind could devise. With a red granite base and an elevation of beautiful terra cotta, the building has a remarkably fine interior, the ivory and gold of the arched ceiling of the ground floor, which is supported by handsome Sienna marble columns, being admirably set off by the arabesque work on the walls, while the floor is of Italian mosaic. The counter of the counting room is of black Belgian marble, surmounted with black iron wrought in graceful designs. The composing room—to which the visitor ascends by means of either of two great elevators framed in hand-wrought iron and travelling in a shaft walled from top to bottom with the finest Italian marble—has white enamelled walls, and is finished throughout in marble, iron, and oak. The type stands are of iron, with the monogram of the *Herald* wrought in gold in each, and everyone of the 200 or 300 cases is connected with the "copy-box" by an electric call. Indeed, there is a complete electric call system throughout the whole office. A clothes locker is set apart for every compositor, and amongst other provisions for their comfort are filtered ice water, drunk out of a solid silver gold-lined drinking cup, and a restaurant finished in marble and oak, and supplied with reading tables and library. The luxuries of the stereotypers include a Turkish bath and marble-walled toilet room. In

The Publisher's Room

the telegraph instruments for his special use are of sterling silver, which is also the only metal employed for the electric call speaking tubes, and the electric light fittings. The timbered ceiling, the 7-feet wainscoting, and all the furnishings are of solid mahogany, while the walls above the wainscoting are encrusted with matrices of the



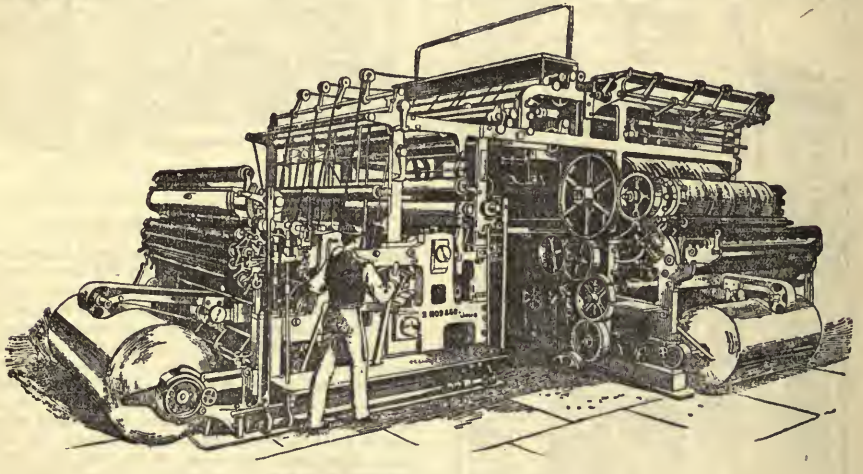
COUNTING ROOM, CHICAGO HERALD.

Herald. The building is illuminated throughout with the electric light. About 200 incandescent lamps and 30 arc lamps are fitted up for the lighting of the ground floor, and no fewer than 400 lights are in use in the composing room. Although founded only in 1881, the *Herald* requires ten perfecting presses of the best pattern, with a capacity of fully 100,000 copies an hour, for its publication. The very fine photo-engraving plant in the art department, which the *Herald* has made a strong special feature, is run by electric motors. It is the boast of the proprietors that the *Herald* is the largest 2 cents (1d) paper in the world, but the *Weekly News* delegates had to pay 5 cents (2½d) for each copy of it on the street, a big "5" being stamped over the "2." Mr J. W. Scott, the publisher and one of the proprietors, is a Scotchman, and Mr H. G. Forker, the assistant managing editor, who hails from Dysart, contributed at one time to the *Dundee Courier* and the *Dundee Weekly News*. The *Daily Record* and the *Daily News*, morning and evening newspapers, published under the same auspices, are also located in a suite of large, roomy, and well equipped buildings. The composition of these papers is partially effected by linotypes, but the most of the type-setting on the Chicago press is done by hand. The *Record* and the *News* have very large circulations, the daily average for the former being 130,000, and for the latter 210,000, but on the day after the Exhibition fire the *Record* had a sale of 170,000, and the *News* about 280,000. For these large productions the very best printing

machinery in the world is required, and the proprietors have accordingly in use

Quadruple Hoe Presses

similar to that now in operation in the office of the *Dundee Weekly News*, and which have an aggregate productive capacity of 288,000 eight-page papers an hour. Among other good papers are the *Times*, *Tribune*, *Evening Journal*, *Inter-Ocean*, and *Post*. The following is a specimen of the wages of the compositors in Chicago:—Night work on morning papers 48 cents (2s) per 1000 ems; day work on evening papers 43 cents (1s 9½d) per 1000. The average earnings for six hours' composition are respectively $4½ (17s) and $4 (16s). The men working linotypes receive 15 cents (7½d) per 1000 ems, and make about the same wages as the night compositors. The local branch of the International Typographical Union has as many as 1600 members. According to the rules of the Union, one apprentice only is allowed for every ten journeymen, and the term of service is four years. In the weekly paper and job printing establishments the rates paid are much smaller than the above. Single compositors can get good board and lodging for $7 (£1 8s) a week, and married men can obtain comfortable cottages within accessible distance of their offices for from $15 (£3) to $30 (£6) a month, according to size and situation. It will be seen from these latter figures that house accommodation and lodgings in Chicago are, like almost everything else in the marvellous city of the West, somewhat high.



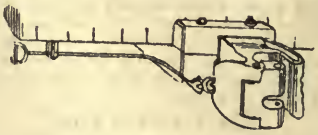
WEEKLY NEWS QUADRUPLE PRESS.

AN EXTENSIVE DRY GOODS BUSINESS.

Mr Mungo Smith says:—I also visited Marshall, Field, & Co., wholesale dry goods merchants, Fifth Avenue, Chicago. It covers the whole block of ground, and is eight storeys in height. It is constructed of granite and brown stone, and is said to be the finest and largest structure designed for commercial use in America. The floor space occupied for selling goods covers twelve acres. The firm employ about 2500 hands, and their average weekly sales amount to $25,000,000. I was shown through the place by a Dundee gentleman.

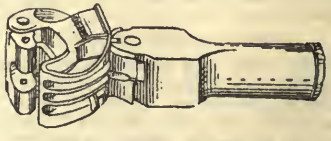
Railway Car Couplings.

Mr Watson, Dundee, reports:—In railway accidents last year, 2600 employés were killed, and 26,140 injured. Of these, 415 were killed, and 9431 injured while coupling or uncoupling cars, and 598 were killed, and 3191 injured by falling from



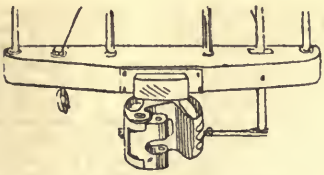
DEITZ SOLID DRAW BAR.

trains and engines while in motion. Now, it is sad to think that so many good men are cut down every year while discharging their duties in railway service. The couplings get the blame of causing a great amount of these fatal accidents, and certainly when you look at the construction of the American plant it is not difficult to realise the great amount of danger attached to the work of coupling and uncoupling cars. In the first place there is no side buffer the same as on our plant to protect the men when going in between cars. The only protection is the heads of the drawbars, when they come fairly opposite each other, but should one be a little high, and the other be a little to the low side, then these drawbars sometimes run the risk of passing each other. The consequence is that should a man be in between guiding the two bars together, which often requires to be done by the hand, he often gets squeezed, or his hand bruised. The old style of couplings was one single link and two pins, as I mentioned in a former report. Suppose the link



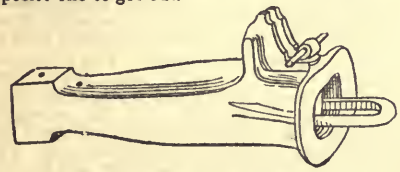
DEITZ JOINTED DRAW BAR.

was fastened into the end of one bar it sometimes was too low to enter into the other. This required to be guided by the hand into its place, and the other pin was put down through. A serious obstacle, which has been a long complaint, was that all railway companies did not adopt the same height of drawbars, but I am glad to say that the United States Government has taken this important subject up, and at an early date all American railway companies will be compelled to have their



DEITZ SOLID DRAW BAR.

drawbars the same height from the rail. This will afford a better opportunity for the adoption of one of the many automatic couplings that have been introduced this short time past. One of those which I saw working, and is worthy of note, was the Deitz-jointed or solid drawbar. These drawbars when pushed together lock into each other. Then when you want to uncouple a handle at the side is pulled which unlocks, and the drawbar opens, allowing the opposite one to get out.



DEITZ FREIGHT DRAWBAR.

Shunting Operations.

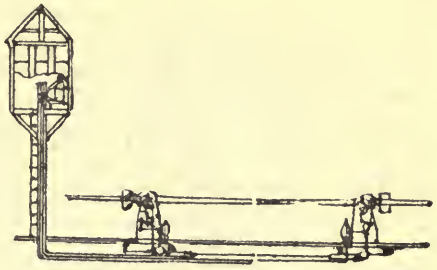
When shunting or marshalling trains each man uncouples and brakes his car back, then couples it to the next one before he leaves it. This process occupies more than double the number of shunters to one engine than at home, and we can make three shunts in the time of our cousins making one.

Falling from Trains.

When a freight train starts with a load of forty cars—as I counted some with that number of a train—when full manned, the crew consists of one conductor, who stays in the brake van at the rear, and three or four brakesmen. Their place is on the top of the cars. As each car is fitted with a brake, the wheel for working it is placed on the top at one end. Now, these brakesmen have to travel along the tops of the cars when running and attend to the brakes. The brakesmen are the dirtiest class of railway servants I ever saw; between dust and smoke, one could scarcely tell whether they were black or white men. Now, the reader can imagine within his own mind the situation of these men on a frosty morning and the roofs all covered with ice. No wonder although many of them fall off and get killed, not to speak of the danger of coming in contact with bridges. Of course, the latter are very scarce in America, but where a bridge did span the line I noticed a warner, or, I would call it, a reminder, was erected. This was a spar of wood fastened across the line a little higher than the bridge, and about one hundred yards from it. On this spar ropes about six feet long are attached every few inches, hanging down, and when a train is approaching a bridge these ropes strike the brakesman and remind him of the bridge.

Railway Crossing Gates.

This is a specimen of the gates used in and round many streets in Chicago crossing the railways. The old style of them was worked by a hand-lever, but the gate above illustrated is of the new improved style called the Mills pipe gate, opened and closed by the aid of compressed air carried through small



MILLS' RAILROAD GATE.

pipes to make the pressure. There is a small cylinder with a hand-pump to work the gates. The pump is wrought several times until a few pounds of air are shown on the indicator, then a small cock or valve is turned, admitting the air, which lifts the gates perpendicular. They are shut the same way. On the crossbar or gate, as it is called, a ticket is hung printed in big letters "Look out for the cars." This gate is shown in the Exhibition at Chicago.

SCOTSMEN IN CHICAGO.

Mr Mungo Smith, Dundee, reports:—I called on Mr William Gardner, president of the North American United Caledonian Association. The objects of this Society are the encouragement of the Scottish Highland costume and games, the cultivation of Scottish music, history, and poetry, the uniting more closely of Scotsmen and those of Scottish descent, and advancing the interests of their countrymen by friendly methods. The club had a Scottish week at the World's Fair, commencing Monday, July 24th, with receptions every morning and entertainments at night, finishing with games at Wentworth Avenue. There was a grand parade of societies. They were escorted by the Royal Scots regiment and Highland cadets of Montreal. Mr Gardner gave me a very hearty welcome, and invited the whole party to meet him.

FROM CHICAGO TO PITTSBURG.

AN EVENTFUL JOURNEY.

A BIG RAILWAY SMASH.

COLLAPSE OF A TUNNEL.

TRESTLE BRIDGE.

DELEGATES AT PITTSBURG.

HOMESTEAD IRON AND STEEL WORKS.

USE OF NATURAL GAS.

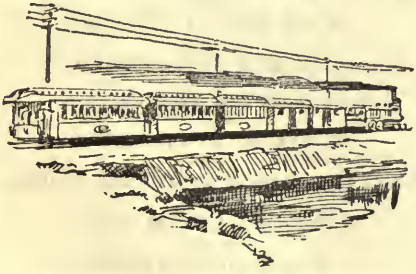
WAGES OF WORKMEN.

THE GREAT STRIKE.

(From the Dundee Weekly News of October 21.)

The delegates left Chicago, on Friday, July 14, for Pittsburg, travelling from the Wisconsin Central Depot by the Baltimore and Ohio Railroad. For some distance their way lay by the western outskirts of Chicago, and then they were able to form a better idea than ever before of what a huge city it really is. It took a considerable time to reach the open country, which, when struck, was flat, bare, and uninterest-

ing. The houses in the outskirts were mostly wooden, and a dense mass of thick inky smoke hung over the whole city. When Indiana was entered, their course lay through good-looking and well cultivated districts with numerous scenes of fine sylvan beauty; but some time afterwards the first of a series of mishaps occurred, and the delegates experienced several of the discomforts and annoying inconveniences occasionally incidental to railway travelling on the great continent of America. When Chicago was left about 100 miles to the west, the engine broke down, and a 2½ hours' detention occurred before another locomotive was run up to take on the train. Then, when they had got a few miles beyond Chicago Junction, information was received that a disaster had occurred ahead on the direct line—either the roof of a tunnel had fallen in or a freight train had come to grief—and it was necessary to make a detour southwards by Newark and Wheeling on another line, increasing the distance to be run from 488 to 537 miles. The train was accordingly run back, and then on to this other road. The time-table showed that the train should reach Pittsburg at half-past eight on Saturday morning, but it was midday before it got to Wheeling, and then a change of cars and a delay of nearly another hour followed. On resuming the journey, all went well, though slowly, through a hilly country thickly studded with oil well derricks, of which a snap-shot or two were taken with a Kodak camera by Mr Murray, the conductor, until the train arrived at Finleyville, about 20 miles from Pittsburg. Here another provoking delay occurred, due to a tender and three or four freight cars having "jumped" the track at a sharp curve, a good few of which were passed. For three or four mortal hours, therefore, the delegates with the train lay inactively in a roasting sun at this outlandish spot, and the remarks passed by them and their belated fellow-passengers were anything but complimentary to the Company operating the line. Amongst others was a suggestion that as it seemed so difficult to get the train to Pittsburg it might be easier for the Company to bring Pittsburg to the train. At last the track was cleared, and the cars proceeded, but the troubles and unpleasant experiences of the poor fatigued and wornout passengers were not yet



ON THE WAY FROM CHICAGO TO PITTSBURG.

over. As Pittsburg was approached a terrific thunderstorm occurred, and the rain poured down as it knows how to do in America. In the outskirts of the city the rain water ran down from the high ground, passed below the railway, and was rushing along a street like a mountain torrent in flood. The storm had caused a landslip, which blocked the line on which the train was running, and another halt was rendered necessary. Several of the passengers, disgusted with the repeated delays, and anxious to reach their respective destinations, left the train in order to catch the electric cars, but on jumping down into the street they landed knee deep in water. In order to pass the obstruction the train was shunted on to another track, and at 8 p.m. Central time—or 9 p.m. Eastern time—after a journey of 27 hours—the delegates reached the St James Hotel in a state of almost complete exhaustion. Their only consolation on reaching Pittsburg was to hear that their unfortunate experience had been somewhat unusual on the Baltimore and Ohio Railway of late, as the trains of the Company had been running remarkably well on time since the opening of the Fair.

Our Journey from Chicago.

In his description of the journey Mr Watson, enginedriver, says:—On leaving our hotel near the Exhibition we travelled to the B. & O. Grand Central by way of the Illinois Central. This railway runs alongside of Lake Michigan all the way to the city. There are three double lines of rails, and the most of the World's Fair traffic passes along these lines. Trains are run at short intervals, and one cannot go far wrong to catch a train at any time. If you want to travel with a fast one you take the line nearest to the lake. If you want a stopping train take the one nearest the city. These lines are all wrought with the automatic signalling system. They are divided into short circuits with signal bridges every half mile or so. The signals which are placed on these are round targets. When a train passes these targets a red disc by day and a red light by night appears in them and remains until the train has passed into the next circuit. Then the signals in the circuit behind indicate clear for another train to follow. No train passes a red target. A class of trains was specially built for the World's Fair traffic to run on these lines. The carriages are fitted with cross seats much the same as at home, but there are no doors on them, just a curtain to shade from the sun, while an iron rod about an inch thick is wrought on hinges with a lever from the rear of the train, which the conductor works. This rod is to keep passengers from falling out. When the train arrives at a station it is lowered to let passengers get out or in. On reaching the city, we proceeded along the streets to the Grand Central Station, getting our baggage at the office, which had been sent on by the parcel express. We took our seats in a first-class sleeping-car of the 4.55 p.m. limited express to take us on to Pittsburg, a distance of 488 miles, due to arrive at 8.25 a.m. The bell rang and the train started almost on time. After a few slows for signals and a stop or two, we were soon flying away out through the suburbs of Chicago, skirting round through a very level district. We could see the towers and Ferris Wheel of the World's Fair, but we soon bade farewell to them all as our train sped along, leaving Chicago and its great Fair in the distance. Now the steward intimates that dinner is ready. We entered the dining-car and got served with

Splendid Dinner.

The tables in the dining-cars stand across, with a passage along the centre, and each table holds four passengers, two at each side. This is decidedly a great comfort in railway travelling in America. After dinner we retired to the smoking or observation compartment, and had a look of the country, which seemed to be a very rich district. The people were all busy with the harvest, and very fine crops seemed to grow in this locality. On entering our sleeping-car we find the attendant, who is a coloured man, converting our seats into beds. It seemed to me that a sleeping-car has a place for everything, and everything in its place, for in folding down the seat backs he pulled out the

PULLMAN DINING CAR, B. &. O. LINE.

pillows from under the seats, on which he placed clean linen slips, then lowering down from the roof another tier of beds, in them were stowed blankets and wooden partitions, also curtains. In a very short time Sam, as we called him, had everything in its place, which filled the car with two tiers of beds on each side, with curtains hanging down in front, and the passage through from end to end.

DINING CAR COOK.

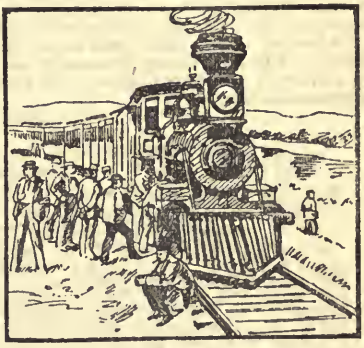
To know your bed you look your ticket number, then find the number of bed to correspond. Darkness began to draw over us as our train was speeding along through the State of Indiana, and each member began to search for his bed, and in a few minutes all were turned in with the hope of seeing Pittsburg next morning. But that was not to be the case, for about 2 a.m. I awakened up, and everything seemed so quiet that I inquired at Sam if anything was wrong. He replied, "Yes, sir, the engine has broken down, and we have been standing here for two hours." "What is broken about the engine?" "Something," said Sam, "about the gearing, but we have got another." We soon got started again, but we did not proceed very far when we stopped again, and I was informed that a

Tunnel Had Fallen In

ahead, and we could not get any further. So our engine got round to the rear end of the train, and pulled us away back the road we came

PULLMAN CAR PORTER.

for a few miles to the station called Chicago Junction, a distance of 278 miles from Chicago. We then proceeded away round a branch line by Mansfield, stopping at Mansfield Station, where we had breakfast, during which time one of the cars got its brake gearing repaired. We then



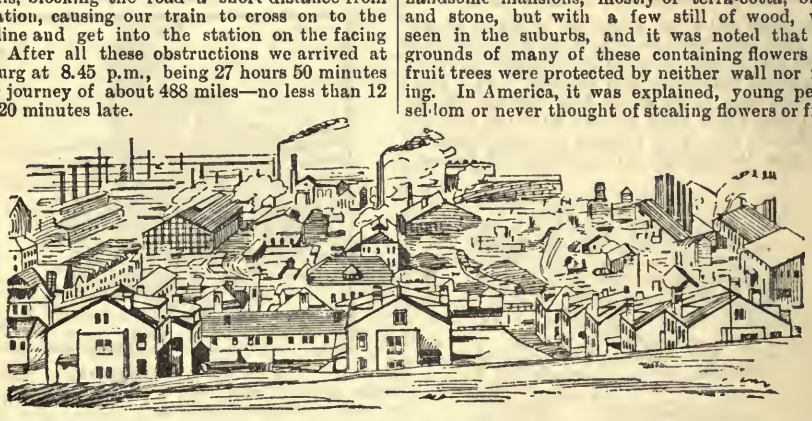
A RAILWAY BREAKDOWN.

made another start, and were conveyed through a very pretty country with very nice farm houses here and there, and grand crops of wheat and Indian corn, all fenced round with the old snake fences. A little further along we came in sight of the River Leekingcreek. We ran for a considerable distance alongside of this river. It was said to be a very fine fishing river, and we could see lots of people living in camps or sportsmen's huts enjoying themselves in shooting and fishing along its banks. A little further along we reached Wheeling Junction. Our car was detached here and shunted on to the Wheeling and Pittsburg branch train. Having 45 minutes to wait on this train starting, we had a run through the town and got dinner. Returning to the station, we got seated, and our train backed out of the station, then began to move away right up the middle of the street, just the same as a tramcar in Dundee. After getting clear of the town we soon got into good speed, but this seemed the wildest-looking road we had travelled over. There were tunnels and high rock cuttings, and a number of trestle bridges across some very high creeks and streams. I drew our members' attention to some of these bridges, but they did not seem to care for them. They said they would rather prefer the Tay or Forth Bridges to any they had seen.

Trestle Bridges

are constructed with long beams of wood laid flat across on the ground, then come upstanders resting

on these beams, angling towards the top, and strongly braced together. Then longitudinal beams are placed along the top and the sleepers fastened across them, then the rails. There are no parapets or ledges, just the ends of the sleepers projecting. One looking out of a car window can see right down between the sleepers to the foundation. Our train slowed across a few of these bridges, some of which are very high. All went well until we reached Finleyville, a station about halfway to Pittsburg on this branch, when our train stopped, and we were informed that a block was ahead by some cars leaving the rails. An old engine standing in the siding without its tender, and its fire drawn and steam blowing from its easing cocks, was enough to indicate that something was wrong. The line had been blocked for three hours before we arrived, and we stood another three hours before the line was cleared. We again proceeded—it being now 6.45 p.m.—thinking we would surely reach Pittsburg without any more detention ; but that was not so, for when approaching Pittsburg a very severe thunderstorm had passed over and the rain came down in torrents, washing stones and sand off the hill down on to the rails, blocking the road a short distance from the station, causing our train to cross on to the other line and get into the station on the facing road. After all these obstructions we arrived at Pittsburg at 8.45 p.m., being 27 hours 50 minutes on our journey of about 488 miles—no less than 12 hours 20 minutes late.



THE HOMESTEAD WORKS.

General Features of Pittsburg.

The city of Pittsburg, writes the Conductor, is about 450 miles from New York, and is situated on broken, hilly ground at the junction of the Alleghany and Monongahela Rivers, which there form the Ohio. It is the second largest city in Pennsylvania, and is the great centre of the iron and steel, glass, and electric appliance industries in the United States, prominent amongst the iron and steel works being those at Homestead and Braddock, with which the name of Mr Andrew Carnegie, of free library fame, is associated. Its population now amounts to about 250,000, while in Alleghany City, on the opposite side of the Alleghany River, there is an additional population of about 120,000. The two portions of Pittsburg and the two cities are connected with each other by numerous large and strong bridges. Formerly, on account of the large quantities of coal consumed in the iron and steel trades of Pittsburg, it was popularly known as the "Smoky City," but since the introduction of natural gas, which is found in large quantities in the district, and which is now extensively used in the rolling mills and for domestic purposes, this appellation is somewhat of a misnomer, and Pittsburg in this respect will compare favourably with any other industrial centre in the States. The delegates had ample evidence that the city was not nearly so black as it was represented, and that it was kept much cleaner and in better order than Chicago, in their tour with Mr H. C. Torrance, of the Oliver Iron and Steel Works, a friend of Mr D. C. Thomson, of the *Weekly News*, and a native of Scotland, who not only kindly acted as their guide, but secured letters of introduction to the most important and representative firms in the district. Mr Torrance took the delegates through the city, and showed it to them from various points of vantage, and also ran them round the suburbs. The view from Highland Park with the beautiful Alleghany valley stretching some miles up was particularly admired. Two large reservoirs to which engines pump 40,000,000 gallons of water daily for the supply of the city have been constructed in this park, at a height of 356 feet from the river, and the surrounding grounds are beautifully laid out, and much frequented by the citizens, to whom bands perform several times a week in summer. The Alleghany River, from which the water supply is taken, was of a clayey colour, but this, it was explained, was due to the heavy rains of the previous day, and was of very infrequent occurrence. Numerous handsome mansions, mostly of terra-cotta, brick, and stone, but with a few still of wood, were seen in the suburbs, and it was noted that the grounds of many of these containing flowers and fruit trees were protected by neither wall nor railing. In America, it was explained, young people seldom or never thought of stealing flowers or fruit, and malicious mischief in this connection was practically unknown. The delegates quickly discovered that they had struck Pittsburg at a bad time, as nearly all the iron and steel works were shut down for repairs, and on account of the fixing of the annual wages scale for the succeeding year, the employers and the men not having yet come to terms, while the whole of the glass works were also closed as usual at this season.

Homestead Steel Works.

Mr R. Dunlop, Motherwell, reports :—Pittsburg is undoubtedly the great centre of the iron and steel trade of America. Every branch of industry in connection with steel or iron is here represented —blast furnaces, steel works, rolling mills, foundries, tube works, bridge building, locomotive works, boiler and tank building, agricultural implements, chain works, wire works, spring works. These are only some of Pittsburg's great industries in the iron and steel trade. When we visited the city a large number of the works were closed for repair and settling the wages scale. A dispute had also arisen between the employers and the workmen in connection with the fixing of the scale of prices which regulate the wages of the workmen. This scale is fixed annually at the end of June, and remains for a year, being mutually

agreed upon by both parties. At the time we were there the Western manufacturers were complaining of the Eastern men being paid a lower rate for all classes of work, maintaining that the wages in Pittsburg should be brought a little nearer the level of the Eastern men. Although the most of the iron works were closed down, still there were some of the large steel works going on, the above dispute not affecting them. The most important works in or near Pittsburg are the great Homestead Steel Works of Carnegie, Phipps, & Co, at Munhall, a few miles distant from the city. With a card of admission signed by Mr Frick, the visitor will receive every attention, and on showing your card someone is told off to guide you through the great establishment. The plant is of the most modern type, and every mechanical device that supersedes hand labour and facilitates a large output is to be seen at work. The most of the steel made at Homestead is made by the open hearth process for boiler and ship plates, and all kinds of structural work. They also make nickel steel for the great armour plates which they are making daily for the American Government, In the melting department there are sixteen furnaces, two shops with eight furnaces each, and here I found in the superintendent of that department Mr Niven M'Connell, an old acquaintance with whom I had worked at Motherwell. His brother was there also as shop foreman. They had left D. Colville & Sons, Motherwell, seven years ago, and finding a situation in Homestead had gradually worked their way up to their responsible positions. Several of the melters I found to be from Glasgow, having worked for the Steel Company of Scotland. Mr M'Connell made an excellent guide through the large works, and I was grateful for his kindness during my short stay at the works. The sixteen furnaces have a capacity of about 25 to 30 tons each. Fourteen of the furnaces have the basic bottoms, and two of them the acid bottoms. Each furnace runs from eleven to twelve charges per week. Before a general repair each furnace runs about 250 charges of metal. Here all the steel is cast for the bar and plate mills, also the large 35-ton ingots for the armour mill. The system and method of work here adopted is entirely different from ours at home. The whole plant is

Run by Natural Gas.

Where we use coal and a large staff of men at our gas-producing plant they have here the gas led by pipes from the gas region 20 or 30 miles away. This valuable fuel was first used for boilers at the gas regions. In 1875 two iron manufacturers tried it at the furnaces, and in 1884 it came into general use at mills, factories, and for every purpose for which coal was used, displacing about 10,000 tons of coals per day. The mode of work on the furnaces here differs greatly from ours. The man in charge of the furnace here is called the "melter." He takes control of the furnace, but takes no part of the charging of the same. There are also the first helper, second helper, the boss pitman, with six helpers for eight furnaces, a boss ladleman, with four helpers, four stokers for hand charging, one for the machine charging, and six labourers for taking out slag and cleaning the pit. The wages vary a little in different works, but here the wages are :—Melter, $5 (£1) a day ; first helper, $3 (12s) ; second helper, $2.75 (11s); boss pitmen, $3 (12s) ; helpers, from $2 (8s) to $2.75 (11s); boss ladlemen, $3 (12s); helpers, from $2 (8s) to $2.75 (11s); stokers, $2 (8s) ; labourers for slag and cleaning pit, $1.68 (6s 9d). In some of the works I found on making inquiries that the melters could make $7 (28s) a day, but the figures I have given are about the average. The pig-iron is charged into the furnaces with a huge charging machine. In others it is done by hand. The heats are mostly cast into the circle pits. Sometimes the moulds are set on carriages, and taken over to the mills at once by the locomotive. One of the melting furnaces is used for remelting the great ends of the ingots used for making armour plates. The furnace is circular in shape, and the whole roof of the furnace is lifted off by a crane, while another travels along with ingot ends weighing 7 or 8 tons and drops them inside. In the

Finishing Department

all the latest appliances are in use at these works. Ships and boiler plates of all sizes, and beams and bars of every shape and size are here rolled. All the plate mills that I have seen in America are run on the three-high system, and are finished direct through the one set of rolls from the ingot, the movable tables with driven rollers rising and falling at each pass of the plate. The plates are finished off, and marked, sheared, and loaded without ever touching the floor. As soon as the plate is rolled the exact size, it runs on to a long train of rollers, which carry it on to the shears. Here it is marked to size, and the end cut off. It goes straight through to another set of shears, and is finished off there. The train of rollers is very long, so that by the time the plate reaches the shears it is cool, and if the mill is working too quick for the shearman there is a contrivance to throw off two or three plates, where they lie until the men have time to finish them off. Another thing I notice very good and useful here is that the blade of the shears when not in use is thrown out of gear, instead of continuously rising and falling. A reversible crab is attached to all the shears, and throws the blade in or out of gear in a second, giving the men time to properly set the plate to the mark.

The Bar Mills

here are also far in advance of ours in the use of the latest and most wonderful power in use at rolling mills, namely, electricity. In the bar mills here can be seen the latest marvels in electric plant working like clockwork. In one of the large bar mills there is a machine for charging and drawing, the motive power of which is electricity. The machine charges the ingots in the furnaces and draws them out, placing them on tables for the rolls, with a rapid movement which is astonishing. At the same mill, too, there is an electric machine at the rolling table, working the blooms and bars in a manner almost automatic. Another interesting sight is the large beam mill, where the heaviest sections are rolled for bridge building and fireproof buildings. These are rolled direct from the cogging mill. The ingots are large, and, after passing the cogging rolls are cut in two, the first half of bloom passing on to the finishing train by driven rollers. While the first half is being rolled the second half passes directly under a small circular-shaped furnace on the same table, where it remains until the other part is rolled, thus saving the cost of reheating. Some of the large beams are two feet wide, and the whole train of rolls run with remarkable smoothness. All over the works are to be seen electric cranes, and I noticed in the newspapers that this company had given an order for eleven electric travelling cranes for loading beams on cars, &c., all to be used out of doors—one of the largest orders given by any steel mill. In the foundry also there is an overhead electric travelling crane. In the machine shops the planing machines are nearly all from Leeds, England. Here they have a splendid American machine called a boring mill cutting plates in a 30-feet circle. Here, too, the great armour plates are finished under the supervision of

the U.S. Government Inspector. The wages of the tradesmen here are :—Machinists, $2.50 to $3 (10s to 12s) a day ; blacksmiths, $2.75 (11s) a day ; moulders, $2.75 (11s) a day ; roll turners, $4 (16s) a day, all working a ten hours day. The plate mill men work an eight hours day. In these mills you can see men of all nationalities at work—coloured men, Poles, Hungarians—in fact, men from every clime here intermingle and work side by side. The number of men employed is on an average 3500, and pay-roll for a month is $225,000 (£45,000). The average amount of finished product per month is 15,000 tons. This includes both finished and unfinished material—ingots, blooms, billets, and slabs. It was here

The Great Strike

took place last year, which ended in rioting and bloodshed, and as I had previously read the newspaper account of it, I had a desire to see the place where it occurred, and the place where the Pinkerton men tried to land was pointed out to me. A full account of the strike is published in the Foreign Office report (United States), as Congress appointed a Committee to inquire into the circumstances of the strike, and the employment of the Pinkerton detectives. The wages had been for many years fixed in these works by a sliding-scale based upon the selling price of steel. The details of the scale were arranged between the Company and the Amalgamated Association of Iron and Steelworkers. The scale agreed upon in 1889 expired on 30th June, 1892, and as that date approached the Company gave notice of a considerable reduction, and to make the scale terminable in January instead of July. The workmen rejected the proposal, and the Company discharged all who refused their terms. The Company had provided against the contingency of a strike during the previous six weeks by building a fence three miles long round their works and twelve feet high. Three hundred Pinkerton constables were brought to the works. On the way up the river the Pinkerton men unpacked their boxes and arrived fully armed. Large crowds of strikers waited their arrival to prevent them landing. A skirmish thus ensued, in which seven strikers were killed and many wounded, while three Pinkertons were killed and several wounded. The crowd also ran barrels of burning oil into the river, and finally the Pinkerton men surrendered to the crowd, and were afterwards maltreated in spite of the efforts of the strike leaders to control them. Troops were sent to restore order, and some of the leaders arrested. Then came the shooting of Mr Frick, the manager, by a Russian named Berkmann ; but this act was quite independent of the men on strike. At the inquiry the feeling against the employment of Pinkerton men found expression, especially in the evidence of Mr Powderly, the leader of the Knights of Labour, who alleges that the Pinkertons are men of dubious character, and rather ferment than allay disorder. Massachusetts and New Jersey have passed Acts prohibiting the employment of Pinkerton constables. This Act was passed last year—1892. Non-Unionists were imported, the works were started, and a great number of workmen lost their places. A plot was afterwards formed to poison some of the non-Unionists, which was afterwards carried out. Several men were arrested, tried, and found guilty, and sentenced to long terms of imprisonment, among whom was H. F. Dempsay, a master-workman of the Knights of Labour. A sensation has been caused by the confession in prison of Patrick Gallacher, one of the prisoners, to the effect that Hugh Dempsay is innocent. This will probably re-open the case, as Dempsay's friends will do all they can on his behalf. The great strike has been an object lesson to masters and workmen everywhere, teaching them to arbitrate on all difficult questions.

MR DUNLOP AT BESSEMER.

EDGAR THOMSON STEEL WORKS.

RAIL-MAKING DESCRIBED.

CARBON STEEL WORKS.

WAGES OF STEELWORKERS.

STANDARD OF LIVING.

WORKINGMEN'S DWELLINGS.

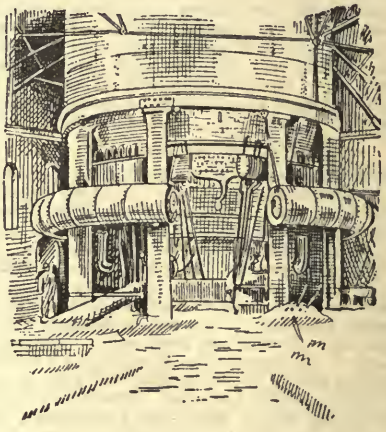
COST OF FOOD AND CLOTHING.

VISIT TO OIL WELLS.

WESTINGHOUSE ELECTRIC WORKS.

(From the Dundee Weekly News of October 28.)

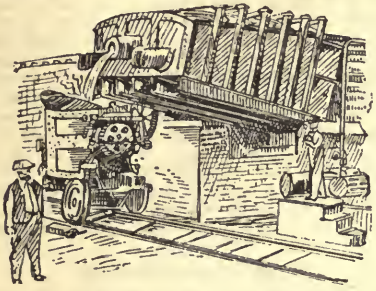
Mr Dunlop, Motherwell, reports :—The Edgar Thomson Steelworks and blastfurnaces are generally acknowledged to be the best rail plant in the United States, consequently a description of this mill will interest a great number of people at home. The works are situated at Bessemer, about eleven miles from Pittsburg. The Monongahela river gives facilities of water carriage, while no less than three railways run past the works, transporting material to all parts of the country. There are nine blastfurnaces, the last two built—H and I furnaces—being each 22 feet diameter of bosh and 90 feet high. The average



FURNACE "F."

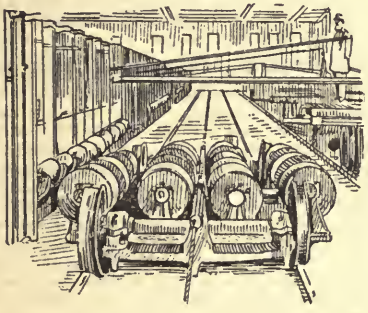
output of these furnaces is about 300 tons per day of twenty-four hours. The plant is all designed and arranged specially for the manufacture of Bessemer steel rails. The steel is made by the direct process—that is, instead of being cast into pig-iron, the metal from the blastfurnace is taken to the converter and made into steel. The whole plant is a wonderful example of the ingenuity of man, and reflects great credit on the designers of the mill. The progress of the metal from the time it leaves the blastfurnace till it is pushed on the car a finished rail is marvellous. A rich ore

from Lake Superior is used at the blast-furnaces. The metal on being tapped from



DRAWING THE METAL MIXER.

the blastfurnace is taken to the mixer. This is a large vessel lined with brick mounted on a shaft, and has a capacity of about 100 tons. The mixing plant ensures a uniform grade of iron for the converting department. From here the metal is taken to the converting works and at once run into one of the converting vessels, where, in from 15 to 20 minutes, it is blown into steel by the usual Bessemer process. Each vessel holds about 15 tons. The moulds into which the metal is here tapped are generally set in a pit, but here the moulds are set in a train of carriages driven by a small locomotive. In a few minutes, as soon as the metal is set, the locomotive runs the whole train over to the mill furnaces. Here a crane lifts off the moulds, leaving the row of ingots all stand-



CHARGING BLOOM FURNACES.

ing on end. A huge charging machine running on rails and carrying boiler and engine comes along to the furnace, a pair of tongs move forward and grasps the ingot, placing it in the furnace with a rapid movement that is most astonishing. It only takes a few minutes to charge the heat, and meanwhile another furnace is drawing. As soon as the ingot is taken out of the furnace, it is carried along rollers to the blooming mill, a three high 36-inch train. After a few passes, the bloom runs on driven rollers to the shears, and is cut through the centre. Here the bloom is whisked round a curve to

The Rail Mill.

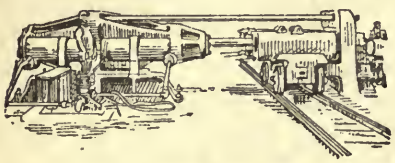
This mill is divided into three trains, each driven by its own engine. It here makes five passes, and runs along to the second train, also a three high train with movable tumblers and lifting tables. From here it passes to the finishing train, and travels on to the hot saws, where the four revolving saws drop on it at once, cutting the piece into three length rails at one stroke. The rails cut to length are placed on the hot beds by pushers driven by winding cables. From the hot beds they are pushed on to a line of driven rollers to the finishing department. The rollers are driven by reversing engines, so that the rails can be sent forward or backward as desired. When a rail reaches the proper point, two arms are raised; these lift the rail from the roller, and as the arms are inclined at a steep angle, the rails slide down to the straightening press, where they are straightened and drilled. There are eight straightening presses and eight drill presses. The finished rails are pushed out of the side of the building to the loading beds, where there is a line of railroad cars, on to which they are loaded. The mill runs very smoothly and with the regularity of a clock, very seldom a hitch occurring. From the time the metal leaves the blastfurnace until it is a finished rail on the bank is only a little over an hour, and during its progress it is entirely handled by machinery, not a man requiring to use a pair of tongs, the mechanical appliances being perfect. There are four converters working about fifteen tons each blow. The heaviest output of ingots has been 2124 tons in 24 hours. The rail mill has rolled 1904 tons of rails in 24 hours. The average output is about 1600 tons in the 24 hours. The men about the converters work

An Eight Hour Day,

and they earn on an average 14s to 16s a day. The chief roller and heater are paid a monthly salary. The tonnage men at the roll trains earn on an average 18s a day. The rail furnacemen earn 26s a day. The rail straighteners have 5d a ton. There are three set of men working eight hours. On the roll trains the men work twelve hours, but where the work is continuous they have a spell hand, that is, three men are employed instead of two, and take spell turns. At the blastfurnaces the average wage is about 9s a day; mechanics, blacksmiths, and moulders, from 10s to 12s a day; labourers, 5s 3d a day. The number of men employed is about 3500, and great numbers of them own their own houses. The company advances money, charging six per cent. interest. They also take deposits from the workmen, paying six per cent. For that purpose a special department is kept with three or four clerks. Lots for workmen's houses can be bought for from £60 to £100; cost of house from £240 to £400. This means a house with five or six apartments. The wages of the workmen are regulated by a sliding scale based on the average price received for rails during the preceding month, a printed scale showing the amount to be paid each class of workmen, according to the price of rails as indicated. Four men representing the workmen see the books of the firm, and know the price received for rails. The system gives every satisfaction. The works run to four o'clock on Saturdays, but after this date the mill will close on Saturdays. The annual holidays are on 4th July and Christmas Day. The boilers are all fired with the natural gas, led in pipes from the gas regions. In the office here I saw Mr Melville, one of the chief clerks, who belongs to the neighbourhood of Dundee. He had heard of the *Weekly News* Expedition, and was anxious to see all the party. He has been here six or seven years, and likes the country well. These works very seldom close down, running almost continuously, although some of the other mills shut down for a month or six weeks. The works are excellently managed, disputes between the workmen and the company being of rare occurrence.

The Carbon Steel Works, Pittsburg.

Mr Dunlop also reports:—On Tuesday we paid a visit to the Carbon Steel Works. This was originally an iron-rolling mill, but a company was formed and bought the place and built the present steel plant. The lessened demand for iron and the great demand for steel is gradually pushing the iron trade out of existence. Steel is here made on the open hearth system. They have eight melting furnaces—six at 30 tons and two at 20 tons capacity. They are built on Lash's patent, Mr Lash being the present manager of the works. The furnaces give great satisfaction, running a long time without getting out of repair. The regenerators or checker work, instead of being in chambers directly beneath the furnaces, are placed in the flues. No



INGOT PUSHER.

slag or other matter can get among the checker work. This enables the furnaces to run longer without repair. Mr Naismith, the foreman bricklayer, I found to be a Wishaw man, having worked a long time for the Messrs Williams at Shieldmuir. He has had charge of the building of all the furnaces at the "Carbon," and is presently building new plant. During my visit he was very obliging, and conducted me all over the works, and was inquiring kindly about a good many old country folks. The rolling plant consists of a three high plate mill, a sheet mill, and a universal mill for rolling long narrow plates. These plates only require the ends cut off, the edges being kept smooth by a set of vertical rolls, which can be set to any width. The plate mill is a three high train, finishing the plates direct from the soaking furnaces through the one set of rolls. There are seven electric cranes at these works, and the screws at the rolls are worked by electricity. There are overhead electric cranes at the soaking furnaces and also at the loading bank. The plate mill is run on the same method as at Homestead. The ingots are charged into the soaking furnaces and run on driven rollers direct to the roll train, and are finished off at the shears without touching the floor. The system of work in the melting shops is somewhat similar to Homestead, the stokers and all the pitmen helping to charge the furnaces. The furnaces are all run with the natural gas, the older furnaces being built specially for that purpose, but they are building the new ones in such a manner that they can be worked with manufactured gas when necessary. The supply of natural gas cannot be inexhaustible, and there is talk of the supply running short, and they are preparing for a change when circumstances require it. The wages at the Carbon are about the same rate as at Carnegie's. As I stated previously the ironworks were all closed down during our visit. On making inquiries into the wages, I find that the rate paid for puddling was 22s per ton. The employers wish a 10 per cent. reduction all round. Several conferences had been held between the representatives of the amalgamated association and the workmen, and although no settlement was made while we were there, it was the general opinion that the reduction will be agreed to. The puddlers work five heats per shift, charging 5 to 5½ cwts. per heat, paying the under hand 10s a day. The following scale is for rolling wire rod from 4 inch billets to No. 5 wire gauge:—Rollers, 1s 3d a ton; heaters, 1s 6d a ton; rougher, 5d a ton; bull-dogger, 3½d a ton—ten hours each turn, from 5 a.m. to 7 a.m., from 7.45 to 12 noon, from 12.45 to 4.30, and not later than 2.30 on Saturdays—average output, 70 tons per shift. It is not necessary to give the scale of prices governing the wages in the several departments, as that would take up too much space, but I have the association scale of prices for all the departments. Anyone interested in any special mill can have the prices if desired by saying which mill he desires information on. The workmen are generally paid every three weeks. The works as a rule

Close Down Annually

at the end of June for general repairs and the signing of the scale for regulating wages. The length of stoppage all depends on the state of trade and what repairs are necessary. Some works, if well supplied with orders, may sign the scale at once, and work on with a short stoppage. Others may shut down for a month or six weeks. At the present time trade is dull, and they are having a long shut down here. All the Scotsmen we have met here have given us a hearty welcome, and we are greatly indebted to them for the kindness shown to us during our short stay in Pittsburg Here is a sample of a good working rod mill in the Glandon Rolling Mill, Pittsburg. The roller, Mr A. Cullen, is a Scotsman. The average output of this mill is 50 tons per day. The roller, 1s a ton, about 48s to 52s; heaters, 6d a ton, or 1s 6d on their own furnace, 3 furnaces in the mill, 26s to 27s a day; roughers, 6d a ton, 26s to 27s a day; boys, 3½d down to 2½d a ton. The roller, heater, bricklayer, and engineer of this mill all own their own homes.

Standard of Living in Pittsburg.

To the average artisan the cost of living in Pittsburg is pretty high, as the working classes here all live as well and as comfortably as their circumstances will permit. A laudable desire to own their own house seems to take possession of great numbers of people as soon as they settle down in America. It is apparent in every town and city we have been in, and Pittsburg is no exception to the rule. Here great numbers of iron and steel-workers own their homes, and even those who pay rent for a house live in large houses that would be deemed most extravagant in the old country. Numbers of ordinary tradesmen, such as engineers, bricklayers, &c., pay rental of from £2 16s to £4 a month for a house of five or six apartments. These houses may be either brick or wood houses. I was in four houses of the kind just described—namely, houses of six apartments—all tastefully furnished, and superior to the ordinary tradesman's house at home. More room is required, especially in the summer time, as the heat is so great, that they tell you that it would be impossible to live in such small houses as the working classes do at home. The average rent of the working classes for houses of from four to six apartments is from £2 8s to £3 4s a month. This includes all taxes. This means respectable tradesmen, and in good localities. The poorer class of labourers cannot afford to pay such rents, and require to huddle closer together, especially the foreign element and coloured people, who, as a rule, are all unskilled labourers. The cost of a lot for a house all depends upon the locality, and can be bought for from £60 to £120. A house of six apartments can be built upon it at a cost of from £240 to £360, according to mode or style of finish. A feature in

American Households

is the cooking stove, which is to be seen in every house, and with the aid of the stove the handy wife often prepares some nice dishes for the family. Fruit of all kinds is cheap, and is largely used among all classes. In season, grapes can be had from 4 or 5 cents a pound, and melons, tomatoes, and such like fruit are part of the daily food of the people. The dearest things here are clothing, all kinds of woollen goods, and house rents. Another thing

WORKING MAN'S DWELLING.

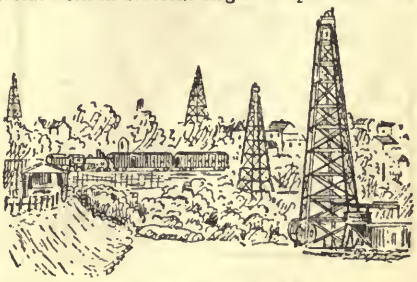
very dear here is felt hats. A good suit of clothes will cost from £6 to £9. You can buy clothes for half that figure if you like, but there is no wear in the cheap ones. Hard felt hats that sell here at 6s will cost from 15s to £1. Butcher meat, tea, coffee, tobacco, are all cheaper than at home. Butter sells at from 1s in summer up to 1s 8d in winter. Eggs are the same price as at home. Shoes range from 8s to 24s, but the leather seems to be poor, and does not wear long. Cotton goods are cheap, prints for morning gowns can be bought for 2d or 2½d a yard. The charge for doctor's attendance and medicine is heavy here. The lowest charge is 4s a visit and medicine to pay for, so that when illness overtakes a family the doctor's bills are a heavy drain on the purse. Our system of paying so much per week in large workshops for the doctor's attendance is much better, and could be copied more extensively in the States with advantage to the working classes. All the schools are free, and all the churches self supporting. Few people here can see where it would be right to give any one denomination help from the State in the shape of money. As the churches live for the spiritual needs of the people, they consider they should pay for it themselves.

The Westinghouse Electric Works.

Mr Ebenezer Bennett, Newcastle-on-Tyne, reports:—I had the honour of being conducted through their works by a member of the firm, who was very kind in showing me every detail of these works, and gave me the following account of Mr Westinghouse. When he went to Pittsburg about 26 years ago, the capital of Mr Westinghouse consisted solely of his fertile brain and limitless energy. These were soon at work, and in a short time he invented the air brake, which has made his name familiar to the civilised world. He entered upon his career at the time when railway development was young, and he made the railway world dependent upon the fruit of his genius. Another limitless field was just opening—viz., that of electricity, and he entered this with the same amount of energy that he had entered the railway field. The interest of Mr Westinghouse in electricity has been a steady but rapid growth, and the revelation to him of its full scope culminated in his founding the Westinghouse Electric Company. Mr Westinghouse secured rights under the patents of Ganlard & Gibb to the alternating current system of lighting. This system was put upon the market; at once business began to grow. The name of this Company was changed in 1860, and it is now known as the Westinghouse Electric and Manufacturing Company. It is very encouraging to us working men to see one of our own craft rising as Mr Westinghouse has done. He got this Company chartered in 1886, only then a small company, and to-day he is head of one of the largest electrical engineering firms in America. This Company has the incandescent lighting at the World's Fair, but are rather slack of work at their works in Pittsburg, having paid off only two weeks previously over 1000 men. They say that at this season of the year things always do quieten down, and it gives them a chance to get their machinery all overhauled, and their shops thoroughly cleaned, and everything put in order ready for the busy season coming on again. Their workmen are all on piecework, and earn from 3 to 5 dollars (12s to 20s) per day. They commence work at 7.15 in the morning, having breakfast before starting. They leave off at 12 noon for lunch, and have three-quarters of an hour, then they work till 5.15 at night, Saturday and every day alike. Every man washes and changes before leaving the works, lavatories being provided in each shop. They employ a great number of females for lapping wires with tape, &c. They say they can get them cheaper than men, and after a little practice they can do more work of that particular kind than a man. Apprenticeship is a thing that is not known amongst them, boys taking the place of men as soon as they are able to do a man's work.

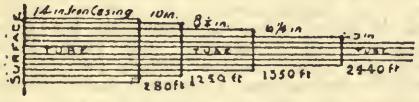
Oil Wells, Pittsburg.

Mr D. Brown, Govan, reports:—I had the pleasure of calling upon Mr A. O. Evans, superintendent of the Forrest Oil Company at M'Donald, a place some eighteen miles west of Pittsburg. He received me very courteously, and kindly showed me several wells in different stages of operation. He



PITTSBURG OIL WELLS.

informed me his district extended some six miles by five, and that he had no less than 115 wells under his charge. We first visited a grass field, where, along with the farmer, he went through the operation of allocating a site for a new well. (They must keep a certain distance, 300 feet, from the boundary of other people's lands). We next visited some wells in process of drilling, large boring rods of 4½ inches in diameter and about 44 feet long being used for the purpose. The owners of the wells provide the material, and erect the large wooden framework, called riggs, about 80 feet high, and let out the work of boring to contractors, who perform it at so much per foot (85 cents). We next visited a well which had been in operation for about a month, where the oil every 50 minutes or so comes up the pipes in such great quantities as almost to burst them. The pipes, three of 2 inches in diameter, are led into a large wooden vat about 10 feet high and 15 feet in diameter. In about five minutes some 420 gallons of oil were forced up the pipes, this being caused solely by the accumulation of gas in the well. During the intervals the pipes are quite dry. The wells are very deep; they are some 2500 feet deep on an average. The first or outer casing is fourteen inches in diameter, and is put down a distance of 280 feet or so. This excludes the surface water, sand, &c., which is met with, and which has to be overcome. The next casing is ten inches, and is for the purpose of keeping out the salt water and other matter which is met with. It is put down a depth of 1350



SECTION OF OIL WELL.

feet. The oil rises in the centre tube, and is very strong at first, when, after the lapse of some months, the force gradually weakens, then it has to be pumped up by means of engine-power. The gas rises outside the tube but inside the casing, which is closed in at the top. The gas is then led away in pipes to supply fuel for the boiler fires. They have

AN OIL TRAIN.

a system of conveying the gas to and from the different wells of their own, so that when there is a deficiency from one source they get it in another, so that the supply is constant. The output of the wells varies considerably, according to the length of time they have been sunk, some of them producing as much as 700 barrels per day of twenty-four hours, while others only give one barrel. Each barrel contains 42 gallons. The Alleghany County is the richest spot in proportion to its area to be found in the whole United States. Around Pittsburg there has been produced in the last four years 67,905,478 barrels of 42 gallons each of the finest oil, and the total production of the United States for the years mentioned was 111,354,879 barrels, so that the Pittsburg district produced three-fifths of the entire output and seven-eighths of the entire value. There are upwards of sixty oil refineries and about twenty natural gas companies in and around Pittsburg. The wells are very numerous; in some cases are to be found nearly every 100 yards apart. The region is to be found in some cases in "belts," in others in "pools," and the regions are sometimes from one to fifteen miles wide, and about one hundred and fifty miles long. In supplying the natural gas (which does not have a very great illuminating power) there was always great danger attached to it from the fact that the leakage was very great, and when they attempted to discover the whereabouts there was almost sure to be explosions. They have now two sets of pipes. One is fitted for high pressure, and is then conveyed to another, not unlike our street lamps, some of which are kept burning day and night. The pressure of the gas is very strong, being in some cases as high as 700 lbs. to the square inch. The gas is mostly used for heating and cooking purposes, for which it is specially adapted. The oil is pumped out of the reservoirs by means of force pumps, and forced along miles of pipes to the seaboard for general distribution.

AN AMERICAN SUNDAY.

AMONG THE NEGROES.

SERVICES IN A DARKEY CHAPEL.

INTERESTING PROCEEDINGS.

A NOVEL COLLECTION PLAN.

THE LAW AND ORDER SOCIETY.

ENFORCING SUNDAY OBSERVANCE.

THE STATE LIQUOR LAWS.

STRINGENT REGULATIONS.

PUBLIC BUILDINGS IN PITTSBURG.

STONECUTTERS' WAGES.

THE LAMP GLOBE INDUSTRY.

(From the Dundee Weekly News of November 4.)

No one, writes the Conductor, can travel any distance through the United States without meeting negroes. They are as numerous as gooseberries in a well-kept fruit garden in summer. They are to be seen every few minutes on the street, most of them dressed in a style which for smartness would put many whites to shame. They are the waiters in the hotels and the restaurants and the porters on the cars and at the depots; and for attention, civility, and devotion to duty no race can surpass them. As a rule they speak excellent English, in

the Northern States at least, and no matter what his social position may be, the "nigger" is almost always smiling, and happy and contented looking. They have places of divine service of their own, and are usually regular and devout worshippers. When walking along Wylie Avenue, Pittsburg, on Sunday, July 16, the delegates accepted an invitation to attend service in Bethel Chapel (Methodist Episcopal), of which the Rev. C. Asbury, D.D. (coloured), is the pastor. When they entered only four or five persons were present, but more negroes came in steadily and quietly until the sermon was well started on its way, and then there would be an attendance of some hundreds. Everyone was faultlessly attired, and most of the girls looked quite charming, some of them being in pure white dresses, with white shoes and brilliant millinery. The first part of the service consisted of the singing of hymns, prayers, and the reading of portions of Scripture, including the Ten Commandments. After the reading of each Commandment the congregation chimed earnestly in with "The Lord have mercy upon us, and turn our hearts to keep his law." At first the singing, which was led by an organ played by a lady, and wrought by a young man in full view of the congregation, was a little wanting in spirit, but Dr Asbury said, "We want everybody to sing. If you can't sing open your mouth and do the best you can." Then the congregation certainly did as they were bid, as the singing afterwards was really hearty and good. The preacher was the very

Embodiment of Candour,

and it is doubtful whether any of our Scottish preachers would be equally candid. Having given out the text—Colossians iii., 4—he said he had returned from Chicago the previous day, and felt fatigued from the travelling and the extreme heat, and had not had time to prepare anything, but they must put in the time and do the best they could. Anyhow, he felt that a man could not preach if the Lord did not help him. After warming up he preached an able and impressive discourse, with frequent passages of rare eloquence, on the Divine creation of man as opposed to the theory of evolution. His illustrations, although homely, were telling, and were fully appreciated by the audience, who frequently burst out when wrought up to a high pitch of excitement, with enthusiastic "Hear, hears," "Glory to God," "Praise the Lord" (which by the way were also uttered by the members during the prayers), "Yes," "My very experience," "Hallelujah," &c. One gentleman was particularly demonstrative, while others smiled happily, showing their beautiful teeth and testifying their concurrence by nodding their heads. In appealing to his hearers to prepare to meet God, he said—"Christians by name have no place in the army of God. Your name may be George Washington, but you are not George Washington, the father of your country. Your name may be Wellington, but you may be only a dwarf and not a great soldier. Stand upon principle, stand for right, stand for truth, stand for God." The taking of the collection was a great feature of the proceedings. The preacher stated that they would sing a verse and then the collection would be made, and if they came forward quickly they would all be out in five minutes, and that would be nice. He himself was going to put something in the plate, and the Lord would tell them what they should give. The plate, with a white napkin, was then placed in front of the preaching platform, and three stewards took their station beside it. One of these—a venerable-looking man—explained that it took about 25 dols. (£5) a week to "run" the church, and that a certain sum was required that forenoon, as they expected so much at the evening service which was to be held at eight o'clock. At first the worshippers were a little slack in going to the front and placing their offerings in the plate, whereupon the preacher said they would sing another verse and see what effect this would have. A good rousing stanza was accordingly gone through, after which large numbers, including the delegates, trooped forward and

Made Their Offerings,

whereupon one of the stewards who were counting the money as it was laid down remarked with delight—"You are doing well; just continue." Eventually another lull occurred, when a steward intimated that they were 14s short of the sum required, and that if some were to add another nickel (2½d) they would make it up, and that they would go round with the bag. Round the bag did go, the required sum was obtained, and the congregation dispersed after singing "Praise God from whom all blessings flow" and the benediction. The service was particularly refreshing, and was greatly enjoyed by the delegates after their railway experiences of the previous days. Japanese fans were found lying on all the seats, and the delegates, as well as the worshippers, kept using these during the whole of the service, the weather being intensely warm. At times also in the course of worship the preacher had recourse to his own fan. At the close Dr Asbury and several of the negroes shook hands with the delegates, thanked them warmly for their attendance, and invited them back.

A Negro Sunday School.

Mr Sinclair, of Cambuslang, reports:—On Sunday afternoon Mr Bennett and I went to visit a negro Sunday School. When we arrived we found the school well filled, mostly with adults, and after the usual preliminaries of praise and prayer, the juveniles were marched out to another hall, and then the various classes of adults began. Mr Bennett and I having taken our seats in a class that was being conducted by an old negro just as he was in the middle of his exposition on Paul at Athens, for that was the subject, the pastor, a coloured

NEGRO PREACHER.

gentleman, came over to Mr Bennett and I and

took us into the juvenile room, where there would be about 100 coloured children mostly dressed in white. He then introduced us to the teacher, who was an elderly woman, remarking that she had taught this class for over thirty years, having taught some of their parents when they were young. The children also sang some beautiful hymns, and after saying a few words to them we came back into the main hall, when we heard one of the teachers read a very excellent report regarding a conference he had attended with the pastor during the week. The pastor then introduced Mr Bennett and I as two of the Artisan Expedition from the old country. Our impression of this school was such as to lead us to believe that the instruction given there from week to week and the truths expounded would have a most beneficial effect on those taught, and confer a lasting good on the community.

The Law and Order Society.

When in Pittsburg on Sunday, July 16, the delegates, writes the Conductor, were greatly pleased to observe, in contradistinction to the practice of Chicago, that although the street cars were running as usual, the shops were closed, and that business was entirely suspended. Business proved, however, to be too much suspended for them, Scotsmen and profesing Christians as they all were. They were astir early in the morning, and were taking a walk before attending church. The weather was hot, so hot that the starch was out of their collars with the perspiration, which was streaming from them in less than half-an-hour. When a man is in this way he wants a drink badly, and the delegates were only mortal. Seeing an open chemist's shop, or drug store as it is called in America, they entered it, and asked for soda water. "Can't, sir," was the reply. "Why?" said one of the delegates. "Because the Law and Order people would lodge information against us, and we should be fined $25" (£5). "Then I should like to shoot some of these Law and Order people if I could get them, or that they should be as thirsty as I am this morning, and have nothing to drink," remarked the delegate. The delegates, however, were readily given some water, of which they were glad, although Pittsburg water is not of the finest quality. This is possibly the reason why there is not, so far as the delegates saw, a single street fountain in the city, the public authoritics in all likelihood deeming it better that the public and visitors should suffer from thirst rather than from the effects of bad water. In answer to inquiries it was afterwards ascertained that Sunday trading of all kinds, including even the opening of hotel bars, and excepting only restaurants for the sale of food alone, was sternly prohibited throughout the State of Pennsylvania by an old Quaker or Blue Law 100 years old. In Pittsburg there is what is known as the Law and Order Society, composed of people who contend that they are descendants and representatives of

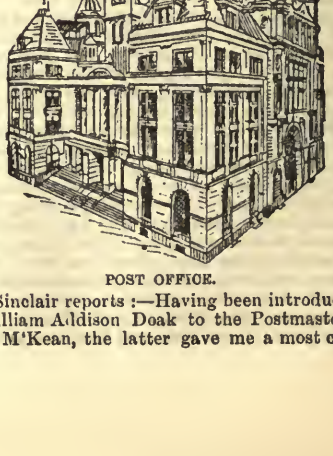
The Scottish Covenanters,

and who specially look after the enforcement of this law, and by means of its detectives and spies it has, much against what appears to be the general feeling of the community, secured numerous convictions for trifling breaches of the ancient enactment. The Society, of course, has a direct interest in securing convictions, as the half of the penalty goes to the informants and the other half to public charities; otherwise matters might be different. Shortly before the visit of the delegates several of the head officials of the Society, including, it is said, Alderman Rohe, who tried the parties accused under the law, were convicted by juries of conspiracy, blackmailing, and appropriation of the portion of the fines which should have gone to the charities, and a scoundrelly spy was convicted of perjury. Some of these land pirates are now where they should always be—fast in the common jail—but those better off and with more influence have taken temporary refuge by lodging appeals against the judgment passed upon them, and their cases will probably be re-heard. The proprietors of the *Dispatch* and the *Press*, which have Sunday issues, have been repeatedly convicted of selling papers on that day, and the vendor of an apparently innocent beverage known as "milk-shake," a mixture of milk, soda-water, syrup, and ice, has also frequently paid the penalty for Sunday dealing. The State Legislature by a majority refused last session to repeal the obnoxious Blue Law, and although the same body passed a resolution reducing the fine in Alleghany County to $4 (16s)—the same as in all the other parts of the State—the Governor vetoed it, and matters remain as they were. The delegates were quietly informed that they could get something warm at the "speak-easies"—the local name given to shebeens—but nearly all of them being teetotalers they did not desire to make any acquaintance with these questionable institutions.

The Liquor Laws.

The liquor laws of Pennsylvania differ considerably from those of Illinois. In the old Quaker State applications for licenses must be lodged annually at the Courthouse, and are considered at a Court, presided over by two of the ten County Court Judges, who are elected directly by the people for a ten years' term, and from whose decision there is no appeal. These Judges examine into the character of the applicants, and grant licenses solely in view of the requirements of the district, the utmost possible attention being paid to remonstrances from the localities interested. In Pittsburg and Alleghany, with a population of about 400,000, there are fully 700 licenses, and the $1000 (£200) paid annually for each license is given to the county and city authorities to be applied to public purposes. The *bona fide* traveller is unknown, as hotelkeepers even are prohibited from selling any liquor on Sunday. The "speak-easies" or shebeens, however, are reported to do a good trade in some districts.

Pittsburg Post Office.



POST OFFICE.

Mr Sinclair reports:—Having been introduced by Mr William Addison Doak to the Postmaster, Mr James M'Kean, the latter gave me a most cordial

welcome, and said he would be very glad to give me all the information he could. He asked Mr Albert J. Edward, assistant postmaster, to go over the building with me, which that gentleman very kindly consented to do. This is one of Pittsburg's best buildings. The front of the structure is 160 feet on Smithfield Street running back toward Cherry Alley 178 feet. The height of the building proper is 104 feet, and the top of the tower is 213 feet above the pavement. The annexe or mailing room is 42 by 49 feet. The building cost £300,000. From the great Rotunda on the second floor visitors can look down into the Post Office and see the operations of receiving and distributing mail matter. The Pittsburg Post Office ranks as the fifth largest in the United States. The United States weather bureau office is on the fourth floor and is reached by the elevators at the north-west corner. The number of employés in the Pittsburg Post Office is 171, with 133 carriers, making a total of 304 persons. The gross receipts for the past year—Box rents, stamps, envelopes, &c., was £139,168 an increase of £14,605 over the previous year. The business transacted in the money order division was £486,326. The following shows the business transacted in the city delivery division :—

Number.	1890.
Letters delivered, ...	16,678,616
Post-Cards delivered,..	2,747,329
Pieces 2d, 3d, and 4th class matter,	5,313,813
Local letters collected, ...	3,513,749
Mail letters collected, ...	8,784,362
Local post-cards collected, ...	1,071,910
Mail post-cards collected, ...	1,582,128
Pieces 2d, 3d, and 4th class matter,	1,347,624
Total pieces handled, ..	41,039,531
Total Postage collected on all matter collected by carriers and deposited in office, ...	£31,692

The wages of the various pressmen, carriers, and others range from £80 to not exceeding £180 a year.

Buildings of Pittsburg.

CARNEGIE LIBRARY AND MUSIC HALL.

Mr Sinclair, Cambuslang, reports :—In Pittsburg proper, 25,170 houses have been erected in the past ten years. 15,489 have been erected since 1887, at a cost of more than forty million dollars. When you are reminded that the vicinity of Pittsburg is keeping pace with the city proper, you can form a correct idea of the greatness of her growth. The character and dimensions of the public buildings, business blocks, church edifices, and schools erected since 1886, demonstrate architectural talent and mechanical skill of the highest order. The new Government building cost £300,000, and the Courthouse £500,000. Half a score of office buildings, an equal number of churches, and as many magnificent business blocks, attest the progress made within a few years. The finest examples of American Renaissance and

ALLEGHENY COUNTY COURT HOUSE.

American Romanesque are found here. The residence districts in Pittsburg to-day are a constant source of surprise and pleasure to all capable of appreciating the fine examples of modern architecture in exterior and interior finish. Pittsburg's suburbs are universally conceded to be the most picturesque and the residences as beautiful as any in the United States. Alleghany County abounds in picturesque views, and no more charming sites for suburban residences are to be found than between Maine and the Gulf. Alleghany County is the only county in the Union that has three cities within her boundaries. The Alleghany River divides Pittsburg and Alleghany. M'Keesport is only a few miles distant from Pittsburg, around which 38 thriving boroughs cluster. Alleghany, M'Keesport, and the boroughs are integral parts of Pittsburg, practically they are one community. All the others depend upon Pittsburg commercially and financially. The population of these three cities (385,123) added to the population of the 38 boroughs and 41 townships aggregates upwards of 600,000. Pittsburg is entitled to the fifth place on the list of the great cities of America. The county valuation for 1892 shows a total of £84,132,787. The property exempt from taxation in the three cities in Alleghany County exceeds £8,000,000.

BELLEFIED PRESBYTERIAN CHURCH.

Stonecutters' Wages.

Having called on Mr Walker, the secretary of the Stonecutters' Association there, I learned that the stonecutters of Pittsburg were paid 1s 11d per hour, with 9 hours per day and 8 hours on Saturday, with fortnightly pays. In conversation

with Mr Walker I learned from him that, taking into account the months stonecutters are idle during winter and early spring, they were no better off in Pittsburg than they were in the old country. His house rent cost him £3 a month, and during the past year—from April, 1891, to April, 1892—he had kept a correct record of his earnings for that year, and his total income was £162 8s. Bricklayers' wages were 16s per day, with 9 hours per day and 8 on Saturday. In reference to some of the large cities of America, stonecutters' wages were 16s per day, with 8 hours per day. That is the wage in Salt Lake City, Chicago, Denver, New York, St Louis, Cleveland, Minneapolis, and many other places. All throughout America work is begun at 7 o'clock a.m., with only one stoppage for dinner at midday—one hour. Here, as in the other towns I visited, all stone is cut in the yard, and not at the building, and the foundations of buildings are separate contracts from the mason work. Stonecutting in Pittsburg was fairly good, and all hands seemed to be employed, though in Chicago many men were idle, and future prospects looked bad.

Pittsburg Locomotive and Car Works.

A POWERFUL CONTRAST.

Mr Watson, Dundee, reports:—The Pittsburg Locomotive Works were organised in August, 1865. The buildings, when constructed, were ample and substantial, and the equipment the best to be obtained. Additions to equipment and buildings were made from time to time until 1889, when the demands upon the company had reached such proportions that extensive additions became imperative, and it was decided to gradually remove all of the then present buildings and replace them with fireproof structures of the most approved design, and having a capacity for turning out one complete locomotive each working day in the year. The works are situated in Alleghany City, and occupy nearly twelve acres of ground. The new buildings, so far as erected, are the most complete in construction and equipment of any intended for a similar purpose to be found in the country. The use of the most improved hydraulic appliances for riveting, flanging, and handling of materials makes the boiler department a model of its kind, and insures a high grade of workmanship. The foundry is supplied with modern moulding and other machinery necessary for furnishing first-class castings. A new blacksmith shop, supplied with heavy steam hammers and all modern appliances for making first-class forgings and smith work is approaching completion. I visited the above works on July 17th, and got

A Very Hearty Reception.

This work employs 950 men, and their average output is four engines a week. They work ten hours a day, or sixty hours a week, commencing at 6.55 a.m., dinner from 12 to 12.45, stop at 6 p.m., but on Saturday stop at 4 p.m. There is some very fine machinery working, of which some was made in England. Nearly all the machinists are paid by piece, and they work very hard. If working time the scale for overtime is, from 6 p.m. to 12 midnight time and quarter, from 12 midnight to 6 a.m. time and half. Sunday time is paid at the rate of time and half. The men are paid once a fortnight. The following is a list of their pay per hour :—

	Highest.	Lowest	Average.
Machinists, ...	1s 2d	10d	1s 0½d
Turners, ...	1s 3d	10d	1s 1½d
Boilermakers, ...	1s 2½d	10d	1s
Blacksmiths, ...	1s 1d	9½d	11d
Do., Helpers, ..	8d	7d	7½d
Carpenters, ...	1s	10d	11½d
Painters, ...	1s	9d	10½d
Moulders, ...	1s 2d	8¾d	1s
Carmakers, ...	1s	7d	10d
Patternmakers, ..	1s 3d	1s	1s 2¾d
Brass-Moulders, ..	1s 4½	1s	1s 2½d
Skilled Labourers, ..	1s	7d	8¾d
General Labourers, ..	8d	7½d	7½d

The conditions of apprenticeship are, serve four years, and must be seventeen years of age. Apprentices are paid as follows :—First year, 2s per day; second year, 2s 10d per day; third year, 3s 7½d per day; fourth year, 4s 10d per day; premium at close of term, £25; all lost time to be made up before entering on another year.

The Westinghouse Air Brake Company, Wilmerding.

Mr Watson also writes :—I paid a visit to the above shops on July 18, and was highly pleased to find such a well-conducted shop, clean, and situated in a lovely glen, and surrounded by trees. Wilmerding is fourteen miles from Pittsburg, the shops having been shifted out there for the purpose of getting more room. This is just on the suburbs, and four tracks of railway run close past, giving a good service of trains. Many of the workmen live in the city, and travel by train every day. There are workmen's tickets sold, which only cost about one half of the ordinary fare. The shops of the Westinghouse Company are very large two-storey buildings, with rails running round them all for receiving and despatching traffic. They are filled with the finest machinery one could desire to look upon. I had a talk with one of the managers regarding the hours of labour and wages. He did not at first seem to care about telling me, but after explaining my object he said that the average wages earned were as follows :—Machinists, 14s per day; moulders, 10s per day; patternmakers, 10s per day. When all their machines are running, about 2000 men were employed, but at present there were only about 1200 employed.

Lamp-Globe Making.

Mr Logan, Glasgow, reports :—Messrs George A. Macbeth & Co., lamp-globe manufacturers, Pittsburg, have the largest work of its kind in America, employing over 1000 men, and paying about £2000 per week in wages. It is all piecework in the glass trade in America, and the wages earned average £3 12s per week of 6 hours per day. The Union connected with this trade is very strong, having 7500 members. It is so well organised in America and Canada that they compel the manufacturers to close their works for two months every summer, when great numbers leave Pittsburg with their wives and families to camp by the river's side a considerable distance up the country. Mr Macbeth also mentioned that there is always a big demand for good men in Pittsburg, and in fact all over America. As it was one of the warm months, and the works all closed, I had no chance of seeing them in operation.

DELEGATES AT PITTSBURG.

HOW SCOTSMEN RISE IN AMERICA.

A YANKEE'S OPINION.

SCOTSMEN WHO HAVE CLIMBED THE LADDER.

SCOTTISH SOCIETIES IN PITTSBURG.

TRAM CAR FACILITIES.

STREET RAILWAY SYSTEM.

FREEMASONRY IN AMERICA.

STANDARD COAL MINES.

SYSTEM OF WORKING.

WAGES OF MINERS.

LABOUR LEADER INTERVIEWED.

IRON AND STEEL PRODUCTS.

(From the Dundee Weekly News of November 11.)

The Conductor reports:—In Pittsburg, as in several other American cities and districts, a considerable proportion of the population hails from the "land of cakes," and they usually get on as well here as elsewhere. A striking illustration of the American opinion of the national character of Scotchmen, and their natural tendency to rise in the world was afforded by Mr Arthur Kirk, who deals in explosives, and hails from Lesmahagow, Lanarkshire. Mr Kirk was met by the delegates when calling at the office of Mr A. Leggate, of Messrs A. Leggate & Son, real estate agents, Fourth Avenue, another Scotchman belonging originally to Glasgow. Mr Kirk is known by many to interest himself particularly in getting work for Scottish artisans who go out to America, and all such who are in search of employment are usually sent to him. He mentioned to the delegates that on one occasion he went to the manager of an ironwork in Pittsburg soliciting an engagement for a Scot who had just arrived in the city. The manager said—"A Scotchman is he?" Mr Kirk replied "Yes." "Then," said the manager, "I won't have him, because if I take him in even to hurl a wheelbarrow he would own the whole works in ten years, and would probably then kick me out."

Some Scotchmen who Have Climbed the Ladder.

During their stay in Pittsburg the delegates were visited by great numbers of their countrymen anxious to see some new faces from the land of brown heath and shaggy wood, and ready to give them a hearty welcome to America. All these appeared vigorous looking and happy, and without a single exception they stated that they were more comfortable and better off in the land of their adoption than they would have been had they remained in the old country. Mr Andrew Carnegie is well known, by name at least, throughout Scotland as one who has attained to a high degree of affluence in America, but he is not the only Scotchman who has made his millions in that country, or even in Pittsburg, as there are some in that city reported to possess considerably more of this world's means than the great iron and steel producer of the States. Prominent amongst the wealthy men of Pittsburg is Mr Charles

MR ANDREW CARNEGIE.

Lockhart, a native of Kelso. Mr Lockhart, who has been in America about forty years, "struck ile," as the Yankees say, at a good time, and his connection with the Standard Oil Company has been the means, it is stated, of giving him a fortune of forty or fifty million dollars (£8,000,000 to £10,000,000 sterling). He is reported to be the wealthiest man in Western Pennsylvania, although he commenced life as a boy in an oil store with only $3 (12s) a-week. Mr Lockhart lately bought an estate near Castle-Douglas, which he is to visit this year. Colonel James Andrews, who left Dumfriesshire also about forty years ago, built the piers of the St Louis Bridge and the jetties at New Orleans, which were considered great feats in their time, and is now living a comfortable retired life. Mr John G. A. Leishman and Mr Geo. Lauder, who are respectively the vice-chairman and a member of the Board of

MR ROBERT PITCAIRN.

Management of the Carnegie Steel Works, have also shared to a large extent in the prosperity of these great undertakings, and Mr Wm. J. Lindsay and Mr W. C. M'Cutcheon have also succeeded well with the Iron Pipe Mills. Mr Robert Pitcairn, who was born in Johnstone, Renfrewshire, has risen

From Being a Brakesman

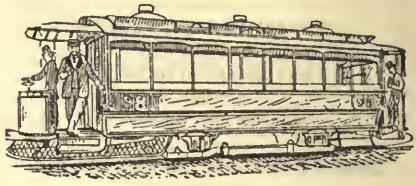
to the proud post of superintendent of the Pennsylvania Railroad, one of the largest and best conducted lines in the States. A large part of his means was derived from his association with the Westinghouse Air Brake, he having been one of the few holders of the original patent. So great is his affection for the old country that he visits it every summer, and he also caused the name of the station near his own residence to be changed to Ben Venue. Mr David M'Cargo, who belonged originally to Paisley, has also ascended far up the ladder, climbing by his own efforts from a humble position until he has become president of the Alleghany Valley Railroad, and is now one of the highest railroad men in the States. Mr David Hutcheson was once a poor Scotch boy, but he has made a "pile," principally by dealing in real estate. Mr John Young and his brother, Mr Robert Young, are both prominent Scotchmen, the former being superintendent of the Alleghany Heating Company, and the latter superintendent of the Alleghany Gasworks. Mr Alexander Dempster, from a position of obscurity, attained to the post of city engineer, which office he held for twelve years, and it is stated that he was one of the best engineers which the city ever had. The Brothers Clark, of Alleghany, have executed some of the best building work in the district, and Mr James Johnstone was the builder of the German National Bank, one of the finest examples of Pittsburg architecture. Mr William Campbell and Mr Peter Dick who own one of the largest and best-equipped dry goods and house-furnishing stores in Pittsburg came originally from Sauchie and Paisley respectively. The Postmaster of Pittsburg is Mr James S. M'Kean, who left New Abbey, Dumfriesshire, for America in 1850, but being a Republican, as almost every Scotchman in the district is, he is liable to be removed by the present Democratic Government.

Scottish Societies in Pittsburg.

Scotchmen, it is stated, are more Scotch when abroad than at home, and this is particularly true of those in Pittsburg who have national bonds of several kinds. In Pittsburg there is a Waverly Society with a membership of about 150 representative Scotchmen, and the object of whose existence is set forth as follows:—"For the purpose of cultivting 'fraternal feelings among Scotchmen; of promoting a deeper interest in our native land; of perpetuating what is worthy of imitation and emulation in the history and achievements of her noblest sons and daughters, and of becoming still closer knit in friendship's ties each passing year, by cherishing the pleasant memories of 'Auld Langsyne;' we organise ourselves into a Society under the title of The Waverly." On the occasion of the anniversary of the birthday of Burns the Society holds a great haggis feast, which is usually attended by from 250 to 300 gentlemen, and on the week following the visit of the delegates there was to be a midsummer basket picnic. Mr Peter Dick, of Messrs Campbell & Dick, is at present the president of the Society. The Caledonian Club of Alleghany also serves to keep alive recollections of the dear old land by holding annual Highland games. It is said to have a membership of about 100.

The Tram Car Facilities.

Mr E. Bennett, Newcastle, reports:—Few cities present more or better opportunities for the study of the problem of rapid transit than are offered in the cities of Pittsburg and Alleghany. The street railway system of these cities is essentially modern, animal traction having been almost entirely supplanted by mechanical power. There are three excellent cable roads, which embody many of the best elements in that means of traction. There are also nine electric roads, all, I believe, of very recent construction. Although as recently as four years ago the car horse and mule jointly held the situation, they have practically disappeared within that brief time. In the matter of construction, equipment, and operation, the different roads offer a considerable variety of, and opportunity for, instructive study. There is much to interest prac-

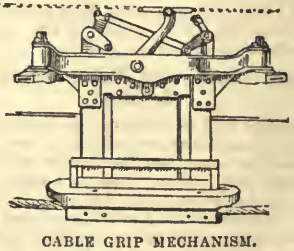


CABLE CAR.

tical street railway men in the methods by which the various conditions of curves, grades, crowded streets, and the demand for high speed have to be successfully met. There are twelve distinct companies in the two cities, and each company represents a separate and independent interest. The natural result of this condition of affairs is an active competition, the effects of which are manifest in the excellent service rendered. The total cost of the combined companies in stock and bonds amounts to $26,035,000. That is equal to £5,207,000 in English money. The miles of rails of the combined companies are almost 160 miles. These two cities combined have a population of nearly 350,000, and, although they are very closely connected, are governed each by its own city council or government. I had a magnificent view of these two cities from the top of one of the hills that surround them. This is reached by means of

An Incline Railway,

which rises to a height of 375 feet. The incline upon which I went up is one of seven varying in grades from 23 to 71½ per cent. I had the pleasure



CABLE GRIP MECHANISM.

of travelling upon the steepest one, which goes by the name of the Monongahela Incline. This was designed and built in the year 1870 of wood, but was rebuilt in the year 1882, the present structure being of iron. The plane is 640 feet long, and is built on a grade of 71½ per cent., with a total rise of 375 feet. The gauge is 5 feet, and the

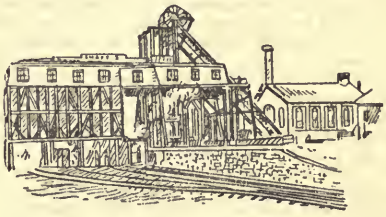
track is laid with 45-lb. steel T rails. The hoisting plant consists of two 12 + 20 inch connecting link motion engines. One car ascends while the other descends after the fashion of our coal pit cages, but each has a separate hoisting rope and drum. These drums are 8 feet 10 inches in diameter, made of cast iron, with wooden lagging on the hoisting surface. This surface is plain, having no grooves. The hoisting rope is 1¼ inches in diameter made of crucible steel; the speed is about 600 feet per minute. The rope is said to last from five to seven years. There is also a safety rope of the same size. This rope passes round a single large sheave at the top from one car to the other. A good story was told me on our upward journey by a gentleman who was in the car. He said that an old lady had been travelling up one day who was very much afraid. On nearing the top she asked the conductor—"If your rope should break now, sir, where would we go?" The conductor coolly answered—"That would all depend upon how you have spent your past life, mum."

Standard Mines, Mount Pleasant.

Mr Muir, Hill of Beath, Fifeshire, gives the following account of a visit to the H. C. Frick Coke

MR H. C. FRICK.

Co.'s Shaft No. 2 Standard Mines, Mount Pleasant, Pa. :—The shaft was sunk to the Connellsville coking coal at a depth of 306 feet. It is located in the basin between the eastern and western outcrops, and has an area of 4500 acres of coal to mine, varying in thickness from 7 to 8 feet, and almost level. The shaft is 10 feet by 24 feet inside of the timbers, and the space is divided into two cageways and a pump and airway. The entire bottom on both sides is arched with brick, and all the trucks, both for loads and empties, are graded in favour of the movement of the hutches. The winding machinery consists of a pair of 30 in. cylinders, having a 4-feet stroke, and the link motion is operated by hand and steam reverse—that is, it can be worked by hand alone, or steam as desired. The drums are conical, and placed apart on the shaft, 10 feet smallest diameter and 12½ feet in their largest diameter, and fitted with a brake flange to each drum. The boilers are six in number, and are 48 inches diameter and 30 feet long, and the feed water is heated by a heater placed over the flues to take up the waste heat in its passage from the boilers to the chimney, which is 6 feet diameter and 65 feet high, and built of ½-inch boiler plate lined with fire-bricks to a height of 35 feet above foundation. The head frame is of the triangular type, is 69 feet high, and is built of wood, having a stairway on one of the backstays, which runs right up to the wheels. The hutches, or cars as they are called, have a capacity of 2½ tons, and it was found necessary, in order to handle them with rapidity, to adopt machinery for that purpose. The cars run on a down grade from the cage to the tipple, also run from the tipple to a transfer truck behind the shaft on a grade. At this point the car is 12 inches below the level of the cage, which is overcome by the transfer truck being moved up an incline to a point opposite the cage, and on the same level. This is accomplished by a steam cylinder and piston, having a stroke equal to the travel of the truck, 10 feet 9 inches. For the other cage there is the same arrangement, except that the cylinder moves both trucks, the one truck being opposite one cage while the other

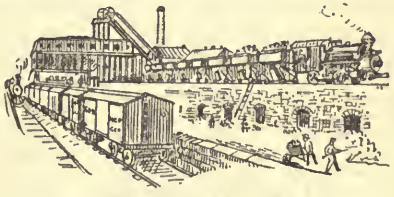


THE STANDARD SHAFT.

is receiving the car from the tipple. A steam ram is situated behind each empty car when it is ready to be pushed on the cage, and the act of pushing on the empty car pushes the full one off, which runs on the down grade to the tipple before mentioned. The coal is dumped from the pit cars into a coalbin of 450 tons capacity, and taken from there in lorries to the coke ovens. All the enginehouses and buildings above ground, as well as the pit bottom are lighted with gas.

The System of working

is called double-entry pillar and room, and is just another modification of stoop and room. The mine is ventilated by a Guibal fan, 25 feet in diameter, and is drained by three Yough mine pumps situated at the bottom of the downcast shaft, and forcing direct to the surface, a distance



COKE OVENS AND CARS.

of 51 fathoms. The average output is about 2000 tons per day, but as much as 3000 tons has been put up in nine hours. The whole haulage is done by main and tail rope and mules, which take the empty hutch right up to the face and brings out the loaded one on to the haulage. The average

Wages of Miners

at this colliery is about 8s per day, shift wages 8s per day, and are regulated by sliding scale taken from the price of coke supplied to the furnaces. Hoisting enginemen earn £15 to £16 per month, trappers 3s per day, labourers 5s 6d per day, and at 56 hours per week. Rents are about 22s per month, which includes fire coal. Medical aid 2s per month, or 4s per visit, if not kept off at the office. The entire work was designed and

built under the supervision of superintendent Robt. Ramsay, a native of Crossgates, Fifeshire, and of whom I have written before in connection with his exhibit at the World's Fair, and to whose ability the wonderful success of these improvements is entirely due. The plant is now the best in the entire coke regions, and is copied with more or less success by other colliery proprietors in this and other States.

Labour Leader Interviewed.

The Conductor reports :—As formerly mentioned, mostly all the iron and steel works in Pittsburg were shut down during the visit of the delegates in consequence of the annual negotiations between the masters and the men for the fixing of the wages scale being then in progress. The employers were holding out for a general reduction of 10 per cent. in the wages of the operatives on the grounds that trade was in a state of great depression through over-production and that they could not compete with the non-Union works of the Carnegie Steel Company, where the men had been working since the riots of last year for much less rates than had been paid to the Association men up to the end of June. The proposed reduction was resisted by the Amalgamated Association of Iron and Steel Workers, who contended that it was unwarranted, and although several conferences had been held between representatives of both parties no solution of the difficulty had been arrived at when the delegates left Pittsburg. With a view to ascertain the position from

The Men's Standpoint

a call was made by a delegate at the office of the Association. Mr Garland, the president, was unfortunately absent, but Mr J. C. Kilgallan, the secretary, kindly volunteered some information. He said that he believed that the rates in the old scale were a little higher than those in operation at the Carnegie Works, but he pleaded that iron was no longer made in these, except for structural purposes, and as regards this the Association, feeling that it was necessary to do something to help their employers against the Carnegie Company, had agreed to a reduction. Mr Kilgallan represented that the resistance of the men against any further reduction was well founded, as there was no warrant for the stand being taken by the masters. The scale, with the modifications agreed to by the men, had, he said, been already signed by 23 employers, and he should not be surprised to see a large number of the mills running next week. The membership of the Association at present was fully 17,000. Some of the Carnegie Company's men were on the roll, but they would not insist on the enforcement of the rules in their works until a favourable opportunity presented itself. No allowance was, he explained, made to the members of the Association during July and August, unless in cases of absolute necessity.

Iron and Steel Produce.

The Commissioner of Labour's report for 1890, says Mr Dunlop, of Motherwell, shows that the United States produced over 30 per cent. of the whole output of iron throughout the world in 1889, and 32 per cent. of the output of steel. Its production was only surpassed by that of Great Britain, but whereas the amount produced in Great Britain decreased during the eleven years preceding 1889 that of the United States almost doubled. Comparing the United States, Britain, and Germany, he found that between 1878 and 1889, when the amount of pig-iron produced throughout the world increased from 14,117,902 tons to 24,869,534 tons, the percentage produced by Britain fell from 45 per cent. to 33, while the United States rose from 16 per cent. to 30, and that of Germany from 15 per cent. to 17. Again, the steel produced in the world for the same period increased from 3,021,093 tons to 10,513,977 tons. Britain's percentage fell from 36 to 34, that of Germany from 18 to 17. The United States rose from 24 to 32. At that time Mr Carrol D. Wright, chief commissioner of labour, stated that Britain stood first in the production of coal, iron ore, pig-iron, and steel, and the United States second, but the progress in recent years had been greater in America in proportion than that of Britain. In 1890 the two countries were equal as regards the production of steel, but since then the United States has taken the lead, both in the production of pig-iron and steel. In America last year the total make of pig-iron was the enormous amount of 9,151,000 tons, 46 per cent. of that being made in Pensylvania. Last year's make of steel was:—

Great Britain.		America.	
Bessemer, ..	1,500,810	Bessemer, ..	4,168,435
Openhearth, ..	1,418,830	Openhearth, ..	669,889
Total, ..	2,919,640	Total, ..	4,838,324

Freemasonry in America.

Mr Watson, Dundee, reports :—I made several inquiries into Masonry in America, and have met with many who belong to that society of men. I visited the Grand Temple in Chicago, also one in Pittsburg, and I find the craft far more respected and adhered to than in Scotland, and one thing I noticed it seemed to have a far higher effect amongst working men, as a great many of them reach a higher degree in America than in Scotland. It is, however, more costly to join and keep up than in the old country. I found it a great benefit to me in finding my way about in strange towns. Through its influence I got many guides, who put themselves to more trouble to see me safe than many of our brethren would care to do in this country. For instance, I met one on board of ship returning to Scotland after being many years in America whose health broke down. He tried all the cures and doctors until he had spent nearly all he had, and was not getting any better. The Lodge to which he belonged sent him home for a change, and paid his passage return fair. Chicago Temple is 20 storeys high. On the seventeenth storey there are six Masonic lodges. People going up or down are conveyed with a hoist, which is far easier and quicker than going upstairs, and no noise is made in the mode of travelling.

The Shoeblacks' Union---A Novel Proposal.

Those who have travelled in America know to their cost that, as a rule, the cleaning of shoes is not included in contracts with hotelkeepers, and residenters are also aware to their annoyance that domestic servants draw the line at this sort of work. This necessary service has therefore to be secured outside or in a special apartment on the ground floor of the hotel, for which 10 cents (5d) is charged. One day in Pittsburg two of the *News* delegates were accosted by a shoeblack, who interrogated one of them with the usual "Shine, sir?" and the following dialogue ensued :—Delegate —"What's the charge?" Shoeblack—Ten cents, sir." Delegate—"That's too much. Won't you do it for less?" Shoeblack—"Can't, sir; I am a member of the Union, and that's the Union rate." Delegate—"Then won't you give both of us a shine for ten cents?" Shoeblack—"Yes, sir, I'll shine *one* for each of you." No bargain was struck, and the shoes went unpolished for the day.

VISIT TO M'KEE'SPORT.

THE NATIONAL TUBE WORKS.

WORKING MEN'S HOUSES.

THROUGH A TOBACCO FACTORY.

A MODEL ESTABLISHMENT.

DELEGATES AT PITTSBURG.

WAGES OF RAILWAY MEN.

THE PITTSBURG NEWSPAPERS.

DOLLAR SAVINGS BANK.

COAL MINE REGULATIONS.

VENTILATION OF PITS, &c.

(From the Dundee Weekly News of November 18.)

Mr Mungo Smith, Dundee, reports:—Meeting two Dundee gentlemen who have resided for a number of years in M'Keesport, and are both employed at the National Tube Works, they told me it was the largest establishment in the world of the kind. It comprises among its plants the National Tube Works, National Rolling Mills, National Forge and Iron Works, Republic Iron Works, Monongahela Furnaces, Boston Iron and Steel Works, National Transportation Company, and Locomotive Injector Works. These various and severally extensive enterprises were owned practically by the same persons, and it was deemed best, both from motives of economy to the stockholders and for the benefit of customers, who could thus be more promptly supplied, to combine all of these great plants under one name and one management. All of the plants of the Company give employment to about 10,000 men, and the pay roll of this gigantic enterprise runs closely up to £30,000 a month, the men receiving their pay every two weeks. The mills at M'Keesport were built—No. 1 in 1879, No. 2 in 1882, No. 3 in 1886, and No. 4 in 1887. The National Forge and Iron Works at M'Keesport were built in 1881, and have an annual product of 12,000 net tons of blooms and billets. The annual product of finished goods turned out by the mills of the National Tube Works will amount to from 250,000 to 300,000 tons annually. The Company uses natural gas for fuel, piped through it own lines. The enginemen, firemen, and private policemen do twelve hours per day, and other workmen are employed 60 hours per week. They begin at seven o'clock in the morning, and knock off at six o'clock in the evening. On Saturday work ceases at half-past five. There are a good many hands employed on piecework. On asking the wife of one of my friends about the

Cost of Living

as compared with Dundee, she said, "You cannot make the money go so far here. Everything is dearer. Shoes and wearing prints you may have pretty cheap, but a few showers will finish them, and it does come down heavy here." That it did come down heavy I had an opportunity of judging that same day on returning from M'Keesport to Pittsburg. The line skirts the edge of the rising ground, and in a very few minutes after the rain commenced, the water was rushing across the rails in such torrents that one would almost think the train was to be swept into the Monongahela River. The prices of provisions at M'Keesport rule pretty much as at Pittsburg. The equipment of the schools, which are maintained by a tax on incomes, is much to be commended. The houses of the working class are built entirely of wood, and self contained. There are usually on the ground floor parlour and kitchen. The houses have both front and back doors, these being placed opposite each other to permit of a draught of cool air passing through the building. The houses have each a covered verandah in front, raised a little above the ground. Here, in the summer months the occupants sit in their rocking chairs, for life indoors is unbearable. It is rather a novel sight to walk along the streets and see so many people sitting outside smoking and chattering, nearly every man smoking a cigar. The sleeping apartments are all upstairs, and the furniture struck me as being of light but elegant construction.

A Typical Working Man's House

The above is a representation of a model house for a working man which I had the pleasure of visiting. It is owned and occupied by Mr David Heggie, son of our respected townsman, Mr John Heggie, draper, Strathmartine Road, and brother of Mr Alexander Heggie, tailor and clothier, 41 Commercial Street, Dundee, and also well known as an athlete of considerable reputation. This house, which consists of five rooms and kitchen, is built of wood, and, to a person accustomed to the stone buildings of Scotland, the structure looks cold for winter and hot for summer. Such is not the case, however, for wood is neither a conductor of heat nor of cold, and the way these American houses are ventilated in summer and warmed in winter makes them comfortable at all seasons, more so, it is contended, than if the walls were of stone and lime. The exteriors have a bright and attractive appearance, the body of Mr Heggie's house being almost white and the decorative portions painted green. The cost of a house of this description is about £640. The "lot," that is to say, the site, which cost Mr Heggie £250, is 25 feet by 60 feet wide. It is in an improved street, which means that the owner has to pay for half of all improvements, such as sewerage, paving, grading, and laying of sidewalks. Altogether it is a very stylish-looking house, and no one would suppose that it is owned and occupied by a working

mechanic. The interior furnishings were charming. Mr Heggie gave me a very cordial welcome, and afterwards travelled to Pittsburg and showed the members of the deputation round. He told us that taking all things into account he was much better in the States, his only complaint being the want of leisure. Darkness sets in very early, and by the time a man gets home and his supper he has not much opportunity of engaging in any outdoor amusements. Generally, too, people have long distances to go to their work, and as for Saturday my friend could hardly call it a half-holiday, seeing that he works on that day until half-past four in the afternoon. I may add that Mr Heggie has been ten years in America.

Visit To A Tobacco Factory.

Mr Mungo Smith while in Pittsburg visited the extensive tobacco factory of Messrs Weyman Brothers, and he says in his report :—Mr Ritchie, the manager, very kindly showed me all over the work. The women employed in packing the tobacco are very neat and good-looking, and wear a uniform dress. The place is kept scrupulously clean, and for the accommodation of the workers there is a well-appointed lavatory and cloakroom, also a large reading-room, supplied with several hundred books, which they can take home to read if they choose. There is also a dining-hall, and a free dinner provided them. When I was shown into the hall the dinner was set, and it quite astonished me to see the sumptuous spread on the tables. All these comforts of his hands are looked after and provided for by Mr Weyman. The girls had just started that morning after getting a fortnight's holiday all paid for. The working day of the women is six and a half hours, and their pay is $5 per week. The work is pleasant, light, and clean, and much better than a weaver or shop girl at home. The men work eight hours, and are equally comfortable and well paid. They do all the machine work, I was shown all the process of making snuff from first to last. The tobacco leaf is put into a machine, and closely pressed together with knives driven at a great speed cutting the fibre into very small particles. It is then taken to the different stoves, and so particular is Mr Weyman that the article may be pure that there is a machine for blowing any dust out of it, a very unusual process in the trade. The manager said that hundreds of pounds a year could be made out of this dust which they throw away as useless. They call this small stuff Scotch snuff. It has to go through a gradual drying process into wooden bins, being removed from the one to the other about thirty times. When it is dry and fully matured it is spread on a table, and scented with otto of roses, and put through another machine, when it is packed into barrels, and is ready for the market. The scent used is pure, and is very dear. They make cut tobacco only—no twist, or bogie roll as we call it Their tobacco is made up into neat quarter-pound packages, and these are put up in cardboard boxes made on the premises. The wholesale price of the quarter-pound packet is 8 cents., or 4d—not the price of 1 oz. at home. On asking Mr Ritchie how it could be done so cheap, he said with a twinkle in his eye, "Because we are not free trade Scotland. You must take a sample over to the old country, and let them have a taste of what Weyman can produce." The tobacco made here is manufactured from selected leaf, absolutely pure. The firm is of long standing, having been established in 1827.

A Big Dry Goods Business.

Mr Smith also reports :—I saw Mr Dick, of Campbell and Dick's Dry Goods House. Mr Campbell is a native of Perthshire, while Mr Dick hails from Paisley. Mr Dick landed in Boston from Scotland in 1856, a poor boy with only a few shillings in his pocket and was some weeks before he got work, and he wrought his way to the position he now occupies through sheer perseverance. He is a member of the Caledonian Club, and is always willing and ready to give advice or assistance, which many Scotchmen can testify. The house of which he is partner is a very substantial structure built of redstone. The firm employ 165 hands, 60 of whom are females. They do a business turn-over in the year of £192,000. The wages of salesmen run from $15 to $25 per week. Saleswomen are paid from $6 to $12 per week. In the building there is a complete electric plant, consisting of 65 arc and 260 incandescent lamps. The boilers are fired with natural gas, and is considered very good service.

The Newspaper Press of Pittsburg.

The press of Pittsburg is thoroughly American, both in its style and enterprise. The leading morning papers are the *Dispatch* (Independent), *Times* and *Commercial Gazette* (Republican), and the *Post* (Democratic). The *Times*, which is a one cent paper, and has a very large circulation, is located in a handsome, new eight-storey granite building, fitted internally in mahogany and marble. It sent fifty-two public school teachers, elected by the votes of its readers, belonging to Pittsburg, Alleghany, Western Pennsylvania, Ohio, West Virginia, and Maryland, to the World's Fair and kept them during their ten days' stay in Chicago in a train of Pullman carriages. The *Dispatch*, which claims to

"PITTSBURG TIMES" OFFICE.

be one of the six leading newspapers in the United States, has a daily circulation of about 35,000, while its Sunday issue varies from 65,000 to 100,000. It has wires running into its own office from both Chicago and New York. The evening papers are the *Penny Press*, *Leader*, and *Chronicle Telegraph*. Through the agency of the *Press* the Newsboys' Home, an institution for the education and care of newsboys, was established. There are also some German newspapers published in the city. In several of the offices there are quadruple Hoe printing presses similar to the *Weekly News* machine.

The Dollar Savings Bank.

Mr W. Smith, Denny, reporting on this institution, says:—The amount due depositors on June 1st, 1893, was £2,814,540, and the last dividend was £54,184. No sum less than $1 is taken as a deposit, and depositors must bring their book with them or the Corporation will not be responsible for the money. The officers of the Corporation are a president, twelve vice-presidents, secretary, and treasurer. One book only is given out in the same name. Deposits may be made by one person as trustee for the benefit of another. No interest is given until the deposit amounts to 12s. No money can be withdrawn unless two weeks' notice be given, and no less than £1 can be withdrawn, and if the whole amount be withdrawn the book must be given up to the Corporation. Good rules are framed to prevent any fraud or imposition taking place in the drawing out of money, and each depositor must give in writing his or her occupation and residence. The Dollar Savings Bank is very much patronised by the working classes of Pittsburg, and I am told that there is a good few of the working class have laid a good lot of dollars against a rainy day. The books of the bank are audited by four members, and are audited every six months. There are some other savings banks in Pittsburg conducted on somewhat similar lines.

A Popular Building Society.

Mr Smith also reports:—The first National Building and Loan Association of Pittsburg has for its object to enable members to raise the money to build or buy a home or establish a business for themselves. It is managed by a Board of Directors of seven, and the officers consist of President, First Vice-President, Second Vice-President, Treasurer and Trustee, Secretary, and Solicitor. The capital is £200,000 authorised to increase to £2,000,000 shares of £20 each. The admission fee is 4s per share. Payments are made every month, and all persons who handle any of the funds are under heavy bonds of security. The securities are deposited with the Safe Deposit and Trust Company of Pittsburg. There can be no speculating in its securities by its officers. The shares are paid monthly, of 2s 6d each per month. Stock may be withdrawn any time after thirty days' notice. No interest is paid unless in six months' stock. Money drawn out at two years gets 6 per cent. interest; four years, 7 per cent.; after four years, 8 per cent. A member may reduce his shares, and the amount will pay for his remaining shares. Ten shares will pay for five years if one becomes short of funds. Fines of 2 per cent. are levied on all arrears. They pay 18 to 22 per cent. per annum. The borrower, as well as the non-borrower, receives this profit, so that the stock matures in about seven years. The interest is paid monthly, and is at once re-loaned, thus being compounded monthly. £200 borrowed first three months after you join will cost you £263. If you wait seven years you get £200 for £101. If these payments had been deposited in a savings bank the profit would be about £14. The total number of shares at December 31, 1892, was 13,041, with a total capital in force of £160,260. The number of loans made during the year was 84, and the capital stock represented £16,000. The Directors have the general management of the Society and of the duties of the officers, and they appoint auditors to audit the books quarterly and yearly so as to see every quarter that the Association is in a good position. All questions are decided by the majority of votes at the meeting. I am told that this Association is very popular with the working classes of Pittsburg, and that, through its assistance, some fine homes have been built by artizans in and around Pittsburg.

Wages of Railway Servants.

Mr Watson, Dundee, reports:—Pennsylvania Railroad passenger drivers, running 117 miles each way, with four hours' rest before returning, receive £1 10s. Firemen of same lift 15s. A good fireman can lift a bonus from 16s to £1 12s a month for saving coal. Freight enginemen running 104 miles are paid 18s; firemen of same 10s 6d, resting a day at each end without expenses. One conductor and three brakesmen form the crew of a freight train. A full-load train is forty cars of stock and two engines. Each car holds about 30 head of stock. Conductors are paid £15 a month, and brakesmen from £10 to £12. Pointsmen east of Pittsburg are paid £10 a month. Dayshift men get 11s 6d a day, and night men 9s 6d per twelve hours. Day men west of Pittburg are paid 10s night or day. Goods yard masters are paid from £16 to £20 per month. Shunters in yards are paid the same as pointsmen. Operators, both male or female, are paid from £9 to £15 per month. Stationmasters at roadside stations and all prominent places and ticket-collectors are paid £12 a month, with coal and gas. Workmen's trains are run at cheap rates. All the railway companies issue tickets of 1000 miles. Cleaners work by piece work—1s 8d for an engine—the average earnings being £7 a month. The fireman cleans the top of the boilers.

Mine Regulations in the United States.

The following statement by Mr Muir shows some of the difference between the mine regulations of this country and those enforced in America:—All plans to have levels marked on at points not exceeding 300 feet apart. All plans to be open for inspection of workmen. Outlet shafts to be separated by not less than 50 yards. Stairs may be used in outlets of under 75 feet in vertical depth, and must be 2 feet wide, 10 inches on tread, and 9 inches rise, and to be angled at not more than 60 degrees, and have convenient landings. If more than 75 feet deep to have suitable machinery for lowering and raising persons. If the outlet be a slope it shall not have a greater angle than 20 degrees, and may be any depth. In every shaft used for lowering and raising persons there shall be a metal tube suitably adapted to the free passage of sound, through which conversation can be carried on between persons at the top and bottom of the shaft, and there shall also be provided a safety catch for each cage or carriage to stop the descent of same in case of a rope breaking. All cage chains shall be tested to the satisfaction of the Mine Inspector by means of weights or otherwise, and no single chain shall be allowed for raising or lowering persons. There shall be ample ventilation provided to dilute, carry off, and render harmless the noxious or dangerous gases generated in the mine, affording not less than 100 cubic feet per minute for each and every person employed therein, but in a mine where firedamp has been

A MOUNTAIN MINE.

detected the least shall be 150 cubic feet per minute for each person, and as much more in either case as one or more of the mine inspectors may deem requisite, and not more than 65 persons shall be permitted to work in the same air current; and mines where more than 10 persons are employed shall be provided with a fan furnace or other artificial means to produce the ventilation. In mines

Generating Firedamp

in sufficient quantities to be detected by ordinary safety lamps, all main air bridges or overcasts shall be built of masonry or other incombustible material of ample strength, or driven through the solid strata. The doors used for guiding the ventilation of the mine shall be so hung and adjusted that they will close themselves or be supplied with springs or pulleys, so that they cannot be left standing open, and an attendant shall be employed at all principal doors through which cars are hauled. The same person may attend two doors if the distance between them is not more than 100 feet. No accumulation of explosive gas shall be allowed to exist in the worked-out or abandoned parts of any mine if it is practicable to remove it. In all mines or parts of mines worked with locked safety lamps, the use of electric wires and electric currents is positively prohibited, unless said wires and machinery, and all other mechanical devices attached thereto and connected therewith are constructed and protected in such a manner as to secure freedom from the emission of sparks or flame therefrom into the atmosphere of the mines. The use of the common Davey safety lamp for general work in any bituminous coal mine is prohibited, neither shall the Clanny lamp be so used unless it is shielded, but both lamps can be used by mine officials for the purpose of examiniug for gas. All holes for shelter on the haulage roads shall be kept whitewashed. The

Amount of Ventilation

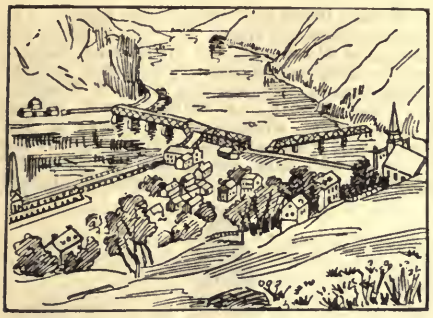
shall be measured at least once a week. No wood shall be allowed in the construction of stables, and the air current used for ventilating the stable shall not be intermixed with the air current used for ventilating the working parts of the mine, but shall be conveyed directly to the return air current, and no open light shall be permitted to be used in any stable in any mine. No hay or straw shall be taken into any mine unless pressed and made up into compact bales, and stored in a storehouse excavated in the solid strata or built in masonry for that purpose. The oiling or greasing of cars inside of the mines is strictly forbidden, unless the place where it is used is cleaned at least once every day, and only pure animal or pure cottonseed oil shall be used for lighting purposes, and any person found using explosive or impure oil shall be prosecuted. The mineowner or operator can

Procure a Right of Way

on the surface from the opening of a coal mine to a public road, upon the request in writing of fifty miners employed in the mine of such owner or operator, provided that these miners deposit satisfactory security to fully pay all damages and expenses for such right of way. Each inspector of mines shall receive for his services an annual salary of £600 and actual travelling expenses. It shall be his duty to examine each mine as often as possible, but not longer than three months between his examinations; and it is his duty to make out a written report of the condition in which he finds such mine, and post the same in the office of the mine or other conspicuous place, and it shall remain there one year, and may be examined by any person employed in or about the mine. Besides a stretcher, a woollen and waterproof blanket shall be kept at all mines, and where there are more than two hundred persons employed, two of each of these articles shall be kept. The mine foreman shall direct that all miners undermine the coal properly before blasting, and shall order the miners to set sprags under the coal when necessary at distances not exceeding seven feet apart, and he shall provide a book, so that the miners can write plainly the quantity of props and their length, and the number of caps and other timber which they require. The bottomer or pit-headman shall not allow any tools to be taken or put on a cage in which men are to be lowered or hoisted. No person in a state of intoxication shall be allowed to go into or loiter about a mine. All fans to be provided with instruments to record the number of revolutions or effective ventilating pressure. Where the clothing or wearing apparel of employés becomes wet by reason of working in wet places in the mines it shall be the duty of the owner or superintendent of each mine, at the request in writing of the mines inspector, who shall make such request upon the petition of five miners of any ore mine where the wet places are, to provide a suitable building at the mine for the use of persons employed in wet places therein for the purpose of washing themselves and changing their clothes when entering the mine and returning therefrom.

From Pittsburg to Washington.

The run of 342 miles from Pittsburg to Washington by the Baltimore and Ohio Railroad, by which the delegates travelled, was accomplished without any untoward mishap or incident, the train arriving at the latter city well up to time. On the way the delegates witnessed many scenes of great natural beauty and others invested with much historical interest. It is here that the railway is carried through the Alleghany Mountains, where for miles a continuous grand panorama is viewed of mountain, valley, and river, resembling in numerous places the scenery of the Scottish Highlands, and in this way recollections of their far distant homes crowded upon the minds of the travellers. Much of the region traversed was also during the great civil war the debatable land over which the Northern and Southern armies contested fiercely for supremacy, and the historic town of Harper's Ferry is full of historic interest. It was at this place that John Brown, of Ossawatomie, with less than a score of followers took up arms against the combined forces of public opinion, the institution of slavery, and the State of Virginia. He was called a madman and a

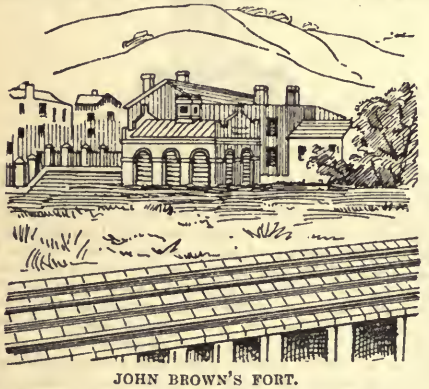


HARPER'S FERRY.

murderer, and he died upon the gallows. Three years later his name was the song and watchword of an army, and

"His soul goes marching on!'

Brown chose this place as the base of his operations, he said, because he regarded these mountains as having been designed by the Almighty, from all eternity, as a refuge for fugitive slaves. On the evening of October 16, 1859, he captured the town and the United States Arsenal, and the following day was driven into a building, afterwards known as John Brown's Fort. He refused to surrender till his two sons had been killed, and he was supposed to be dying. Brown and his followers were



JOHN BROWN'S FORT.

hanged at Charlestown only seven miles distant, and the spot where the Fort stood is pointed out, the building itself, bearing thousands of bullet-marks, having been placed on exhibition at Chicago. During the war the place was alternately in the hands of both parties. In September, 1862, a Union force of about twelve thousand, under Colonel Miles, was stationed here. On the 12th, four days before the battle of Antietam, a strong Confederate force, under Stonewall Jackson, appeared before Maryland Heights, on the Maryland shore, and early in the morning of the 13th drove the Union troops stationed there behind their breastworks. These were soon after taken, when the Federals withdrew across the river. On the same day the Confederates established batteries on Loudon Heights, on the Virginia shore, and on the 14th opened fire from these and Maryland Heights, renewing it at daybreak of the 15th from seven commanding points. The Federal guns returned fire from Bolivar Heights, behind the town, but ineffectually, and Colonel Miles surrendered his force—all but the cavalry, who had escaped in the night.

DELEGATES AT WASHINGTON.

SIGHTS OF THE CITY.

VISIT TO THE CAPITOL.

THE STATUARY HALL.

THE SENATE CHAMBER.

HOUSE OF REPRESENTATIVES.

THE WHITE HOUSE.

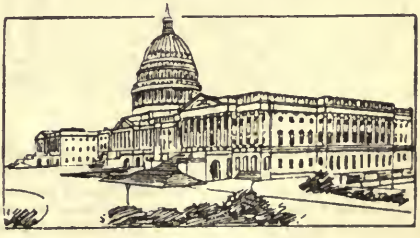
WASHINGTON MONUMENT.

THE SOLDIERS' HOME.

GOVERNMENT AND JUDICIAL SYSTEM OF THE UNITED STATES.

(From the Dundee Weekly News of November 28.)

Washington the political capital of the United States, is in many respects one of the most beautiful and interesting cities in the world. It occupies a fine site on the banks of the Potomac River, and is built in what is known as the district of Columbia, a district not exceeding ten miles square and under the exclusive legislation of Congress. The city is laid out on the common American rectangular plan, but combined with this there is what is known as the Versailles system of broad diagonal avenues, and viewed from a commanding height the great artistic beauty of the combination is at once apparent. The two leading thoroughfares are Massachusetts and Pennsylvania Avenues, 160 or 180 feet wide, while the other avenues and streets run from 80 to about 120 feet in width. Nearly all are laid with asphalte, and one great feature of the city consists in the fine treeswhich line each side of almost all the thoroughfares. Trees also abound in the parks, grounds, and crescents, squares, and triangles, formed by the crossing of the streets, by the diagonally running avenues; and it is a common saying that there sre more trees than negroes in Washington, although the coloured people number about 70,000. Washington is almost a purely residential city, yet the population amounts to 220,000, while in the district outside there is an additional 40,000 or 50,000. Having secured accommodation in the Metropolitan Hotel in Pennsylvania Avenue, the delegates, on the morning of the 19th of July, set out to view the sights of the city. Naturally they first proceeded



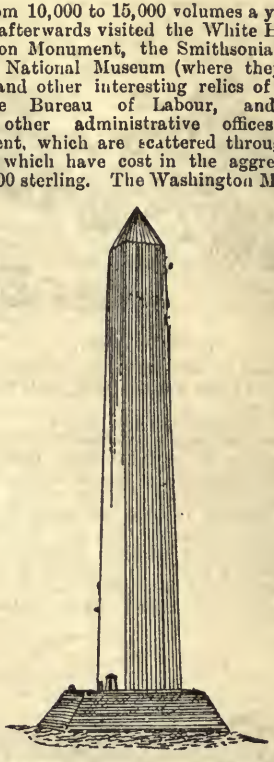
THE CAPITOL.

to the Capitol, which, with the Chamber of the Senate, the House of Representatives, the Supreme Courtroom of the United States, and relative buildings, occupies fully 50 acres of magnificently laid out ground, embellished with statues of Washington and other national heroes. The

Capitol, which crowns a hill 90 feet in height, is undoubtedly one of the most magnificent public edifices on the earth. It consists of a main building 352 feet long and 121 feet in depth, with two wings—one for the Senate and the other for the House of Representatives—each 238 by 140 feet. The central or older building is of a light yellow freestone, painted white, but the wings and colonnade are of pure white marble. The style of architecture is richly ornamented classic. It will be remembered that the original pile was burned by the British in 1814, and the Americans have their revenge for this in displaying to visitors several historical pictures in different parts of the buildings illustrating victories of the Stars and Stripes over the Union Jack. The present building dates from 1817-27. The central portion of the Capitol consists of the grand Rotunda, 96 feet in diameter and 180 feet in height, over which rises the massive iron dome, 307½ feet high from the floor, or 377 above low tide, and which is visible many miles away on the Virginian Hills. The picture in the ceiling of the dome representing the Apotheosis of Washington is a remarkably fine work of art. Surmounting the dome is a statue of America, 19½ feet in height, and costing $24,000 (£4800). The Capitol and its furnishing has cost upwards of £6,000,000. The delegates visited in turn the Senate Chamber, the House of Representatives, the Library, the Supreme Court of Justice, and the Statuary Hall, whose marvellous echoes they tested with great delight. When visiting the House of Representatives they observed that workmen were busy making repairs, and they were informed by the guide that this part of the building required more frequently the services of tradesmen than any of the other on account of the generally stormy character of the

STATUARY HALL.

proceedings which it witnessed, and they were also told that if the columns of the lobby could speak they might unfold many a strange tale of political intrigue and jobbery. The delegates stood on the portico on the eastern side of the Capitol from which the Presidents deliver their inaugural addresses, and when here they witnessed in course of erection the new Congressional library, estimated to cost $6,000,000 (£1,200,000). The building is of granite in the Italian Renaissance style, and will have accommodation for 8,000,000 books. The present collection numbers about 700,000 volumes, exclusive of pamphlets, and is increasing at the rate of from 10,000 to 15,000 volumes a year. The delegates afterwards visited the White House, the Washington Monument, the Smithsonian Institution, the National Museum (where they saw the uniform and other interesting relics of Washington), the Bureau of Labour, and several of the other administrative offices of the Government, which are scattered throughout the city, and which have cost in the aggregate fully £20,000,000 sterling. The Washington Monument,



THE WASHINGTON MONUMENT.

which cost £240,000, is the highest piece of masonry in the world, this huge obelisk of white marble rising to the lofty height of 555 feet. The delegates ascended to the highest platform (500 feet from the ground) by means of an elevator, which occupied eight minutes in the ascent, and from the observation openings obtained a splendid view of the whole district, the terra-cotta brick houses in the city appearing embowered in the green foliage of the numerous beautiful avenues stretching out in every direction, while outside there was also a profusion of green wood and field, with the broad waters of the Potomac on the south glistening in the bright rays of the noonday sun. Away to the north could also be seen, in the centre of a magnificent park of 500 acres, the home for disabled soldiers of the regular army. When at the White House the delegates were informed that the President was absent at Gray Gables, Massachusetts, his private country residence, but that he would return to the capital to meet the Special Session of Congress, which had been summoned for the 7th of August, in order to devise means for alleviating the present unfortunate financial condition of the country. When in Washington the delegates put themselves in possession of much useful information relative to the various branches of the Government of the United States. There is one thing which is sure to arrest the attention of a foreigner in Washington—at least when Congress is not in session—and that is the almost entire absence of any representative of the military force of the country.

The United States Legislative System.

The supreme legislative body of the United States is known as Congress, and consists of two

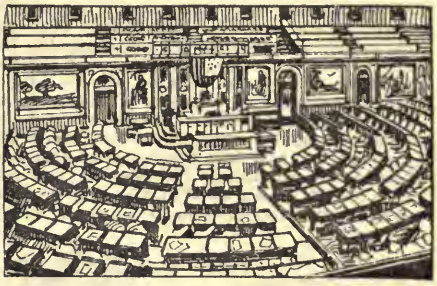
houses—the Senate and the House of Representatives—which in some respects correspond to the House of Lords and the House of Commons in Great Britain. In the States, however, they know far better than to have one house almost entirely composed of hereditary legislators. The people there believe in an aristocracy of mind and not in an aristocracy of birth. It is open to any man, no matter how humble his origin, to rise not only to the dignity of a Senator or a Representative, but to become the uncrowned sovereign of upwards of sixty millions of

THE SENATE CHAMBER.

his fellow human beings. The Senate, a seat in which is the envy of every citizen, is composed of two members elected by the Legislature of each State, so that the Senators may be said to reflect the opinion of the State which they represent. The term of office is six years, but one-third of the members retire every two years, so that some time necessarily elapses before a change of mind on any question on the part of the people can usually be given effect to in the Senate. Large powers are vested in the Senate, as all Bills must be passed by it as well as by the House of Representatives before becoming law. Treaties with foreign powers and declarations of war must receive the approval of two-thirds of the Senators, otherwise they are invalid, and the Senate is also required to confirm the appointment of all ambassadors and agents to foreign powers. The President has large powers in the way of patronage, but his nominee for even a postmastership has to be approved by the Senate. No person is eligible for the office of Senator unless he has attained the age of thirty years, and been a citizen of the United States for nine years, and he must also at the time of his election be an inhabitant of the State which he represents. The Senate is presided over by the Vice-President of the United States, who, however, has no vote except in cases of equal division. Of the 88 present Senators, 44 are Democrats, 38 Republicans, and 3 Peoples Party, while the remaining three were considered doubtful at the time of the completion of the return from which these figures were taken.

The House of Representatives

consists of 356 members, who are elected directly by the people under the ballot system. Each State is represented in exact proportion to its population, as ascertained by the decadal census, so that the Yankees have also settled the question of equal electoral districts. The qualifications requisite for electors are the same as those which the State Constitutions require for electors of members in the same branch of the respective State Legislatures, and as regards representatives themselves the conditions are that each shall be at least twenty-five years of age, that he shall have been a citizen of the United States for seven years, and that he is an inhabitant of the State for which he sits. In this connection it may be remarked that if a condition similar to the last were in force in Great Britain there would be fewer "carpet-baggers" representing Scottish constituencies in the Imperial Parliament. The election of representatives takes place



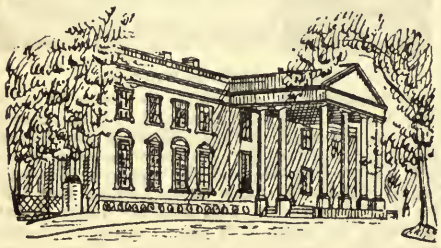
HOUSE OF REPRESENTATIVES.

every second year, and Congress meets twice a year, namely March and December. Senators and representatives are paid alike—$5000 a year (£1000) and travelling expenses. The payment of members is therefore one more problem which the Yankees in their full speed ahead political course have left far astern, while it is still ahead of our political mariners at home. It may interest Church defenders to know that the Federal Constitution contains the following article:—"Congress shall make no law respecting an establishment of religion, or prohibiting the free use thereof, or abridging the freedom of speech or of the press, or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances." In comparing the cost of the Republican system in the United States with the cost of the Monarchy in Great Britain, Mr Andrew Carnegie states that the Queen and the Royal Family draw £860,379 annually from the public purse, while the total salaries paid to the President of the United States, the Vice-President, the Senators, and the Representatives in governing a population twice as large, and a country about the size of Europe, amounts to only £410,800, or barely one-half the cost of Royalty in Great Britain. In connection with the government, however, it is admitted that the politics of the Republic are in the hands of men inferior, so far as position and character are concerned, to those in Great Britain. The House of Representatives is composed as follows:—Democrats, 220; Republicans, 126; Peoples Party, 8; unelected (Rhode Island), 2. The present ratio of representation is 1 to every 173,901.

The President,

as already stated, is the uncrowned ruler of the whole people of the United States, and occupies a position analogous in many respects to that of the Sovereign of a European nation, as in him is vested the executive power of the Federal Government. He is the first civil magistrate, and he is also commander-in-chief of the army and navy, and all the military forces of the nation, which, should necessity arise, could be made to outnumber those of any other nation in the world. If any one should doubt this he has only to realise that the army alone could be raised to about nine millions. The President holds office for four years, and along with the Vice-President, who is chosen for the same term, is voted upon by Electoral Colleges, composed of electors of each State equal to the whole number of Senators and representatives to which the State is at the time of such election entitled in Congress. No Senator or representative on pension

holding an office of trust or profit under the United States shall, however, be appointed an elector. The votes in the Presidential election throughout the whole of the United States are cast on the same day. If no candidate has a majority of the whole number of electors appointed, then the House of Representatives, voting by States, and not as individuals, elect—again by ballot—the President from among not more than the three highest in the poll. The Vice-President is elected in much the same way. Every candidate for the Presidency must be a natural born citizen or a citizen of the United States at the time of the adoption of the Constitution, and he must be at least thirty-five years of age and have been fourteen years a resident within the United States. The salary of the President is $50,000 per annum (£10,000), and, in addition to his official residence in Washington, known



THE WHITE HOUSE.

as the White House, he has also a country house a few miles distant. He is far from adopting a "high and mighty" attitude towards those who are practically his subjects, as at stated times for some hours every week he receives, as Mr Andrew Carnegie states, "such respectably-dressed and well-ordered people as choose to call upon him." Regarding his relations to Congress, it may be explained that he has absolute power in the appointment and removal of the members of his Cabinet who do not take any part in the proceedings of the Legislature. He can veto any Act of Congress, but his power in this respect is invalid should the measure vetoed be again passed by two-third majorities of both Chambers. The salary of the Vice-President is $10,000 per annum (£2000).

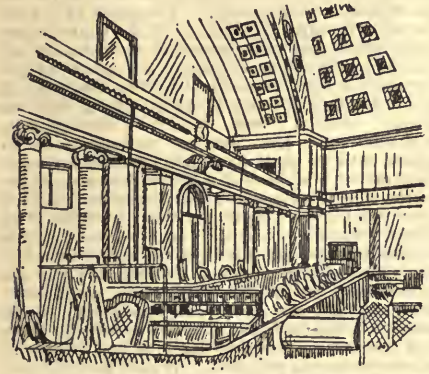
The State Legislators—Home Rule in General Operation.

Congress has power to levy taxes, duties, &c., to pay the debts, and provide for the common defence and general welfare of the United States, but the taxes must be uniform throughout the States, and also to borrow money on the credit of the States. It is also the sole authority in the matter of coinage, commerce, Post Office, naturalisation, bankruptcy, the army and navy, war and peace, and the punishment of particular offences, but except in the subjects specially delegated each State has sovereign power to pass laws for its own government, and in this way Home Rule prevails throughout the Union. Each Legislature must, however, like Congress, legislate within the lines of its own constitution framed by the people of the State, otherwise a Court of law may declare the statute to be invalid. Amendments on the constitution can be made only by the people themselves. Altogether there are forty-four States in the Union, the largest being Texas, which with an area of 265,780 square miles is larger than France or the German Empire, and the smallest, Rhode Island, with an area of 1250 square miles. The State populations vary from fully 6,000,000 in New York to about 40,000 in Nevada. The form of government in its main outlines, and to a large extent even in its actual working, is the same in all the 44 Republics, the differences relating only to points of secondary importance. As regards the electoral franchise, each State has its own laws, but under the present uniform naturalisation laws passed by Congress a foreigner must have resided in the United States for five years, and for one year in the State or territory where he seeks admission to United States citizenship, and must declare two years before he is admitted that he renounces allegiance to any foreign prince or State. Professor Bryce, in his "American Commonwealth," says:—"The peoples of the States have room to distrust their respective legislatures. Hence they desire not only to do a thing forthwith and in their own way rather than leave it to the chance of legislative action, but to narrow as far as they conveniently can (and sometimes farther) the sphere of the legislature. . . . This sentiment is characteristic of democracies everywhere." In each State there is an executive, consisting of a Governor and various minor officials, all elected by the people for short terms. These officials are "compensated" for their duties, the salaries of the Governors varying from 1000 dollars (£200) to 10,000 dollars (£2000). Their powers, generally speaking, correspond to those of the members of the Federal Cabinet. The legislative body consists of two Houses, and every State has its own system of local government, taxation, and civil and criminal procedure. No appeal from a State to a Federal Court is competent except in cases touching Federal legislation or the Federal constitution. Mr Simon Sterne, a member of the New York bar, declares that "the great evil in connection with State institutions is that which arises from the difficulty in dealing with municipalities so as to leave them on the one hand the power to govern themselves, and yet on the other to restrict a tendency which in all American cities has developed itself to an alarming degree—its unlimited debt-creating power and methods of unwise taxation." All the members of both the State Legislative bodies are paid, either at the rate of from $3 (12s) to $8 (£1 12s) a day, or from $300 (£60) to $1500 (£300) per annum. Some of the States also pay in addition the travelling expenses of the Legislators.

The Judicial System.

Excepting the check contained in the constitution of the United States, the Supreme Federal Court sitting in Washington occupies a position even higher than the President, the House of Representatives, or the Senate. The judges may veto legislation by declaring it to be unconstitutional, but in the article referred to they may be impeached and removed by two-thirds of the Senate acting upon a representation by the House of Representatives, if they are proved guilty of a gross violation of the judicial discretion lodged in them. The Federal Courts are divided into three classes—the Supreme Court, which sits at Washington; the Circuit Courts; and the District Courts. The Supreme Court consists of nine judges, the chief of whom is paid $10,500 (£2100), and the eight others $10,000 (£2000) each. On attaining seventy years of age they can retire upon full pay for life. Nominated by the President and confirmed by the Senate, they and the other judges hold office during their good behaviour. Impeachment has been four times resorted to—three times against District Federal judges, and once against a judge of the Supreme Court, but only two of the former were convicted. The Supreme Court has appellate jurisdiction in all cases of law and equity arising under the constitution, or in connection with U.S. treaties, and in cases where citizens or subjects of any foreign State are parties, while it has original

jurisdiction in all cases affecting ambassadors and other public ministers, consuls, and those in which a State shall be a party. The sitting of the Court extends from October till July, and the presence of six judges is required to pronounce a decision. In this way cases are certain of receiving a thorough consideration, but business



THE SUPREME COURTROOM.

is greatly retarded in consequence. Of this the unfortunate shareholders of the Oregonian Railway Company, who were kept on the tenter-hooks for four long years only at last to receive an adverse judgment, are only too painfully aware. At present there are nine Circuit Courts which meet annually, and to each of these one of the judges of the Supreme Court is allotted. The Circuit judge, who has a salary of $6000 (£1200), may, however, try cases alone or conjointly with the Supreme Court judge, or a district judge, the former having a similar power. The District Courts form the lowest class of federal tribunals, and are fifty-five in number. Their judges are appointed in the same way as the others already mentioned, and their salaries vary from $3500 (£700) to $5000 (£1000). The State Courts are also of three classes, differing greatly in name, relation, and arrangements from State to State. The jurisdiction of the State Courts, both civil and criminal, is absolutely unlimited, there being no appeal from them to the Federal Courts, except in the cases specified in the Federal constitution above-mentioned. Each State recognises the judgments of the Courts of a sister State, gives credit to its public acts and records, and delivers up to its justice any fugitive from its jurisdiction charged with a crime. In 25 States, (including nearly all the Western and Southern) the judges are elected by the people; in 5 they are elected by the Legislature; and in 8 by the Governor, subject, however, to confirmation by the Council or the Legislature. The first 25 are recognised as the most democratic. In only four States are the judges appointed for life, the appointments in the other States ranging from two to twenty-one years, but a judge is always eligible for re-election. Judges of the higher State Courts are paid from $10,000 (£2000) to $2000 (£400), the salaries of the judges of the inferior Courts being proportionately lower. Generally speaking, the Western States put the least value upon their State Court judges, and in the larger States in particular the salaries fail to attract the best legal talent. The jury system prevails in America as in England, the whole twelve having to return a unanimous verdict or a new trial is resorted to.

The Government of Washington.

The citizens of Washington, as well as all the residenters in the district of Columbia, occupy a very peculiar political position in the United States. That is to say, they have no vote at all, and take no part in any election unless they have residences also in one or other of the States of the Union. Congress itself legislates for the district, and the whole administrative work is directed by three Commissioners—representing both political parties—who are appointed by the President with the approval of the Senate. Owing to the Federal Government contributing exactly one half of the total sum required for public purposes in the city the taxes are comparatively light, one gentleman stating that on a property of the capital value of $15,000 he paid only $72.

SIGHTS OF WASHINGTON.

THE GOVERNMENT DEPARTMENTS.

THE PATENT OFFICE.

THE DISPLAY OF MODELS.

HOW PATENTS ARE GRANTED.

BUREAU OF PRINTING.

U.S. GOVERNMENT PRINTING OFFICE.

THE SMITHSONIAN INSTITUTE.

(From the Dundee Weekly News of December 2.)

The Patent Office.

Mr Ebenezer Bennett, Newcastle-on-Tyne, reports:—This is a beautiful and impressive building of Doric architecture, four hundred and ten by two hundred and seventy-five feet, and three storeys and a basement high. It contains over one hundred and ninety rooms, and cost £540,000. The centre is built of freestone and painted white, and the wings are of white marble. It was originally intended for the use of the Patent Office alone, but the business of late years that has been added to the Interior Department has increased so rapidly that now besides the patent offices the General Land office is also located there. It is only that portion occupied by the Patent Office, however, which is of interest to us. These offices are on the second floor and the galleries. They contain over 210,000 models, which are arranged in glass cases, so as to be easily viewed in continuous halls beautifully constructed. These halls are 64 feet wide, two of them being 271 feet long, and the other two 145 feet long. There are many exceedingly interesting models of inventions in the early stages of steam, telegraphic, phonographic, agricultural, naval, and other sciences. Such names as Fulton, Hoe, Edison, Bell, and many others of equal note frequently occur on the cards with which all the models are accompanied. An improvement in inland ship navigation by Abraham Lincoln is among the many curiosities. Weeks could be very profitably spent in these galleries. On these floors are the offices of the special examiners and their assistants. There are 32 principal examiners and

162 assistants of the thirty-two divisions into which all patents are classified. This Office has a special library of great scientific worth of over 50,000 volumes, and the general library of the department contains about 11,000 volumes in addition. At one time, only very recently, all applicants for patents had to furnish the Office with a model of their invention or discovery. This is not the case now unless the commissioners request one to be furnished, which they hold the right to do.

Patents Now Issued.

All patents shall be isued in the name of the United States of America under the seal of the Patent Office, and shall be signed by the Secretary of the Interior, and countersigned by the Commissioner of Patents, and they shall be recorded together with the specification in the Patent Office in books to be kept for that purpose. Every patent shall contain a short title or description of the invention or discovery, correctly indicating its nature and design, and a grant to the patentee, his heirs or assigns, for a term of seventeen years, of the exclusive right to make, use, and vend the invention or discovery throughout the United States and the territories thereof referring to the specification, and drawings shall be annexed to the patent, and be a part thereof. Every patent shall bear date as of a day not later than six months from the time at which it was passed and allowed, and notice thereof sent to the applicant or his agent; and if the final fee is not paid within that period the patent shall be withheld. Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country, and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof, and not in public use

PATENT OFFICE.

or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by the law, and other due proceedings had, obtain a patent therefor. No person shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid by reason of its having been first patented or caused to be patented in a foreign country unless the same has been introduced into public use in the United States for more than two years prior to the application; but every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent, or if there be more than one, at the same time with the one having the shortest term, and in no case shall it be in force more than seventeen years. When the nature of the application admits of drawings the applicant shall furnish one copy signed by the inventor or his attorney and

Attested by Two Witnesses,

and shall be filed in the Patent Office, and shall be attached to the patent as a part of the specifications. In all cases which admit of representation by model the applicant, if required by the Commissioners, shall furnish a model of convenient size to exhibit advantageously the several parts of his invention or discovery. Then they have a law for citizens only. Any citizen of the United States who makes any new invention or discovery and desires further time to mature the same may, on payment of the fees required by the law—viz., £2, file in the Patent Office a caveat setting forth the design thereof, and of its distinguishing characteristics, and praying protection of his rights until he shall have matured his invention. Such caveat shall be filed in the confidential archives of the office, and preserved in secrecy, and shall be operative for the term of one year from the filing thereof, and if application is made within the year by any other person for a patent with which such caveat would in any manner interfere the Commissioners shall deposit the description, specification, drawings, and model of such application in like manner in the confidential archives of the office, and give notice thereof by mail to the person by whom the caveat was filed. If such person desires to avail himself of his caveat he shall file his description, specification, drawings, and model (if required) within three months from the time of placing the notice in the Post Office in Washington, with the usual time required for transmitting it to the caveators added thereto, which time shall be endorsed on the notice. An alien shall have the privilege herein granted if he has resided in the United States one year preceding the filing of his caveat, and has made oath of his intention to become a citizen.

Fees in Obtaining Patents, &c.

On filing each original application for a patent, except in design cases, $15 (£3); on issuing each original patent, except in design cases, $20 (£4); in design cases, for three years and six months, $10 (£2); for seven years, $15 (£3); and for fourteen years, $30 (£6); on filing each caveat, $10 (£2); on every application for the re-issue of a patent, $30 (£6); on filing each disclaimer, $10 (£2); on every application for the extension of a patent, $50 (£10); on an appeal for the first time from the primary examiners to the examiners-in-chief, $10 (£2); on every appeal from the examiners-in-chief to the Commissioners, $20 (£4); for certified copies of patents and other papers, including certified printed copies, 10 cents per 100 words. That is equal to 5d per 100 words. The total number of employés in the Patent Offices is—Principal examiners, 32; assistant examiners, 162; clerks, &c., 400—594. The average number of patents granted per month is 500. The total number of applications filed at the Patent Office in fifty-six years—1837-1892—was 832,144; number of caveats filed, 95,899; number of patents issued, 626,751. The receipts amounted to £5,584,221, and the expenditure to £4,522,749, showing a surplus of £1,061,472.

The Bureau of Printing and Engraving.

The large four-storey, terra cotta brick building near the Washington Monument, in which all the bonds, notes, and revenue stamps of the United States are printed, is designated the Bureau of Printing and Engraving. In this department of the public service there are in all 1400 operators

BUREAU OF PRINTING.

mainly occupied in the engraving, printing, examining, numbering, and counting rooms. The printing room, crowded with hand presses, contains about 400 employés, men and women, and in order to prevent the place from getting overheated in summer upwards of 100 fans are kept in steady operation by machinery. On an average notes representing one million of dollars are printed every day, but it takes thirty days to engrave a single plate, and then a note with its four printings cannot, including the time for drying, &c., be passed over to the Treasury until the expiry of another thirty days. The paper used is made at Dalton, Massachussets, and is very carefully watched. It is counted out to each printer every morning, and all the machines register the number of impressions made, this register being in a locked box, which is examined and checked by a clerk every night. A bond of the value of $50,000 (£10,000), and a note of $10,000 (£2000) were among the curiosities seen by the delegates. The printers are paid according to the amount of work which they turn out, and it was stated that they made as much as $6 to $8 (£1 4s to £1 12s) a day. A large number of women are employed in the Bureau. They start as printers' helpers at $1·25 (5s) a day, and are promoted as vacancies occur to be examiners at $1·50 (6s); numberers,

TREASURY BUILDING.

$1·75 (7s); and counters, $2 (8s) a day. The notes when completed are conveyed to the Treasury Building, in whose vaults are stored gold and silver against the paper issue.

The United States Government Printing Office.

The Government of the United States is the largest printer and publisher in the world, using daily about 30 tons of paper in printing the various national forms, documents, reports, &c. The printing office, which is of white brick, and of four storeys, is situated to the north of the Capitol, and is occupied by about 3000 employés. Excepting certain compositors who are paid 50 cents (2s 1d) per 1000 ems, all the employés—compositors, pressmen, and those in the bookbinding department—receive 40 cents (1s 8d) per hour for an eight hours day (Saturdays included), with 20 per cent. additional for any work performed between the hours of 5 p.m. and 8 p.m. No type-setting machines are used in the establishment, but the printing machinery is of the best quality, and about a year ago three new web perfecting presses and folding machines, capable of producing 22,000 copies of 16-page signatures per hour were introduced. There is no pension system in connection with the department. The holidays are as follows:—1st January, 22d February, 30th May, 4th July, Thanksgiving Day, and, every fourth year, Inauguration Day. These latter remarks also apply to the Bureau of Engraving and Printing. For the fiscal year ending June 20, 1892, the total cost of the printing department was $3,467,871 (£693,574). The salary of the Public Printer is $4500 (£900). Like many more of the other officials of the United States, he is appointed by the President, with the confirmation, of course, of the Senate, and with each change in the Presidency a good many of the subordinate officials receive the Irishman's promotion.

The Smithsonian Institute.

Mr Logan, Glasgow, reports:—This institution is a fine specimen of Norman architecture, with towers, battlements, and loopholes. A fund of

SMITHSONIAN INSTITUTE.

over £100,000 was bequeathed in 1828 by Mr James Smithson, an English scientist, to the United States to found an institution for the increase and diffusion of knowledge among men. The building, which is of dark red sandstone, was erected in 1847, and rebuilt in 1866, the Smithsonian Fund in the United States Treasury being over £140,000. The interest is devoted to original scientific research. The institution is in charge of a Board of Managers, of which the Chief Justice of the United States is chancellor, and the President of the United States is an *ex officio* member. A secretary is appointed by them, one who has an acknowledged standing in the scientific world, and under him the work of the institution is carried on. An entire wing of the building is occupied by the executive offices and the library, which contains about 250,000 volumes and pamphlets. The main hall contains the best representative collection of shells in America. There is also a fine collection of birds, over eight thousand in number. In another part of the building there is a large collection of relics from the mounds and buried cities of the American Indians. The National Museum was erected in 1879 by the Government as an annexe to the Smithsonian Institution. It is built of brick in the form of a cross, and one storey high, with pavilions at the four corners three storeys high. The dome in the centre rises to a height of 108 feet. The museum contains the usual collection of industrial products, historical relics, and ethnological objects. Among the most interesting relics seen by the members of the Expedition were those of Washington, Lincoln, and Grant.

THE NAVY YARD.

STRENGTH OF THE FLEET.

THE UNITED STATES ARMY.

LIFE OF PRIVATE SOLDIERS.

THE PENSION OFFICE.

THE LABOUR BUREAU.

STATISTICS FOR THE WORKERS.

WHERE LINCOLN DIED.

THE CENTRE PUBLIC MARKET.

WASHINGTON MONUMENTS.

THE STEEL CARS.

(From the Dundee Weekly News of December 9.)

Mr Brown, Govan, reports:—I visited the navy yard at the foot of Eighth Street, S.E. It was laid out under order of the Department in 1799. It covers 42 acres of ground, and is a most interesting place to visit, from the fact that here may be seen in progress most of the work of gun-making, &c. The yard also embraces ordnance foundries, shot and shell factories, and also copper mills. Workmen of all trades are engaged here. They are employed just as occasion demands. They work eight hours per day, beginning work at 8 a.m., with only half-an-hour at midday for meals. I was also at the Navy Department, and saw Lieutenant Lauchimner, U.S.M.C. at the Judge Advocate General's Office. I afterwards saw the Secretary of the Department. He stated that their navy had fallen considerably, and that when young men were trained for the navy openings were always found for them in the interior of the country at more wages than they could give them, so that they could with difficulty retain their men after they were trained. He also remarked that their merchant navy had not recovered yet since the Civil War, and that the "schooner" trade was more profitable than the square-rigged trade. The naval forces of the United States gradually fell away after the termination of the Civil War, and although successive Secretaries of the Navy represented strongly the

Weakness of the Fleet

nothing was done towards its actual reconstruction until August, 1883. At that date three new protected cruisers and a despatch boat were authorised to be built by contract at a total cost of nearly half a million sterling. A great deal has, however, been done during the last few years toward building new vessels. Since 1885 £6,154,622 have been allowed for naval purposes outside of the £1,400,000 in the naval appropriation of March, 1889, and since that time twenty-two steel vessels have been ordered. These include various classes, having a total tonnage of 65,609 tons, armed with two 12-inch, twenty-six 10-inch, twelve 8-inch, and eighty-one 6-inch guns. The above batteries do not include the dynamite guns, the torpedoes, the Hotchkiss rapid-firing guns, and the Gatling revolving guns. One of the most remarkable of the new vessels is the dynamite cruiser Vesuvius, which is fitted out to carry three of the new Zalinski dynamite guns. This is an exceptionally fast vessel, running from twenty to twenty-one knots an hour. For the further increase of the navy Congress has authorised the construction of three armoured battleships of 8500 tons displacement; one steel cruiser of 7500 tons, with protected deck and maximum speed of 21 knots; one cruising monitor of 3130 tons displacement, to be armed with one 15-inch dynamite gun, two 10-inch, and one 6-inch B.L.R., and to have a speed of 17 knots; one ram of 2000 tons; one torpedo cruiser with a speed of not less than 23 knots; one torpedo boat; and one dynamite cruiser. The navy is commanded by one admiral, one vice-admiral, and six rear-admirals, who have under them 965 officers. There are 7500 enlisted men and 750 boys, besides a marine corps of 2177 officers and men. We were informed that the Government experienced great difficulty in getting native-born Americans to join the navy, and that a large number of the men composing it belonged to the maritime provinces of Canada to whom special inducements were held out. Seamen are paid from £46 to £58 per annum with rations. The expenditure on the Navy last year amounted to nearly £6,000,000, and has been steadily increasing for some years. At the navy Department in Washington there is a library containing some twenty thousand volumes of especial value to those interested in naval science and warfare.

The United States Army.

Mr William Smith, Denny, reports:—Being under no danger from powerful or warlike neighbours, the United States are saved from that ruinous competition in armaments which presses on the industry of European countries. The American army is little more than a police force, of which a few regiments serve as a reserve to the civil powers in the great towns, while the rest are dispersed in small posts along the frontiers or among the American districts. By an Act of Congress of 1870 the number of land forces constituting the standing army of the United States was strictly limited. It was subsequently enacted that from the year 1875 there shall be no more than 25,000 enlisted men and 2155 commissioned officers at any one time. The force consists of 10 regiments of cavalry, each

HORSE AND FOOT, FULL DRESS AND FATIGUE.

of 12 companies or troops; 25 regiments of infantry, of 10 companies each; 5 regiments of artillery, and 1 engineer battalion. The cavalry, broken up in small detachments, partake more of the character of mounted police than that of European cavalry. They are armed with swords and breechloading or repeating rifles, and trained to act on foot as well as on horseback, and the whole cavalry drill is assimilated as closely as possible to that of the infantry. The latter are organised after the old British fashion in single battalion regiments of 10 companies. The army is raised entirely by

Voluntary Enlistment.

The standard of height for infantry is 5 feet 5 inches, and soldiers serve five years. They receive £3 12s per month, and all their rations and clothing. Promotion is got by good behaviour and capabilities, and if they are smart men they can rise well up. They are allowed twenty days in the year for holidays, and if they take no holidays, say, for three years, they can get their sixty days all at once to go on furlough, and when they come back they get their pay and the price of the rations they did not use. The men are allowed plenty of good meat; are allowed one suit of clothes in the year, and if one suit does them for two years they get the price in money of the other suit they are entitled to. If they use more they have to pay for it. So careful soldiers can sometimes save as much as £16 to £20 in five years. The profits that are derived from the canteen or liquor saloon, after paying its own expenses, are divided amongst the men in the barracks, each getting the same amount, and when a soldier is disabled and not fit for duty he receives £4 16s per month when discharged as

A Pension for Life,

although he is able for other work. When they get their discharge with five years' service, they get twenty days' pay and ration money along with them, and they can go and enlist in any other regiment if they choose. The following is the routine of the United States soldier's life:—At the first note of *reveille* the morning gun goes off, the national colours are raised, and the military day begins. At 5.45 *reveille* is sounded, the men fall in ranks, and the rolls are called. At 6 they again fall in line and are marched to breakfast. Breakfast over they return to the barracks, make up their beds, and put things in order generally, after which the barracks are inspected by the captains At 6.45 the sick call is sounded and the sick are taken before the surgeon, who examines and prescribes for them. Then comes drill from 7 to 8. New recruits have additional drill from 9 to 10. At 9.30 comes guard mounting, when those that are to go on guard for the succeeding twenty-four hours are paraded, inspected, and marched to their duty. The breakfast has consisted of beef stew, coffee, and bread. At 12 o'clock the dinner call sounds, and the men

Sit Down To Roast Beef

and gravy, sour beef stew, soup, and bread. This is varied with pork and beans, rice, hominy, and bacon. More drilling comes from 1 to 2, supper—corn beef and lettuce, tea, and bread—at 5.15, and dress parade from thirty minutes before sunset, or before the firing of the sunset gun. The flag then goes down, and the military day is done. The men enjoy themselves until 9.30, when lights go out in the dormitories, but those who desire can remain in the recreation and library rooms until 11 o'clock taps, when all lights are extinguished, and the men are inspected in their beds to see if all are safely stowed away for the night Besides the regular army each State is supposed to have a militia in which all men from 18 to 45, capable of bearing arms, ought to be enrolled, but in several States the organisation is imperfect. The organised militia numbers 9059 officers and 118,172 men. The number of citizens who in case of war might be enrolled in the militia is upwards of 6½ millions. In 1880 the males of all classes between 18 and 44 years of age numbered 10,231,239, of whom 7,000,000 were native-born whites and 1,242,354 coloured.

The Militia

is called up every year for training, and the men receive £3 4s, clothes, and ration for the training. If they are called out for special duty they receive 8s per day. The territory of the United States is divided for military purposes into nine departments, and these are grouped into three military divisions, namely, Division of the Missouri, composed of the Departments of Dakota, the Platte, Texas, and the Missouri; Division of the Pacific, composed of the Departments of Columbia, California, and Arizona; Division of the Atlantic, composed of the Departments of the East and the South. The expenditure on the army in 1892 amounted to £9,400,000.

Desertions From The Army.

Notwithstanding assertions as to the good times that the soldier enjoys it appears that of late there has been a marked increase in desertions from the United States army. Under certain reform measures instituted by Secretary Proctor desertions for the year 1889 were reduced below any figures ever shown by army records. For the month of July of this year, however, 205 desertions were recorded, showing an increase of fifty over the desertions of July, 1892. The reasons for this increase seem to lie with legislation attendant upon the last Army Appropriation Bill. With this appropriation re-enlistments after service of ten years were made impossible. There is enough in this act of legislation to precipitate dissatisfaction in the ranks. Service in the army necessarily consumes the best years of a man's life, and his savings as a common soldier must be small. When twenty-five years was the limit of service, with gradually increasing pay for that period and the ease of the retired list at the end of it, the soldier had some prospects. Cut down to a ten year service, with the chance of being turned adrift on the world at middle age, the prospect is discouraging to the better class of men in the army.

The Pension Office.

Mr Mungo Smith, Dundee, reports:—I called at the Pension Building in Washington and met the chief clerk, who very readily supplied me with what information I desired. The building, an immense brick structure, stands at the north end of

THE PENSION OFFICE.

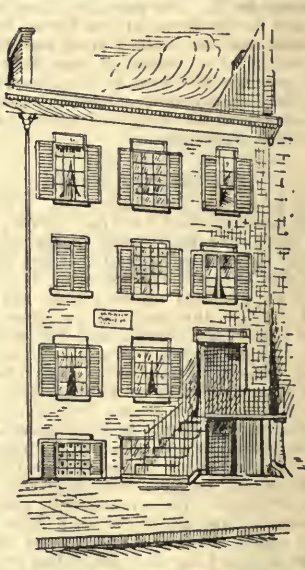
Justiciary Square. It was erected about nine years ago, and its first use was as a ballroom at the inauguration of President Cleveland. It is 400 feet long, 200 feet wide, and 75 feet high. It is not a handsome building, resembling a factory more than anything else, but it is admirably adapted to the purposes for which it was erected. Its chief architectural attraction is a band or frieze of sculptured terra-cotta, designed to represent the various experiences of the army and navy in war. The building cost £20,000, and required 15,000,000 bricks. The court will accommodate 18,000 persons at an inaugural ball, and 59,000 closely packed. In this building the vast pension machinery goes round and round. Thousands of clerks are daily employed in various duties, and the receipt of the mail alone is an immense item. Over 5,000,000 letters are received yearly and 4,000,000 sent out. This is an average of nearly 14,000 letters received each day. Perhaps a better idea of the gigantic scale of the transactions of this department will be gained from the following list of the staff employed:—Official force of the Bureau of Pensions now authorised by law, 2009; 18 pension agents and 460 persons employed at said agencies, in all, 478; 1252 boards of examining surgeons of 3 members each, 311 single surgeons, and 142 eye and ear specialists, in all, 4209—total number of persons employed in connection with the Bureau of Pensions, 6696. On the 30th of June, 1892, there were 876,068 pensioners on the rolls, these included 165 survivors of the war of 1812, and 6651 widows of those who served in that war, and that, let it be noted, was three years before the date of Waterloo. The oldest pensioner on the roll was John Downey, of Allen Factory, Alabama, aged 105 years. The roll contains the names of 22 widows of soldiers engaged in the Revolutionary War of 1776, the men who were young at the time of the war having evidently in their old age married young women. It is possible that one of these widows may be drawing a pension in 1918. A soldier's widow is entitled to a pension as long as she lives, unless she should marry again. Children also receive an allowance until they attain the age of sixteen. The annual value of all pensions on the roll at 30th June, 1892, was £23,375,974, and the average annual value of each pension, £26 15s.

Abuses of the Pension System.

It is notorious that the facilities provided for the enrolment of pensioners in the United States opens the door to fraud, and revisals of the roll never fail to show that many hundreds have been drawing money from the public purse for years who had no earthly claim to it. A very bad case brought under notice this year was that of Judge Long, of Michigan, who had been drawing £14 10s a month for total helplessness, while earning a salary of £1400 a year as Justice of the Supreme Court of his State. Another incident will illustrate the demoralisation caused by the pension system. A business man in Boston, well-to-do in purse and vigorous in body, who already carried a considerable amount of life insurance, applied for £2000 more. The medical examiner found nothing whatever to indicate disease, past or present, and the investigation was almost concluded when the doctor asked the question—"Have you ever been a pensioner?" Thereupon the applicant stammered, and at last owned up that he was drawing a pension of £2 10s a month. Further inquiries drew from him "a tangled series of admissions that he had never really suffered any injury or illness entitling him to a pension, but he had made out some sort of a case of nervous shock or deterioration, at the instigation of a pension agent, and had taken his £2 10s a month from the United States Government, rich man though he was, on the principle that 'they all do it.'" The company refused to grant him insurance, on the ground that a man who had perjured himself to get £2 10s a month from the Federal Treasury was quite capable of cheating an insurance company if he got the chance, and consequently was not a good risk.

The Assassination of Lincoln.

The building in which President Lincoln was shot by John Wilkes Booth on the night of Friday, April 14, 1865, and which was then known as Ford's Theatre, stood on Tenth Street, between E and F Streets, and latterly was used by the Government as a part of the Surgeon-General's office, but a few weeks before we arrived in Washington the structure had collapsed. It will be remembered that the theatre was crowded with a distinguished audience witnessing the play of "Our American Cousin," when Booth entered the President's box, discharged his pistol, and leaped to the stage, where, with bowie knife in hand, he shouted, "*Sic semper tyrannis!* The South is avenged," and then disappeared. The house on the opposite side of the street to which the President was removed as soon as it was known that he was dangerously wounded is noticeable to-day by a marble



THE HOUSE IN WHICH LINCOLN DIED.

slab which bears the words—"A. Lincoln died in this house April 15, 1865." He never regained consciousness, and died on Saturday morning at a few minutes past seven o'clock surrounded by his wife and family and prominent officials. Booth was pursued and finally surrounded at Port Royal, Va., where he was shot upon refusing to surrender. Four of his associates were tried and executed at the old arsenal, now the barracks of the 3d Artillery.

The Centre Market.

Mr Watson, Dundee, reports:—The above, which is the largest of the public markets in Washington, is situated to the south of Pennsyl-

vania Avenue, and a tremendous business is done in it every morning up to mid-day in selling butcher meat, vegetables, fruit, butter, eggs, ham, fish, and bread. It has two storeys, and the top flat is used for cold storage rooms. Ice is manufactured on the premises, and in these rooms a great quantity of beer, eggs, and fresh meat is stored, and can be kept in good order for a month, while eggs will keep for four months. The whole market belongs to a company, who let it in small stalls at from £2 a month, but articles placed in the freezing-room cost ½d per lb. for a month. The number of waggons and carts that I saw standing disloading

OUTSIDE THE MARKET.

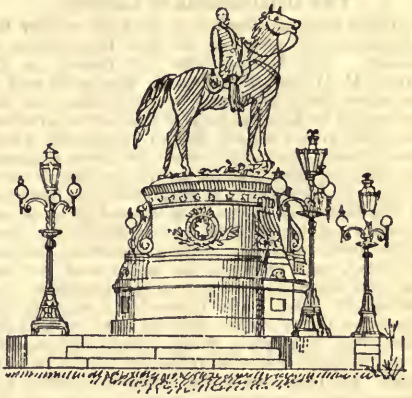
round the building was over a thousand. The following were the prices of different articles sold in the market:—Best beefsteak, 10d per lb.; best roast steak, 7½d per lb.; stewing or boiling, 2½d to 5d per lb.; lamb and veal, 6d to 10d per lb.; loaf bread, 2½d per lb.; rye bread, 2d per lb.; butter, 1s 5d per lb.; American cheese, 10d per lb.; eggs, 9d per dozen; salmon, 1s 5d to 1s 8d per lb.; sea trout, 5d per lb.; sheep's head and red snippers sold at 7½d per lb.; other sea fishes, 4d to 6d per lb.; chickens, 9d per lb.; potatoes, 1s 3d per peck of 14 lbs.; ham (cured), 8d, 8½d and 1s 1d per lb.; cabbage, 2d each; cauliflower, 5d each; lemons, 10d a dozen; brambleberries, 6d per box; blaeberries, 5d per box; melons, 1s 5d each; sugar, 3d per lb.; tea, 1s 8d, 2s 1d, and 3s 4d per lb.; oatmeal, 2½d per lb.; coffee, 1s 1d to 1s 5d per lb.; flour meal, 1½d, 2d, and 2½d per lb.; rice, 3½d per lb.; red currants, 6½d per qr. or box; Indian corn, 10d per dozen; onions, 1s 1d per 7 lbs.

Vehicular Traffic.

Washington has running on the streets twenty-eight miles of electric cars supplied by the overhead current, cable cars sixteen miles, and horse cars ten miles. Drivers and conductors of electric cars work twelve hours a day, and are paid 8s per day. Cable drivers and conductors work a ten hours day, and are also paid 8s per day. Horse drivers and conductors work a twelve hours day, and are paid 8s per day. By the hack and carriage regulations attempts to overcharge are strictly prohibited. Any attempt to do so should be reported to the nearest police station or officer on duty. Two trunks or their equivalent may be carried without extra charge, but 2s each may be charged for extra pieces over that amount. Such small packages as can be conveniently carried within the hack are free of charge. Drivers are bound to unload all baggage free. On omnibus lines the fares are the same as those of street cars. 'Bus drivers are paid £8 a month.

Statues and Monuments.

There are a great many statues of distinguished soldiers and statesmen scattered over the city, located in the various parks and squares. Of these may be enumerated the Thomas equestrian statue



STATUE OF GENERAL THOMAS.

in Thomas Circle, at the junction of Fourteenth Street and Vermont Avenue; Scott's equestrian statue in Scott Circle, at the junction of Sixteenth Street and Massachusetts Avenue; M'Pherson's equestrian statue in M'Pherson Square, Fifteenth and "K" Streets; Farragut's statue in Farragut Square, Seventeenth and "K" Streets; Jackson's equestrian statue, fronting the White House; Rawlin's equestrian statue, New York Avenue, between Eighteenth and Nineteenth; equestrian

THE JACKSON STATUE.

statue of Washington in Washington Circle, Pennsylvania Avenue, and Twenty-Third Street. These are all in the north-western part of the city. East of the Capitol in Stanton Square, at the intersection of Maryland and Massachusetts Avenue, is the equestrian statue of General Nathanial Greene of revolutionary fame; and in Lincoln Square, due east of the Capitol a half mile or more, is the bronze group called "Emancipation," representing President Lincoln striking the manacles off the slave.

The Department of Labour.

Special interest attached to the visit paid by the delegates to the offices of the U.S. Department of Labour. The Commissioner of Labour is Mr Carroll D. Wright, a gentleman, who by his zeal in the cause, his abilities and thorough fitness for the post which he fills, has been the means of investing this office with a dignity and an importance which have attracted not only favourable notice at home, but the close attentions of several foreign Governments. Unfortunately he was residing in the State of Massachusetts at the time the delegates struck Washington, but Mr Dunham, the chief clerk, gave to the party much information regarding the Department, and explained its methods of working and the scope and objects of its inquiries. Mr Carroll D. Wright also forwarded a letter to the Conductor regretting his inability to meet the delegates, and conveying many interesting supplementary particulars with reference to the Department. By means of a Bill passed in 1869 the Massachusetts Legislature, impelled, it is said, by political expediency, established the first Bureau of Statistics of Labour in the world. The duties of that Bureau were defined as follows:—"To collect, assort, systematise and present in annual reports to the Legislature, on or before the 1st day of March in each year, statistical details relating to all departments of labour in the commonwealth, especially in its relations to the commercial, industrial, social, educational, and sanitary condition of the labouring classes, and to the permanent prosperity of the productive industry of the commonwealth." Efforts towards the establishment of a Federal Bureau were begun in 1871, but it was not until January, 1885, and only after numerous petitions by Labour organisations, that such a bureau was organised. After the National Bureau had been in existence three years and had shown the character of its work, the Knights of Labour demanded that Congress should create a Department of Labour, to be independent of any of the general departments, in order that its powers, duties, and efficiency might be placed on a better footing. Accordingly on January 13, 1888, an Act was approved, providing that "there shall be at the seat of government a Department of Labour, the general design and duties of which shall be to acquire and diffuse among the people of the United States useful information on subjects connected with labour, in the most general and comprehensive sense of that word, and especially upon its relation to capital,

The Hours of Labour,

the earnings of labouring men and women, and the means of promoting their material, social, intellectual, and moral prosperity." The Department is presided over by a Commissioner (Mr Carroll D. Wright), and the staff consists of a chief clerk, a disbursing officer, 4 statistical experts, 29 clerks (including 2 stenographers and 1 translator), 4 copyists, and 20 special agents. The term of office of the Commissioner is four years, but at the end of that term he may be reappointed. The service of the other members of the staff is not so limited. The grade of pay is the same as that pertaining to other federal offices. Facts are collected by the agents under the direction of the Commissioner. These are arranged in tables, the tables are summarised, and the summaries form the basis of the conclusions or the suggestions embodied in the reports, the greatest possible care being taken to ensure accuracy in every part of the work. The Department may adopt a three-fold method of obtaining the desired information. First—Uniform schedules of questions may be issued to representative persons, whether employers or employed. Second—Evidence may be taken at public hearings. Third—The sending out of special agents. The first method has proved useless in the past, and where the method of public hearing has been adopted the result is a mass of incongruous statements, often obtained from journalists and others not belonging to the class of either employers or employed. Mr Carroll D. Wright says, after long experience, that the best method has been the sending out of the special agents. The reports deal with industrial depressions, convict labour, strikes and lock-outs, working women in large cities (the shop girl class, where the information was almost entirely collected by women), railway labour, cost of production, &c.; also the effect of

The Tariff Laws

on the imports and exports, the growth, development, production, and prices of agricultural and manufactured articles at home and abroad, and upon wages, domestic and foreign. Congress also occasionally directs special investigations to be made by the Department, as in the case of an inquiry into the statistics of marriage and divorce, and into the industrial and technical school systems. Regarding the Department Mr Carroll D. Wright said:—"Commencing with $25,000 (£5000) as the annual appropriation for the Bureau of Labour, Congress now appropriates more than $175,000 (£35,000) exclusive of printing, for the administration of the Department, and so far as I know there has been no inclination on the part of the House, the Senate, or the President to in any way abridge or interfere with the work of the Department, or in any way to strangle it in its labours or make it an object of ridicule, as has been alleged. On the other hand, it has met with the most generous confidence on the part of Congress and of the President, and been aided in all reasonable ways in bringing its work to a high standard of excellence." Indeed, as the delegates found, its reports are viewed with the utmost confidence by both workmen and capitalists. In 28 States there are also Labour Bureaus, who collect information and statistics on the hours of labour, and the condition and prospect of the industrial classes. Meagre appropriations have, however, obliged them in many instances to confine their investigations to the simplest topics, and all their reports

Complain of Lack of Funds

in the matter of Labour legislation, also in the method of presenting its reports. Massachusetts is ahead of any other State, and its results are carefully summarised. The New York Bureau of Labour Statistics keeps a list of trades, on which to enter every item of information bearing upon a given trade. The Commissioner in this State has power to subpœna witnesses and examine them under oath. It is a misdemeanour not to answer the questions or to reply untruthfully, and the Commissioner reports that this power has been of considerable advantage to him in collecting information.

THE QUAKER CITY.

WHITE MARBLE STEPS LEAD TO WORKMEN'S HOMES.

EVERY MAN HIS OWN LANDLORD.

A DAY IN A BIG SHIPYARD.

UNCLE SAM'S NEW NAVY.

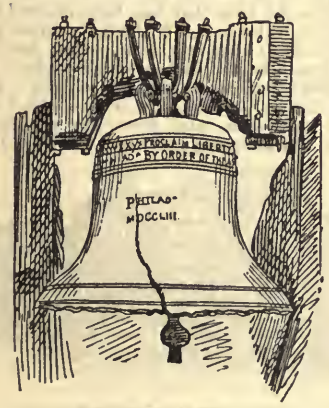
THE QUEEN OF THE SEA.

A MODEL ART SCHOOL.

(From the Dundee Weekly News of December 16.)

The Delegates at Philadelphia.

The old Quaker city of Philadelphia, reports Mr Murray, the Conductor, was the next halting point of the Expedition. With a population of nearly 1,200,000, it is the third largest city in the States, and is situated on the Delaware River, 140 miles from Washington and 90 from New York. Although 100 miles from the Atlantic Ocean, it is the seat of the largest shipyard on the Continent, and still holds a very important place among the seaports of the United States. Founded by William Penn, the Quaker, in 1682, it to-day, in many respects, and chiefly through the agency of its numerous building societies, presents the best conditions of artisan city life in the world. With an area of 129½ miles, it has no fewer than 250,000 separate buildings, and the number of families living with



THE LIBERTY BELL.

more than ten persons in a dwelling is only 12¾ per cent. This city has also been laid out by men with rectangular lines on the brain, but there are in addition a few leading thoroughfares running diagonally. Some of the main streets are 100 feet in width, but the majority, although generally well paved, are considerably narrower, the most of the cars running one way on one street, and the opposite way on the adjoining street. During their stay in the city, from July 21 to July 24, the delegates visited many places of interest, in addition to those specially enumerated. These included Independence Hall, where the famous Declaration of Independence was adopted and proclaimed by the outraged colonists, and in which the old Liberty Bell and many relics of Washington and other national heroes are kept; Carpenters' Hall, where the first Congress of the United States met; Christ Church, where Washington worshipped; and

BENJAMIN FRANKLIN'S GRAVE.

Benjamin Franklin's grave in the adjoining burying-ground.

Impressions of the Quaker City.

Mr Thomas Logan, Glasgow, reports:—Philadelphia is the most characteristic American city that we have yet visited, and one that a person from the old country would get to like very soon. The people are quite different from the reckless, devil-me-care people of Chicago and New York. Philadelphia possesses many very fine buildings. Some of them are built of solid white marble, and are beautifully carved, many of the doorways being done up in a style we are not accustomed to see at home. Philadelphia, with all its grand buildings, suffers, like the other cities we have visited, from wretchedly bad streets, and a drive in an omnibus through one of them is enough to shake a person's teeth out. It is notably a "city of homes." The tenement house so common elsewhere is scarcely known within its precincts, the prevailing rule being one house for one family. No other city in America contains so many comfortable single residences, and great numbers of them are largely owned by their occupants, those occupied by the working classes being neat two storey structures, each with its bathroom and other modern conveniences. These houses are, as a rule, made of brick with white marble steps and window sills, which give them a clean and pretty appearance. Philadelphia has an immense number of Building Societies; there are no fewer than four hundred companies with 87,600 members. They are conducted on much the same principle as at home. To rent a small brick house of four rooms and bathroom, with hot and cold water, £2 8s to £3 a month is paid. And to buy the same, ground and all, costs from £240 to £300. To rent a house of six rooms, with bath, hot and cold water, stationary wardrobes and wood mantels, and all the latest improvements, costs from £3 8s to £4 per month; to buy the same, £340 to £440, according to location. I had the satisfaction of seeing through several of these houses, and found them in many respects superior and more suitable for a working man than the tenement system we have at home. These houses are very much after the style adopted in England, every one having a front and back door of their own, also a small yard about 12 feet square.

Cost of Food, Clothing, &c.

The following is a list of provisions by retail in Philadelphia :—Butcher meats—Sirloin steak, 10d to 1s per lb. ; rump steak, 8d to 9d per lb. ; roast beef, 7d to 8d per lb. ; stewing beef, 7d to 9d per lb. ; soup beef, 3d to 5d per lb. ; leg of mutton, 6d to 7d per lb. ; mutton chops, 9d per lb. Bread is sold in all manner of weights at about the same price as at home. Tea, 1s 3d to 3s 6d per lb. ; coffee, 1s 2d to 1s 10d per lb. ; butter, 1s 1d to 1s 6d per lb. ; sugar, 2½d to 3½d per lb. ; cheese, 9d to 10d per lb. ; milk, in winter, 4d per quart, three months in summer, 3d a quart, skimmed milk, 1d less ; eggs, per dozen, 9d to 1s 6d ; in winter, 1s 6d to 2s ; rice, 4½d and 5d per lb. ; potatoes, 1s 6d to 1s 8d a peck, in winter ; 1s 8d to 2s 4d a peck ; ham, by taking a half of one, 8d to 10d per lb. Clothing for summer wear—Serge and tweed suits, 32s to £3 ; finer material, £3 to £5 ; very finest, £5 to £8 ; straw hats, from 2s to 8s ; felt hats, from 6s to 12s ; boots and shoes, 8s to 28s ; hand-sewed to measure, 18s to 28s ; ladies' boots and shoes, 6s to 20s ; dress-making, 16s to 20s for making a plain dress ; men's shirts, 1s 6d and upwards ; men's linen shirts, 2s to 6s ; linen collars, 6s per dozen ; linen cuffs, per pair, 1s to 1s 8d ; cotton socks, 6d to 1s per pair ; woollen socks for winter wear, 1s to 2s per pair. Coals—a ton (2240 lbs.), in summer, from 18s to 21s ; in winter, 21s to 24s. Gas, 6s per thousand feet.

Cramp's Shipyard.

Mr D. Brown, Govan, writes :—Along with Mr Murray and Mr Bennett, I visited the shipbuilding yard of Messrs William Cramp & Sons, Limited, and saw several ships in various stages of progress. We were all through the U.S. armoured cruiser New York, which was almost completed, and which will be a credit to the builders. We were also on board several others, and were well pleased to see the manner in which they were being finished. They have besides on hand several ships for the late German line of steamers, which are to rival the latest of the Cunard Line, namely the Campania and Lucania, but I have very grave doubts of that, and I have not seen their model, but this much I may say that if they come within what they say they promise they shall do well. The Messrs Cramp had also on hand a yacht, which they are putting the engines into. The different wages which obtain in the yard are as follows :—Engineers or mechanics (weekly) average about £3 ; joiner or carpenter, £3 6s ; pattern-makers, £3 12s ; labourers, £1 10s ; riveters, &c., on piecework. They work 60 hours, but in summer when the weather is hot they only work 55 hours, stopping on Saturdays at twelve at midday, but nevertheless 60 hours constitute their week's work. They begin at 7, and work till 12, then have dinner till one, and work on till 6 p.m. They employ about 3700 hands at present, or, including the foundry, about 4000 altogether. Besides the shipyard they have a brass foundry, where they make all their brass castings. They have also an iron foundry, and make all their light castings such as rapid-firing guns, &c. They have bought a large amount of property outside their yard for the purpose of extending it. They have upwards of four or five year's work on hand at present. I understand they employ a great amount of non-Union labour, and have reduced the wages considerably for some time back. Their yard is very commodious, and they have every facility for launching, the river being both broad and deep.

New American Warships.

Mr E. Bennett, Newcastle-on-Tyne, also reports :—Through the kind offices of Captain Samuels, of the Bureau Veritas, we obtained a permit to visit the above works. I must say that I am not impressed with the way they carry on their work. With all the bounce of our Yankee cousins, they are certainly behind us in the general working of a shipyard, and would be all the better of a leaf out of the books of some of our builders at home, such as Armstrong, Mitchell, & Co., of Newcastle-on-Tyne, or the Fairfield Shipbuilding Co., Glasgow, and many others. From a conversation I had with a Scotsman who has just left that employ I find that the opinion I formed of the place on my visit is quite confirmed, and anyone wishing a job in that yard cannot have much difficulty in getting it if he will just wait for a short time at the gates. They will soon make room for him, as on an average five men were killed or maimed per week—at least so I was told by a Scotsman who had opportunities of knowing. The same thing prevails here that we find in every place in America that we have visited—there is little or no value attached to human life. However, they turn out a fairly good job. We had the pleasure of inspecting some of their ships in various stages of progress, and found the work well done. The United States armoured cruiser New York, which was almost completed, is of the following dimensions :—Length, 380½ feet ; breadth, 64 feet ; mean draught, 23 7-24 feet ; tons displacement, 8150 ; indicated horse power, 16,000 ; speed in knots, 20. She has twin-screw triple expansion vertical engines, her main batteries are six 8-inch breech-loading guns and twelve 4-inch B.L.R., her secondary batteries are eight 6-pounders, four 1-pounders, and four Gatlings ; her armour plating is —Belt, 3¾ inches ; turret, 10 inches ; deck, 6 inches. The contract price for this vessel was $2,985,000 or £597,000. They have also built two cruisers named the Columbia and the Maniopolis. They are both exactly of the same dimensions.

Queen of the Sea.

Such is the title that has been claimed for the Columbia, which on her trial trips attained a mean speed of 22·80 knots per hour, which would thus prove her to be the fastest warship afloat. The Columbia is unique among war vessels. Besides being the first triple screw cruiser, she combines speed, endurance, and power to a marvellous degree. In designing this vessel the United States

ARMY AND NAVY DEPARTMENT.

Naval Department evidently had in view America's only available method of warfare—the destruction of the enemy's commerce—and she was created with the intention of being able to capture and sink such ships as the Paris and the Teutonic should they ever fall into the hands of an enemy. In appearance the Columbia is more like a merchant ship than a man-of-war, for she has no sponsons or other projections that one finds upon all other war vessels, so she might easily creep up to an enemy until he is within range of her battery, and then either capture or destroy him altogether. The motive power of the new cruiser consists of three sets of triple

expansion, vertical, inverted cylinder engines which will drive the triple screws, the centre one being about four feet below the other two. Each engine is placed in a watertight compartment, and is complete in every respect, so that the vessel may be propelled at slow speed with the centre screw alone, at a medium speed by the two outer screws, and by the three when high speed is desired. Each shaft is fitted with a disengaging coupling, so that the

THE CRUISER COLUMBIA.

propellers not in use are free to revolve and not retard the ship. The following are the principal dimensions of the Columbia:—Length by the water line, 415 feet; beam, 58 feet; draught, 23 feet; displacement, 7350 tons; sustained sea speed, 21 knots; horse power, 21,000. The battery will consist of four 6-inch breechloading rifles, eight of 4 inches, eighteen machine guns, and six torpedo tubes. The contract price of the Columbia was £545,000, but the builders earned a large premium for excess of speed. The

System of Premiums

adopted by the American Government in connection with the work done in private yards calls for a brief explanation. In the case of the New York the builders won £40,000 premium, because on her trial that ship made 21 knots instead of 20 knots guaranteed, the offer being £10,000 extra for each quarter-knot of sustained speed over the guarantee. The new gunboat Machias won £9000 extra for her builders in the same way, and many other of the new ships proportionate amounts, while there has never been any reduction from contract price because of a ship failing to attain the contract speed. The fact is the premium business is merely a scheme to pull the wool over the eyes of politicians, who would otherwise talk about extravagance in ship construction. The speed asked for is always figured by the Navy Department so well within the probabilities of the vessel, as set forth in the specifications and designs of the Department, that none but a most careless builder could fail to exceed the speed called for. Contractors recognise this by a study of the plans, and are consequently able to bid at bottom prices, counting upon the premium as certain profit, while those who cry for economy have no chance to growl. I have the dimensions of several of the vessels the Cramps are building for the United States navy, which will perhaps be interesting to many readers. The battleship Indiana which had just been launched is:—Length, 348 feet; breadth, 69 feet 3 inches, mean draught, 24 feet; displacement, 10,298 tons; indicated horse power, 9000. She is to be fitted with the following guns—four 13-inch B.L.R., eight 8-inch B.L.R., and four 6-inch. That is the main battery. The secondary battery is to have twenty 6-pounders, six 1-pounders, and four Gatlings; her armour is—belt, 18 inches; turret, 17 inches; and deck, 3 inches. She is fitted with twin-screw triple expansion engines, the contract price being £612,600. Then there is the battleship Massachusetts which was also just launched. She is of exactly the same dimensions as the Indiana; for each ¼-knot over 15 these vessels make the

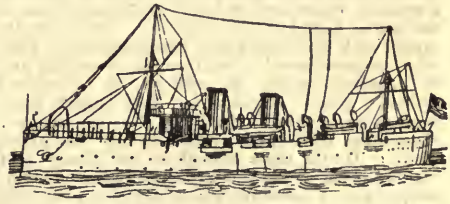
builder has a premium of £5000. The armoured cruiser Brooklyn—Length, 400 feet; breadth, 64 feet; mean draught, 24 feet; displacement, 9000 tons; indicated horse power, 17,000; speed guaranteed, 21 knots. Battleship Iowa—Length, 360 feet; breadth, 72 feet; displacement, 11,200 tons; indicated horse power, 11,000; guaranteed speed, 16 knots. She is to have four 12-inch, eight 8-inch, and six 4-inch breechloading guns. I was not able to get the contract price of these two vessels. The Newark, the Cramp Company say, is

Entirely American In Design

and fittings. Her hull was planned in the Navy Department at Washington, and her engines were designed and built by the Cramp Co. She was built by them and launched in March, 1890, and on April 17, 1891, she steamed away from their yard.

U.S.S. NEWARK.

The Newark is a protected steel cruiser, with ram bow and three bladed twin screws. She was designed to have a displacement of 4083 tons and 8500 horse power, and on the official trial trip exceeded the latter by about 368·578 horse power, which gained for them a premium of £7372. Her length is 328 feet; breadth, 49 feet; extreme draught, 21 ft. 6 in. Her maximum coal capacity is 810 tons, and her daily consumption at a speed of 15 knots is about 70 tons. The complement of this vessel is 24 officers, 279 enlisted men, and 36 marines. Her primary battery consists of twelve 6-in. breechloading rifled guns. The secondary battery comprises four 6-pounder rapid fire, four 3-pound rapid fire, two 1-pound rapid fire, and four Gatlings. The protected cruiser Philadelphia was launched on



THE CRUISER PHILADELPHIA.

September 7th, 1889, and run her trial trip in June, 1890. For four hours she developed a speed of six hundred and seventy-eight thousands of a knot in excess of what was guaranteed, earning a bonus for the builders of £27,120. She has horizontal twin-screw triple expansion engines, the diameter of her cylinders being 38 in. 46 in. and 58 and 40 in. stroke. She has four boilers, each 14 feet diameter and 20 feet long, working pressure 160 lbs. Her propellers are 14 feet 6 in. diameter, revolutions, 125. The battery consists of twelve 6 in. breechloading rifles, four 6-pounder rapid firing, four 3-pounder rapid firing, two 1-pound rapid firing, three 37 millimeter revolving cannons, and 4 Gatlings. She has proved in every way to be a most successful ship. Her complement is 28 officers, 309 enlisted men, and 40 marines.

The Cramp Company have at least six years' work on hand now, and are extending their yard, the present area being 25 acres and water-front 1229 feet. They employ 4000 hands. The total value of five ships, at present under construction, is £2,905,200. The workmen have an annual trip to Atlantic City, for which they pay $1, and any man by purchasing a ticket for this trip enrols himself into a sick fund, from which he, in case of accident, receives $3½ per week for five weeks, or, in other words, until he has received the total sum of $18, after which he receives nothing more. This Company have five beds of their own in the hospital for their own men, and the ambulance van calls at the works once every day unless required oftener. A young man told me that he had been working in that yard eight weeks, and during that time there were no fewer than 40 lamed. He spoke in very strong language against the reports on America that have appeared in some of our Scottish newspapers. He says that it was these reports which induced him to go out, and he found things to be very different from what they were represented to be.

The Drexel Institute.

Mr Logan, Glasgow, also reports:—I paid a visit to this institution while in Philadelphia, and found it to be the most magnificent and thoroughly-equipped I have ever seen. The Drexel Institute is a school of art, science, and industry, and was founded and endowed by Mr Anthony Drexel, who devoted £400,000 for this purpose. The building

THE DREXEL INSTITUTE.

is an extensive one, and is highly ornamental, being a very fine example of classic renaissance. It is entered by a richly-carved doorway; which leads to a spacious court seventy feet square, and which is the entire height of the building. I was greatly struck with the beauty and grandeur of this hall, which is constructed of richly-coloured marble, and is covered with a ceiling of decorated stained glass. Surrounding this superb court are galleries which lead to the laboratories, classrooms, studios, &c., which occupy the upper floors. On the main floor there are library and reading-room, in which is a rare collection of manuscripts, and a museum which contains a valuable collection of textiles, ceramics, carvings in ivory and wood, metal work, &c. There is also on this floor a large auditorium with grand organ, and capable of seating 15,000 persons. In the basement are the engines, dynamos, and boiler-rooms, which supply light, heat, ventilation, and power to the entire building. In the rooms surrounding this plant are the electrical and mechanical laboratories and workshops for wood-working, pattern-making, wood-carving bench-work, and machine-construction. The Institute is under the charge of Dr James M'Alister, who is a Scotsman, and

A Native of Glasgow,

and until recently was superintendent of the Philadelphia Public Schools. The organisation of the Institute comprises the following departments:—The art department includes lithography, interior decoration, modelling, wood-carving, and stained glass. The scientific department—chemistry and physics. The department of mechanic arts includes mathematics, science, drawing and English language, and shop-work. The department of domestic economy includes general and invalid cookery, dressmaking, millinery, and household economy. The technical department— electricity, mechanics and steam engineering, machine construction, and photography. The business department — book-keeping, stenography, and commercial geography. The physical training is a great feature in American schools, and the gymnasium of this school is acknowledged to be the best equipped in the country, and was designed by Dr Hartwell, of Boston, the leading authority on the subject in the United States. During the first year of the Institute, 1892-3, sixteen hundred students were enrolled in the several departments, while the teaching body consists of forty-five professors, instructors, and lecturers. From the description given it will be seen that the Drexel Institute is a monumental work, embodying in its structure and plan the best elements of the latest educational methods, and no industry which offers

THE GREAT COURT.

a skilled means of livelihood to men and women is neglected. This is not a free school, but the fees are so low that no one need be excluded either from the day or evening classes.

MAKING MONEY:

HOW IT IS DONE IN THE U.S. MINT.

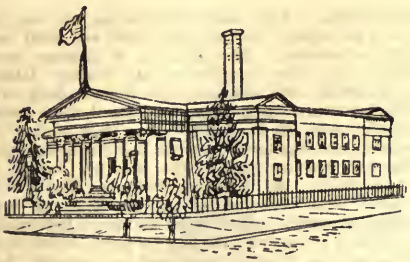
KNIGHTS OF LABOUR; THE INTERESTING STORY OF A GREAT ORGANISATION.

HOW HIGH LICENSE WORKS.

(From the Dundee Weekly News of December 23.)

Visit to the United States Mint. Operatives Who Make Lots of Money.

Mr Murray, the Conductor, reports:—The delegates when they visited the United States Mint at Philadelphia on July 22 saw more hard cash than they ever did in their lives before, but after a little



THE U.S. MINT.

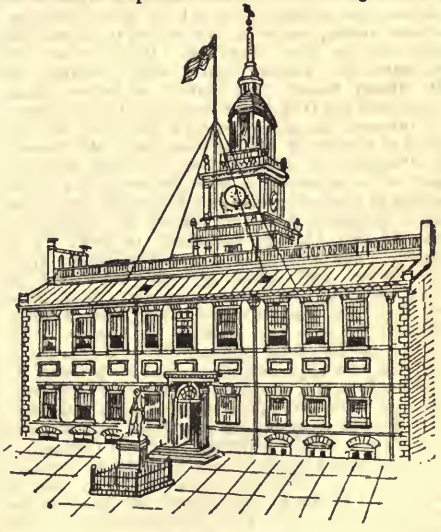
the sight did not appear to affect them any more than the same quantity of iron or lead would have done. The moment after entering the old building used as the Mint they were introduced to two great barrowfuls of silver ingots weighing from 60 to 80 lbs. each. They were good naturedly invited to take away one each as a souvenir of their visit, but although a few of the members of the party lifted up a chunk or two, they quickly treated them with contempt by replacing them on the barrows. It was here explained to them that the United States Government purchased from 4 to 4½ million ounces of silver every month to keep in the Treasury vaults against the paper notes which it issued, and that in both gold and silver coins ten parts out of every hundred consisted of an alloy. The furnaces and the rolling and stamping mills were next visited. Each of the twelve furnaces was, it was stated, capable of turning out 90,000 gold dollars in 1¼ hour, with corresponding quantities of silver and copper money. The stamping mills, also twelve in number, were wrought by women, who could, it was stated, turn out money at the following rate:—100 pennies (1 cents) per minute each; 80 5-cent pieces (nickels) per minute; and 90,000 dollars in gold per hour. "Now," said the guide, when he gave this information, "see when you go home if you can find women who can make so much money as that!" These women are principally wives or dependents of men who have

"THE ALMIGHTY DOLLAR."

lost their lives for or have rendered conspicuous service to their country, and are paid $2 (8s) per day of eight hours, the men being paid up to $5 (£1) per day. The principal officials are what the Yankees term "political snappers;" that is to say, they are like many others in the States who have to find employment elsewhere on the occasion of a change of Government. The vaults underneath the Mint were said to contain, at the time of the visit of the delegates, as much as 50 millions of silver dollars. The Government is shortly to erect a new Mint, probably in Broad Street.

"The Knights of Labour."

Mr Brown, shipbuilding representative, Govan, writes:—One of the most powerful and most remarkable organised societies of labour in America in modern times is what is called the Knights of Labour. It had its origin in a tailor of Philadelphia calling together eight friends on Thanksgiving Day, 1869, to form themselves into a society which should embrace all branches of skilled and unskilled labour for mutual protection, for the promotion of industrial and social education among the masses, and for the attainment of public and private reforms. The Order of the Knights of Labour was at first an organisation, the very existence of which was kept a secret. Its name was never mentioned, but was indicated by five stars (* * * * *), and for several years it grew rapidly in this profound secrecy. Finally, however, rumours became rife about "The Five Stars," as it was called, and Philadelphians noticed with trepidation that a few cabalistic chalk marks in front of Independence Hall could bring several



INDEPENDENCE HALL.

thousand men together. Alarm spread, newspapers circulated absurd fictions in regard to its designs, in which accusations of Communism and incendiarism were prominent, and Catholic and Protestant clergymen hastened to denounce the unknown movement. It was afterwards decided to abandon the policy of secrecy which had characterised the infancy of the Order, and it came before the world with a statement of principles, and repudiated all connection with violent or revolutionary associations. One of the aims of the Knights of Labour, as found in their "Declaration of Principles," is—"To persuade all employers to

agree to arbitrate all differences which may arise between them and their employés, in order that the bonds of sympathy between them may be strengthened, and that strikes may be rendered unnecessary." Their first general assembly was held in Reading, Pa., in 1878, when its membership is said to have amounted to eighty thousand, and one hears rumours sometimes that the membership amounts to one million, a million-and-a-half, and even two million. Their growth has been more remarkable in the south and east of the United States than elsewhere. One of the best achievements of the Knights of Labour is the good opinion they have won of many intelligent employers who really wish their labourers well. Not long since one of the most prominent manufacturers in Baltimore, in giving his testimony at a meeting of the Board of Trade, sufficed to induce that body to pass resolutions which were favourable to Labour organisations, and highly creditable to the broad intelligence and generous feeling of its members. Each industry has its local assembly and its own officers. The local assemblies are represented by delegates in district assemblies, and the district assemblies again send delegates to the general assembly. Officers in these bodies bear the titles with the prefix "District" or "General," but the head of the Order is known as the Grand Master Workman. The Knights are strong advocates of temperance, and exclude from membership all those who live by making or selling intoxicating liquors, placing them in the same category with bankers, stockbrokers, lawyers, and professional gamblers. The Order is professedly non-political, and, though it has been suspected of attempting to exercise an influence on politics, there is little direct evidence of such action, except in the case of the municipal elections in New York in 1886, when the Knights of Labour gave their support to Mr Henry George, and carried all before them. Since then the Order has been seriously embarrassed by internal dissensions caused partly by the refusal of the Grand Master Workman, Mr Terence V. Powderly, to allow the Society to take an active part in the agitation for an eight hours day in the spring of that year, and also his strong opposition to a resolution protesting against the condemnation of the Chicago anarchists in 1887. It is certain, however, that a great secession from the Order took place at that time and on that account. In 1890 a great strike took place on the New York Central and Hudson River railroad amongst the Knights of Labour. Although Mr Powderly disapproved of this measure also, he was apparently powerless to prevent it. It arose from the discharge of some 78 employés, many of whom were prominent Knights of Labour. The district assembly of the Order were anxious to declare a strike, believing that the Company's action menaced the existence of the Order amongst its employés. The strike was declared, and it threatened to spread throughout the lines of the Vanderbilt system. The employés applied to the Board of Arbitration, but the Company held that they had nothing to arbitrate upon, and that the various employés were in each case dismissed for individual reasons, not on account of their connection with any organisation. Nevertheless the evidence taken by the Board of Arbitration in the course of its inquiry showed that the Company were perfectly cognisant of the position held in the Order by those who were discharged. The Railroad Company, in anticipation of violence, hired

A Special Force of Armed Men,

but the only loss of life was the result of accidents to trains owing to the disorganisation of the traffic. The result of the strike was that the men were beaten, and between 3000 and 4000 lost their situations. The Knights of Labour have taken up the condition of female labour in America, and acknowledge that women have been, and are still, more oppressed than men, and the truth has been fully perceived that it is impossible to better the condition of the masses permanently unless the lot of the working woman is ameliorated. As a consequence the Knights of Labour were everywhere endeavouring to help women to secure higher wages and more favourable conditions of service. When girls have struck work on account of indecent treatment in factories they have found the knights their most ardent champions, and large contributions have been made by them in support of their sisters. A new regard for women is thus being cultivated among the masses, and the full sigificance of this can only be appreciated by those who take an interest in the movement. The working women of the country are, as would naturally be expected, learning to value the Order highly, and many of them have become members. Women are among the most ardent, self-sacrificing supporters of this labour movement. Another fact to which attention must be directed is the membership among the negroes in the south who are so much inclined to societies of various kinds that one can scarely find a coloured person, male or female, who does not belong to either one or another. They are everywhere joining the Knights of Labour, who do not discriminate against them, but consider them among their most faithful members. The dictation of trades unions is very often brought forward as an offence by those who are unwilling to recognise the right of the labourer to a voice in the management of the commodity which he supplies—labour—and in the management of which he is so vitally interested. I admit that it is quite possible that the labourer may make a foolish use of his rights, and it is certain that he too often does make such a use The surrender of personal liberty is often regarded as a condition of membership in a trades union, but this is little more than mere fiction in the case of any well-managed labour organisation. The Declaration of Principles of the Knights of Labour means undoubtedly Socialism, if one draws the logical conclusions of these statements, and one might be inclined to class them all as Socialists at once, but this would be a serious mistake. They do not bring their Socialism forward prominently, many do not even see that their principles imply Socialism; some of them are violently opposed to the theory itself, and many more to the name, while some do not think at all on the subject. The Knights are generally reported in Chicago to be decreasing in numbers and influence.

Philadelphia City Hall.

Mr Sinclair, Cambuslang, reports:—A tendency exists in the public mind to seek to classify every considerable architectural design under the head of some "order or style," but modern genius and taste deal so largely in original adaptations of classic and other forms, that we often find no small difficulty in deciding under which, if any, of the heretofore established orders or styles many of the most important structures of the present day can properly be classed. The architecture of the above building is of this character. It is essentially modern in its leading features, and presents a rich example of what is known by the generic term of the "Renaissance," modified and adopted to the varied and extensive requirements of a great American municipality. It is designed in the

THE CITY HALL.

spirit of French art, while, at the same time, its adaptation of that florid and tasteful manner of building is free from servile imitation either in ornamentation or in the ordinance of its details. This immense architectural pile is located at the intersection of Broad and Market Streets. It covers, exclusive of the courtyard, an area of nearly 4½ acres, and consists of one building, surrounding an interior courtyard. The north and south fronts measure 470 feet, and the east and west fronts 486½ feet in their extreme length. The four fronts are similar in design. In the centre of each an entrance pavilion, 90 feet in width, rises to the height of 202 feet, having receding wings of 128 feet elevation. The fronts terminate at four corners with towers or pavilions of 51 feet square and 161 feet high. The whole exterior is bold and effective in outline and rich in detail, being elaborated with highly ornate columns, pilasters, pediments, cornices, enriched windows, and other appropriate adornments. Archways of 18 feet in width by 36 feet in height, opening through each of the four central pavilions, constitute the four principal entrances, and at the same time afford passages for pedestrians up and down Broad and Market Streets directly through the buildings. The basement storey is 18 feet in height, and stands entirely above the line of the pavement. Its exterior is of fine white granite of massive proportions, forming a fitting base for the vast superstructure it supports. The exterior of the building above the basement embraces a principal storey of 33 feet 6 inches, a second storey of 35 feet 7 inches, and a third storey in the centre pavilions of 26 feet 6 inches, with an attic over the central pavilions of 15 feet, and over the corner pavilions of 13 feet 6 inches, all of white marble wrought in all its adornments and forms of exquisite beauty. The small rooms opening upon the courtyard are each sub-divided in height into two storeys. In the centre of the group a courtyard of 200 feet square affords light and air to all the adjacent portions of the building. From the north side of this space rises a grand tower, which will gracefully adorn the public buildings. The foundations of this tower are laid on a bed of solid concrete 100 feet square, 8 feet 6 inches thick, at the depth of 23 feet 6 inches below the surface of the ground, and its walls, which at the base are 22 feet in thickness, are built of dressed dimension stones weighing from two to five tons each. This tower which is so deeply and so strongly founded is 90 feet square at the base, falling off at each storey until it becomes at the spring of the dome an octagon of 50 feet in diameter. A statue of the founder of Pennsylvania (37 feet in height) will crown the structure and complete the extraordinary altitude of 547 feet. This statue of William Penn is presently standing in the courtyard, and when the tower is finished will be taken up in eight pieces and put in its permanent position. The weight of this statue is 60,000 lbs., and height 37 feet. The hat is 3 feet in diameter and the rim 23 feet in circumference. The nose is 1 foot long; eyes, 12 inches long and 4 inches wide; the hair 4 feet long; the shoulders 28 feet in circumference and 11 feet in diameter; waist, 24 feet in circumference and 8 feet 9 inches in diameter; legs, from ankle to knee, 10 feet; hands, 6 feet 9 inches in circumference, 3 feet wide and 4 feet long; feet, 22 inches wide and 5 feet 4 inches long.

Carpenters' Hall, Philadelphia.

Mr Brown, Govan, reports:—In the business quarter of Philadelphia, on Chestnut Street, between Third and Fourth Streets, is a quaint old building one hundred and twenty-two years old, and richly replete with historic memories. The building is of brick, with a low steeple, and of the old Colonial style of architecture. It is in a splendid state of preservation, and is known as "Carpenters' Hall." It was built in 1770 by the Carpenters' Company of the City and County of Philadelphia. The Carpenters' Company is one of the oldest associations of Pennsylvania and the oldest industrial society in America. It was instituted about forty years after the settlement of the province by William Penn, and maintains an uninterrupted existence from the year 1724. Among its early members were many prominent in Colonial history, and whose architectural taste and ability as builders have left their impress upon buildings that yet remain in Philadelphia as

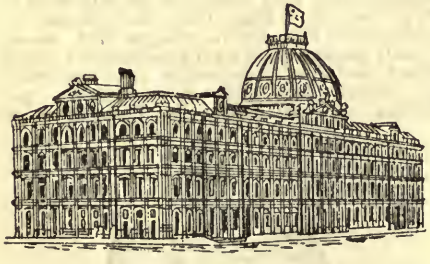
CARPENTERS' HALL.

memorials of that early day. The object of the organisation, as expressed in its Act of Incorporation, was much after the style of the guilds of Europe, those historic ancestors of the modern trades unions. The society was patterned after the Worshipful Company of Carpenters of London, founded in 1477. The armorial insignia of this Company in Philadelphia are identical with those

of that ancient body; the officers bore the same designations, and its declared object, ceremonials, and privileges were in furtherance with the same ideas. Its object was to cultivate and instruct its members in the science of architecture, and to assist them and their families in case of accident or need. It established a "Book of Prices" for the valuation of carpenters' work, and, to quote from their ancient rules, "on the most equitable principles, so that the workmen should have a fair recompense for their labour, and the owner receive the worth of his money." This Company charged an entrance fee of £4 sterling, which kept out many journeymen carpenters, and made the Society one exclusively composed of "master carpenters." All the historic Colonial Congresses and meetings prior to the Declaration of Independence were held in Carpenters' Hall. Here it was that in 1774, from September 5th to October 20th, the first Colonial Congress was held, and it was on that occasion, as afterwards on other occasions, that the inspiring eloquence of Patrick Henry, the Adamses, John Hancock, and the patriot fathers of the country stirred the people of the Colonies to throw off the yoke of English domination. In this hall it was that Washington, Franklin, Jay, Rutledge, and the men of the first Colonial Congress met; and afterwards, at the State House, on July 4th, 1776, gave utterance to the Declaration of Independence. After the revolutionary war was over, it was in this Carpenters' Hall, in 1787, the convention to frame a constitution met, and, after four months' deliberation, agreed upon a constitution for the "United States of America," making Carpenters' Hall memorable, both for the first united effort to obtain a redress of grievances from the mother country, and the place where the fathers of the Republic changed by the constitution a loose league of separate colonies into a powerful nation.

The Post Office.

Mr Sinclair also reports:—Five squares east of the City Hall stands the new United States



THE POST OFFICE.

Government building popularly known as the Post Office, but in reality containing within its massive walls besides perhaps the best appointed post office in the country the United States Courtrooms, and branch offices of the Coast Survey, the Geological Survey, the Lighthouse Board, the Secret Service, the Signal Service, and the offices of various officials of the Federal Government. The building is of granite, four storeys in height, with a dome reaching 170 feet above the level of the street, and has fronts 484 feet on Ninth Street and 175 feet on Chestnut and Market Streets. The entrances to the public corridor are on the Ninth Street front, and the several apartments of the Post Office business are conveniently arranged on the first floor, besides which on this floor the Western Union Telegraph Company has an office. Near each end of this corridor spacious stairways and hydraulic elevators lead to the upper storeys. Ground was broken for the erection of this structure October 11, 1873, and the business of the Post Office was first transacted within its walls March 24, 1884. Including the site, which cost the Government $1,491,200, about $8,000,000 were expended in its erection.

The Public Libraries.

Although Philadelphia is a very important manufacturing centre, it is also well equipped with institutions which have for their object the improvement of the mind. It has between 40 and 50 libraries, some of them free and others which charge an annual subscription of $4 (16s) or $5 (£1). The largest is the Mercantile Library with 165,000 volumes, but it is closely followed by the Philadelphia Library, which has 155,000 volumes. The latter was founded in 1731 by Benjamin Franklin and the Junto Club, and is open free from 10 a.m. till sunset. Connected with it is what is known as the Ridgeway Branch, located in a handsome classic building, and erected by means of a bequest of £300,000 by Dr James Rush in 1869. The American Philosophic Society, also founded by Franklin in 1743, and the oldest scientific institution in the States, possesses a fine library of 60,000 volumes. The Historical Society of Pennsylvania and the Franklin Institute (free) have both rich and interesting libraries, the latter consisting chiefly of scientific and technical works. The Academy of Natural Sciences has a valuable collection of books and specimens, and the Athenæum possesses 25,000 volumes. A kindred

FRANKLIN'S PRINTING PRESS.

institution to these is the Academy of Fine Arts—a beautiful building in Venetian Gothic, and in which there is a magnificent collection of paintings and statuary. It is free on Sundays and Mondays, but a charge of 25 cents (1s) is made on other days. The delegates in passing it on Sunday, July 23, looked in for a short time, and found a considerable number of working men and ladies inspecting the works of art.

The High License System in Philadelphia.

The licensing system followed in Philadelphia is similar to that in operation in Pittsburg, both cities being in the State of Pennsylvania. Previous to the passing of the Brook's Law six years ago there were 5000 licensed houses in Philadelphia, but a clean sweep was then made, and the number was reduced to 1300. Since then, however, the

number has been gradually increased, until now there are 1800 saloons. The holders of the licenses pay $1000 (£200) each annually, and, as in other places, this money goes to the Corporation to be applied to public purposes. In addition there are licenses for which the holders pay $500 (£100) annually, but these are not allowed to sell "unbroken packages" or less than a quart of liquor at a time, and only, too, for consumption off the premises. The sale of liquor to minors—persons under 21 years of age—is expressly prohibited. All license-holders have to appear annually before the judges elected by the people, when several skirmishes are witnessed between them and the officials of the local Law and Order Society. Strong language is frequently indulged in, and accusations of selling liquor after midnight are commonly made by the Society, but although a good few licenses have been cancelled on various grounds the judges generally advise the society to first bring the alleged cases of contravention before the criminal courts. In compliance with the provisions of the Brook's Act there is no Sunday opening in Philadelphia, the hotel bars being also closed, and it is said that this has led to the formation of a large number of Sunday drinking clubs and "speak easies," by means of which the law is evaded. According to one authority there are as many as 2000 such clubs in the city. It is also stated that in numerous cases working men combine together and purchase in turn on Saturday a keg of beer for Sunday consumption. No sign of Sunday drinking was, however, seen by the delegates during their stay in the city.

Cabinet-Makers in Philadelphia.

Mr Logan, Glasgow, reports:—The number of cabinet-makers employed in Philadelphia is very considerable. They work nine and nine and a half hours per day, Saturdays included, or 54 to 56 per week. Sixty per cent. of the cabinet-makers are Germans or German Americans. A good number of them are Swedes, the balance being divided amongst the other nationalities. The largest firm in the city is The Hale & Kilburn Manufacturing Company, employing on an average 70 cabinet-makers, 70 upholsterers, 30 varnishers, and 10 carvers; about 350 hands in all. Another very good firm is that of Hall & Garrison, who generally employ 40 cabinet-makers, 6 carvers, 30 mounters, and 30 gilders, or about 200 hands in all. I visited the workshops of Messrs Russell & Co., and found them very much like our own. The work is nearly all done by the same methods. The benches, tools, and machines are slightly different, being of American manufacture; but taking them all over, I think the tools and machinery that are used in our large factories in Scotland and England are quite as good in every respect. It is very remarkable that the same tools used and manufactured by Americans can be bought from 5 to 10 per cent. cheaper in Scotland than they can be bought for in America. Russell & Co., employ on an average 60 cabinet-makers and 20 carvers. They also have joiners, varnishers, and upholsterers, in all about 125 hands. There is a great deal of piecework done in the cabinet trade in Philadelphia, but the average wage for day workers is £2 16s per week of 54 hours.

Woodcarvers in Philadelphia.

There are about 150 carvers employed in Philadelphia, and about 30 apprentices. Wages run from 1s up to 2s per hour, according to ability. The average hours wrought per week are 53, and the average pay is £3 18s. I also visited the carving shop of Edward Macne, a Belgian. This shop is considered the best of its kind in Philadelphia, and at present is doing some very fine work in wood, marble, and stone. There is generally employed in this shop, between stone and woodcarvers, about 20 men, and the wages average from £3 to £5 a week. About two-thirds of the woodcarvers in Philadelphia are members of the International Woodcarvers' Association. The length of apprenticeships in wood and stonecarving is five years.

A CITY OF HOMES.

HOW WORKINGMEN BECOME HOUSE-OWNERS.

SUCCESSFUL BUILDING SOCIETIES.

EDUCATIONAL INSTITUTIONS AT PHILADELPHIA.

INDUSTRIAL TRAINING.

THE GIRARD COLLEGE.

THE PHILADELPHIA PRESS.

(From the Dundee Weekly News of December 30.)

Pennsylvania School of Industrial Art.

Mr Thomas Logan, Glasgow, reports:—The Pennsylvania School of Industrial Art is another school I visited while in Philadelphia, and deserves special mention. The purpose of this school is distinctly industrial, while the technical instruction is intimately associated with the training in art. In the Art Department the general course of study embraces drawing and painting in water-colours, drawing from models, casts, draperies, and still life, lettering, plane and descriptive geometry, projections, with their application to machine construction and to cabinet and carpentry work; modelling, casting, and wood-carving. Lectures are also given on anatomy and historical ornament. In the Textile Department the course of instruction embraces the theory of textile designing, and its practical applications to the art of weaving of single and double cloths, gauzes, trimmings, carpets, curtains, furniture coverings, &c., and related branches—scouring, bleaching, and dyeing of yarns and materials. Chemistry is taught with special reference to the needs of the different branches of the textile industries. This is a very fine school, and every room seems to be perfectly equipped for the special work to which it is devoted. Like all the other educational institutions that I visited, I had no opportunity of secing any of the departments in active operation owing to it being the summer holidays. I had to content myself with walking through the different workshops and empty classrooms, which in themselves were highly interesting. The following is the rate of fees:—Art class, day, £8 a year; art class, evening, £2 a year; textile class, day, £30 a year; textile class, evening, £4 a year.

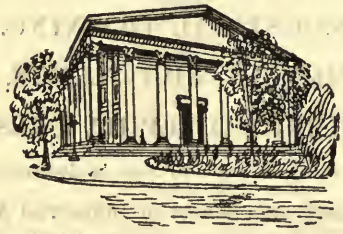
The Elementary Schools.

Pupil teachers serve five years, and cannot get through and be able to teach before attaining eighteen years of age. The females get £97 the first year as salary, with an increase of £6 each year for five years, and it stays at that until they pass an examination for supervising principal of a

secondary and grammar school. The salaries then range from £200 to £320. The male teachers graduate from £200 to £450. In some of the public schools they give the boys from nine to twelve years of age twice a week one hour at modelling in clay down in the basement of the school just to divert them from their other lessons, and the boys that do the best work get an apple, pear, or banana, or whatever it may be. Their work is also put on exhibition in the schoolroom till next modelling day. Philadelphia stands fourth highest in the salaries paid to school teachers in America. The highest are Boston, New York, and Chicago. The number of schools in Philadelphia is 428, attended by 118,268 pupils and employing 2878 teachers. School books are all free in the State of Pennsylvania.

The Girard College.

Mr Sinclair reports:—On arriving here and delivering up my pass, which I received in Chestnut Street, and passing through the lodge or gatehouse



THE GIRARD COLLEGE.

I was at once confronted with one of the best laid off pieces of ground I have had the pleasure of seeing in America. On either side of the main entrance up to the College was a long bed of beautiful flowers, all in full bloom, and the colours blending in beautiful harmony. At the end of this main walk stands a massive building of white marble, noble and severe in its lines, of pure Grecian architecture. The building proper of Girard College is entirely fireproof in its construction, being built wholly of white marble—walls, floors, and roof. There is a portico around the entire edifice of 21 feet in width, which adds largely to its dimensions, making it 152 feet wide and 202 feet long, on the ground to which is added a flight of ten steps around the entire structure. With the College at first were built four other buildings, two on either side, of white marble, of plain but chaste architecture, intended for the residences of the officers, teachers, and pupils of the college. The College, and these four supplemental buildings were begun in 1834, and finished in 1847, at a cost of £594,000. The grounds are surrounded by a substantial stone wall ten feet high, with the principal entrance opposite the south front of the college building. The College building has a vestibule at both north and south ends. In the south vestibule, which is the chief entrance, stands the marble statue of Stephen Girard, and the marble sarcophagus containing his remains. Upon the sarcophagus is the name "Stephen Girard," and upon the base of the statue the words—"Who originated and endowed this College." The statue cost £6000. The marble columns surrounding the building are 34 in number, 56 feet high, and 7 feet in diameter at the base, The cost of these massive and elaborately-carved columns was £2600 each. The entire grounds, which take in an area of 45 acres, are lighted by electric lights, for which purpose there are erected tall and

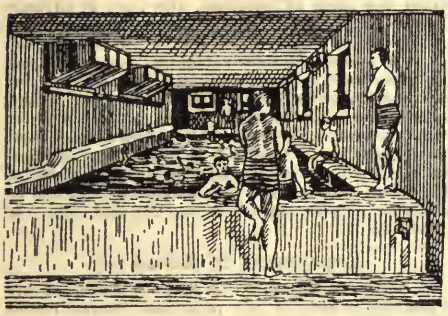
STATUE OF GIRARD.

graceful light towers at suitable points. The electricity is furnished by power on the premises. On the west side of the College stands a beautiful and touching little architectural structure called "The Soldiers' Monument." This handsome tribute to the memory of the former pupils of the College was erected by the Board of Directors. Its design is an open temple, and within it, standing at rest, a white marble figure of a soldier life-size. The structure is of Ohio sandstone, upon a granite base. Upon the south side, which is the front, is sculptured these words—"Erected A.D. 1869 to perpetuate and record the services of the pupils of this College, who in the recent contest for the preservation of the American Union, died that their country might live." In the western end of the grounds was

THE SOLDIERS' MONUMENT.

erected in 1883 the technical building, built of brown stone. Technical instruction was introduced in 1882. The results of the experiment were so satisfactory, that in the following year the Board of Directors decided to erect this building, which cost about £18,600, with its equipment of a powerful steam engine and necessary machinery, tools, &c. All of the pupils beyond a certain grade in the school are required to spend five hours per

week in this department. They are taught to work in metals and wood. The building contains a boiler-house and engine-room, foundry, iron department, department of mechanical drawing, and shoe department. Here the shoes of the pupils are repaired and many of them made. Near this is a large pond used by the boys for swimming



THE SWIMMING BATH.

in the summer and for a skating pond in winter, and it also furnishes the purest ice for the ice-house, which is beside it. Orphans are discharged from the institution by binding them out (indenturing to trades or other occupations), by cancelling their indentures to the college, or by dismissing for vicious conduct. When a boy finally leaves the College he receives an outfit of a good trunk and clothing to the amount of at least £15. The orphans are educated, clothed, and boarded in the College. The clothing is made in the style prevailing at the time, no uniform or distinctive dress being permitted. The annual cost of maintaining, clothing, and educating each pupil, including current repairs to buildings and furniture and the care of the grounds, is about £60. The number of boys who leave annually is about 150. The chapel, a

THE CHAPEL.

fine Gothic building of white marble, was erected in 1867. According to Mr Girard's will, no ecclesiastic, missionary, or minister of any sect whatever shall ever hold or exercise any station or duty whatever in the said college, but moral and religious instruction is given on all suitable occasions both in the schools and section-rooms. The officers and pupils attend worship daily in the chapel before the opening of the schools and after their close. The exercises consist of singing, reading the Scriptures, and prayer. On Sundays religious instruction is given by lectures or addresses delivered by the President of the College or some layman who may be invited morning and afternoon in addition to the daily worship. The applicant for admission as a pupil of the College must be "a poor white male orphan, who is above the age of six and under the age of ten years, and who is destitute of means, or without relatives able to maintain and educate him." By the will of Mr Girard, preference is given as follows:—"1. To children born in the City of Philadelphia. 2. To those born in the State of Pennsylvania. 3. To those born in the City of New York. 4. To those born in the city of New Orleans." Let us hope that the benefits of this College may be felt as wide as the boundaries of the country, and be as lasting as the marble columns of its own portico.

The Peirce College of Business and Shorthand.

Mr Murray reports:—The general adoption of the typewriter for correspondence purposes in America has led to shorthand being made one of the principal subjects of education in many of the colleges for advanced pupils in the country. Business men and others recognised with Yankee smartness the great saving of time and labour which could be effected by means of a clever stenographer, who was also able to quickly manipulate the typewriter, and now the clerk, who has not these accomplishments, finds it very difficult to retain, far less secure, a good situation. In this connection, also, a new avenue has, as already mentioned in the notices with reference to Chicago, been opened up for female labour, and one is struck by the number of young women employed in offices as stenographers and typewriters. A thorough practical business education is also now more required than ever. The Peirce College of Business and Shorthand now located in three of the floors of the *Record* Building in Chestnut Street was established as a high-class commercial school twenty-eight years ago, and by keeping pace with the requirements of the times it continues to hold a leading place amongst the educational establishments of Philadelphia. The subjects taught include German, French, commercial calculations, law and business forms, geography, book-keeping, and business correspondence, penmanship, shorthand, and typewriting. The average time required to complete the business course is from eight to ten months, and the shorthand and typewriting course about eight months. The fees run as follows:—Business or shorthand course—morning sessions—one month, £3; five months, £12. Afternoon sessions—one month—£1 12s; five months, £6. Night sessions—one month—£1; six months, £5. The graduating classes regularly visit, in company with an instructor, trust companies, banks, mills, the U.S. Mint, the Post Office, and the Stock Exchange, and the methods of working these institutions are fully explained to the students. Last year the total number of students enrolled was 1248, of whom 269 were females. The shorthand course was attended by 202, and 115 of these, or fully one-half, were

females. Sixteen of the States of the Union, including Florida and California, were represented on the roll, and there were also students from Canada, Brazil, and Colombia, South America.

How Building Societies are Managed.

Mr W. Smith, Denny, made inquiries regarding the management of the numerous and flourishing building societies in Philadelphia, and reports as follows:—The object of the City of Homes Building and Loan Association of Philadelphia is the saving of funds from monthly payments of the members to be advanced or loaned to those desiring to invest it, that the profits arising from the business thus transacted may, with the monthly payments, largely reduce the number of months required to make each share with its par value of £40. The capital stock of the Association is £200,000, and consists of five thousand shares of the par value of £40 issued in one or more series as the Board of Directors may determine. Each stockholder is entitled to a certificate of stock issued in the name of and under the seal of the Corporation signed by the President and counter-signed by the Treasurer, which certificate is transferable by assignment in person or by attorney in the presence of the Secretary. Each member for each share of stock by him or her held has to pay an initiation fee of threepence at the time of subscribing for stock, and 4s per month in current funds until the series with which he or she is connected has accumulated real assets sufficient to divide to each share on which no loan has been granted the sum of £40.

Loans or Advances.

Each member for each and every share of stock in his or her name is entitled to purchase a loan or advance of £40. The amount paid into the Treasury each month is sold to the highest bidder or bidders, and any member taking an advance or loan allows the premium offered by him or her to be deducted, and secures the Association for such advance or loan by judgment bond and mortgage or stock of the Association. A borrower giving real estate security also transfers to the Association a perpetual policy of fire insurance upon the property offered as security in such amount as the Board of Directors may require. Any member may have an advance or loan without real estate security to the amount he or she shall have actually paid as dues to the Association. For each advance or loan of £40 per share to a member, at least one share of stock must be assigned to the Association as collateral security. Any member taking an advance or loan must also pay to the Association in addition to his or her monthly dues for shares monthly interest on the gross amount of the advance or loan at the rate of six per cent. per annum, or 4s per month for each share on which such an advance or loan is made. Should any stockholder, who has received any portion of his or her stock in advance, neglect or refuse to pay any or all dues to the Association for six successive months, then the directors may compel payment of principal and interest by instituting proceedings on the bond and mortgage, or otherwise, according to law. The Board of Directors have power to keep one series open at all time for borrowing members, and in case a borrower requires an advance or loan on more shares than were owned by him or her at time of bidding, the requisite number of shares can be furnished to him or her, the borrower paying all back dues and assessments on such shares. None but members are allowed to bid for a loan or advance. The successful bidder must not take an advance or loan more than ten shares at one bid, but may continue bidding if there be more money to sell. If there are not sufficient funds in the treasury to meet such advance or loan, the balance will be supplied from the receipts of the subsequent meetings. All successful bidders are required to immediately submit to the secretary a full description of the property offered as security. In the event of a successful bidder failing to offer satisfactory security for the space of one month from the date of purchase, the loan or advance reverts to the Association, and he or she will be charged with one month's interest on the advance or loan, and all expenses attending the examination of titles, searches, and writings. All security for advances taken in the name of the Association, and after being executed, is deposited in the hands of the treasurer. No security can be deemed sufficient until it has been examined by the Property Committee of Directors and approved by a majority of the Board of Directors. No advance or loan can be made on property outside of the city and county of Philadelphia.

Repayment of Advances.

A borrower may repay an advance or loan at any time, and in case of the repayment thereof before the expiration of the eighth year after the organisation of the series to which the advance or loan was made, there will be credited to such borrower one ninety-sixth of the premium originally charged for every month of the said eight years, then unexpired. The borrower pays all expenses attending the cancelling of the mortgage or judgment. In case of a stockholder repaying an advance or loan, his or her shares originally transferred to the Association as collateral security are retransferred to said stockholders as free shares, precisely as if no loan or advance had been made thereon. From the premium offered for an advance or loan on stock more than one year old, one-tenth of said premium shall be deducted for each year that the series in which the advance or loan is made has run. Should any stockholder desire to sell a property on which the Association has loaned money, transferring to the purchaser all his right, title, and interest in the loan granted on his shares, he is at liberty to do so if he first obtains the consent of the Board of Directors to such sale or transfer. No such sale or transfer can be made until all dues, interest, and fines which the Association is then entitled shall have been paid, and the conveyance having been duly executed by the solicitor of the Association, with all the rights and privileges in respect to such shares of the members to whom the loan was first granted. Any stockholder having executed a mortgage in favour

WORKING MEN'S HOUSES.

of the Association, may substitute, subject to the approval of the Board of Directors, and at his or her expense, any other property as security to the Association in lieu of that originally mortgaged.

Purchases of Property.

The Board of Directors have power to purchase at any Sheriff's or other judicial sale, or at any other sale public or private, any real estate upon which the Association may have or hold any mortgage, judgment, lien, or other incumbrance or ground rent, when the interests of the Association require it. They also have power to sell, convey, or lease mortgage at pleasure to any person or persons whatsoever, any property of which the Association may become possessed. When any sale takes place of a property mortgaged to the Association, the Board of Directors requires the payment of all dues, interest, fines, and charges owing to the Association at the time of said sale, before satisfying the bond and mortgage against the property. In case the funds are not bidden for by any stockholder for the space of two months, the Board of Directors have power to invest the same in real estate, in United States Government bonds, or in the authorised loans of the city of Philadelphia, provided that no such investment be made except with the consent of two-thirds of the Board of Directors. Stockholders who have not received an advance may withdraw from the Association after thirty days' notice to the Board of Directors. They will receive the amount actually paid in as dues, less all fines and other charges, and after the expiry of one year from the issuing of the series in which the stock is held they are entitled to the amount of their payments as dues, with such part of the profits (not less than 4 per cent.) as the directors may allow. Not more than one-half the funds in the treasury can be used to refund money on withdrawn shares except by special order of the Board of Directors. The shares of any stockholder or trustee who neglects or refuses to pay his or her monthly dues or fines for the period of six months may be declared forfeited by the Board of Directors, when the shares revert to the Association. If such member has not received any advance, he is entitled to receive out of the first unappropriated money in the treasury the amount of dues he or she may have paid into the Association, in addition to the profits allowed withdrawing members of the same series after deducting all fines and charges, and thereupon cease to be a member of the Association.

Interest and Fines.

All members paying dues averaging over six months in advance to the Association are entitled on such payment to interest at the rate of 6 per cent. per annum. Any stockholder neglecting or refusing to pay his or her monthly dues or interest as the same becomes due must pay the additional sum of 1d monthly on each 4s remaining unpaid. New shares of stock may be issued in lieu of all shares withdrawn, forfeited, or which have reverted to the Association. In the event of the death of a stockholder his or her legal representatives are entitled to a transfer of the shares to themselves, and thereupon assume all the liabilities and are entitled to all the privileges of other members. No fines can be charged to the account of a deceased member for non-payment of dues or interest from and after his death, but fines that may have accumulated prior to that time continue to stand against his or her account, and be deducted from the amount due to his or her representatives in any settlement thereof. These byelaws cannot be altered or amended except at the annual or at a special meeting called for that purpose, and with the consent of two-thirds of the members present.

The City of Homes Building and Loan Association has 2682 shares with a capital of £30,076. The society has handled £20,000, and the withdrawals and matured shares have been paid promptly. Any stockholder can withdraw his money at any time by giving the secretary notice. The houses cost from about £500. They are very nice and comfortable buildings. They have four rooms and bathroom, hot and cold water, with water closet built of terra cotta brick with granite and marble steps up to them. They have a back yard with cellar, and their home is freehold, and their own home when they buy it. According to the value of their house they pay for every £50 5s for taxes, and the rent that would be paid is about £2 18s per month. The Association loaned out in 1892 £88,000, and were repaid £7913. It takes about eleven years to pay for houses by maturity, but they can pay it off as soon as they can. There are about 500 of these building societies in Philadelphia, which have upwards of £8,000,000 invested, and discharge mortgages to the amount of about £1,000,000 annually. All the societies in and around Philadelphia are audited by the stockholders.

The Philadelphia Press.

The people of Philadelphia resemble those of other American cities in so far as they are great newspaper readers. The city is accordingly well supplied with papers, there being no fewer than seven morning and seven evening issues. These are all well supported, some of the journals having very large circulations. The *Ledger*, the *Record*, and the *Item* (afternoon) are reported to head the list, the last named selling 170,000 copies, and the *Record* 165,500 daily. Amongst the others with

THE "RECORD" BUILDING.

big sales are the *Times* (80,000), the *Call* (65,000), and the *Inquirer* (60,000 to 70,000). The *Ladies' Home Journal*, a monthly edited by Mr Cyrus H. K. Curtis, is said to have a circulation of 600,000. Both the *Ledger* and the *Record* have new, spacious, and admirably arranged and equipped offices. In the latter all the composition is effected by means of fourteen Mergenthaler linotypes, driven by electricity. These machines have been found to work remarkably well, and although they cost $3000 (£600) each they are said to pay themselves in the course of a single year. Before their introduction into the *Record* office the weekly composition bill averaged $1650, while for the week ending July 22nd it reached only $872. The Typographical Union has allowed its members to operate these linotypes, and the men themselves greatly prefer them to hand composition. As an instance of the speed with which they can be wrought, it may be mentioned that a man in the *Record* office, who had not seen a machine until December, 1892, set in one day, of 8½ hours, 46,691 ems, receiving 16 cents (8d) per 1000. The men working these machines average, for six days' work, about $24 (£4 16s) per week. The Union rate for hand composition is 1s 8d per 1000 ems on the morning papers, and 1s 5½d on the evening issues, but the *Ledger* is said to pay as high as 1s 10½d per 1000. As a rule, apprentices are employed only in the book offices, and on weekly papers. It may be mentioned that a great many other American newspapers have ordered linotypes, but the supply of these at present is limited to 400 annually, of which the works at Baltimore can turn out 100, and those at Brooklyn 300.

A YANKEE SUNDAY.

WORK OF THE CHURCHES.

A MODEL SUNDAY SCHOOL.

A GREAT ORGANISATION.

SUNDAY IN THE PARKS.

(From the Dundee Weekly News of Jan. 6, 1894.)

Sunday Observance in Philadelphia.

Mr Murray, the conductor, reports:—Although Philadelphia has a police force of nearly 2000 men, including mounted officers in the suburban districts, it retains the character which it had from the first of being essentially a law-abiding city. This is particularly manifest on Sunday. A few restaurants and drug stores are open on that day, but Sunday trading is not so strictly forbidden and punished as in Pittsburg as what are termed soft drinks (soda water, lemonade, &c.) can be purchased in many places, and cigars can also be had quite freely. One is also struck by the great number of cyclists of both sexes seen on the streets, and one prominent feature of this branch of recreation is the large number of men carrying little boys and girls on seats in front of their own saddles. The aspect of the city on the first day of the week, however, is distinctly that of a large Scotch city or town. There are between 700 and 800 places of worship in Philadelphia, but it appears that the great body of the working classes seldom or never attend any kind of service, choosing rather to spend the day with their wives and families in one or other of the public parks. A native of Dundee, who has been six years in Philadelphia, was spoken to on this subject by one of the delegates, and in reply to a question he said he had never been in a place of worship since he entered the city, "he always felt too tired with working six full days in the week to go to church." He sent his children, however, to the Sunday School, and he mentioned that one day when he was taking one of his young boys past the 30 feet ststue of William Penn, at present on the ground at the new City Hall, the little fellow asked—"Is that God, father?" On Sunday morning some of the delegates proceeded up North Broad Street with the view of attending the Presbyterian Church at the corner of Green Street, but found it shut, and on making inquiries they were informed that it was closed for some Sundays in summer in accordance with a common practice in the city. Both the minister and the congregation had apparently gone to the country, feeling that although they might be able to fight satisfiactorily against sin and the devil, it was of little or no avail attempting to contend against the very much present force of the intense summer heat. The delegates having retraced their steps entered Arch Street Methodist Episcopal Church, where along with a fairly good congregation made up of various classes of society, they listened to a very thoughtful discourse. Mr John Sinclair worshipped in Spring Garden Methodist Episcopal (Dr Hulbard), and also attended the Sunday School, where, in response to a request made to him, he addressed a few appropriate words to the scholars.

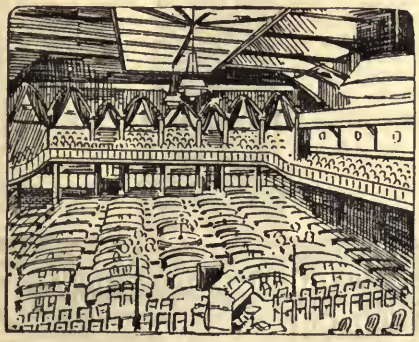
A Model American Sunday School.

The Americans, as a rule, run their Sunday Schools on peculiar lines, and without doubt they consider them the best in the world. One of the most interesting institutions of this kind in the

BETHANY SUNDAY SCHOOL.

United States is that connected with Bethany Presbyterian Church, which a few of the delegates visited on the afternoon of Sunday, July 23. They found the body of the building occupied by 1600 scholars, but the average attendance out of the 3000 on the roll is about 2000 during the colder months. The scholars entered smartly but quietly and took their usual seats, the boys being on one side and the girls on the other, with the younger children of both sexes under the side galleries. The body of the hall is occupied with seats of horse-shoe form, holding six or seven scholars, and there are also three chairs in the centre of each horse-shoe. In the middle of the

hall was a small fountain in operation, and this induced a feeling of coolness in the intense heat of



INTERIOR OF SUNDAY SCHOOL HALL.

the bright summer day. The boys were all neatly attired, and the girls, who were mostly in white dresses, presented a charming and picturesque appearance. Almost every one of the latter had a fan, which she kept using steadily in lively fashion, and they all chattered as only American girls appear to know how to chatter. At 2.25, however, a single stroke of a bell brought about absolute silence, and five minutes later the opening exercises were commenced. In all, there are eighteen or nineteen orders of worship, and the one best adapted to the lesson of the day is chosen. These consist of the singing of various hymns in parts, with the reading of appropriate passages of Scripture at intervals, the scholars reading the verses alternately with the superintendent, the boys also occasionally by themselves, and the girls by themselves. The singing, which was led by an orchestra of eighteen instruments, was remarkably fine, the sweet voices of the young folks blending remarkably well together, and nothing was more "taking" than the hymn sung by the younger girls. The Lord's Prayer was then chanted, and the first part of the proceedings, which occupied thirty minutes, was concluded with a brief *extempore* prayer by one of the teachers. Then followed the classes, when the lesson of the day was studied in a very thorough manner for another half hour. The subsequent service consisted of the singing of more hymns, interspersed with a few selections by a quartette of male voices, after which an exposition on the lesson was given by one of the superintendents, and the whole proceedings concluded with a twenty minutes' prayer meeting, attended by teachers, scholars, and strangers, of whom there was a very large number present at the school. The superintendent of the school is Mr John Wanamaker, the owner of the greatest emporium in the city, and it is said that when Postmaster-General of the United States during the Presidency of Mr Harrison, Mr Wanamaker frequently travelled all the way to Washington on Saturday night solely in order to conduct his Sunday Bible class of 100 adult members at Bethany Chapel. There are numerous flourishing agencies in connection with the church and school. The church, which has now a membership of 1650, has been practically built up through the operations of the school. The object directly aimed at is to interest as well as instruct the children, and no one who has attended the school and carefully watched the methods adopted can have failed to be struck with the great success of the system. The objects, methods, and scope of Bethany Sunday Schools and Bible Classes are defined as follows :—Objects —To teach the Word of God, to lead souls to Christ, to build up Christian character, to train every one to usefulness, and to encourage and assist Christian workers. Methods—By Bible classes, Christian endeavour meetings, prayer services, mission work, temperance work, social entertainments, encouraging thrift and savings, sewing societies, aid societies, diet kitchen and kindergarten, and evening classes. Scope—(1) No limitation of sex, colour, creed, condition, nationality, or age. The youngest scholar is less than one year old, and the oldest is over eighty. (2) The sick find friends, many of the unemployed get work, the troubled find sympathy and aid, and the untroubled find hearty, kindly, strong friendships. (3) No person whatever can justly say that an open door

MR D. L. ANDERSON, ASSOCIATE TEACHER.

was not set before him at Bethany to a better, happier life.

MR JOHN WANAMAKER.

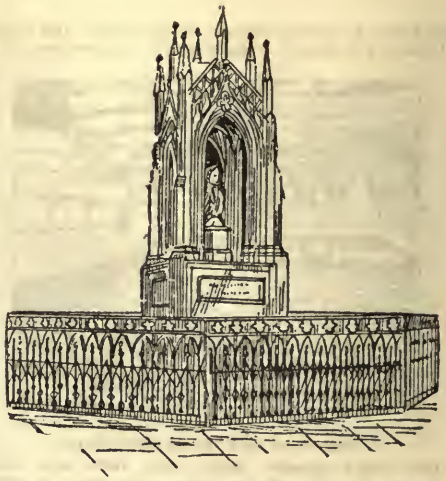
Methodist Episcopalian Services.

Mr Sinclair, Cambuslang, reports :—On Sunday morning after breakfast I went to Spring Garden Methodist Episcopal Church, and while standing in front of that grand edifice reading the board intimating the church services a gentleman came up to me and asked if I had a mind to go in. I would hear a good sermon, and seats were all free. I was very much struck with the frankness with which that gentleman addressed me and invited me in. I think we in Scotland would do well to show our interest more in our church services, and be more ready to give a cordial welcome to strangers. It was a most beautiful church, inside as well as outside. The floor was carpeted to the door, every seat was cushioned, and in every pew were a number of fans. The preacher, Dr Hulbard, came in exactly at 10.30, then the choir, which consisted of two ladies and two gentlemen, sang the last three verses of Matthew xi., which had a very pleasing as well as inspiring effect on the congregation.

After prayer and the reading of the Scripture, the two ladies in the choir sang a duet ("Sweet Peace"), then the Doctor announced his text—1st Peter, third chapter, and last verse—and preached a very powerful and eloquent sermon. At the close of the sermon, instead of walking down into the vestry as we are accustomed to in Scotland, the Doctor came to the door and shook hands with most of the congregation as they dispersed. When he shook hands with me he asked if I was a stranger, and when I told him who I was he asked me to come to the Sunday School at 2.30, which I promised to do. The Sunday School here was very much the same as the one Mr Bennett and I attended in Pittsburg, and conducted on the same lines. What astonished me most was to see the number of adults that came to the Sunday School. In the evening I attended a meeting in connection with the Young People's Society of Christian Endeavour. This Society was formed for the purpose of training converts for the duties of church membership. Each society is in some local church, and in no sense outside. It exists simply to make the young people loyal and efficient members of the Church of Christ. It is the church training the young. Its motto is "For Christ and the Church." Its essential features are the prayer meeting, the pledge, honestly interpreted, the lookout prayer meeting, and social committees, and the consecration meeting. Other committees are optional, and the constitution is entirely flexible in other points according to the needs of the local church. The United Society is simply the bureau of information for all the societies. It prints the literature, supports one general secretary, and is the general headquarters of the work. The office is at 50 Broomfield Street, Boston, Mass. It levies no taxes, however, and assumes no authority, but every society manages its own affairs in its own way.

Sunday in Fairmount Park.

Mr Mungo Smith, Dundee, reports:—I visited this beautiful park and took a walk along the side of the Delaware River, and was much struck with the sight of thousands of men and women, attired in their Sunday best, who were out for a day's enjoyment. The carriageway was crowded with buggies, many of them occupied by women, who handled the reins themselves. Bicycles ran past every moment, and lady cyclists were also numerous. Philadelphia is a great place for bicycles. One cannot turn round but they are to be seen driven in all direction. Family parties also come to Fairmount Park, laden with baskets of provisions, and picnic under the shady trees. The tramcars run all Sunday, and bring crowds of pleasure seekers to the park. You can have many miles of a ride on the cars for five cents, and one never thinks about walking any distance. Fairmount Park is unquestionably a beautiful pleasure resort. The extent of grounds and gardens is over 2800 acres. There are 50 miles of drives and 100 miles of walks and bridle paths. In addition, the city owns thirty other small parks and public squares, which brings the total park area of Philadelphia up to over 3000 acres. These beautiful breathing spots spread all over must tend to the healthy development of a great city like this with its 1,100,000 inhabitants. In passing round at all times of the day I saw many people sitting and enjoying the cool shade of the trees and near the water fountains, for these are much appreciated in such a warm country. The parks are all well supplied with seats, and though the flower beds are not protected in any way, no harm is ever done them. One of the things that the children are taught at the schools is not to tramp on forbidden



GRAFF MONUMENT

ground, and it would seem with good results. Schools that used to have their flower plots protected have removed the fences, and leave them open to train the children to look but not to touch. The Zoological Gardens are very large and well stocked. It took me three hours to walk and look at the various houses and enclosures containing the various animals, and it was really a splendid sight.

Sunday at Lincoln Park.

Mr Logan reports: — On Sunday afternoon, along with two friends, I went for a sail down the Delaware River to Lincoln Park, a distance of twelve miles. The river steamers in America are quite different from what we have at home. The one we boarded was a three-decker, with three funnels spread broadways across the deck, and extraordinary large paddles, which gave it anything but a smart appearance. The Yankees think their steamers are the smartest vessels in the world, but I think differently. Those who say so have never been to the Firth of Clyde. The sail down the Delaware was very fine. There are no fixed seats on board the American steamers. Everyone gets fixed to a camp stool or a lounging chair, which is so dear to the American. The scene on board the steamer is very animating, a band discoursing fine music, while the girls were neatly dressed in white or other light-coloured material, which made them look as if they were going to a ball. The youths and men were also dressed in light clothes, and few of them wore vests. And no wonder! Just fancy, 96° in the shade, and not a breath of wind. After a sail of 45 minutes, we arrived at Lincoln Park Pier. Here again the piers are different from ours, and, I think, could be copied by us with advantage. There were practically two piers—one above the other. The people leaving the steamer take the under one, and those going on board take the upper one. I think this is a splendid arrangement, for it saves time, crushing, and the annoyance we have sometimes to contend with at home. Lincoln park is a large pleasure ground, which is a favourite place of resort by the Philadelphians during the summer season. The grounds are beautifully laid out with a large band stance in centre, and bands play all the popular airs of the day. There is a large number of refreshment and ice cream saloons (the American girls are very fond of ice cream), toboggan slides, switchback rail-

ways, and merry-go-rounds, and all other things incidental to a pleasure resort. I noticed that the merry-go-rounds are different from those we have at home. They are not so highly decorated, nor so well got up, but instead of all hor es as we have, they have a number of birds and animals such as an eagle, ostrich, lion, bear, Newfoundland dog, &c. There was always a great rush for the "eagle." As they are going round the attendants hand out small iron rings and there being a brass one amongst them, the person who gets it is entitled to another turn. After strolling about for some time. and seeing all that was interesting, I returned to the city in the cool of the evening, having had a fair idea how the Yankees spend their Sunday afternoons.

THE CALEDONIAN CLUB.

WASHINGTON MONUMENT.

AMERICA'S NATIONAL GAME.

FAMOUS LOCOMOTIVE SHOPS.

A DAY AT BALDWIN'S.

(From the Dundee Weekly News of Jan. 13, 1894.)

The Caledonian Club.

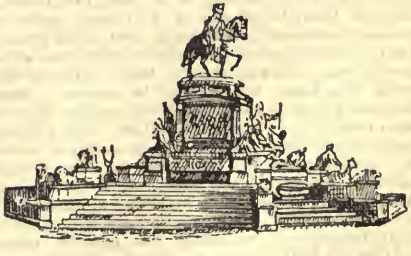
Mr Thomas Logan, Glasgow, reports:—Philadelphia possesses without doubt the finest and best equipped Caledonian Club in America. The handsome new quarters of the Club are situated in one

CALEDONIAN CLUB.

of the best parts of Philadelphia. It was opened about two months before our visit by a grand reception and banquet by the officers of the Club. The members and friends, after inspecting the fine new building, formed into line and marched to the banqueting hall, led by their chief, James Coupland, and three sturdy pipers dressed in full Highland costume. The rooms were beautifully decorated for the occasion with American colours and Scottish emblems, while the Mayor of Philadelphia, who is a Scotsman, wore in his buttonhole a bunch of heather all the way from the hills of Deeside, Scotland. The building was erected at a cost of £16,000. It consists of five storeys and a basement, containing all the appurtenances necessary for a well-regulated, social, and athletic club. It is constructed of red sandstone and iron, and the interior is very tastefully done up with solid oak. In the basement are a swimming pond, Turkish and shower baths, toilet-rooms, and a bowling alley. The swimming pond is 67 feet long, 25 feet wide, and from 4 to 9 feet deep, making it one of the largest and handsomest in Philadelphia. On the second floor is a gymnasium, the apparatus of which cost £1400. A novel feature in this hall is a suspended running track of 35 laps to the mile. The surface of this track is to be covered with canvas or indiarubber. The third floor is a large hall capable of seating 1000 persons. At one end of the room is a large stage behind the hall, and at the other end is a ladies' parlour and billiard-room. The fourth and fifth floors contain a banqueting hall, ladies' and gentlemen's retiring rooms, &c., and a number of other rooms that are intended to be rented to other societies. The roof of the building is so constructed that it can be transformed into a roof garden in the summer. This form of garden is very popular all over America. The whole building is heated by steam and lighted by electricity. The architect who designed the new clubhouse (John Ord, a Scotsman) presented the plans, valued at £200, to the Caledonian Club. Mr Andrew Carnegie presented the library with a splendid collection of the best books of all kinds and varieties, while the carpets for the entire building were furnished free of cost by Mr Alexander Crow, of the Caledonian Mills, Philadelphia. Like all other Caledonian Clubs in America no persons are admitted to membership except Scotsmen, their sons, and sons of members. The entry money is £1, and the annual contribution 16s, and any member who desires the use of the gymnasium and baths has to pay a further sum of 16s. Scottish games are held by the Caledonian Club every year, and are very popular with the people of Philadelphia. This year the sports were attended by over 10,000 people, the majority of whom were Scotch.

The Washington Monument.

The most striking work of art in Philadelphia (or for that matter the whole of the United States) is the Washington Monument. This is a grand eques-



WASHINGTON MONUMENT.

rian statue, with a lofty and richly ornamented marble base, the work of Professor Siemering, of Berlin, and is the outcome of subscriptions which were begun by the Society of Cincinnati as far back as 1819. The monument, of which an illustration is given, is about to be erected in a suitable location.

The American National Game.

Mr Murray, the Conductor, reports :—Americans take a keen interest in many kinds of sport, but the truly national game of the country is baseball. This game occupies in the States the same position which cricket does in England and football in Scotland, and although in the eyes of Britishers it might not be quite so exciting as either of their own great pastimes, it nevertheless possesses features of interest belonging to neither of these. When in the Quaker City a few of the delegates witnessed a baseball match between the Philadelphia and the Washington clubs in the contest for the National League championship. Both the teams were amongst the best exponents of the game in the country, and the match was witnessed by about 15,000 spectators who had paid a quarter of a dollar (1s) and upwards for admission to the ground. The enclosure was not nearly so large as that usually devoted to cricket, and on two sides the stands were close to the straight boundary lines, within which the ball had to be struck from the bat before the in-team could attempt a run. The batsman stood near the corner where these two lines met, looking towards the pitcher, whose position was in the field midway between the two lines already referred to, and about 20 yards distant. "Catch," behind the batsman, is an important field, and, although the batsman has no protection, catch's head and face are guarded by an iron helmet similar to that used in fencing combats, while his breast and abdomen are shielded by a thick leather garment, the umpire being also similarly equipped. It will be understood that this protection is required when it is mentioned that the pitcher throws the ball to the batsman with the greatest force which he can use. Including the batting point, there are in all four bases, laid out in the form of a square, and apparently about 20 yards apart; and the same man must cover the whole 80 yards before a run is scored. He may be caught out or run out, and he is also out if he misses four consecutive fair balls, although it is hard to catch the lightning-like deliveries on the round clothes beetle-like bat. These facts will explain how, notwithstanding that a match consists of nine innings, it is generally completed within two hours, and so few runs are scored. In the case of the match referred to, the Philadelphia club had beaten Washington on the previous day, and it was confidently expected by their supporters that they would repeat their performance, but the Senators, who opened the game, sent dismay at once into the Phillie's crowd by scoring 6 in their first innings, amongst them being one or two home runs for strokes which sent the ball straight out of the ground. The Phillies responded with only two runs, and as the game advanced it was evident that, strive as they could, the home team would be beaten. Many thousands went to the ground prepared to cheer to any extent in favour of the Phillies. The Phillies, however, did little to merit cheers on this occasion, and their supporters, like those of some Dundee and other football clubs, could not in the circumstances think of bestowing marks of approval on a victorious enemy; they could only give vent to their feelings by whistling the popular tune—"After the Ball." Some wonderful running catches were made by the out-fielders during the match, and the cricketing readers of the *News* will no doubt be interested to learn that it is a very exceptional thing for a baseball fielder in the National League clubs to miss a catch. The players in the leading baseball clubs are practically all professionals, and some of them are paid handsome salaries. The writer was informed that as much as 10,000 dols. (£2000) was once paid to a man for one season, and it is said that the salaries generally run from 2000 (£400) to 5000 dols. (£1000) for six months. Cricket is also extensively played in Philadelphia, and there are some fine batsmen and bowlers in the principal club. In addition to these, trotting matches are a source of great attraction all over America.

Pennsylvania Railway Station.

Mr D. G. Watson, engine-driver, reports :—

This building is situated on the north side of Market Street and facing to Broad Street, near by the City Hall. It has a frontage of 307 feet in length. On the corner of Market Street and Broad Street there is a stately tower 240 feet in height, with at its base a grand main entrance, besides another entrance from Filbert Street, and excellent accommodation for carriage entrance. On the second floor is a main waiting-room of large dimensions, dining-rooms, restaurant, and other places of convenient accommodation for the great multitude of passengers which travel from this station daily. The station is in the course of erection, and when finished will be ten storeys high, of which eight storeys will be used for offices for the Company. The train shed and platforms were being extended, and when completed will be one of the best in the world. The length of the shed is 598 feet, and it is 304 feet in width, covering over sixteen lines of tracks. The circular roofing is supported by great spans of iron arches of 294 feet. From this station about 250 trains depart and about the same arrive every day.

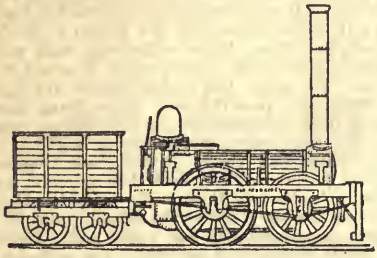
Baldwin's Locomotive Shops.

Mr Watson also reports :—I visited these large shops, which are situated in Broad Street. They are said to be the largest in America. There were at the time of my visit 5200 men employed in the works, and engines were being turned out at the rate of something like three a day. I was made very welcome, and shown round all the shops, which are fitted with the latest machinery of every

BALDWIN LOCOMOTIVE WORKS.

description driven by both steam and electricity. The erecting shop alone is very large, and covers an entire block of ground. It is 337 feet long by 160 feet wide of one storey of 42 feet high. It contains nineteen roads, each capable of accommodating four locomotives, or a total of 76. Above is a very large travelling crane, which is capable of lifting and removing from one place to another the heaviest engine ever built. The Baldwin's Works are prepared to build locomotives adapted to every variety of service and of any required dimensions. By the system of manufacture employed, all important parts are accurately made to gauges and templates. They are, therefore, interchangeable throughout any locomotives of the same class. This system permits of any parts needed for repairs being supplied either with the locomotives or when required. Such parts are made to the same gauges and templates which were originally used in the construction of the locomotive, and in this manner the expense of repairs is reduced to a minimum.

The maintenance of locomotive power is, besides, attended with the least possible inconvenience and delay. I could notice in course of progress many different kinds of engines. One especially I could not help noticing. It was a four-cylinder compound engine, outside cylinders, with both piston rods connected to the same crosshead, and the slide valves being round like a piston working in cylinders. Some engines of this class have been running for some time, and are said to give great satisfaction, both for strength and speed. The men are all on piecework, and work very hard. They work a ten-hours day, commencing at 7 a.m. and stopping at 6 p.m., with one hour for dinner. Their average pay amounts to—Machinists, boilermakers, moulders, from 8s to 12s per day; labourers, from 5s to 6s. Boys over sixteen years of age start at 2s per day, and when two or three years in the

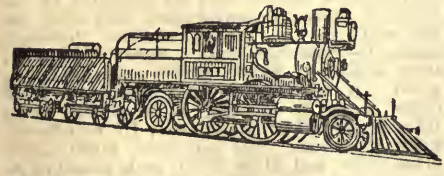


THE "OLD IRONSIDES," 1832.

employment they get a machine. That is how they work up. One very good thing I saw in connection with this work was an eating-house large enough to accommodate 170 men. I learned the man that looks after it gets it rent free, providing he supplies diets for the men at a price from 7½d to 1s. About 1000 of the workmen in this work own their own homes.

A Journey on the Locomotive.

I was invited by the Baldwin Company to have a trip on one of their compound express engines from Philadelphia to New York, which offer I accepted, and I started on Monday morning the 24th July, with the 7.30 a.m. express by the Reading road, which is a distance of 90 miles. We had six stops, and were slowed several times by signals. The time occupied was 1 hour, 55 minutes, with a train of six heavy load cars. The fastest mile run was done in 48 seconds, and for 12 miles on end we ran it in 10 minutes 35 seconds. The road was pretty level and in good order although a rather stiff head wind was blowing. This engine



was 6 feet 6 inches, four coupled compound with small wheel leading and trailing, large firebox, and engineer's cab on side of boiler. The fireman was alone with two firebox doors and a steam gauge to look after. All the rest of the handles were wrought by the engineman from his cab.

PHILADELPHIA TO NEW YORK.

THE GREAT CITY DESCRIBED.

NEW YORK POLICE FORCE.

THE WORKING MAN'S SCHOOL.

BAKERS AND CIGAR-MAKERS.

THE ELEVATED RAILWAY.

(From the Dundee Weekly News of Jan. 20, 1894.)

Philadelphia Factories.

Mr Mungo Smith writes:—I visited the Star Crescent Mill Company in Philadelphia on 21st July. They make all kinds of Turkish towels, tidies, cloakings, dusters, &c. I was very well received, and shown over the place. It will not compare with our own weaving sheds at home. The looms are too closely huddled together, not giving room to go about the work with ease. The girls are paid by the piece, and the yarn stands the loom very well, and doesn't seem to bother them very much. One girl or woman holds on two looms, with two towel widths in each loom. Loom bosses (tenters) have a busy time keeping the looms in order, as I saw they were very apt to go wrong. Every boss has forty looms to attend. There are two yarn beams in the loom at one time, and they are twisted on. The cloth is taken from the loom, a woman puts it up in two towel lengths, and it is taken to the packing house if it is green, and if white it is put through a process of bleaching in a tub, then run through the drying machine and done up in small parcels. One side of the towel has no woven selvage, and it is put through a hemming machine driven at very great speed—apout 60 yards per minute. They also make up some of the goods on the premises. I saw them shaping and sewing Turkish clothing for gentlemen to wear. The employés work 60 hours weekly, commencing 6.45 to 12, and 12.20 to 6 for five days. The works shut on Saturday at 11.45. The hands are paid fortnightly, and the rates of wages are:—Loom bosses (per week), £3; loom bosses helpers, £2; weavers (per week), 36s; winders (per week), 28s 6d. Other hands in the work are paid in proportion, a good many ranging from 20s to 25s. No one is employed below 16 years of age.

Manufacturers Who Work.

I also visited Sykes Brothers, manufacturers of carpet yarn, and these yarns are principally made from jute waste. I saw the jute waste gathered in Dundee and elsewhere teased up and spun into yarn of various sizes for carpets. One curious thing about this firm is that the four brothers were all working at the roughest work in the mill with shirt sleeves rolled up to the shoulders and faces black with sweat and dust. I said it was quite uncommon in Scotland to see men in their position working so hard. The answer was that that was the only way to make the thing successful, and it was good for them.

Brussels Carpet-Making.

I then called at the factory of Bromley & Sons, manufacturers of Wilton and Brussels carpets and Smyrna rugs and lace curtains. This is a very large building forming a complete square block of brick, five storeys in height.

The firm employ 2500 hands. The work is all done here in large and airy rooms or flats. The most of the workers are paid by piecework, and make splendid wages, so much so that Mr Bromley told me the competition with Britain in this class of goods would compel them to have a revised pay-list. I was shown the running weekly pays of a number of the workers. Women weavers vary from £2 to £4. Some weeks they would not be fully employed, which accounts for the variation. Some of the men weavers run as high as £5 to £5 15s per week, another class of young men earning £2 10s to £3 5s. In a large work like this there must be hands paid at various rates, but the general pay of the women employed at various other works is from 30s to 40s. Mr Bromley said he would not grudge their making that, but when they went up to £3 he thought it was too high. Philadelphia has outstripped New York, and ranks to-day as the leading manufacturing city in the United States. This position has been gained by the number and variety of its manufactures and by their commercial value. The city turns out over one-half of the carpet products of the entire country.

The Cost of Living.

Mr J. Sinclair writes:—I dropped into a stone-cutter's yard, and the boss at once gave me the wages that were being paid in Philadelphia. Stone-cutters' wages were 15s per day, 9 hours and 8 on Saturday.; granite-cutters, 14s 3d a day. The Society in both of these branches was very strong. In reference to marble-cutters, he said there had been great trouble with their Society, and at present there was no Union of marble-cutters in Philadelphia. The result was that marble-cutters were as low paid as 10s per day. I next asked him in reference to the cost of living, and he told me it cost him £3 a month for rent. He had four children and it took 32s a week to keep his house not speaking of clothing or any other extras. Then he told me he only wrought about seven or eight months in the year. I asked him how he got along in the winter. He said he picked up any job he could get, and that was very difficult, as the municipality here imported Italians by the ship load, and they did work for very little, and five or six families grouped together living in squalor. Thus, through the importation of these Italians, the labouring work of Philadelphia is hard to get, and if you do get it you get very little for it. He also said if I wanted to see Philadelphia proper I ought to come round about the month of December, and I would see plenty of poverty and privation.

The Delegates in New York.

Leaving Philadelphia in a Royal Blue Line train at 9.40 a.m. on Monday, July 24, the delegates,

DOUBLE STEAM FERRYBOAT.

after being ferried across the Hudson River, were landed a few minutes after midday at the foot of Liberty Street, New York. New York proper is situated on Manhattan Island, which is 13½ miles long, and varies in breadth from a few hundred yards to 2¼ miles. There are in addition, however, about 12,500 acres of the city on the mainland to the north of the Harlem River. The present resident population is estimated at about 1,800,000, but several thousands of men in business in the city live in Brooklyn or New Jersey. It is said that when Manhattan Island was bought from the Indians in 1626 all that was paid for it was only £5, but it would be difficult to estimate its value now. The older portion of the city below Fourteenth Street, which is the active business centre, is somewhat irregularly laid out, but the plan of the upper or newer part includes several broad avenues running northwards with streets running across them at right angles from river to river. Broadway is the best known thoroughfare in the city and is its leading artery, but its name belies it, as it is only about 70 feet in width. There is a system of cable cars in it, and the traffic which passes over it is something unprecedented. It runs straight north from the Battery Park at the south end of the Island to Eleventh Street, and then slants to the westward until it reaches Fifty-Ninth Street, where it is lost in the Plaza. The more frequented streets are lighted by electricity—powerful arc lamps being usually placed at the intersections—and the quieter ones by gas. the Corporation, which has no works of this kind, contracting yearly with private Companies for this purpose. New York has splendid waterways in the East or Harlem River and the Hudson River on the other side of the Island, up which the largest ocean steamers can easily sail. Little or no tide is experienced, and there are no docks, the vessels being moored to the numerous wharves or piers which project into both rivers.

The New York Police.

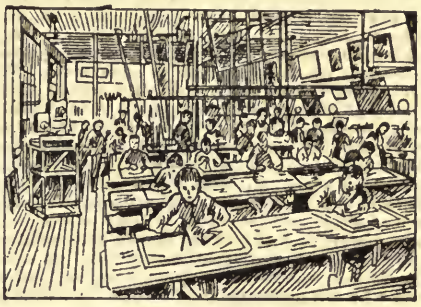
The police force of New York compares in a general way very favourably with that of any of the large cities of the Union, but in some respects it is behind Chicago and other large centres. This is more particularly the case with regard to the signal and patrol waggon system which has not yet been adopted in the city, the policemen still conveying their prisoners to the nearest of the 36 precincts or distrct stations, from which they are removed twice a day by a van, popularly designated the "hurry-up waggon." Almost every race is represented on the force, but the line is drawn at negroes and Chinamen. The great bulk of the force consists, it is said, of Irishmen, and it is generally understood that before a man can secure an appointment he has to place from $500 (£100) to $1000 (£200) into the hands of the philanthropic (?) gentlemen connected with Tammany Hall. The government of the force is in the hands of four Commissioners—three Democrats and one Republican—appointed, usually for a term of six years, by the Mayor, and each of these is paid $5000 (£1000). All the other officials, who are appointed by the Board of Police Commissioners, hold office for life, and are in receipt of the following salaries: — Superintendent, $6000 (£1200); chief inspector, $5000 (£1000); 3 inspectors, $3500 (£700) each; 15 surgeons, $2250 (£450) each; 38 captains, $2750 (£550) each; 168 sergeants, $2000 (£400) each; 176 roundsmen, $1300 (£260) each; 3237 patrolmen, $1000 (£200), $1100 (£220), and $1200 (£240) each, according to class; 82 doormen, $1000 (£200) each; and 40 detective sergeants $2000 (£400) each. In addition, there is a clerical staff, with telegraph and telepone operators, &c., costing $112,140 (£22,428), and there are also park and river and harbour police, the latter being equipped with steam boats

THE POLICE.

and steam launches. The park police, numbering about 500, are uniformed in grey, in order that they may be distinguished from those on street duty, and several of them are mounted.

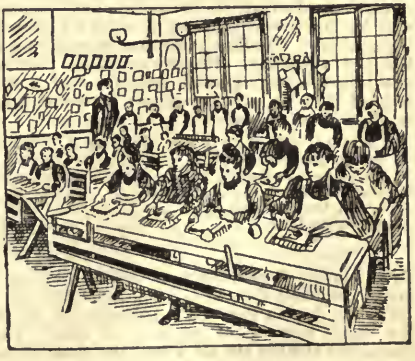
The Working Man's School.

This is an institution whose special merits were brought under the notice of the Messrs Thomson and the Conductor by a member of the Dundee School Board previous to the departure of the Expedition from this country. It was accordingly resolved that a visit should be paid to the School during the residence of the delegates in New York. Although it was closed at the time for the summer vacation, a good deal of information was obtained with regard to the objects of the school and its methods of working. The school, which is situated at 109 West Fifty-Fourth Street, was founded in 1878, and was started as a free kindergarten for the children of the poorer classes in the tenement house district of the city. Beginning with 33 it has now about 450 pupils, divided into 5 grammar, 3 primary, and 5 kindergarten classes. The substantial five-storey building in which the school is located contains more than twenty large rooms, a lecture hall, a machine shop, &c., and besides the ordinary branches the course of study embraces manual and art work, a complete course in elementary natural science, gymnastics, music, &c. There is in addition a kindergarten normal department for young ladies, who study the system both theoretically and practically. When the free kindergarten had been in successful operation for two years it was decided to attempt the development of the kindergarten principle, "learning by doing" in such a way that it might become the basis for a complete course of work and study in a regular school, covering the age from the sixth to the fourteenth year. German educational science, from which in other respects many suggestions and fruitful ideas have been borrowed, is only now beginning to erect schools for the people on this plan. The aim of the school is to give the pupils, whether rich or poor, an education calculated to bring all their faculties into harmonious play. Trades are not taught, but shopwork, modelling, needlework, &c., have



A CLASS IN MECHANICAL DRAWING.

been introduced as so many aids in the development of skill in the education of the eye and the hand. Experience has clearly shown that the standard of education hitherto universally accepted, which made the literary progress of a pupil the principal test of his intellectual capacity, is altogether false, as many a man, who in his boyhood found it difficult to adapt himself to the literary standard of a school, has broken his way to fame and success by means of talents of which his pedantic teachers had not the faintest inkling. It will be readily inferred from the foregoing that the use of text books has been almost entirely discarded in this school. The pupils learn from the objects themselves as far as practicable, and where objects are out of the question they learn from their teachers, who methodically bring down to the level of their understanding what their own sense or reason cannot grasp. Less attention is paid to the number of facts which a boy observes and of names he remembers, and more to the way in which he directly makes his observations, and intelligently describes them, even if untechnically. Great importance is thus given to natural science, but moral education proper also occupies a prominent place in the school. Once a month the parents of the pupils are invited to meet the teachers in order that they may familiarise themselves with the methods pursued in the school, and have the opportunity of freely talking over with the teachers all matters that may come up regarding their own children and their life in school. These meetings have done much towards furthering an intelligent co-operation of the home with the school. Mr Maximilian Groszmann is the superintendent of the school, and his staff consists of five other male teachers for



A CLASS IN CLAY MODELLING.

giving instruction in mathematics, natural science, art work, mechanical drawing and shopwork, and history and geography, twelve females being employed to instruct the pupils in English, German, designing, penmanship, music, gymnastics, &c. The school, which is carried on at a cost of about $25,000 (£5000) a year, is supported by the United Relief Works of the Society for Ethical Culture, an organisation chartered by the Legislature for charitable and educational purposes, and entirely unsectarian in character. Since 1890 a limited number of paying pupils, children of well-to-do parents, have been admitted into the school in order to bring out more clearly the fact that the system here adopted is applicable alike to the rich and the poor, to those who later on will obtain college education, and to those who will graduate directly from the school to the active pursuits of life.

Manhattan Elevated Railways.

Mr Watson writes:—The system of elevated railroads which carry trains of cars drawn by steam locomotives through the City of New York consists of four double main lines and a few short branches. In some streets they run up the one side and down the other about level with the second storey windows. At some points they rise to a height of five storeys, and at others they run along the centre, both lines close together, with tram cars running underneath on the street. The railway is constructed of longitudinal girders resting upon pillars of wrought iron firmly fixed in the street. At first sight one is apt to think they look rather top heavy with a wide base at the top and only one pillar underneath, and without the aid of any stanchions or other side support. They are very disagreeable in a street, for they are noisy and shut out the light. But they are certainly a great benefit to the travelling public, and are highly appreciated by every one I came in contact with. Every four or five blocks a station is placed, with a stair leading from the street at both sides. When you enter at the top of the stair you pass the ticket office, pay 5 cents, and get your ticket, then enter on to the platform. A man is there seated with a hopper-shaped box in front of him, in which you place your ticket. When a train comes up you step in, and go as far as you please without any more trouble. The conductors are very good in calling out the number of the streets at which the stations are placed. Travelling is far quicker with the elevated than the street cars, and every precaution is adopted for the safety of the public. There are block towers wrought with lock and frame, and along the outside of the rails is placed a beam of wood, so that if any vehicle should leave the rails this beam will guide it until it comes to a stand. I called at 71 Broadway, and had a talk with Mr Hain, who supplied me with a pass to the engine shop. Mr Hain is general manager for the Manhattan Railway. He sent me all the plans and time tables belonging to his railway, also a statement of the number of passengers carried in a year on all lines as follows:—

FISCAL YEAR ENDING JUNE 30TH, 1893.	
Second Avenue Line, ...	33,685,165
Third Avenue Line, ...	83,297,044
Sixth Avenue Line, ...	78,086,146
Ninth Avenue Line, ...	20,470,974
Suburban Line, ...	5,867,543
Total, ...	221,407,197

Total number of passengers carried on all lines up to and including July 13th, 1893, 2,000,000,000

The Manhattan has 36 miles of roads in all, and the total number of engines is 305. These locomotive engines are all about the same dimensions—four coupled tank engines with four-wheeled bogie under, trailing end, outside cylinder 14-inch diameter, with large comfortable cab. They are fitted with vacuum brakes throughout. The total weight of an engine is 22 tons. Drivers and firemen work an eight hours day, and are paid—Drivers, 14s per day and firemen 8s per day. Cleaners work ten hours a day and are paid 6s per day. I also had a look through the repairing shops, and met a nmber of Dundee men. Mr Kennedy, who had been twenty years in America, informed me they were going to get three days off duty owing to the trade being so slack. The average wage in this shop paid for time working 58 hours per week was—Machinists, 10s per day; carpenters

THE ELEVATED RAILROAD.

and painters, 10s per day; blacksmiths, 10s 9d per day; hammermen, 6s 6d per day; labourers, 6s per day.

The Conditions of the Cigar-Making Industry.

In America nearly every man and youth has contracted the habit of smoking, and a very large number of cigars are therefore consumed in the country every year. Cigar-making is one of the most important industries of New York, and as the result of the organisation of the operatives employed in it a decided improvement in their condition has been effected. Previous to 1879 the hours of work varied from ten to thirteen a day, the truck system was in full force, and wages were only about one-half of what they are now. The members of the International Cigar-Makers' Union obtained the eight hours day in 1886, but not before several strikes had been resorted to. Operatives are paid by the 1000 cigars, receiving from $11 (£2 4s) to $17 (£3 8s) for first-class work, and from $7 (£1 8s) to $10 (£2) for cheap goods. Employers state the average weekly wages at from $8 or $9 (£1 12s) and (£1 16s) to $11 and $12 (£2 4s) and (£2 8s). Unorganised cigar-makers often work on the tenement house system, and are for the most part Bohemians. They are paid from $3 (12s) to $4½ (18s) per 1000, and have to work sixteen hours a day. A large number of women and children are employed in this industry.

Bakers' Hours and Wages.

According to the report of the New York Labour Bureau for 1888, the condition of the journeymen bakers in the city had long been exceedingly bad. Nearly all bakeries were in basements, and their sanitary arrangements were most defective. The hours of labour were also excessive and included a large amount of night work. The Bakers' National Union was formed in 1886, and it has succeeded in reducing the hours of work in many cases to ten or

eleven on five days, and thirteen on Saturday. Wages vary greatly in different establishments. The Union gives them as from $15 (£3) to $18 (£3 12s) for first hands; $10 (£2) to $13 (£2 12s) for second hands; and $8 (£1 12s) to $10 (£2) for third hands. Further, the Union prohibits men from boarding with their employers, as was the custom formerly, and has introduced a label, sanctioned by the American Federation of Trades, to be put upon all loaves made in shops where their regulations are observed. The result has been a considerable change for the better in the character of the workmen.

ARTISANS AT NEW YORK.

NEW YORK POLICE COURT.

CRIME OF THE CITY.

FEDERATION OF LABOUR.

FALL RIVER FACTORIES.

WEAVERS' WAGES.

HOW TO BECOME AN AMERICAN CITIZEN.

ST ANDREW'S SOCIETY.

(From the Dundee Weekly News of January 27.)

The Delegates at a Police Court.

How Justice is Dealt Out in the States.

On Thursday July 27th Mr Bennett and Mr Murray, the Conductor, attended the Tombs Police Court. It is hardly necessary to mention that they went there not as offenders against the laws of the great Republic, but as spectators desirous of witnessing how justice was administered in the States. The Tombs, it may be explained, is in possession of a history, and its popular title is not without a dread significance. The building, officially known as the City Prison, was erected

THE CITY PRISON.

in 1838, and occupies the site of what a century ago was a fresh water pond. It is in the Egyptian style of architecture, and is considered the best specimen of that school in the whole of the country. Criminals awaiting trial, and not out on bail, are confined in the Tombs, and in it, before electrocution came into effect, all murderers sentenced to death by the New York Courts met their doom. Hence it has been in reality the tomb of not a few of its inmates. The delegates were prepared, from what they had seen of America and its institutions in the course of their tour, to witness the business of the Court conducted on lines somewhat different from those followed in the old country, but they hardly expected to see it run through in such a rough and ready fashion as that adopted by Justice Martin. The Justice, at whose side was a clerk or legal adviser, was seated on a raised platform at one side of the room. Between him and the prosecutor and witnesses, who were chiefly policemen, was a narrow wooden bench, and a railing separated the latter from the prisoners. The prisoners were conducted into Court by the policemen who had apprehended them, and the two classes filed up at one end of the bench, parallel to each other in their respective lines, ready when their turn came to have their cases disposed of. About one-half of the courtroom was reserved for the public, of whom there was a fair number present, and this portion was divided off from the other by an iron fence, having a gate attended by an officer. The court officer stood close to the judicial bench, directly facing the prosecutor or witness in the case under trial. Justice Martin did not appear

A NEW YORK NEWSPAPER'S REPRESENTATION OF JUDGE MARTIN.

altogether an unbenevolent-looking gentlemen, but the delegates when in New York frequently heard it stated that no man was considered properly qualified to act as a police justice unless he had himself committed almost every crime in the calender. The prisoners were a motley as well as a large crowd, and included Greeks, Chinese, Italians, Poles, Germans, and French, while there were not a few whose features and speech indicated that the Emerald Isle was the land of their birth. As will be readily understood, the services of the interpreters on the police staff of the city were repeatedly called into requisition. The windows of the courtrooom were open, and so great was the noise coming from busy Centre Street that very little of what passed could be heard by the auditors on the other side of the bar. It could be made out, however, that the Italians were chiefly charged with peddling without the necessary licenses, and the common fine was $2 (8s). One man was accused of assaulting his wife, a wretched, broken-hearted looking creature, and he had to find security of $500 (£100) not to break the

law against her for six months, illustrating that offences against females are smartly punished in the States. Another man, a young rough, devil-may-care sort of fellow, presented indications of having suffered some severe physical punishment before his interview with the Justice. Should prisoners prove obstreperous after their apprehension the officers have power to employ the clubs which they always carry in their right hand ready for any emergency, and that this particular prisoner had come in for a good share of clubbing was evident from the fact that all the covering he had on one whole side of his head consisted of two or three large pieces of sticking plaster. Amongst the prisoners were a few women. One of these was a girl young in years, but from whose cheeks the bloom of virtue and innocence had entirely faded. She was accused of disorderly conduct, but she spoke so eloquently to the Judge, promising to keep from drink and work steadily that she struck a soft place in his heart and he dismissed her with an admonition. The most of the prisoners had been guilty of drunkenness and disorderly conduct, and all that usually took place in their case was this:—Court Officer (to accused)—You are charged with being drunk. Have you got anything to say? Nothing to say (this to the Judge). Judge—$5 (£1). And then the prisoner was hustled aside to make room for the next. In the case of a man guilty of theft, the Judge asked—Why did you steal the complainer's watch? Prisoner—Because I wanted to know the time. Judge—You did. Well, the time is twelve months on the Island (Blackwell's Island in the East River, opposite Central Park, where the Penitentiary, Workhouse, Lunatic Asylum, &c., are situated.) In this way, and notwithstanding that evidence was led in several cases, about forty prisoners were disposed of in the short space of one hour. Several of the witnesses and also some of the prisoners were busy chewing tobacco during the sitting of the Court, but Justice Martin was not thus employed, and did not ask any of those before him to oblige him with a plug, although it was represented to the delegates that this was no uncommon request in some of the police courts of the States. A short time before the visit of the delegates, a man named Smith, who stated that he was an English army captain, caused some little stir in New York. One morning he was convicted of drunkenness, and fined at a Police Court, and before the Court had risen he was back once more in a state of intoxication. On seeing him the Judge said—Here again! Prisoner—Yes, but on a new charge. Judge—What brought you here? Prisoner—I came over to see the country and experiment on the jags (drinks, otherwise known as cocktails). Judge—They have got one jag on the island, and you can experiment on it for six months. The Police Courts in New York (fifteen in number) sit from 9 a.m. to noon, and again from 2 to 4 p.m. One can thus have some idea of the great number of persons dealt with daily by the police in the Metropolis of the North American Republic.

Crime in New York.

Crime is greatly on the increase in New York, but, considering the character of its population, the sources whence many of its "free" citizens are drawn, and the jobbery which seems to exist almost everywhere, it is perhaps not surprising that public morality should be so loose as it appears to be. Indeed, the surprise rather is from what one hears that about one-half of the whole population is not always fast by the heels. In 1891, 91,078 cases were disposed of by the police justices, being an increase of 3009 compared with the total in 1890, and of that number as many as 19,330 were females. Americans say that their laws are good, but that the difficulty is to get them enforced. In order to provide to some extent for this it is proposed to add this year 100 patrolmen to the force of the city. The men are six hours on duty and six hours off, but they are required to be in readiness for service at all times. In Broadway, the various avenues, and the leading thoroughfares generally the duties of the policemen are as a rule simple and easy, these consisting merely in answering appeals for direction by strangers, and in protecting persons at crossings. There are many "rough" places in the city, however, and it is necessary that the police should possess considerable powers, consequently when a person accused of any crime continues to seek refuge in flight after being ordered to stop by an officer the latter can shoot him, although, if all tales be true, it may be the minor offender who is brought down by the greater. The pension regulations provide that officers may retire on half-pay on attaining sixty years of age, and after twenty years' service, and there is also a special fund, with a capital of about $50,000 (£10,000), established by the late Leonard W. Jerome, a prominent banker; Mr James Gordon Bennet, of the *Herald;* and other gentlemen, for meeting cases in which policemen may be suddenly carried off. The total appropriation for the Police Department for 1893 amounts to $5,309,886 (£1,061,977), New York spending $800,000 (£160,000) more per annum on the prevention and detection of crime than on education! Such a fact requires no comment.

American Federation of Labour (New York).

Mr D. Brown writes:—I called at the office of the above, and saw Mr Samuel Gompers, president, and also Mr Christoper Evans, secretary. They informed me that the names of those composing the Board of Arbitration were Messrs Edward Feeney, Gilbert Robertson, William Pursell, and that their address was in each case Albany, New York, and for the State of New Jersey, Mr J. P. Macdonell. The Federation had been the means of bringing both employers and employed together to several conferences, and had been successful in many instances in avoiding conflicts and in bringing not a few cases forward for arbitration which were settled amicably. It had also been successful in getting the first Monday of September (Labour Day) established as a public holiday by legal enactment in no less than thirty-eight States out of the forty-four States of the Union. The Board seems to be doing much good, and is much appreciated by the different unions which have affiliation with it. Its roster of national and international trades unions contains such influential and diverse organisations as these:—Bakers' National Union, International Boiler-Makers' Union, Cabinet-Makers' National Union, Beer Brewers' National Union, International Boatmen's Union, National Union of Coopers, German-American Typographia, Brotherhood of Carpenters and Joiners, Cigar-Makers' International Union, National Federation of Miners and Mine Labourers, Miner and Mine Labourers' Amalgamated Association, Coal Miners' Protective Association, Horse Collar-Makers' National Union, Tailors' National Progressive Union, Furniture Workers' National Union, American Flintglass Workers' Union, Granite Stonecutters' National Union, Iron-

MR S. GOMPERS.

MR C. EVANS.

moulders' National Union, Amalgamated Association of Iron and Steelworkers, Journeymen Barbers' National Union, Metal Workers' National Union, Brotherhood of Painters and Decorators, Shoelasters' National Union, Custom Tailors' National Union, Textile Workers' Progressive Union of North America, International Typographical Union, Umbrella, Pipe, and Cane Workers' Union of America, and the Woodcarvers' National Union. The revenue of the Federation is derived from a *per capita* tax of one quarter of a cent per month of each member in good standing. The American Federation of Labour is numerically the strongest labour organisation in the world, even surpassing the Knights of Labour, possessing as it does an aggregate membership of 618,000, while that of the Knights of Labour is set down officially at 535,000.

St Andrew's Society, New York.

Mr Brown writes:—The above society is the oldest society in the State of New York, having been founded in the year 1750. It is thus upwards of 143 years old. It is composed of members who must be either Scotsmen or at least grandsons of Scotsmen. There are over 500 ordinary members on the roll. They pay $10 (£2) at the beginning and $5 (£1) annually afterwards. There are also over 100 life members, who are so named because they have paid *at once* £20. The office is at United Charity Buildings, corner of 4th Avenue and 22d Streets, and is open from 10 till 12. There is also another place, which is always open, at 287 East Broadway. Mr John Grierson is secretary, and Mr Geo. Calder, of Aberdeen, almoner. The revenue is derived from the annual payments of each member. There is also another source, namely, the centennial fund. This is a fund which was created when the Centennial Exhibition was held at Philadelphia, and is contributed to by such gentlemen as Mr Carnegie. It provides what may be called extraordinary income. The society exists for the purpose of assisting cases of need. The total number of applications for relief for last year was 2297. Male applicants, 1503; female applicants, 794; resident applicants, 1027; non-resident applicants, 1270; unworthy applicants, 196. The society, besides assisting poor widows and orphans, &c., of whom they have some 70 or 80 on the roll, who get about $4 or $5 a month, are in the habit of granting passage money home to those who, being in failing health and not soon likely to recover, wish to return to their native land. The society is also good for assisting some employers to find employés and *vice-versa*. The number of those who were assisted to find employment last year was 159; placed in permanent homes, 2; sent to hospital beds, 15; buried in the society's plot, 5; buried in other cemeteries, 7; persons aided from centennial fund, 119; persons who have repaid loans, 35; amount of repaid loans, £85; of persons aided medically, 61; provided with passages to *Scotland, 68; forwarded to other places in United States and Canada, 110; of lodging tickets furnished, 1929; meal tickets furnished, 4369. The permanent beneficiaries all receive useful presents at Christmas, consisting of coal, blankets, or wearing apparel. The funds invested amount to over £15,000. The annual banquet of the society is one of the best of its kind in the City of New York. The names of office-bearers and committees are as follows:—President, John Sloane (of W. & J. Sloane, carpet manufacturers); Vice-Presidents, George A. Morrison and J. Kennedy Tod; Managers, William Lyall, Alex. King, William Coverley, John F. Thomson, John Reid, and John Jardine; Almoner, George Calder; Treasurer, Alex. Laird; Secretary, John Grierson; Assistant Secretary, D. Macgregor Crerar; Chaplains, Rev. W. M. Taylor, D.D., and Rev. R. S. MacArthur, D.D.; Physicians, S. B. W. Macleod, M.D.; R. A. Murray, M.D.; and Andrew G. M'Cosh, M.D.; Standing Committee—William Wood and John S. Kennedy (of Glasgow), James Brand and Walter Watson (of Edinburgh), and Bryce Gray; Committee of Accounts—John Paton (Edinburgh), Alex. Maitland, Richard Irvin, James Callender, A. M. Stewart (of the *Scottish American Journal*); Committee of Installation—Robert Maclay and W. F. Cochran.

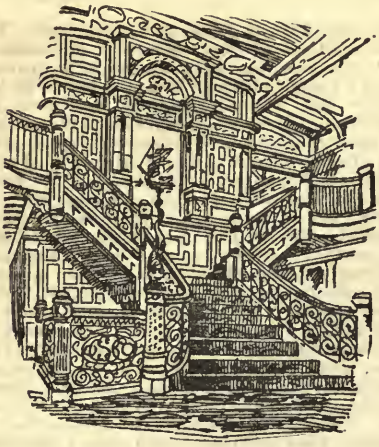
Run Up to Fall River.

Mr Mungo Smith writes:—The steamers that run up from New York to Fall River are described as

THE PURITAN.

the largest and the most costly in the world. On board the Puritan boat I thought myself a lord on looking around the tremendous floating palace. There are two saloons from end to end of the boat richly carpeted, the Turkey red being in fine contrast to the white panelling shaded with salmon colour. The cornices and beading are done up with gold, and the chairs and settees are done up with plush. Electric light is all through the boat. I counted over one hundred lights in one saloon. The effect was something grand. A band of twelve performers discoursed splendid music to the very gay and fashionable assembly. The Puritan has a splendid appearance from the outside with her three decks. The second engineer showed me the powerful engines, and gave me a few particulars about their strength and power. For his services he receives £5 per week. He has two Dundee men as firemen, and he gives them a very good character for being steady good workers. They were on duty at the time so I did not see them, but they get the *Dundee Weekly News* and know all about the

*These passages to Scotland alone last year cost the Society over a thousand dollars.



A STAIRCASE ON THE STEAMER PURITAN.

Expedition. The Puritan is built of steel and iron with watertight compartments and bulkheads. She is unsinkable and practically indestructible. Length over all, 420 feet; length at water-line, 404 feet; breadth of hull, 52 feet; tonnage, 4500; width across guards, 91 feet; depth of hold, 21 feet; engines, 7500 horse-power.

Fall River Factories—The Wages of Weavers.

With letters of introduction kindly provided by Mr J. L. E. B. Willard, 47 Leonard Street, New York, I was enabled to visit some of the works here and at Providence. This is the Manchester of America, and there are large works all around, but all are complaining about bad trade. In going round these works I was very much impressed with the conditions of labour. The rooms are all well lighted and airy, but I was told that the fabrics worked here are common or coarse, and the employés are not so well paid as some other workers. The following statements give an idea of some of the different wages paid by the Merchants' Manufacturing Company. They employ 1200 operators, who work 58 hours per week. This is the case in Massachusetts, but it is 60 in surrounding States. Weavers earn from 32s to 40s per week; section hands average 44s per week. The majority of weavers tend eight looms. Millspinners 42s to 52s according to length of mules; women on roving frames 28s to 32s per week. Warp is all spun on frames by girls at about 28s per week. Machine shop about 32s to 48s per week; eight men with boss, 11s per day. The above all refers to average 32 yarn and plain weaving, and represents fairly three-fourths of the Fall River.

The Manville Spinning Co., Providence.

Having a letter of introduction to the Manville Spinning Company, I proceeded to their work, which is 15 miles above Providence. It is the only work in the village. The proprietors have built hundreds of houses for the workpeople, and rent them to the hands at rents varying from 2s to 6s per week. A great many of them are in tenements, but for some time they have been putting them up singly; they are all wood. It is rising ground, and they are all scattered over the face of the hill. Ground here is very cheap. The rooms in this work are the largest ever I was in, and the work produced is very fine. It is nearly all figure work, and some very pretty patterns. It would rather astonish Dundee workmen to see it. I believe it is something like Paisley. The kinds of work done are nearly all ladies' dresses, and I believe they hold a patent for finishing some kinds of goods. They work 60 hours, while in Fall River they work only 58 hours. There are 80,000 spindles, and the hands number 1400. Millspinners earn from 28s to 32s, and weavers average 31s per week.

How to Become an American Citizen.

Mr Logan supplies the following copy of the form of declaration made by an alien who intends to become a citizen of the United States:—

STATE OF NEW JERSEY.

Be it remembered, that on the 7th day of February, in the year of our Lord, one thousand eight hundred and ninety-three, before me, Dennis M'Laughlin, clerk of the Court of Common Pleas, in and for the county of Hudson (the said Court being a Court of Record, having common law, jurisdiction, and a clerk and seal) personally appeared ———, an alien, a native of Scotland, aged about 23 years, who, being duly sworn, according to law, on his oath, doth declare and say that he arrived in the United States on or about the 23d day of June, in the year of our Lord, one thousand eight hundred and ninety-two—That it is *bona fide* his intention to become a citizen of the United States of America, and to renounce for ever all allegiance and fidelity to any and every foreign prince, potentate, State, and Sovereignty whatever, and particularly to the Queen of the United Kingdom of Great Britain and Ireland, whose subject he has heretofore been.

Subscribed and sworn before me this day and year above written,

DENNIS M'LAUGHLIN, Clerk.

(Signed) ————

State of New Jersey, Hudson County.

I, Dennis M'Laughlin, clerk of the Court of Common Pleas, in and for the county of Hudson aforesaid, do hereby certify that the foregoing is a true copy of the "Declaration of Intention to become a Citizen of the United States of America," of ———, as the same is filed on record in my office. The testimony whereof I have hereunto subscribed my name and affixed the seal of the said Court in the county aforesaid, this day of February, A.D., one thousand eight hundred and ninety-three.

DENNIS M'LAUGHLIN, Clerk.

VISIT TO ORANGE.

EDISON'S LABORATORY.

HIS EXPERIMENTAL WORKS

THE GREAT INVENTOR'S CAREER.

NEW YORK FIRE BRIGADE.

DOLPHIN JUTE WORKS.

PATERSON SILK MILLS.

(From the Dundee Weekly News of February 3.)

Edison Works at Orange.

Mr E. Bennett writes:—I had the pleasure of visiting Mr Thomas A. Edison's Laboratory at Orange. It is a place so unique and interesting that it is really worth description, and will, I have no doubt, be very interesting to the readers of the *News* as it was to me. The main building of the group is 250 feet long and three storeys high. There are also four smaller buildings 100 by 25 feet one storey high, the whole, with its grounds and outbuildings, constituting an establishment of most impressive proportions. On entering I was first

taken into the library, a magnificent hall, all lined with timber and varnished its natural colour. This hall rises some 40 feet, and is very little short of 100 feet square. Around the walls are deep bays containing books, and these bays are repeated on the gallery floors that come round three sides of the hall. At one end is a large open fire place filled with logs, before it stands an easy chair and a long reading table. Above the fireplace is a clock with a dial several feet in diameter. At the other

end of the room Mr Edison has his desk, which he had left only a few minutes before I arrived, so that I didn't have the pleasure of seeing him. Close to his desk he has a phonograph which he uses in dictating letters. The central space on this floor is occupied by a bank of flowers and palms, not far from which stands a fine marble statue of the Genius of Light, a figure with wings open, poised on the broken shaft of a gas lamp, and holding aloft a brilliant incandescent lamp. Lying on a lounge or couch in a snug corner of this room, I found Mr Edison's father, an old gentleman over 90 years of age. My guide told me that he was taking his afternoon nap and he didn't care to disturb him, or I would have been very pleased to have exchanged a few words with him. He seems to have been a very powerful man in his younger days. He is tall—I would say over 6 feet in height—and strongly built, and my guide told me that he is as straight as an arrow when on his feet, having no stoop as we very often find in old men. The book shelves contain between 30,000 and 40,000 volumes of reference. Here and there stand terrestrial globes, models of dynamos, &c. In one of the recesses is the exquisite Tiffany collection of minerals and gems exhibited at Paris in 1889, which was bought by Mr Edison. Around the walls are hung portraits, drawings, views, and other interesting objects. The air of the place is that of repose, yet it has a stimulating influence, and now and again as the doors were opened I could hear the hum of machinery. I am told that many a visitor never sees any further than this room, but I had the pleasure of being shown through the whole of the establishment. In leaving the library, we next visited the store rooms; here is a collection of nearly all the organic and inorganic substances under the sun. I am told that in carrying out his experiments Mr Edison was often hindered in bygone days by lack of materials that necessity demanded. When he came to make his incandescent lamp he worked through everything that it was possible to carbonise, and then explored the two hemispheres in search after the bamboo that would yield just the homogeneous fibrous structure that he required. He first tried making filaments of platinum and other rare metals, then threads rubbed with plumbago, coal tar, and similar substances. Then he turned his attention to vegetable fibres, and amongst them he found in the bamboo the material he had been searching for. There are no less than 1200 varieties of bamboo, but only 300 of these are useful for any purpose of experimenting. He discovered from these a form of bamboo which grows only in a certain district of Japan which gave him just what he required. This has to be gathered at certain seasons of the year and seasoned in a certain manner. In a very large nest of lockers or drawers are to be seen ores, gums, resins, metals, fibres, fabrics, chemicals of all sorts, hairs, feathers, skins, bones, teeth, oils, inks, hooks, quills, needles, shells, &c., anything and everything that one could think of, and in quantities large enough to last for years.

The Machine Shop.

The machine shop is a model of its kind. There are some very fine machines which do very delicate work. The watch is not to be compared with some of the parts of the phonograph, they are so delicate. This wonderful instrument, which has done so much to add to Mr Edison's fame, was invented by him in 1877, and was the outcome partly of his experiments with the telegraph repeaters, and partly of his extensive researches in telephoning. The original phonograph, which is now in the British Patent Office Museum, at South Kensington, consists of a brass drum with a fine spiral groove running its entire length, over which is placed a sheet of tinfoil to receive the indentations made by the needle attached to the diaphragm. On the shaft carrying the drum are mounted two heavy fly-wheels to secure uniform speed, as hand power only is employed to turn the instrument. In the present form of the phonograph a small composition wax cylinder takes the place of the brass drum and tinfoil, and the needle forms the record by engraving or scooping out minute particles of the wax cylinder instead of merely indenting it, and it is run by a small electric motor, and the adjustments of the diaphragm have been greatly simplified, rendering the phonograph almost entirely automatic in its action. In these works are employed over 100 men and boys, and one of the most interesting features in connection with the laboratory is that nothing is manufactured for sale. All the capital employed, and all the expert ability or industrial skill at command is devoted to experimental work alone. The commercial stage is reached later on. Many an experiment is doomed to failure, and many a promising clue when followed up leads nowhere, but each and every line of work has a definite object. It may be said that failures have their lessons of value.

Mr Edison's Mansion.

Mr Edison has a bedroom in the laboratory, and many time he never goes to his house for days and nights together, although his house is situated not very far from the laboratory. It is a fine mansion, which he calls the Queen Anne, and stands on the top of a hill. It is supplied with the electric current that is generated at the laboratory. One of Mr Edison's most laudable ambitions has been that of creating new fields of work, and to-day thousands of artisans of all kind find employment in the industries he has established.

The Inventor's Career.

A brief account of the life of Mr Edison may be

interesting to the readers of the *News*. He was born on February 11th, 1847, in a quiet little town called Milan, Ohio. His father, Samuel Edison, is a Dutchman, and his mother, Mary Elliott, was a Massachussetts woman of Scottish lineage. When Edison was only seven years of age his parents left Milan and went to a place called Port Huron, Michigan.

AT THE AGE OF TWELVE

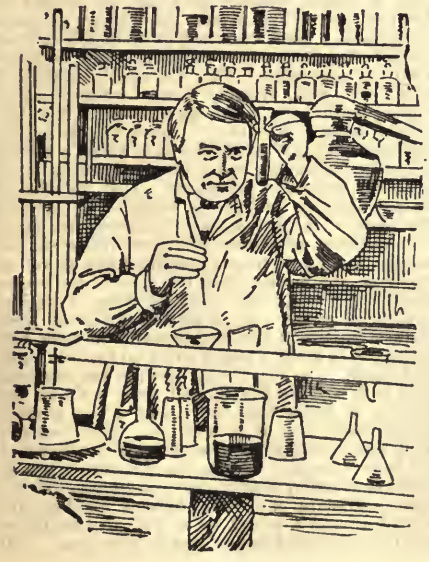
his quick intelligence had secured him a place as newsboy on the Grand Trunk Railway running between Port Huron and Detroit. He had only two months' regular schooling, but his mother, who had been a teacher in a Canadian High School, saw to it that his education was not neglected. Besides, he took to books like a bird to the air. Whatever came in his way he read and all that he read he remembered. Like a big sponge his mind drank up every fact and like a magnet his memory held to it all. His trips to Detroit gave him the opportunity to resort to the Free Library of that city, and he immediately devoted his enforced leisure to the task of reading the collection through. As an offset to these studies, young Edison gave himself up to commercial affairs at Port Huron, where he carried on a book-store, a news-stand, and a vegetable market, and employed eleven boys as his assistants. Early in 1862 he conceived an idea of publishing a newspaper on a train, and accordingly he started. He bought some old type and stereos from the proprietors of the *Detroit Free Press*. A smoking car served as his publishing and printing office. He did all the work himself. He devoted the paper, which he called *The Grand Trunk Herald*, to local and railway news, and built up a large circulation, and could count no fewer than four hundred subscribers. Edison began to combine chemical experiments with his journalistic enterprise, and the result was his summary ejectment from the car after setting it on fire with a bottle of phosphorus. Telegraphy was the next thing which claimed his attention. He bought books and apparatus and tried a little private line. About this time he saved the son of the station-master at Mount Clement from being run over, and the grateful father offered to teach Edison practical telegraphy. This offer was eagerly accepted, and in a very short time he was proficient, and within five months he had obtained an appointment as operator in the telegraph office at Port Huron. Edison thus entered the ranks of a humble profession that has given us a great many leaders of men. It was not, however, with an idea of becoming rich or famous that Edison enrolled himself as a member of the telegraphic fraternity. He was in love with the art, and probably saw in it a means of gratifying the passion for experiment that had gradually been developing in him, and that has been such an extraordinary element in his intellectual growth. No sooner had he settled in one locality than some mishap or trouble, or the quicksilver of curious youth in his veins impelled him to move on, and we find his peregrinations extending all the way from Canada to the Far South. At one time his imaginative mind was full of glowing pictures of South America, and he made up his mind to leave his native shores, and but for the fact that the ship in which he was to have gone had sailed before he reached the port of embarkation he would have carried out his intention and proceeded southward with companions who went, and of whom nothing has been heard since. We next see him at Indianapolis inventing an automatic repeater to transfer a message from one line to another without the intervention of operators. At Memphis he uses his repeater in placing New York and New Orleans in direct communication with each other for the first time. There also he experiments with duplex telegraphy, on which he took out no less than eleven patents. The point aimed at in duplex telegraphy is securing a method of multiple transmission, doubling the capacity of a single wire, enabling two messages to be sent over the same wire in opposite directions at the same time without any confusion or obstruction to each other.

Ups and Downs.

Edison had a great many ups and downs in his early life. At Louisville he turns up one chilly morning in the fall of the year walking through the icy streets in boots without soles, and protecting himself from the severe weather with an old straw hat and a faded dust coat, but through all these trials his brave young heart buoys him up, and beats a march to victory. Here he obtains a situation, and here again his experimenting and inventing go on. Here he managed to collect books and instruments in a modest laboratory; he also took a small printing office, and issued a treatise of his own on the subject of electricity. Unfortunately, however, he spoiled the upholstery of the new telegraph office by upsetting a carboy of sulphuric acid, and, of course,

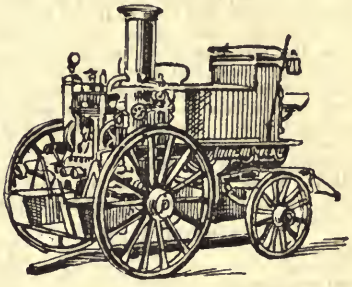
21 YEARS OF AGE,

was dismissed. He then proceeded to Cincinnati, where he built a miniature locomotive and some of his first duplex sets, and gave himself up to reading the scientific books at the Mechanics' Library, and then tired out he drifted home again to Port Huron. At this time he was only 21 years of age, and was called upon by the Grand Trunk Railway Company to increase the capacity of a short submarine cable, and then an appeal to a friend of his called Adams, in Boston, secured him employment in that city. This appeal was embodied in a letter written in his peculiar hand, which was the principal cause of his getting the situation. In Boston he opened a small workshop and put into practical shape many of the ideas with which his busy brain was teeming. He took out his first patent—that on a vote-recording machine. He built dial instruments for private lines, and put them in operation. He was called upon to lecture here on telegraphy before an academy of young ladies, but the modest young inventor could only conduct the experiments, leaving the oratorical part to his friend Adams. From Boston he naturally made his way to New York, and it was not long after he had reached that city that an accident in the transmitting mechanism of the Law Gold indicator system, upon which several hundred instruments depended, gave him the opportunity he needed. His skill in adjusting the damaged apparatus secured him a position and reputation and a salary of $200 per month. He set out and improved the whole of the instruments in use, and before long was not only engaged in the service of the Gold and Stock and Western Union Companies at a high salary, but had made a contract at a high rate to give them the option of all his telegraph inventions. In order to carry out his arrangements with the above Company he started a large factory at Newark, where he employed as many as 300 men, and sometimes worked upon no fewer than 45 inventions at a time. After a while, however, Edison found that the combined work of manufacturing and inventing was too much for his strength. If a new idea struck him it had to be tested at once in a thousand different ways, and this could hardly do in an ordinary workshop that was expected to yield an immediate return for every shilling. He therefore relinquished manufacturing in 1876, and started his laboratory at Minto Park, New Jersey. Here he brought out very many of his inventions till, only a very few years ago, he built the fine new laboratory at Orange, which I have mentioned above. Some idea of the inventions and discoveries of Mr Edison may be formed from the fact that he has taken out over 500 patents in America alone, and has applications pending for over 300 more.



The New York Fire Brigade.

The Fire Brigade of New York is in a very efficient condition, and having regard to the number of fires which occur daily in the city, this is absolutely required. Indeed, the delegates during their short tour in the States witnessed so many fires and so many more turns out of fire brigades that they formed the opinion that if the country



were not so very large all the property in it would be burned in the course of a year or two. Some of the New York newspapers publish daily lists of the fires which occur in the city, and from one of these it appeared that there were no fewer than fourteen on July 28, the day previous to the departure of the members of the Expedition. The Fire Brigade of New York consists of 57 engine companies, 22 hook and ladder companies, and 2 fireboats for the purpose of protecting the harbour and river front. The system in operation is the same as that in use in Chicago and some other large centres, all the firemen residing at their respective stations, and the horses standing ready to move underneath the harness resting over the shafts of the engines the moment the electric bell is rung. The department, consisting altogether of about 1000 men, is under three Commissioners, who are paid $5000 (£1000) each annually during their short term of office. The salaries are as follows:—Chief, $6000 (£1200); deputy-chiefs (2), $4200 (£840) each; chiefs of battalions (13), $3300 (£660) each; and firemen, $1000 (£200) each. The total cost of the department for the current year is estimated at $2,223,135 (£444,627). As was demonstrated to the delegates at the fire in the World's Fair buildings and elsewhere, the firemen are brave and courageous, freely risking both life and limb in the discharge of their dangerous duties, and they well earn the pension to which they are entitled after 20 years' service or after meeting with a serious accident.

Dolphin Jute Mills, Paterson.
The Calling House of Dundonians.

Mr Mungo Smith writes:—I called on Mr Brown, Dolphin Jute Mills. He showed very great kindness to me, and went round the mills with me. There are a great many people here from Dundee, Lochee, and Forfar, and I find that heads of all the departments are from these towns. They have got settled down here, and

are very well. This seems to be the house of call for Dundee people coming out here, and the mill is nearly filled with them. But a great many of them find their way to the silk mills, where, after a short time, they earn far better pay, and won't go back to the jute mills. The work done here is jute-spinning, twine-making being one of their principal things. Their looms are entirely filled, making girthing of from 2½ inches to 4 inches, all jute used for upholstery work. In conversation with Mr Brown he said they cannot compete with Dundee in making burlaps, even although we have to pay tariff in getting our goods here, owing to the exposure of the material, and the higher wages having to be paid here. He also complains of the different length of day worked in the several States. They work 55 hours in Paterson; Massachusetts, 58 hours; Providence, 60 hours; New York, 60 hours. He seems to think this kind of Home Rule should not be tolerated, but rather that the different States in the manufacturing line should have the same working week, and there would not be so much discontent about the length of hours. There is a very great difference between the service in a jute mill and that in a silk mill, and a very great difference in the workers' appearance. The following statement shows the wages earned in Dolphin Jute Mills; hours of labour, 55 per week—7 a.m. till noon, 1 p.m. till 6 p.m.; and on Saturdays, 7 a.m. till noon :—

CARDING-ROOM.	s.	d.
Shifter boys,	11	6
Card boys,	16	6
Card and drawing,	21	0
Single drawings,	17	0
Two drawings,	21	0
Back of rovings,	21	0
Rovers,	24	0
Back of roving and front of drawing,	23	0
Breaker-feeders,	22	0
Batchers and labourers,	35	0
SPINNING-ROOM.		
Shifters, per week,	11	6
Shifters and piecers,	16	6
Single spinners,	21	0
Double spinners,	26	0
Heavy spinners,	27	0
Shifting mistresses,	27	6
Truck boys and band sewers,	15	0
Mill foremen (good men),	£3 12s to £4	0 0
Other foremen,	£2 8s to £3	0 0
Mill mechanics (general),	£3	0 0
Reelers, average,	£1 10	1

The cost of living here seems to be rather cheaper than in some other places. I would not advise people to come out to America at present, as they are very unsettled, and a great many workers are going idle.

The Silk Mills.

I found on visiting a silk mill that this is the best paid of all the works. The mill I visited is an old-established one. They weave all sorts and sizes of ribbons and silk dresses. Most of the looms are wrought by men, but there are a good many women, and they make splendid pay. Men make from £3 16s to £5 per week, and women make from £3 8s to £4 4s per week. Warpers also make big wages. A good many young girls are employed in folding ribbons. It is a treat to see the different processes of silk twisting, winding, warping, and weaving. I got into conversation with a Fife man hailing from Kirkcaldy. He came to this country about five years ago. He acts as a porter and timekeeper, and gets for his work £2 12s per week, and pays £2 per month for house rent. He said he never advised any of his friends to come out. Although he had £3 per week he would prefer to live at home with 30s, and would be happier every way. He had no vote for municipal or State matters, and could not have one until he became a citizen. "You can purchase many articles of both food and clothing," he said, "as cheaply as in the Old Country, but a great many are dearer. House rent and coals take a big slice off in the year. You can have board here for 22s per week, but there are a great many things you have to provide yourself with even at this figure." I also met a young woman from Stirling. She was a dressmaker when she came over here, but finding the work confining and not too well paid, she went to the factory. She is mistress over the packers, and has £2 8s per week. She pays for her board 17s, and sends £1 every week to her mother. She finds she is more comfortable and better paid than at the dressmaking, but she said it was the money that made her stay, as her people at home required a little help. When I saw this lady, she was asking leave for herself and the others in her department to get home for the rest of the day, as the heat was 86 degrees and unbearable. It seems they have to go home on very warm days.

COST OF LIVING IN NEW YORK.

CHILD LABOUR IN AMERICA.

PITTSBURG TO NOVA SCOTIA.

DESCRIPTION OF NEW GLASGOW.

A MODEL TEMPERANCE PROVINCE.

(From the Dundee Weekly News of February 10.)

Cost of Living in New York.

Mr T. Logan writes:—Although the artisan in America receives big money his ordinary expenses are big also. The houses in New York are built on the flat system, somewhat after our own, only not nearly so substantial. They are mostly all built of brick, with slim, rickety, narrow wooden stairs, regular death-traps in the event of fire. A three-roomed house, with two or three tenants on the flat, costs from $12 to $16 (£2 8s to £3 4s) a month according to location, and a flat of five rooms costs $30 (£6) a month, or £72 a year. That includes all taxes, which are paid by the landlord. I noticed that some of the better class tenements are fitted with elevators, which the people use instead of the stairs; in others there are speaking tubes as well as the usual bell leading from the close to the houses above. I thought the speaking tube a capital idea, as a person can in many cases do all their business by simply speaking through the tube, and thereby save many a weary climb up two, three, or four stairs. As regards the food, it was admitted that it is a little dearer, and from my own experience I found that the living is on a more liberal scale than it is with us. There was one thing that struck us all, that was the crudeness of the table utensils. No matter whether it was in hotels or common boarding-houses, it was all the same. Teacups are made without handles, are about a quarter a pound in weight, and for thickness resemble our common jam or jelly-pots. All

the delf is the same, heavy and coarse; even the knives and forks have a pot-metal look about them. It is well seen there is no Staffordshire or Sheffield in America. As to clothing I am informed that it is from 20 to 30 per cent. dearer than our own. In the cheap class of goods there is not much difference in the prices; it is in the better class that one sees the difference. A suit of clothes that would cost £3 5s in Glasgow would cost £6 in New York, and an overcoat at £2 10s would cost £5. The average artisan in America dresses very flashily, and requires more clothing than we do. It is absolutely necessary for them to wear different clothing in summer and winter owing to the extreme heat and cold. Then there are other things that run away with the big pay, for instance, hairoutting, 1s; shaving, 7½d, and the average Yankee no more thinks of shaving himself than we at home do of cutting our hair. A glass of beer costs 2½d; glass of whisky, 5d; lowest car fare, 2½d, but it is only fair to state that it takes you any distance; lowest cab fare, 4s. In America you have either to brush your boots yourself or get them polished on the street, which costs 2½d. Some places the delegates had to pay 5d for "a shine," while at Niagara one of our party had to stump up 1s for a shave. There are other articles that are just as proportionally dear, and soon mount up the expenses.

The Climate of America.

If a person could live the same here (New York) as he could in Scotland, he could save plenty of money, but the climate demands a different and more expensive mode of living, because if a man does not live well in three months of extreme heat his blood becomes so poor and thin that it would stand hard with him in the severe winter; and if he does not live well in the winter it would be all the worse for him in the summer. The climate of America is very severe on the human system. Such a thing as a red cheek is scarcely to be seen amongst the children. They have just the same pale, sallow complexion as their elders. I noticed also a marked absence of old people; in fact, it was a common remark of our party that they had failed to notice what they could really call an old person in the whole course of their journey. As to the general question—"Do you think I ought to emigrate?" I have no hesitation in saying that if you are comfortably placed, with anything like steady work, and yourself and family in fair health, I would say, don't emigrate. If you wish to emigrate because you would like to live an easier and less oppressed life, stay where you are, for it is as hard, and at the present time much harder, to find work than it is here, whilst the temptations to break away into dissipations are infinitely greater across the Atlantic than they are in this much-abused, but still possibly happier, land of mountain and flood.

Child Labour in America.

When in America the delegates made particular inquiries into the question of the employment of children, with the result that they collected a considerable amount of interesting information. Child labour has greatly increased, especially in some of the States, during the past twenty years. It is employed principally in the cotton mills and in the cigar industry carried on in tenement houses. Amongst the operatives in the cotton trade there is one child to every six adults, and in New York city alone no fewer than 24,000 children are employed in cigar-making. The age at which children are allowed to commence work varies in different States. In Connecticut, Massachusetts, Pennsylvania, and Wisconsin no child under thirteen may be employed; in New York the minimum age is fourteen; in Maine and Ohio it is twelve; and in New Jersey it is twelve for boys and fourteen for girls. Illinois and Indiana allow no children under fourteen to be employed in a mine, and in Iowa, Kansas, Missouri, and Tennessee the age in the same case is twelve. The laws in several States also require that children must have attended school for a certain period in the year preceding their employment. Eighteen States limit the hours of children to ten a day, and three States—Connecticut, Alabama, and Wisconsin—have an eight hours limit, while in Massachusetts they must not exceed 58 per week. In the last-mentioned State the Acts are enforced with encouraging results, the number of working children under 14 years of age having decreased fully 70 per cent. in eight years; but in the other States very many of the regulations concerning child labour are ineffective owing to a lack of competent inspectors. It would also be easier to prevent the employment of children below the legal age if the compulsory education laws were amended and enforced. In the New York report for 1887, complaint is made that many children who had been dismissed from factories did not go to school, and that the law was practically a dead letter, because, although School Boards were empowered to cause the arrest of any parent or employer known to violate it, there was no money provision made for the expenses of its enforcement. It is said that it is only in Massachusetts and Connecticut that the laws in this connection have been strictly enforced. Child labour under its worst aspect is to be found in the sweating shops of New York, Brooklyn, Chicago, and other large cities. These workshops are often small, confined rooms in the tenement houses, which, according to the report of a New York Factory Inspector, reproduce in an intensified form, all the horrors of dirt and overcrowding to be found in European cities. Young persons in America, as soon as they go to work, are usually made by their parents to pay a certain sum every week for board and lodging, and in this way they quickly attain a state of personal independence.

The City's Commerce.

More than one-half of the foreign commerce of the United States is carried on through the customs district, of which this is the port, and about two-thirds of the duties are here collected. In 1890 the exports of New York were of the value of $347,500,252 (£70,000,000), and the imports $542,366,800 (£108,500,000). The manufactures of New York, although secondary in importance to its commercial and mercantile interests, are varied and extensive. In the value of products of 1890 it was the first city in the Union, the whole number of manufacturing establishments being over 14,000, employing 351,757 hands, and producing goods valued at $763,833,923 (£152,770,000).

From Pittsburg to Nova Scotia.

Mr R. Dunlop writes:—On Tuesday night, the 18th July, Mr Muir and I left Pittsburg for Nova Scotia *via* Buffalo, Toronto, Montreal, and St John, N.B., engaging a sleeping berth in the night express. Morning found us running along the shore of Lake Erie, with a cool, refreshing breeze blowing off the lake, very pleasant to us after the great heat experienced at Chicago and Pittsburg. Reaching Buffalo at seven o'clock, we dined at the railway station, where there is every accommodation for travellers, resuming our journey at eight o'clock for Toronto *via* Niagara Falls and Hamilton. The run from Buffalo to Niagara Falls is through a veritable garden. On each side of the railway can

be seen fruit of all kinds growing in abundance, in some cases whole fields given up to the cultivation of grapes. Changing carriages at Niagara Falls Station, where the Customs officers examine your luggage, we cross the Niagara river by the railway bridge, and again we gaze with a strange fascination at the mighty fall, where the rushing waters make the plunge over the ledge, the noise reminding one of the distant roar of a vast city. We were now on British soil, and reached the thriving and busy town of Hamilton at 11.30. It is finely situated at the end of Lake Ontario, peopled mostly by Scotsmen, and as a good many people told us, it has a future before it, and intends to keep in the front as an industrial and manufacturing town. I may here mention that on our way through Toronto to Chicago I noticed in the Toronto papers that a company intended starting smelting works in Hamilton. They were asking the town for a bonus to assist them in putting down plant and establishing the works. On coming back through the town to-day I find by the papers that the vote of the town of Hamilton has been taken. A bonus of $35,000 has been granted for the smelting works,

C.P.R. STATION, MONTREAL.

with an additional bonus should the company spend a certain amount in laying down steel works. This also includes exemption from taxation for a certain number of years. These means are taken to assist the young country in developing its own natural resources. We reached Toronto at one o'clock, and having some hours to stay we again called at Walker House, where the traveller can find every comfort and attention. The pleasure steamers on the lake are as fine a fleet as any one could wish to see, and the constant traffic to and from the little island in the bay makes an attractive scene of rare beauty. Toronto is celebrated for its aquatic sports. Hanlan and O'Connor, the renowned scullers, have made Toronto Bay famous throughout the world. At Hanlan's Point various amusements are to be found, and the city bands play every evening during the season. The Sunday car question seems to be agitating the public mind at Toronto. By a small majority it has been decided not to run the cars on Sunday. Leaving Toronto on Wednesday night we arrived at Montreal on Thursday morning. During our stay in Montreal we paid a visit to the beautiful R.C. Cathedral of St Peter's not yet finished. It is built after the plan of St Peter's Church in Rome. The interior vault and the cornices are painted in white and gold. The walls are fireproof. It is 330 feet long and 150 feet wide. The paintings of the principal cupola represent the four evangelists and their emblems. Besides the angels painted above the evangelists there are beneath the keys of St Peter, the arms of Archbishop Bourget, second bishop of Montreal, who began the church; the arms of Archbishop Fabre, under whose patronage the church is being continued; the emblems of Pope Leo XIII. The building will cost one million dollars. An electric organ of great power will be installed in October, 1893. We also visited the docks, where the large steamers were being loaded with the produce of Canada for conveyance to all parts of Britain. In the dock we saw the unfortunate steamer Lake Nepigon, whose ship crew we encountered on our way out to Montreal. Lying alongside was the Thomson Liner Hurona almost ready for despatch home, dockers being busy loading amidst a scene of bustle and excitement. At 9 o'clock at night we left by the C.P.R. for Nova Scotia *via* St John, N.B. For a great part of the way we ran through bush and unbroken land, with here and there a little town of wooden shanties, where young settlers were making for themselves a home. It was Friday at one o'clock before we steamed into the station at St John. Spending the afternoon there we resumed our journey with the night train on the Inter-Colonial Railway *via* Moncton and Truro. At Moncton there are extensive works, but trade there is dull at present. A young mechanic in the train stated that the tradesmen pay in the engineering shops was from $2 to $2.75 (8s to 11s) a day. Car builders about the same. Labourers from $1 to $1.25 (4s to 5s) a day. All the castings are imported. Their hours are ten per day, and they work till three on Saturdays. Holidays—Queen's Birthday and 1st July. A good many of the workmen own their own houses. A lot 50 feet by 100 could be purchased for $200 (£40). We reached Truro at five o'clock on Saturday morning, and after a stay of five hours on a train we arrived at New Glasgow at twelve o'clock. Before coming into the town the smoke from the coal and iron mines can be observed a long way off. Shortly before reaching New Glasgow we pass the large new blast furnace at Ferrona, where they are busy smelting iron with their own native ores.

ROUTE TO NOVA SCOTIA.

New Glasgow is a busy thriving little town of between 4000 and 5000 inhabitants. It is built on the banks of the East River, the tide running up past New Glasgow as far as Stellarton. It is the centre of the mining and manufacturing industries, which make Picton County famous through Canada, and here are quietly working away the present pioneers of the iron and steel trade, and what may yet prove formidable rivals to our manufacturers at home. Eight miles from New Glasgow the river flows into the sea at Picton, the shipping port and county town.

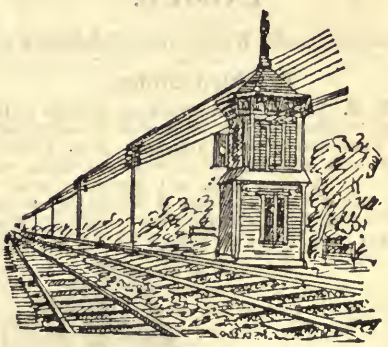
New Glasgow.

With the exception of three or four buildings, the entire town of New Glasgow is built of wood. The Government Post Office is a very nice stone building, but all the hotels, churches, and every kind of residence, from the rough shanty to the handsome villa, are built with timber, but all the same, the houses have a tasteful and handsome appearance, the ornamented woodwork being nicely painted, giving them a pleasing appearance. The residential streets are nicely shaded with trees. From the hills above the town you can see in the distance Prince Edward Island and the shores of Cape Breton, five or six towns, five collieries, the blast furnace at Ferrona and the Nova Scotia Steel and Forge Company. The river, with its sharp turns winding down to Picton, reminding one of the Forth, as seen from the Abbey Craig at Stirling. The original settlers here were a party of Scotsmen from the North of Scotland, and the names of Fraser, M'Donald, &c., are plentiful. A great number of the people are natives, while others have come recently at the opening up of the coal and iron fields. This town was famous at one time for the splendid wooden ships that they built, but the trade declined with the advent of iron and steel steamers. It was here the Hamilton Campbell Kidson, a ship of 1400 tons, was launched. It created quite a sensation at that time when it sailed up the Clyde to Glasgow, as it was one of the largest wooden vessels afloat. And just a week previous to our visit they launched their first steel steamer built in the province. It was lying in the river, and Mr Muir and I went on board, and learned that it was built for the Inter - Colonial Railway for touring purposes at the Straits of Canso. It is a handsome little steamer, built by Mathuson & Co. It is named the Mulgrave, and has a total length of 125 feet. Having a letter of introduction to Mr Graham Fraser, managing director of the steel works, I made some inquiries as to where I would find him, and I soon learned that his name was almost a household word, and everyone seemed to speak of him with respect. Mr Fraser is a native of New Glasgow, a skilled mechanic, having served his time when young. He owes his present position to his own abilities. The Nova Scotia Forge Company (the work of his creation) and the Steel Company were worked as separate undertakings till 1889, when they were amalgamated, the works are situated at Trenton, about two miles from New Glasgow.

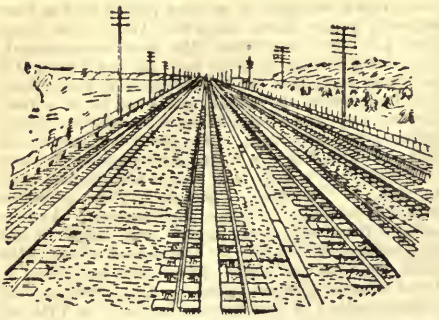
The Temperance Question.

As we spent the Saturday night in New Glasgow, we were struck with the air of quietness pervading the town, so different from what we are accustomed to see on Saturday afternoons in some of our coal and iron-producing districts at home. On making inquiries we found that we were living in a county where the sale of drink was entirely prohibited except by a doctor's prescription. The county have voted themselves under the Scott Act. This Act prohibits the sale of drink except by druggists, who sell it under a doctor's prescription, which costs the purchaser half a dollar. There are twenty-two sections or polling-places, and a bare majority places them under the Act. The druggists get the license from the local Government. This Act has been in force here for ten years, and although a poll can be demanded after three years the temperance sentiment seems to be so strong that no steps have been taken to overturn the existing state of things. On making inquiries if drink could not be got in an illicit manner, we were told that only a very few of the lowest class tried to get it by these means. The penalties attached to selling it were also severe. Anyone selling drink without a license was fined for the first offence $50 (£10), for the second offence $100 (£20) and for the third offence was sentenced to three months' imprisonment. As a result of the entire absence of public-houses, there is little or no crime, and as a consequence only a few policemen are required, and *their* services are little needed. There is only one policeman in New Glasgow, and he has nothing to do. Within a radius of a few miles there is a population of 20,000, a large number of them in connection with coal mining and iron and steel making, and only four policemen are necessary—1 in Picton, 1 in Westville, 1 in Stellarton, and 1 in New Glasgow. Some of the smaller towns have none. The existing state of matters ought to prove beneficial to the whole community, as so many young people are growing up free from the temptations that usually surround the liquor saloon. There are eight or nine places of worship here, the Presbyterian being the most popular, as there are no less than four churches belonging to that denomination, the ministers of which are mostly from the old country. A few miles from New Glasgow, at Ferrona, the new blast furnace is situated. It is capable of turning out from 80 to 90 tons a day. They get the ore, lime, and coal all within a radius of five miles from the furnace. We left New Glasgow with pleasant memories of the nice little place, and the kindness of the people we had come in contact with during our visit.

Block Signal Stations.



Along the track of some American railroads at the end of every few miles are placed signal towers, the object of which is to ensure the passengers as far as possible from the risk of collisions. These are the block signal stations. As soon as a train has passed one of these towers there appears in a target placed right above the line a red disc by day and by night a red light. This tells a driver that between the tower he is approaching and the next further along the line there is a train, and the driver may not go past that signal station until the red signal has disappeared, and left only the white disc to show that the preceding train is beyond the next tower.



At various points along some of the railroads the passenger may observe between the rails a narrow trough filled with water. These troughs, which are called track tanks, are made of iron, and are of an average length of 1000 feet. They permit a train to travel long distances without stopping to take water. The 117 miles between Pittsburg and Altoona are traversed several times every day without a single stop, the engine being provided with a spout by which, while running at full speed it takes up water at the rate of several hundred gallons a minute. In winter the water in these tanks is heated by steam to prevent it from freezing.

BROOKLYN BRIDGE.

THE PRATT INSTITUTE.

MINING IN NOVA SCOTIA.

WAGES AND HOURS OF LABOUR.

(From the Dundee Weekly News of February 17.)

Brooklyn Bridge.

Mr J. Sinclair, Cambuslang, reports:—The bridge connecting New York and Brooklyn over the East River from Park Row, New York, to Sands and Washington Streets, Brooklyn, was begun in January, 1870, and opened to traffic on May 24th, 1883. The cost of the bridge was over £3,000,000. The tolls are:—Foot passengers, free; railway fare, 1½d, or ten tickets for 1s 1d; horse, 1½d; horse and vehicle, 2½d; two horses and vehicle, 5d; each extra horse above two attached to vehicle, 1½d. The width of the bridge is 85 feet; length of river span, 1595 feet 6 inches; length of each land span, 930 feet; length of Brooklyn approach, 971 feet; length of New York approach, 1562 feet 6 inches; total length of carriageway, 5989 feet; total length of the bridge with extensions, 6537 feet; size of New York caisson, 172 by 102 feet; size of Brooklyn caisson, 168 by 102 feet; timber and iron in caisson, 5253 cubic yards; concrete in well holes, cambers, &c., 5669 cubic feet; weight of New York caisson, 7000 tons; weight of concrete filling, about 8000 tons. The New York tower contains 46,945 cubic yards of masonry; the Brooklyn tower contains 38,214 cubic yards of masonry; depth of tower foundation below high water—Brooklyn, 45 feet; depth of tower foundation below high water—New York, 78 feet; size of towers at high water line, 140 by 59 feet; size of towers at roof course, 136 by 53 feet; total height of towers above high water, 278 feet. The clear height of the bridge in the centre of the river span above high water is 135 feet; height of floor at towers above high water, 119 feet 3 inches; grade of roadway, 3¾ feet in 100 feet; height of towers above the roadway, 159 feet; size of anchorage at base, 129 by 119 feet; size of anchorage at top, 117 by 104 feet; height of anchorages, 89 feet front 85 feet rear; weight of each anchor plate, 23 tons; number of cables, 4; diameter of each cable, 15⅞ inches; length of each single wire in cables, 3578 feet; ultimate strength of each cable, 12,000 tons; weight of wire, 12 feet per pound. Each cable contains 5296 paralleled (not twisted) galvanised steel oil-coated wires, closely wrapped to a solid cylinder 15⅞ inches in diameter. Permanent weight suspended from cables, 14,680 tons. The whole number of car passengers during the year ending December 1st, 1892, was 41,672,898. This is one of the busiest thoroughfares I have seen in America. When I crossed the bridge between five and six o'clock in the evening it was one continual pour of people. The cars were running as close as they possibly could. Brooklyn has been called the bedroom of New York, and, judging from what I saw, I think it justly earns the title.

BROOKLYN BRIDGE.

SECTION OF THE BRIDGE.

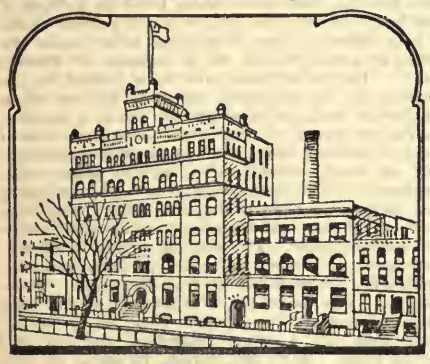
Pratt Institute, Brooklyn.

Mr Thos. Logan, Glasgow, reports:—The Pratt Institute, Brooklyn, is generally acknowledged to be the most complete technical school in America. I made a special visit to Brooklyn for the purpose, if possible, of seeing through this school. On calling I was received with the utmost courtesy by a young lady, Miss Bird, who conducted us through the educational department, while a gentleman, Mr Black, interested us by showing us through the manual labour department. Like all the other schools that I visited, this one also was closed for the summer vacations, which generally lasts from the end of June till the beginning of September, but for all that the stroll through the different departments was highly interesting. The Pratt Institute was established six years ago after many years of investigation in Europe and America on the part of its founder, Mr Charles Pratt, of Brooklyn. Its object is to promote manual and industrial education, as well as cultivation in

literature, science, and art, to inculcate habits of industry and thrift, and to foster all that makes for right living and good citizenship. The Institute is composed of four large buildings—three, four, five, and six storeys high. The buildings are all heated by steam and lighted by electricity. The whole school is thoroughly equipped with workshops and laboratories, which are supplied with every modern appliance that can in any way enlarge the scope and promote the value of industrial and technical education. The buildings are also provided with passenger elevators, which run at all hours when classes are in session. With all this splendid accommodation every department is taxed to the fullest extent. Last year the number of pupils that received instruction in the different departments was about 4090, of which 2969 were females and 1121 were males, the whole being presided over by 120 instructors. By next year these figures will be considerably increased, as the trustees are having a handsome building erected on the opposite side of the street, which is to be used exclusively as the art department.

The High School

of the Pratt Institute aims to fit boys and girls, as far as possible in three years, for an industrial and useful life. To be admitted to the High School the student must he at least fourteen years of age, and have passed through the public grammar schools, or has to pass an equivalent examination. In addition to an excellent academic science and art training, the boys receive instruction in benchwork in wood, woodturning, pattern-making, foundry moulding, tinsmithing, forging, vice work, machine tool work, clay modelling, &c., while the girls receive instruction in sewing, dressmaking, millinery, cooking, hygiene and home nursing, and woodcarving, &c. The other departments of the Pratt Institute aim at a much higher and broader



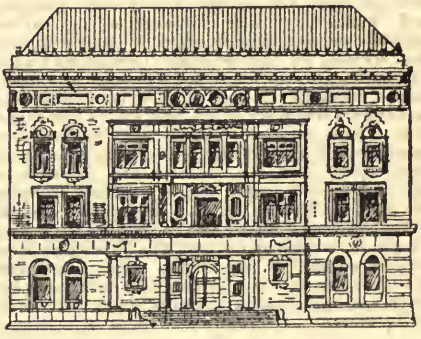
THE PRATT INSTITUTE.

training than what is given in the High School, and the various classes are conducted quite independent of the High School department. The aim of the kindergarten department or the "new education," as it is sometimes termed, is to give general and special training to all those who expect to have the care of children, such as school teachers, kindergartners, and mothers who realise the necessity for greater insight in the training of their children, and also for young women who desire larger opportunities for general culture, and who feel that the kindergarten training meets their needs. Any person wishing to enter this department must be at least eighteen years of age, and must have some knowledge of music and geometrical drawing, as well as be able

to present a certificate of high school training, or pass a satisfactory examination. The object of the Department of Industrial and Fine Arts is to provide thorough and systematic instruction in the industrial and fine arts. The students must be at least sixteen years of age, and must pass an examination in freehand drawing, arithmetic, spelling, &c., and as the training qualifies students to fill positions as teachers and supervisors of drawing in public and private schools, each candidate is also expected to present a letter testifying to general ability and moral character. The following are a few of the branches taught:—Freehand and instrumental drawing, sketching and composition, anatomy, painting in oil and water colours, painting from life, architectural and mechanical drawing, historic ornament, wood carving and clay modelling, and art needlework, &c. In addition to the above subjects, lectures are given on design, colour, composition, artistic anatomy, and the history of art and architecture, &c., the whole of them being fully illustrated by lantern photographs. Students in technical design classes last year sold original designs for tiles, bookcovers, wallpapers, rugs, carpets, &c., to the aggregate amount of £200. The number of students instructed in this department last year was 1049, and as this department will be located in their new building by next year these figures are sure to be considerably increased. The

Domestic Science Department

includes all the branches of cookery, laundry work, and household economy, &c. To enter these classes the student must be at least sixteen years of age, and be a first-rate scholar. The cookery classes are



THE NEW ART DEPARTMENT.

conducted much after those in the High School, only on a much more extended form. I was informed that the number of students that received instruction in cookery last year was 871. The instruction in laundry work is both theoretical and practical. Soaps, starch, washing powder, bleaching powders, and blueing are chemically and practically considered. Visits to the manufactories of these articles form a feature of the work in these classes. In the practical work every variety of article, from bed linen to the most delicate-coloured embroidery, is laundered. It is quite a common thing for ladies to send their servants to these classes for instruction in laundry work. The classes in connection with hygiene and home nursing are meant to give a sound if limited knowledge of the laws of health, so as to enable women to care intelligently for sudden illness or accident, and to perform the duties of nurse where trained service is not employed. The domestic art department provides comprehensive and systematic study in those branches which are related

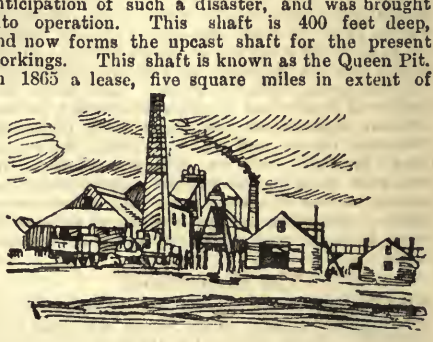
to healthful and appropriate clothing of the body. The subjects taught are physical culture, sewing, dressmaking, millinery, and drawing in connection with dressmaking and millinery. The classes are just a continuation of those connected with the High School, and before taking dressmaking and millinery the student must pass an examination in sewing and be at least 18 years of age. The number that was instructed in sewing and dressmaking last year was 1296, and the total number of garments made during that time was 1199. A large number of the students study in these classes with the intention of becoming professional workers. Last year 450 young women were instructed in the art of millinery. Like the dressmaking, applicants must be over 18 years of age and be able to do neat hand sewing. Physical culture for women is under the management of this department. The exercises consist of calisthenic drill with dumbbells, barbells, wands, dancing, &c., as well as exercises in Swedish gymnastics.

Department of Commerce.

Recognising the fact that business transactions enter into every phase of modern life, and that this is essentially an age in which great commercial activity prevails, the department of commerce was organised by the Institute for the purpose of giving more thorough instruction in studies pertaining to business and commercial operations. The subjects taught embrace languages, history, geography, chemistry, accounting, arithmetic, and penmanship, political economy, shorthand, and typewriting, &c. Besides the science and the manual training that I referred to in connection with the High School, the department of Science and Technology gives instruction in various scientific and technical subjects, as well as a practical training for the principle mechanical trades. The outline given below applies only to evening classes, while the student must be between sixteen and twenty-five years of age, and have a fair education. The subjects taught are mathematics, geometry, physics, chemistry, electrical construction, steam and the steam-engine, strength of materials, and machine design. What interested me most particularly in this department was the "Trade School," where the instruction aims principally to broaden and extend the training of those already engaged at the trades. The school does not profess to turn out journeymen mechanics, but gives a training that further practice in active work will perfect.

North Sydney Mines.

Mr R. A. Muir writes:—The coalfield of Sydney occupies an area of about 200 square miles, and is the most extensive, and is said to be the most valuable in the Province of Nova Scotia. It is 31 miles wide, and extends a long way under the Atlantic Ocean. The exact distance has not been proved yet. The principal seam in the Sydney district is known as the Six-Foot or Sydney Main Seam, which averages about 5½ feet thick. The first operations were commenced in this seam in 1785 by Governor Lieutenant-Colonel Desbarres on Government account. From 1785 to 1826 the mines were under lease to various individuals or companies, and on the 1st January, 1827, the mines came into the possession of the General Mining Association, who are the present owners. The amount of royalty at that time was 4s 3d per ton, but a new agreement made with the Government of Nova Scotia in 1858 fixed the amount of royalty at 4 8 10d per ton on all large coal up to 250,000 tons per annum, and 3 2-10d per ton on all coal sold over 250,000 tons and an annual rent of £3000. The first steps taken to open out the works on an extensive scale was in 1830 when a shaft 200 feet deep was sunk, which continued to supply the trade until 1834 when another shaft 320 feet deep was sunk 400 yards further to the dip. This shaft continued in operation until 1854 when it was lost by a heavy influx of water which overpowered the pumping engine. In the meantime a new shaft had been sunk and equipped in anticipation of such a disaster, and was brought into operation. This shaft is 400 feet deep, and now forms the upcast shaft for the present workings. This shaft is known as the Queen Pit. In 1865 a lease, five square miles in extent of



PRINCESS PIT, CAPE BRETON.

mineral under the sea, was obtained, and for the purpose of working this area the sinking of the present shafts were commenced in 1868. These shafts are situated near the shore at the north-west entrance to Sydney harbour. They are placed 22 yards apart. One is 13 and the other 11 feet in diameter, and they are 680 feet deep, and known by the name of Princess Pit. In the course of sinking heavy feeders of water were met with at a depth of 300 feet, which were successfully tubbed off with cast-iron tubbing, both shafts being lined to a depth of 300 feet. Within the last two years another shaft, 8 feet diameter, has been sunk close beside the other two, and tubbed for a distance of 300 feet also. The other two have been tubbed to the bottom at an enormous expense, but as these shafts are sunk as close to the sea as is possible, and are expected to win about 5 square miles of area of working under the sea, so that first cost is not so much consideration as in some other positions. The largest shaft is used for winding the output, the 11 feet diameter shaft for winding men, wood, &c., and pumping, and the small shaft for pumping only. The winding engine is 160 h.p. nominal, and has two cylinders 36 inch diameter, with 5 feet stroke drum 20 feet diameter. These engines are capable of raising about 1000 tons per day of ten hours. The engine raises two tubs at a time, standing end to end in the cage. Each tub carries 14 cwts. of coal. Four slides are fitted to each cage, but the cages run on the wall slides only with shoes, the inside of the cage being fitted with bevelled irons which run on the slides. The winding ropes are of steel, 4¼ inches circumference, imported from England. A very simple and effective means is employed to break the fall of the cage on the bottom, which consists of a bed of spruce boughs, and forms an excellent cushion on which the cage alights, and so effectually breaks its fall that after having been renewed the cage rests without the slightest shock. Two hauling engines are placed near the bottom of the shaft, the steam being taken from the surface in 10 inch diameter pipes. The north engine has two cylinders 18 inches diameter, 3 feet stroke, geared 1 to 3, with 4 feet drums for main and tail rope. The empty trips descend by gravity, the tail ropes being used only on the level; the dip

varies from 1 in 10 to 1 in 14, and trips of 26 to 30 tubs are hauled at a time. The south engine has two cylinders 16 inches diameter, 2 feet 9 inches stroke, geared 1 to 3, with 4 feet and 5 feet drums for main and tail rope respectively. This deep or dook is about a mile and a half long; the dip varies from 1 in 14 to 1 in 50, and the rake consists of 40 to 45 tubs. The hauling of the coal from the faces to the engine roads is done by horses, from forty to fifty of them being usually employed. The stables are large and well ventilated, and afford accommodation for sixty horses, and in going along them I was much struck by the cleanliness of the stalls. Each horse has its name printed in large black letters on its own stall.

The System of Working

is a modification of the stoop and room method, but none of the pillars are taken out, the workings being all under the Atlantic Ocean. The main levels and deeps are driven in pairs 8 feet wide and 10 yards apart; the rooms are 16½ feet wide, and are parallel to the levels. At intervals of 70 to 80 yards single deeps and headways are set off as they advance, and are again broken off as the deeps and headways win them midway. Between these deeps and headways cross cuts are driven between the rooms almost always downhill from the higher to the lower room. These single deeps, headways, and cross-cuts are driven 9 feet wide, and the pillars are 12 yards thick. The rooms are broken off 12 feet wide and put through the same width. The ventilation of the workings is effected by means of a guibal fan placed at the top of the Queen Pit. The fan is 30 feet diameter by 10 feet wide, and at forty revolutions per minute puts into circulation about 80,000 cubic feet of air, which is ample for the whole workings, because wherever we went the air was always pure and sweet. There is a large Cornish pumping engine for the purpose of keeping the mine clear of water, but about 8 hours pumping in the 24 hours is sufficient to keep it down. All the pit bank screens and engine-houses are lighted by electricity and electric signals are in operation underground on the engine planes. Steam is supplied at Princess Pit by six egg-end boilers, 35 feet by 5½ feet, and three multi-tubular boilers and four egg-end boilers same size at Queen Pit. The colliery is also fully equipped with large workshops, including waggon and tub shops, smithies, steam hammer, pattern and carpenters' shops, foundry, sawmill, fitting shops with large turning lathe, planing, drilling, screwing-machine, and screw-cutting lathe, also boiler and locomotive shops, and while I was there they were making a new locomotive. The miners work in pairs, and all the working places are what is termed cabled once every three months; that is, all the men's names are put on a small slip of paper and rolled up and put into a box, then the name of the place is called out, and the manager puts his hand into the box and draws a slip, and whoever has his name on that slip gets that place for the next three months, and the same process is gone through until all are provided with places. The miners' average wage is about $2 (8s), and good workman can make about $60 (£15) per month; shift men get from eighty cents (3s 4d) to $1.25 (5s) per shift bottomer; 80 to 90 cents (3s 4d to 3s 9d), and 2 cents per 100 tubs extra; enginemen (underground, $1.10 (4s 5d); boys, 35 cents (1s 6d); drivers, 2½ to 3 cents per tub, and average $1 (4s); winding enginemen get 9½ cents per 100 tubs, and earn about $1.50 (6s); firemen a little less. Boys do not get to work at the face until they are about 20 years of age, because so many of them are required to drive the ponies, &c., but they are allowed to get there by their turn. There is very little idle time, as they work every day the weather permits. Miners are fined for making wide places—that is, if they make them over 18 feet 6 inches, fine 2s; 19 feet, 3s; 19 feet 6 inches, 4s; 20 feet, 6s; 20 feet 6 inches, 8s; 21 feet, 10s; 21 feet 6 inches, 12s. The correct width is 16 feet 6 inches, and they can be fined every time the overs-man gets them too wide until they reach the maximum fine of 12s for one month. Workmen are provided with free coal, but require to pay for the cartage, which is 8d per cart of 10 cwts. All tools, except picks, are provided by the Company, and all are sharpened free. Miners pay 25 cents (1s) for justiceman in summer and 20 cents (10d) in winter. Most of the miners are in the Provincial Workman's Association. There is also a friendly society. Men pay 25 cents (1s) per month, and the Government and masters pay so much per ton extra. Householders pay 40 cents (1s 8d) per month for doctor's fee, and all boys over fourteen years 25 cents (1s).

THE TAILOR TRADE IN AMERICA.

THE COST OF CLOTHING.

THE COOPER INSTITUTE.

AMERICAN FURNITURE.

MECHANICAL WOOD CARVING.

(From the Dundee Weekly News of February 24.)

The Tailors' Union of America.

Mr E. Bennett reports:—In our visits to the various cities in the United States and Canada I made special inquiries into the tailor trade to find if the sweating system existed there in anything like the proportion that it does in this country, and I was informed everywhere that I inquired that it did not exist at all in the bespoke trade, the Union looking so strictly after the trade as to prevent any such system taking root. In the ready-made trade, however, it exists to a very great extent. I have seen in several American cities both men and women carrying great bundles of garments of various kinds partly made up. Whether they were carrying them home to do their part of the work or *vice-versa* I cannot tell, but they seemed to have the work on these goods divided, one to do one part and another to do the other. I paid a visit to a gentleman in New York who is corresponding secretary for the Union, and he told me that it was utterly impossible to estimate anything like the extent of the sweating system in the ready-made trade, but, like all others, he is perfectly certain that no such system exists in the bespoke trade. The Society or Union pays a man for doing nothing else than looking into this and keeping it from taking root. Still there is no restriction to the hours a tailor works, nor can there be so long as the system of taking work home to be made is allowed to go on. The master tailors do not find work room for their men except perhaps for one or two, who may be employed as day's wage men, for making alterations and doing repairs. In one shop I visited they had three day's wage men, and they were paid £3 per

week of 60 hours. All others have to take their work home, find their own irons, pressing boards, &c., and do their own machining, where and when

MR J. B. LENNON.

required. I asked the Corresponding Secretary, whom I visited in New York, viz., Mr J. B. Lennon, what difference the tariff made upon goods sent out from this country to the U.S., and he told me that a cloth which would cost 10s in a wholesale warehouse in this country, would be worth £1 1s in the wholesale warehouse out there. Then I said, "Clothing must be very expensive here, and still goods seem to be ticketed in the shop windows at a reasonable price." "Yes," he said, "to anyone who didn't know any better they seem reasonable, but there was neither the material nor the workmanship in them to give satisfaction for the money, and they would scarcely hold together long enough to go to a picnic with. I told him that I was not in the trade, and therefore didn't know much about the different qualities of cloth, but asked him what a suit, such as I had on (a fine blue worsted) would cost out there, and he told me that it could not be bought there for less than £13 or £14. It cost me here £3 5s 0d. This shows what a man has to do with his big wages in America. The Union in America, as in this country, have a log or price list agreed upon by the Union and masters, each State having its own log, and in some cities there are special logs arranged between the Union and employers, who do a special class of work.

Cooper Institute, New York.

Mr Thos. Logan, Glasgow, reports :—The Cooper Institute for the Advancement of Science and Art is a large brown-stone building, claiming some architectural pretensions. It was erected by the late Peter Cooper, a mechanic of New York, in 1857, at a cost of £126,000, who endowed it with £60,000 for the support of a free reading-room and library. The purpose is philanthropic, and embraces day and evening schools of various kinds. There are art classes for men and women, free school of telegraphy and of typewriting for women, and other special departments. As the thousands of pupils who attend these classes are drawn almost entirely from the people who must work for a living, all the instruction tends strongly to the practical, and in the art schools especially pupils are able to earn something while under instruction. On calling at the institute, I was very courteously received by Mr Jordan, the assistant secretary, who kindly showed me through the various classrooms, and from my own observation, and the information I got from Mr Jordan, I find the whole school is conducted much on the same principle as the art schools in our large towns and cities in England and Scotland. The Women's Art School was organised for the purpose of affording instruction in the arts of design to women who, having natural taste and capacity, but being unable to pay for instruction, are obliged to apply the knowledge acquired in the institution to their support, either by teaching or by taking up art as a profession. Applicants for these classes must be at least sixteen and not over thirty-five years of age. In order that the advantages offered by the school may be properly bestowed all pupils who at the end of the first two months after the opening of the term do not show sufficient talent or progress in the pursuit of their studies are dropped from the school, and their places filled from the list of applicants who are always ready to fill the vacancy. The pupils must provide at their own expense all necessary materials, such as paper, pencils, crayons, colours, brushes, and instruments. The following branches are taught in this department :—Elementary cast drawing, drawing from the antique, life drawing, oil painting, designing, illustrating, retouching of negatives, retouching of positives, photographs in water colours, crayons and Indian ink, and porcelain photograph painting. Last year 602 pupils registered their names for admission to these classes, but only 285 could be admitted. Last year the trustees of the Cooper Union also established a Free School of Telegraphy for women, and there is also a free school for stenography and typewriting for women. The night schools of the Cooper Union are divided into two sections, called respectively the scientific department and the art department. Students for admission must be at least fifteen years of age, and a letter of recommendation from their employer is regarded as desirable. In the scientific department the regular course of study requires five years for its completion, and to those who pass successfully the Cooper medal and diploma and degree of Bachelor of Science are awarded. To be the possessor of this medal is considered a great honour, not only in New York, but in all the United States. The trustees of the Cooper Union are very strict regarding the conduct of the pupils. For any breach of good behaviour or violation of the regulations, the student is immediately dismissed. The one thing that impressed me most about this school was the number of pupils that can be accommodated in it. Last year the number that was admitted to the school of science was 1308, while in the art school 1767 were admitted, making a total of 3075. The Free Library and Reading-Room are of the largest and best equipped in America.

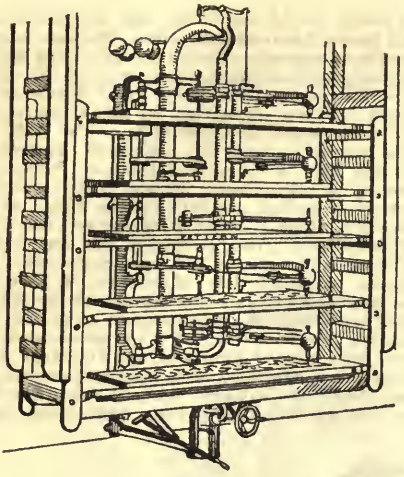
Furniture Trade in New York.

Mr Logan also reports :—While in New York I had excellent opportunities of inquiring into the furniture trade. Among the works and warehouses I had the pleasure of seeing through were the high class firms of Herter Brothers ; Cottier & Co., ; Tiffany & Co. ; Ellen & Kitson ; Freeman & Gillies, and a few others of less importance. Herter Brothers, Sixth Avenue, employ on an average about 500 hands, and is one of the most important firms of interior decorators in America. They have furniture throughout—that is from the laying of the floor to the decorating of the ceiling—many of the finest hotels and private residences in and around New York. I had the pleasure of seeing through the splendid show rooms of this vast establishment, where all the work was practically in a finished state. The furniture, I noticed, was mostly after

the French and Italian styles, and was superior in many respects to the American section of the Chicago Exhibition. There was also some splendid examples of chair work, upholstered in the most luxurious manner possible. On passing through the show rooms I could not but admire the carving on the various pieces of furniture, the design and treatment of which was of a very high order; in fact nearly all the work done by this firm possesses the same refinement of design and delicacy of treatment in all the different departments. The person that was showing me round was very particular in drawing my attention to material of American manufacture, such as wall papers, carpets, embroideries, tapestries, &c., and knowing myself that the best of these articles came from Britain and France, I asked him several times of this or that—at same time referring to some beautiful piece of wall decoration or tapestry—was also of American manufacture, when in nearly every instance he admitted, I could see with some reluctance, that they were of foreign manufacture. Of course I would not go the length of saying the Americans could not manufacture these high class goods, but there is one thing certain, they could not produce them at anything like the same cost as either France or Britain. There are very few people at home, I believe, who have any idea of the quantity of these high class goods that is exported to America every year. The quantity of carpet, I am told, that was exported from this country to the United States for the month of July last year, amounted to 65,000 yards, valued at £12,941. This does not take into account the finer materials, such as velvets, plushes, and tapestries, which in themselves amount to a very large sum. So it is easily seen that the old country can hold its own with these articles, and many others, notwithstanding America's almost prohibitive tariff. Cottier & Co., Seventh Avenue, is another first-class firm of art furniture makers, and employ somewhere about 300 hands in the different departments. Mr David Kay, the manager of this establishment is a Scotsman and a native of Glasgow. On calling at the works Mr Kay was delighted to meet a member of the *Weekly News* Expedition to America, which he had previously heard about. The workshops are extensive, and are equipped with the most approved wood-working machinery for the manufacture of high-class furniture. I noticed the work was being done by much the same methods as is done with ourselves, only I thought in a more leisurely way than is the custom at home. I had often heard that the American artisan worked much harder than we at home, but, as far as I could judge for myself, I found it the reverse. Of course I refer only to the furniture trade, as it is carried on by first-class firms. Tiffany & Co., Fourth Avenue, is another first-class firm of decorators, and employ somewhere about 400 hands. This firm is celebrated all over America for their stained glass, art metal work, furniture and decorations of every description. On calling at the works Mr Mitchell, the manager, kindly conducted Mr Bennett and myself over the building, which is five storeys high. Ecclesiastical glass-staining is one of this firm's most successful departments, and the work that was being done in that line was of a very high standard. In the other departments, such as furniture, art-metal, &c., the display of goods for style, workmanship, and quality, would be difficult to excel. It was quite evident that the articles in course of manufacture by this firm were intended only for the mansions of wealthy people. In fact Mr Mitchell explained that at present they were doing work for George Gould, son of the late Jay Gould, the well-known American millionaire. We were shown curtains of unusual richness that were being made up for this gentlemen, they were of old gold beautifully embroidered and studded all over with jewels. These jewels, to my mind, suggested but extravagance and bad taste. The firms I have mentioned are all considered first-class, but the firm of Ellen & Kitson, in Thirteenth Avenue, is acknowledged by the trade to be the greatest of its kind, not only in New York, but in the United States. I was introduced by a friend to Mr John Hendry, the manager of this vast establishment, who is also a Scotsman, and a native of Dundee. Like Mr Kay, of Cottier's, Mr Hendry was only too pleased to show me over the building, which is certainly the most complete of its kind in America, fitted especially for the convenience of every description of decoration, and I must say that I was much impressed with the comprehensive character of this business. Several years ago this firm did all the stone carving, both inside and

THE VANDERBILT MANSION.

outside, as well as the interior fittings and decorations of the Vanderbilt mansion, the staircase alone, which is of canestone, costing nearly £10,000. The whole house, on being completed, cost the fabulous sum of £800,000. Some of the carvings I saw in this establishment were simply works of art, and it would be difficult to imagine anything more beautiful than the "swags" of flowers that were being done in wood by Frenchmen, who are specialists at this kind of work. With perhaps the exception of Pullman Palace Car Works, it has seldom been my pleasure to witness greater order or cleanliness in cabinet works. Every benchway was evidently kept with pride. In the upholstery department the same supervision was apparent. Every ounce of hair or inch of stuff was carefully classified, and the quality of the material could be seen at a glance. There is also a multitude of wood-working machinery on the most approved principles for planeing, ploughing, mortising, tenoning, &c., as well as machines for carving both stone and wood. I saw four carving machines in operation. They are all by different makers, and each claim their machine to be the most perfect ever invented. The machine that is herewith illustrated is by the



WOOD-CARVING MACHINE.

Moore Carving Machine Company, Minneapolis. The work that this machine was turning out was really good, and required very little touching up. I give an illustration of a panel that cost £10 to carve the original, while the machine can produce the same for about six shillings. Those in the trade know what kind of panel can be produced by the hand for six shillings. There is another machine

PANEL CARVED BY MACHINE.

that deserves special mention. It is made by The Rohlmann Manufacturing Company, Saint Joseph, Mo. This machine is quite new, and embraces many important improvements over the others. It has the advantage of making an undercut in any angle up to 45 degrees without special adjustment, and the most difficult carvings, whether it be flat panels or figures in the round, can be duplicated any number of times at an enormous saving of cost. I have been informed that one of these machines has just been fitted up in the carving shop of a well-known firm of shipbuilders on the Clyde. To return to Ellen & Kitson's workshops, in a mere description it would be difficult to particularise the different works that were in operation, the more so because it embraces so many distinct trades. The following is a list of the average wages paid per hour by the four firms I have mentioned:—Carpenters, 1s 9d; cabinet-makers, 1s 4d; wood-carvers, 1s 6d; stone-carvers, 2s; marble cutters, 1s 3d; modellers, 2s 6d; varnishers, 1s 2d; painters, 1s 4d; fresco painters, 1s 10d; decorators, 1s 10d; machinemen, 1s 4d; upholsterers, 1s 2d; glass stainers, 1s 5d; lead workers, 1s 5d; plasterers, 1s 10d. The above trades, with a few exceptions, are all paid according to ability, but the wages enumerated are considered a fair average.

Factory-Made Furniture.

I also visited the furniture show-rooms of Gillies & Freeman, Twenty-Third Street, New York. Mr Gillies is a member of the New York Caledonian Club, where I was introduced to him by a friend, and before I go further I would like to say I was received with the utmost kindness by the members, who did everything they could to make me feel at home. Some of the members could tell me as much about the *Weekly News* Expedition as I knew myself, stating at the same time that they get the *Weekly News* sent them every week. Mr Bennett and myself were shown over the establishment by Mr Gillies himself, who took great pains in explaining everything he thought was of interest. The building is five storeys high, and is packed full of every description of factory-made furniture. There is certainly some good work to be seen, but the most of it is very poor, and I have no hesitation in saying that for design, finish, and workmanship we can give the Americans a big start and beat them at this particular class of work. I also noticed that the Yankees fix a great deal of looking-glasses on their furniture, which I consider a sure sign of bad taste, but as the average American is very often a self-made man, it is quite likely he may wish to look at his maker as often as possible. A great many of the men in factories have almost entirely ceased to be cabinet-makers in the real sense of the word, in consequence of the development of labour-saving machinery and the subdivision of the work. Originally, a cabinet-maker was a man who could produce almost any piece of furniture you named, but in the modern sense of the word he is a very different person. Instead of a man being competent to act as an artisan, he is often only able to produce one particular article of furniture, and sometimes only a portion of that article is entrusted to him. The result is that men, instead of having to learn the trade, are content to pick up enough to earn a precarious living. So far as I could judge from observation and intercourse, American workmen of all trades are in no way superior to our own; indeed, in education, intelligence, and handicraft skill we quite hold our own. One good feature of the American skilled workmen is their apparent sobriety. While total abstainers appear to be unknown, in all my "rambles" I only saw one man among the thousands slightly the worse of drink. It was also gratifying indeed to come across so many Scotsmen holding positions of trust. This was the common comment of all the delegates when they met at their hotel every night. In fact, it would be difficult to find a more intelligent body of men in America than what is to be found in the Caledonian Club, New York. The wages vary a great deal in the different places, ranging from £2 10s to £3 15s a week of 54 hours. In the factories ten hours constitute a day's work, Saturdays included, and, as far as possible, piece wages are paid. The largest furniture centres in America are Grand Rapids, Chicago, Cincinnati, and Rockford. Grand Rapids is a place with about 90,000 inhabitants, and is situated about 100 miles from Chicago. They claim to have the largest factories in the world, of which there are 62, and employ in all 9000 workers. The high-class furniture is made principally in New York, Boston, and Philadelphia. The wood-carvers in America are splendidly organised. Close on 1800 are members of the International Wood-carvers' Association. New York alone has 385 members, while Boston has 206, Chicago 278, and Grand Rapids 215. The working hours vary from 48 to 60 a week, and the men are always paid according to their ability. In New York and Boston some men are paid as high as 2s 6d an hour, while others are paid as low as 10d, but the average carver's wage is about 1s 4½d an hour, or £3 12s a week.

American Upholstery.

To say anything on the merits of American upholstery for the purpose of comparison is a very difficult and delicate task, inasmuch as the trade being one of taste and idea, it naturally follows that what one person would consider the perfection of work another would consider vulgar and out of place. In the swell houses the style adopted is very much after the French. which is idealistic and elaborate, with heavy, luxuriously upholstered chairs; while at home it is plain yet artistic, useful and unpretentious, except in cases where money is no object. The art of draping curtains, &c., is in my opinion more atistic than ours; they go in for great masses of material, draped, and caught up into every conceivable form. This, together with the bright colouring and richness of the materials employed, presents a beautiful effect, but as to whether it is good taste or not is quite a matter of opinion. Wages run from 1s 2d to 1s 4d an hour, or £3 3s to £3 12s a week. About one-half of the men in America that call themselves upholsterers are not upholsterers at all, as they simply lay carpets from one year's end to the other.

AMERICA'S GREAT PAPERMAKING CENTRE

HOLYOKE WORKS.

NOVA SCOTIA.

WORKMEN'S HOUSES.

PICTOU COUNTY.

THE ACADIA MINE.

(From the Dundee Weekly News of March 3.)

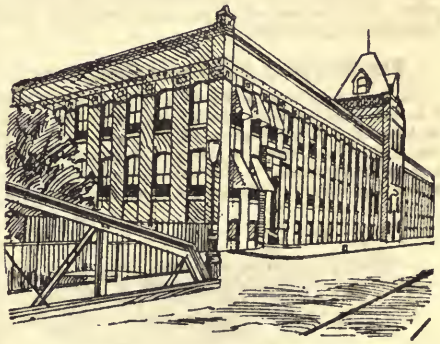
Mr W. Smith, Denny, reports:—Having made a visit to Holyoke, the great centre of paper-making in America, I had a run through some of the paper mills there, but before going in to the mills I went and saw the river where they get their water from, as naturallv that is what is inquired into at the first visit to a paper mill. They get their supply from the Connecticut River. It is very good and clean water. The river is about 1000 feet wide where they have their weir or dam built across, and they have the command of all the water if they require it. It is let into a canal, which is about 50 feet wide and 18 feet deep, and after the water drives all the works on this canal it runs into another canal, and then into still another canal, which makes three canals, so that they use the water for driving the works three times over before it goes back into the river. This gives them an enormous lot of water power. They are building a new weir across the river, which will cost over £150,000, and the weir lasts between fifty and sixty years. There are about 150 different works supplied with water power, and the city electric light is also driven by it. There are 24 paper mills in and around Holyoke, having an aggregate of 30,000 horse power. I went to

The Albion Paper Mill

and saw Mr Reardin, the superintendent, and he very kindly showed me through the mill. It is built entirely of brick, and the railway comes into it. The mill is driven by water. They have 800 horse power. They have at the mill eighteen beating engines that carry 1000 lbs. They have three machines (Fourdriner), 78, 84, and 86 inches wide. They are driven by steam, and they turn off from 15 to 17 tons of paper per day. They use wood pulp, though sometimes a little rags are used with the wood pulp. They make super calendered book and flat writings. The rags are cut by a cutter, and some kinds are cut by the hand, and they overhaul their paper as it is cut. They all use the Finlay cutter, which is a very neat and simple bit of machinery, and was made and patented by a Scotchman, Mr William Finlay. They have a horne refining engine on each machine. The wages of paper workers in Holyoke are nearly all at the same rate—also the same hours. The shift men work 68½ hours per week. Machinemen's wages are 12s per day; beatermen's wages, 10s pery day; machine and beater assistant's wages, 5s to 8s per day. The ragroom girls work eight hours per day. Their wages are 3s 6d per day. The paper cutter girls work 50 hours per week, and their wages are 4s per day. Labourers work ten hours per day, their wages being 6s 6d per day. This mill is well ventilated and kept very clean. It is lighted up with the electric light. Mr Reardin is a Scotchman, being a native of Greenock, and he has been twenty-three years in Holyoke.

The Holyoke Envelope Company.

This is the largest envelope manufactory in the world, having a product of 3,400,000 envelopes daily. It began the manufacture of envelopes in 1881, and, being in the centre of the paper supply, it has exceptional facilities for accommodating its customers. It makes all its own boxes, from the



FACTORY OF HOLYOKE ENVELOPE COMPANY.

plainest envelope box to the richest and elegant papeterie box. They make all sizes of envelopes, from the horse-ear envelope to the No. 14, on self-gumming machinery. The cheap boxes are machine-made, but the silk and finer grades are hand-made. The Company run at present several hundred different styles of papeteries, and bring out a hundred or more new styles every year. It is a fine-equipped establishment—300 feet long, 80 feet wide, and three stories high. The offices are very sumptuously got up, and it is without question a monumental factory in Holyoke. They have 250 employés, and they pay out as wages about £1600 per month.

The Newton Paper Company.

This company makes heavy wrapping paper, duplex papers, and patent corrugated carpet lining felt. It is the only mill in Holyoke that makes this class of paper. They have three cylinder-making machines. Their beaters are driven by water 360 horse power, while their machines are driven by steam, and they turn off fifteen tons per day. They use rags, old paper, wastes, and wood pulp. They have nine beaters that carry 1000 lbs. each, and a Jordon refining engine on each machine. The factory is lighted up throughout with the electric light, and the railway runs through the mill.

The Valley Paper Company.

This company has two machines, 72 inches wide, making loft-dried, bond, linen, ledger, and writing papers. They turn out six tons per day. The motive power is two turbines of 360 horse power each. The Company use wood pulp and new linen cuttings. In the papermills at Holyoke they go in for machinery to save labour greatly, and they have some very neat appliances for conveying their rags and stuffs from one department to the other, which is one thing, I think, they are ahead of us in. Their fine paper, such as writings and printings, is behind the English and Scotch papers, but, I think, they make superior newspaper. They make their "news" all of wood pulp, 75 per cent. of mechanical, and 25 per cent. of sulphate wood pulp. The mills are all kept very clean, both inside and outside. The girls go to the mills dressed with their hats, white dresses, gloves on, and umbrella in their hand. You would think they were going to the church. The men go to their work with a nice suit of clothes, white shirt, collar, and straw hat on. I asked one of them why he did not wear his tacketed boots to the mill here as he did in the old country. "Tackets in your boots!" he says. "If they saw you with tackets in your boots here they would apprehend you at once. They keep their working clothes in the mill, and shift themselves, and the masters give them time to do that before leaving the mill."

The George C. Gill Paper Company.

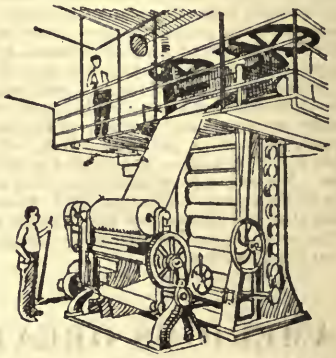
This is a very large and well-built paper mill, and it is now recognised as the leading mill of its kind in America. It has three machines, and they make fine writing and ruled paper, and turn out twenty tons of paper per day. The machinery is driven by water and steam. There are four turbines, and

GEORGE C. GILL'S PAPER COMPANY.

one of them is a sixty-inch Hercules, which is able to drive the entire mill itself. The works are fully equipped with steam power in case anything should go wrong with the water power. They have splendid machinery and some very nice ruling machines. They have also a large air-drying machine with 120 skeleton dryers. This is the only air-drying machine in America, although they have been very successful in England and America for years, so that they are far behind the old country in this. The other mills dry their paper on racks or poles, which is rather old-fashioned now. The mill is all lighted up with electric light, and the railway goes round all the mill. Mr Robert M. Allan of Kelvindale, a Scotsman, is superintendent of the works.

Papermakers' Union.

The papermakers in Holyoke have a very strong Union, and they have a splendid reading-room



SUPER CALENDERING.

where they can get books and all the papers to read. I visited some of the working men's houses, and was told the rent they pay for them is from £2 to £3 a month for a four-room house built of brick and wood, with a backyard or garden. Their houses are very dear, as you can get a house with as much accommodation and having a far better appearance for half the rent, in the old country. Speaking to a working man's wife, I said, "You get good wages here." "Yes," she says, "but we have just to pay it away again, as our house rents are so high, and pay $7 (£1 8s) for a ton of coal, and we burn a lot in the winter time as it is so cold. The clothes and boots are dearer too than at home, and they do not last half the time, as they are very slim got up, and we must keep a good-furnished house and put on good clothes, or we are looked down on here. I can't keep my house as I did at home on much less money than the double I had at home. I was as well off with 30s per week in Scotland or England as here with 40s per week." They have free education in Holyoke, and all the taxes they pay in the year is 8s. They have no gun tax. They have no co-operative societies in Holyoke, and very few working men own their own houses. Foresters and Oddfellows Friendly societies are very strong (the American order) in Holyoke.

THE FINISHING ROOM.

NOVA SCOTIA.

Mr Muir, miner, writes as follows :—

Workmen's Houses

are built of wood, and consist of one kitchen, one small bedroom, and pantry on lower flat, and two bedrooms upstairs, and a cellar under the kitchen. The rents are 2 dollars (8s) per month. All have to make their own bread and pastry, also to make all their own clothes. Common food is about the same price as at home; boots very dear and not good; clothing double price of home goods; spices very dear; furniture and crockery very dear. For instance, a plate which could be bought here for 1d costs about 3½d there, and a 1d tumbler costs 5d. Education is not compulsory, but is free, but the standard is not very high. Householders pay about £2 for taxes per annum, and single men pay a poll tax of 4s per year, which entitles them to a vote for local and dominion government of Canada. The coal is shipped at North Sydney, four miles distant from the pit, and three locomotives are required to carry the coal during the shipping season. The greater part of the coal raised is sent up the St Lawrence to Montreal, Quebec, and several other places, and while the navigation is open everything is pushed as much as possible to execute contracts, and get away the greatest amount of coal in the shortest possible time in order to overtake the great rush of trade which usually extends from May to November. Large quantities of coal are binged during the winter months, and it is nothing unusual to have 40,000 to 50,000 tons binged in this way. The severity of the winters and the drift ice in spring are great hindrances to the coal trade in Cape Breton. If the winter sets in early the harbour may be frozen over in December, and remain so until April. Then if it breaks up and gets cleared out it opens the way for the drift ice to come in, which often blocks the harbour in May, and even in June. The miners, as a rule, are civil and respectful and well-to-do, some of them owning horses and waggons, cattle, houses, and land, boats and fishing gear, and some having even small farms, which they work seed-time and harvest, and come to the mines the rest of the time, and in a number of cases bring pit-wood to the colliery, and barter for fire coal. The underground manager of this colliery is Mr Robert Robertson, a native of Rutherglen, who came here about three years ago, and who has managed it so successfully that he has raised the output from 670 tons per day when he came to an average of 1000 tons in 10 hours. This is only another instance of Scotsmen's ability and perseverance in working under difficulties of climate, which is very severe even on natives.

Pictou County, Nova Scotia.

Coal was discovered here in the year 1799, but mining was not commenced till 1827 on a large scale. The coal seams are represented by the big seam or main seam. It is about 38 or 39 feet thick, but this includes several bands of ironstone and stone through it, so that there is in all 24 feet of good workable coal. It is a highly luminous coking coal, but its main objection is that it produces a great quantity of light, bulky ashes. Next is what is known as the Deep Seam, 150 feet below the main seam. It is nearly 25 feet thick, and is divided into three workable seams amounting in all to about 12 feet in thickness of good coal. Next in value is Macgregor Seam, 280 feet below the Deep Seam, 12 feet in thickness. The two upper veins of this seam amount to 6 feet, with a slate between, which requires care in extracting. The general dip of the seams is about 20 degrees. Five feet above the Macgregor seams is a seam of good quality, and between this and the Deep Seam are other two seams, each about 4 feet thick, and very valuable coal, but too near the thick seams to be wrought yet. There was another seam discovered here some time ago overlying the Main Seam, but it has not been much wrought yet. It is about 5 feet 9 inches thick, and is said to be of good quality.

The Acadia Mine.

When in this county I visited the Acadia Mine. Mr Poole, general manager, and Mr Maxwell, underground manager, who is a Scotsman and native of Lanarkshire, and who has been in this province for the last thirty years, was very kind in giving me all information, and showing me through the mine. The mine employs about 220 men underground. It is 660 fathoms long and driven in the main seam, which at this mine varies in thickness from 16½ feet to 14 feet, but at the present time only 7 feet to 7½ feet of the top part of the seam is being wrought, and that on the stoop and room system, the inclination being 26 degrees from the horizontal or a dip of 1 in 2. The seam is very fiery, and only locked safety lamps are allowed to be used. The roof is very bad for 5 feet upwards, and usually falls this thickness to the bottom of a thick bed of freestone. There is very little water to contend with, and what is of it is forced direct to the surface, a distance of 1000 feet vertical. There are other pumps for pumping the water from the dip workings to the main lodgment. The miners work from seven o'clock in the morning till half-past five o'clock in the evening, and are allowed a half-hour at noon for a meal. The coal is very soft and easy to get; in fact, the manager told me that there had not been a shot fired in the mine for the last eight years. The miners are paid by the yard sometimes, and sometimes by the ton, which is 2240 lbs., but the legal ton is 2000 lbs. The average miner is able to put out about five tons per day, which, at an average of 36 cents (1s 6d) per ton for round coal and dross, gives them about 7s 6d per day for the miner, the shift wage being 5s 6d; winding enginemen, 5s 3d; pithead labourers, 4s to 4s 6d. The miners work on an average 22 days per month. The workmen have an association which is called the Provincial Workmen's Association. It is an association for all the different trades in the Province under one secretary and a managing committee, who publish a journal in their own interest, but it is there as it is in our own country, some won't join the association, and others don't pay their subscription as it becomes due. The subscription is 1s per month, and when hurt they get 10s per week as aliment. They have also an arbitration law for settling disputes, and there have been no strikes there since 1887, but they had one at that time which lasted four months. The strike was a local one to begin with, but it was made general by the other collieries going through sympathy. One of the mines had been reduced and the rest joined, but it ended in a reduction to the miners. Checkweighmen are allowed, but there are none at this colliery. There has been an attempt to import miners from other countries on several occasions, but they did not stay very long, owing, I suppose, to the long hours wrought and the long spells of idle time in winter, when the shipping ports get blocked up with ice and the most of the coal is shipped to Canadian ports because of the heavy tariff duty on the coal sent to United States ports. Food and clothing are generally about the same price as at home, and are as good. The weather in summer time is very much like our own, but in winter there are very frequent and

sudden changes, the temperature falling so low as 47 degrees below freezing on some occasions. The average temperature for the whole year is 42 degrees, or only 10 degrees above freezing. Spring time is very cold, owing to the ice winds which prevail in that season, and cultivation is kept very late. The harvest is also late: in fact the crops of corn we saw growing at the end of July were only six inches high. The ground is very poor for crops, especially in the valleys, the mountains being the best for crop raising. The inhabitants are almost without exception of Scottish extraction, having emigrated from the Highlands and islands of Scotland. All are very sober and industrious. House rents are very cheap, being only about 10s per month for a house containiug four rooms and a kitchen. Doctors' fees are £1 per year and medicine extra. Fire coal to workmen, 2s 6d per ton. There are no libraries or reading-rooms, no theatres or places of amusement, except in large towns, and there are no Saturday half-holidays, so that there is very little amusement or pleasure in this district. Public schools are free, but education is not compulsory. There are no technical schools, but there are evening classes in winter time.

Londonderry Rolling Mills.

The next day brought us to Londonderry, in Colchester County, where they are extensively mining and melting iron. The rolling mills, which used to employ a large number of men, are presently shut down, the company at present confining themselves to the making of pig-iron and foundry work. It was here that Siemens, the great scientist, experimented in steel making a long while, but the works proved unsuccessful. In the iron works there are 10 or 12 puddling furnaces and 2 rolling mills. On the works closing, the most of the workmen made their way to the United States. The present company have extensive ore properties, owning about 40,000 acres. I had a letter of introduction to the manager. In his absence I saw Mr Smaill, the chemist, who willingly conducted me all round the place. We drove over the hills to the mines, where you enter from the face of the mountains. With lamps we penetrated a long way into the workings, where the ore is to be seen in abundance. The ore contains about 30 per cent. of iron. It it famous for its purity, being almost free from phosphorus. The iron still retains the name of the Siemen brand, and has a ready sale all through Canada. At the blast furnaces the average wages are:—Furnacemen, $2.7 a day (9s); slagger, $1.25 a day (5s); helper, $1.17 a day (4s 9d); stovemen, $1.53 a day (6s); top fillers, $1.26 a day (5s); bottom fillers, $1.17 a day (4s 9d); labourers $1 a day (4s). Food here is very reasonable, but clothing is dear. The average rental for workmen's houses is about $5 (£1) a month. No intoxicating drink is sold here, although they are not under the Scott Act. They are under a Temperance Act that provides that no license can be granted within a mile of a mine or mining town.

The Trenton Steel Works, Nova Scotia.

Mr Robert Dunlop, Motherwell, writes:—Trenton is an irregularly built town, with no pretence of order or neatness, almost entirely depending on the steel works. The most of the houses belong to the workmen employed at the steel works. On the river bank, a short distance from the works, stands the handsome residence of Mr Fraser. It was Saturday afternoon when I got down to the works, and as the workmen here enjoy the half-holiday on Saturday, the works were closed. I saw Mr Fraser, who cordially invited me down to see the works on Monday morning. Their plant at present consists of two open hearth-melting furnaces, 20 tons each. For stripping and setting the pit they have one of Grieve's (Motherwell) ten ton travelling cranes; six heating furnaces; one 26-inch cogging mill; one 16-inch bar mill; one 10-inch guide mill. At present they are putting new plant in the shape of a new guide mill and a 20-inch 3 high plate mill, and a new melting furnace. The estimated cost of the new plant is £75,000. In the forge department they have four or five hammers and four furnaces. They have also a fine machine shop, well equipped with all the latest machinery in lathes, plainers, &c. They are beginning to use native pig-iron, made from Brown hematite ore, mixed and smelted within 20 miles of the steel works. Their output consists of marine, railway, and machinery forgings; all kinds of mild steel for rivets, bolts, and thresher teeth; plough beams, plough plates, and all kinds of agricultural steel. They have a yearly output of about 20,000 tons. Since the amalgamation of the companies in 1889, the average annual profit has been over $50,000, and it is expected when the new plant is laid down the earnings of the Company will be increased, as the output of the works will be augmented and at the same time effect a large saving in the cost of manufacture. The wages in the mills average:—Rollers, $7 to $8 (28s to 32s) a day; heaters, $4 (16s) a day; roughers, $4 (16s) a day; machinists, fitters, &c., from $1½ to $2¼ (6s to 9s) a day; labourers, from $1.10 (5s) to $1.20 (6s) a day. The tradesmen's hours are ten per day, working till twelve o'clock on Saturdays. A good number of the workmen own their houses, a comfortable house costing from $500 to $1000 (£100 to £200). The taxation is about 1½ per cent. on the value. The cost of living is much about the same as at home. As a rule, the necessaries of life are no dearer than they are here, with the exception of clothing. A good suit of clothes will cost about 20 per cent. more. A young man can board for $3 (12s) a week. I was fortunate in being introduced to Mr Joseph Keay, who is in charge of one of the mills, as I found he was a West of Scotland man. He has been here eight or nine years, having gone out under an engagement as a roll turner. He has now charge of the mill. He worked here for the Steel Company of Scotland, and his old fellow-workmen will be glad to hear that he is doing well, and likes to stay in Canada. His wife and family all seem to like the place too. He has a nice little bit of land, about ¾ acre, upon which he has built a splendid house of 7 apartments, at a cost of 3000 dollars (£600) for house and land. As he took me over to see it, I can say there are few workmen here can boast of such a nice house. Mr Keay and Mr Simon Fraser, the mill manager, were very obliging in showing me round the works, and I was also indebted to Mr Cantly, one of the officials, for his kindness, as he called for me in the evening and gave me a drive round the place in his machine. A pleasant feature of our visit has been the many acts of kindness shown to us by strangers, who seem quite unconscious of doing anything unusual. The most of the workmen here are in favour of protection, as it is generally admitted that in no other condition could young industries like theirs compete with the manufacturers at home. Complaints are general as to the unprofitableness of the farming class. The attractions and higher wages in the United States are tempting to the young people, and a large number of the above class leave the Maritime provinces for more congenial employment in the States, although I was credibly informed that with a little capital and energy a good living and fair profits could be realised from the land round this district.

INTERESTING SCENES AT NEW YORK HARBOUR.

STRANGE SHIP CUSTOMS.

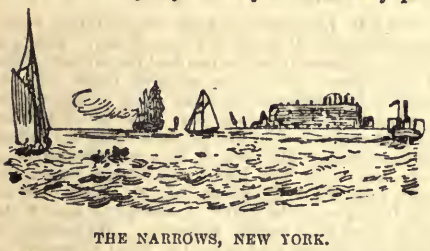
THE STATUE OF LIBERTY.

HOW IT WAS CONSTRUCTED.

(From the Dundee Weekly News of March 10.)

New York Harbour and Statue of Liberty.

Mr Logan, Glasgow, reports:—While in New York I was aided, through the kindness of Mr J. Morrison, of the Caledonian Club, and Mr N. Mahon, delegate of the Amalgamated Society of Carpenters and Joiners, in getting much valuable information, and saw much more of the city than I possibly could have seen in double the time. To the stranger in New York, no matter what country he may have come from, there is no more interesting place than the harbour. To describe the scenes that are daily enacted at the different wharves would require the pen of a Charles Dickens to do them justice. At these wharves thousands of immigrants land almost every day in the year from every part



THE NARROWS, NEW YORK.

of the world, and to see the crowds of them in their native dress hobbling along with their baggage, and all yattering in their own tongue is a sight not easily forgotten. All along the river side there are many rum-looking old buildings used for all kinds of seafaring occupations. Here are makers of nautical instruments, outfitters for seamen, all sorts of boarding-houses (and some of them are dandies), dark and dingy shops with all kinds of articles from foreign lands, and any amount of drinking saloons of the worst description. Far over the street, their bowsprits reaching almost to the other side, are great ships moored to the wharves. It is here worth while mentioning that all foreign vessels, whether they be Atlantic flyers or smudgy tramps, must have their bows pointing towards the city, while American vessels have all their bows pointing towards the river. I was told that when the City of Paris and City of New York were transferred from British to American management the Yankees made a great fuss about it. The steamers were lying with their bows towards the city and flying the Union Jack, and in presence of an immense crowd of people the steamers were backed out into the middle of the river, when, amidst great rejoicings, bells ringing, bunting flying, &c., the Union Jack was hauled down and the Stars and Stripes run up in its place. At the same time the steamer was turned round and backed into its berth, so that the bows would point to the river the same as all other ships that are under the American flag. New York harbour is eight miles long, and five miles broad at it widest part, is completely protected from all gales, has several islands, and is acknowledged to be one of the most beautiful harbours in the world. The Hudson River, between New York and Jersey city, is about a mile broad, and the traffic that is carried on on this part of the river is enormous. One may here see a score of ferry boats crossing from shore to shore, and as many more may be counted in their slips. Great steamers, European liners, coasters to the Gulf of Mexico, the West Indies, and South America, all kinds of tramp steamers whose crews are made up of every race under the sun; numberless tugs, racing about alone, or towing some noble ship to sea, or dragging a long line of picturesque barges and innumerable sailing craft, every size or shape, foreign and domestic, dignified and ridiculous; men-of-war lying at their anchorage, and gay excursion boats, all brilliant in white paint, flags, &c. All these meet, pass, and cross one another's bows with little hindrance. Such an animated picture as New York harbour presents on a summer day, I don't believe can be excelled in any other seaport in the world. From every point, near or remote, and which commands the least view of the harbour, the first object to catch the eye is the

Statue of Liberty.

This colossal figure, the largest statue of modern times, is made of hammered plates of copper, is 151 feet in height, and stands upon a pedestal 155 feet high. It is the gift of the French people to the people of the United States. This statue has a unique history, and a brief description of it I have no doubt will be highly interesting to the readers of the *News*. Auguste Bartholdi, a French sculptor, was impressed during a voyage to the United States by the eagerness with which the emigrants crowded the decks for a first glimpse of the new land to which they were coming with such hope and confidence, and the thought came to him "What a joy and encouragement it would be to these people if they should see something to welcome them, to remind them that this is a Republic. What if there stood, like a great guardian, at the entrance of the Continent a colossal statue—a grand figure of a woman

holding aloft a torch, and symbolising Liberty enlightening the world." When he went home he proposed that a popular subscription should be opened in France to present to the people of the United States such statue. The idea took the fancy of the French Upwards of £40,000 was collected, and in 1879 Mr Bartholdi began work upon the statue. The process of building this colossal figure was most interesting.

A statue so enormous as this was designed to be could never be transported or erected, and if built in courses it would crumble and become unsightly. Bartholdi remembered of an ancient statue which was made of copper in thin sheets hammered into shape and laid upon a frame of stone, iron, and wood, and he decided that his statue must follow the same method. A beginning was made by executing a model in plaster one-sixteenth the size of the intended statue. Next another model four times as large was constructed. This quarter-size model being finished, the task followed of making the full-sized model in plaster. To mould these full-sized copies, which were cut into suitable pieces, was a work of great ingenuity. Their weight required a support, and a framework of laths was first erected, over which the plaster was roughly spread, and then it was chiselled and smoothed by skilful workmen into an exact similitude of the smaller model. These sections in plaster completed, came the work of making wooden moulds that were exact copies, both in size and modelling, of the plaster. It was a long, tedious, and difficult piece of work, but there are few workmen who could do it better than the French carpenters. Each part was a model of a part of the statue, exactly fitting every projection and curve of the whole figure. Into these wooden moulds sheets of copper were laid, and pressed or beaten down till they fitted the irregular surfaces of the moulds. In this complicated manner, by making first a sketch, then a quarter-sized model, then a full-sized model in sections, then hundreds of wooden copies, and, lastly, by hammering into shape 300 sheets of copper, the enormous statue was finished. These 300 bent and hammered plates, weighing in all 88 tons, form the outside of the statue. They are very thin, and, while they fit each other perfectly, it was quite plain that if they were put together in their proper order they would never stand alone, there must be a frame or structure inside to hold it together. This frame was made of iron beams firmly riveted together, and thus making a support to which the copper is fastened. In erecting such a great statue, two things had to be considered that seemed very trifling, and yet, if neglected, might destroy the statue in one day, or cause it to crumble slowly to pieces. One is the sun, the other is the sea breeze. Either of these could destroy the great copper figure, and something had to be done to prevent such a disaster. The heat of the sun would expand the metal and pull it out of shape, precisely as it does pull the Brooklyn Bridge out of shape every day. "The bridge is made in four parts, and when they expand with the heat they slide one past the other, and no harm is done. The river, or centre span, rises and falls day and night, as heat and cold alternate." The great copper statue is likewise in two parts, and, while they are securely fastened together, they can move the one over the other. Each bolt slips a trifle as the copper expands in the hot August sunshine, and slide back again when the freezing winds blow and the vast figure shrinks together in the cold. Besides this, the copper surface is so thin and elastic that it will bend slightly when heated and still keep its general shape. Thus the statue itself was built and ready in the summer of 1883, when the people of America were asked to contribute money to erect a suitable pedestal. They were slow to respond, not feeling the enthusiasm for the idea which had prompted the Frenchman; but at last the *World* newspaper aroused attention, and by a systematic effort on its part, the £50,000 necessary was raised, and in the summer of 1886 a handsome pedestal was erected, which adds greatly to the dignity of the statue. Pedestal and figure rise to the lofty height of 306 feet, and cost upwards of £90,000. The main stairway, which is lit by electricity, leads to the hollow in the top of the head, where it is said that 40 persons may stand at once, and a row of windows in the half-circle of the coronet overlooks the harbour and New York City. Another stairway leads up the arm into the torch, where a chamber will hold several persons at once. This torch is lighted by a cluster of electric lamps. It was a part of the original intention to place an electric lamp on each one of the rays above the heading, giving the statue a crown of diamond-like points of light at night; but this has not been done up to the present time. The figure itself, which faces the east, and has a face full of grave and noble beauty, stands posed on one foot, as if about to step forward, and is majestic from every point of view. In the right hand is a torch flame, held aloft as a beacon of liberty guiding the stranger from over the sea. In the left hand it clasps a tablet—the tables of the law.

St John, N.B.

Mr Dunlop, Motherwell, reports:—

We left Londonderry with the midnight train, and arrived in St John, N.B., next day. This was another famous place for shipbuilding when the old-time clippers did all the carrying trade, but the rapid introduction of iron and steel destroyed the trade here. There are several important industries carried on here, chief among them being the rolling mills of James Harrison & Co., manufacturers of iron and steel nail plate, ship knees, street and mine rails, &c. On going over to see the works, Mr John Poole, the roller in charge of one of the mills, gave me a cordial welcome. He belongs to Glasgow, having worked for the Steel Company of Scotland at Newton, also at Blochairn. On introducing myself to him, I was agreeably surprised to find he had a copy of the *Dundee Weekly News* in his pocket, with the photos of the Expedition, some friend having sent it out to him. Mr Poole likes St John, and seems to be doing well, having a property worth $5000 (£1000), with a tidy horse and trap to add to his comforts. He took the afternoon to himself, and kindly assisted me in seeing the place. The plant at Harrison's works consists of two rolling mills, a guide mill, and a slabbing mill, with forging hammer, &c. The average wages in the mills are:—Furnacemen and roughers, $3 (12s) a day; machinists and roll turners, from $10 to $12 (£2 to £2 8s) per week; labourers, $1.20 (5s) a day. There are also a great number of sawmills here as they have an extensive lumber trade. The average wage at the sawmills being from $1½ to $2 (6s to 8s) a day. We also visited the works of J. Pender & Co., where they manufacture steel wire nails of every description. Mr Pender has all the latest and improved machinery for the carrying on of a large trade. He is also the patentee of special wire nails of great holding power. Instead of the roughened barb nails, which break the fibres of the wood, his are so finely roughened as not to be noticeable, and as shown by numerous tests to be more effective. These works were exceptionally busy, having more orders on hand than they could fulfil. All their steel rod for nail making is imported from Germany, another proof of the pushing nature of our German friends in gaining access

to the markets in our Colonies. The cost of living is much about the same as at home, that is the food, but clothing and boots are a good deal more. Butcher meat can be had from 13 cents (6½d) a pound. It can be had cheaper buying larger quantities at the market. Butter from 18 to 20 cents (9½d to 10d) a pound. Eggs vary from 12 cents (6d) a dozen in summer, to 25 cents (1s) in winter. Coal runs to $4½ (18s) a chaldron, that means about 28 cwt. Domestic servants are always in demand at good wages, the average being about $12 (£2 8s) a month.

Nova Scotia as a Mining Centre.

Our visits to the provinces of Nova Scotia and New Brunswick proved very interesting. As the soil of Nova Scotia is against being a great agricultural country, they are determined to develop their vast resources in coal and iron. At the summer meeting of the Mining Society of Nova Scotia, held at New Glasgow, the Hon. J. W. Longley said :—"Nova Scotia was a small province containing 500,000 inhabitants, but within its borders were the possibilities of a great industrial and mineral development. With coal and iron and fluxes in abundance side by side, gold in paying quantities, and a large variety of other economic minerals, the possibilities of the future of the province were great. The time had come when the people of the province should realise a sense of the great obligation that is cast upon them to develop these resources. We must dare to be great, to be something more than a province of 500,000 people. Nova Scotia should be made the centre of the greatest mining and manufacturing industries of this Continent." The Hon. A. C. Bell, referring to the growth of the mining district in Pictou County, said :—It was pleasing to the citizens of New Glasgow to see some realisation of what had been in their early days dreams exceedingly vague of what the county might some day become. In his early days the people were accustomed to compare New Glasgow on the east river with its namesake on the Clyde. A few years ago, where the steelworks now stand, there was nothing but green trees. The coal trade had grown, and the building of iron vessels was now one of the industries of New Glasgow. In conclusion he eulogised his old school fellow, Mr Graham Fraser, who by his courage and ability had done so much to promote the establishment of the iron industry in the county." On the Wednesday evening I rejoined Mr Muir at St John (who had been away at the mines of Cape Breton), and we left for Boston, where we arrived next afternoon. We spent a few hours at Boston, and, leaving at midnight, we arrived at New York next morning, and again joined the members of the Expedition. Our visit to Canada convinced us that they are slowly but surely opening up their great natural resources, and that Canada in the future, with a loyal and industrious people, is bound to play an important part as a manufacturing nation. At present there are no steel plate mills in Canada. When the new plant is laid down at New Glasgow a great impetus ought to be given the trade in Canada. Of course the tariff laws assist them in competing with our great manufacturers at home. Without Protection they say they could not compete successfully, and as that policy promises most for the workers they are bound to support it. One thing is certain—if the iron and steel trade does not succeed it will not be the fault of the able and energetic men who are striving to develop their resources and establish permanent industries in Canada.

SIGHTS OF NEW YORK.

GENERAL GRANT'S TOMB.

IN THE CENTRAL PARK.

THE FREE LUNCH SYSTEM.

A WALK THROUGH WALL STREET.

VISIT TO THE BOWERY.

THE GRAND CENTRAL DEPOT.

(From the Dundee Weekly News of March 17.)

Mr Murray, the conductor, reports :—Mr Dunlop and Mr Muir, who had been at Nova Scotia; Mr Mungo Smith, who had been at Fall River, Providence, and Paterson; and Mr Wm. Smith, from the paper mills at Holyoke, rejoined the main party at New York, and recognising how diligently and faithfully the delegates had fulfilled their respective missions, and acting on the principle that "all work and no play makes Jack a dull boy," I suggested a day's sight-seeing. The proposition was cordially and unanimously agreed to, and the tour to be undertaken determined upon.

Riverside Park

was the first place visited, and in order to reach it the party travelled in the cars of the Manhattan Elevated Railway to 125th Street. This street is towards the north end of the island, and in a district which is still to some extent the happy hunting ground of the speculative builder. In crossing from the railway to the park the delegates observed many of the large boulders sticking out of the ground at the sides of the streets speaking eloquently in behalf of special medical remedies, and of the great virtues of other things which certain people alone sold, the enterprising Yankees neglecting no opportunity of advertising the merits of their goods and keeping them before the public. Riverside Park is about 2½ miles in length, but is only a narrow strip of ground. Excepting a few walks and drives it is very much in a condition of nature, but with its beautiful trees and rugged bluffs its grounds are most romantic. On one of these bluffs is a small crypt containing the remains of General Grant, one of the heroes of the Civil War, and at one time President of the Republic. The delegates, on visiting the grave, found that a start had been made with the erection of what is designed to be a handsome tomb, but the work appeared to be in a state of suspended animation. A grey-jacketed park policeman who here put in an appearance was spoken to on the subject, and one of the delegates remarked to him that he supposed the reason why the construction of the tomb was not being proceeded with was that Tammany Hall had not been sufficiently squared. The patrolman, who had in all probability bought his appointment from the Tammany Hall Ring, at once squared up at this, and assumed a rather threatening attitude, but before taking any action he looked hard at the delegates, and fixing his gaze in particular on the burly figure of Mr Mungo Smith and the intimidating stick which he carried, he relaxed somewhat,

TOMB OF GENERAL GRANT.

and smiling remarked that we seemed to possess a fair knowledge of New York and of how the work of the city was carried on. From this point the delegates obtained a fine view of the famed Palisades of New Jersey and of the Hudson River, whose waters lap the western side of the park. New Yorkers are proud of the Hudson and its scenery, but in the opinion of the delegates the St Lawrence is in every respect its superior.

Central Park,

which we reached by the crossing over to the eastward, was the next place visited. This is one of the finest public parks in the world, and the delegates devoted some hours to the exploration of its beauties. Two and a half miles in length, and half a mile in width, it contains 862 acres, of which 185 are in lakes and reservoirs, and 400 in forest. The two Croton reservoirs for the supply of water to the city cover respectively 35 and 107 acres, while the ornamental lakes—five in number—occupy an additional 43 acres. The grounds are conveniently broken up by ten miles of carriage drives, six miles of bridle paths, and thirty miles of footpaths, relieved and adorned by numerous bridge-arches and other architectural monuments, together with many statues. All the walks, lanes, and drives are bordered by beautiful trees, whose luxuriant foliage sheltered the party from the fierce rays of the noonday sun. When in the Upper Park, which is particularly rich in natural beauties, the delegates observed several very pretty grey squirrels. One of these broke cover only a few feet from a delegate, and he at once set off in hot pursuit, hoping to effect its capture. Active as he was, however, and accustomed to travel—when on wheels—at the rate of 40 or 50 miles an hour, he was completely beaten by the pretty little fugitive, who succeeded in escaping up a tree. Realising that he could follow the grey-furred squirrel no farther, the delegate turned round to rejoin his companions, and found himself, to his amazement, almost in the arms of a grey-coated policeman, who was waiting to capture him should his pursuit have been successful, as the squirrels are protected by statute. "What are yez doing there? Isn't the footpath big enough to hold the whole of yez?"—the language proclaiming the nationality of the interrogator— was the salutation which he received, and during the remainder of the tour no other patrolman, mounted or on foot, had occasion to warn this delegate. Following a downward course, the party arrived at the Terrace, a sumptuous pile of masonry, richly carved and decorated, beside which is Central Lake, the prettiest piece of water in the park. Between the Terrace and the lake is a magnificent fountain, with large granite basins and a colossal statue of the Angel of Bethesda. When here the party was photographed by the Conductor, but so warm were all the surroundings through the fierce heat of the noonday sun, that Mr Watson had some difficulty in finding a seat which was cool enough. Ascending the Terrace

THE MALL, CENTRAL PARK.

the delegates found themselves in the Mall, the principal promenade in the park, and lined by double rows of stately elms. Here there are splendid bronze statues of Shakespeare and Sir Walter Scott, Burns, Goethe, and others, the statue of Burns being identically the same as that in the Albert Institute grounds, Dundee. A little lower down the party came upon a large Egyptian obelisk (Cleopatra's Needle), which is one of the most striking objects in the park. This obelisk was originally hewn and inscribed by Thothmes III, and one of the sides is also inscribed with the victories of Rameses II (a contemporary of Moses), who lived three centuries afterwards. It was presented to the city of New York by Ismail Pasha, and taken to the country at the expense of Mr W. H. Vanderbilt. Central Park is a favourite resort of New Yorkers, and it is calculated that about 12,000,000 persons visit it annually. Up to the present 3¼ millions sterling have been expended upon the park. The programme for the day included several other visits, and in order to overtake these the delegates returned to the business part of the city, using again for this purpose the Elevated Railway. During their stay in New York the members of the expedition had frequently heard of

The Free Lunch System,

and Nature now raising clamant demands upon them, they resolved to make a closer personal acquaintance with it. They accordingly entered one of the saloons in Broadway, and each one had a drink—costing 5 cents (2½d)—suited to his taste and principles, along with an excellent plate of soup. The experience was so satisfactory that the delegates decided on testing the system a second time.

and entering another saloon they had on this occasion along with their drink a very palatable sandwich. The "free lunch" is an excellent institution, although it is often abused by impecunious and unprincipled people. It is understood that every person visiting one of the saloons which make a feature of the free lunch purchases a drink at the usual charge, but some unscrupulous persons, without ordering any liquor, help themselves to the soup and sandwiches gratuitously provided, and by doing this systematically several times a day, make a very comfortable meal without being one cent out of pocket. While the delegates were in the saloons numerous customers entered and ordered "cocktails." These are curious mixtures of drinks, the main ingredients being generally rye or Bourbon whisky and gin, flavoured with one kind or other of fruit, such as lemon, strawberry, or blackberry, and in the summer they are iced. Various names were given to the "cocktails," amongst them being Manhattan, New York, Jersey, and Brooklyn, and one particular drink made up only, it was said, when Queen Luna was in her full glory, was designated "Bloom of the Moon." These "cocktails," in order that the pleasure of drinking them may be prolonged, are usually sipped out of the glasses by means of two straws. Having satisfied for the time being the cravings of the inner man, the delegates proceeded down Broadway until they arrived at

Wall Street,

the well-known financial centre of the country, and the great resort of bankers and brokers. The building of most general interest in this important thoroughfare is the Stock Exchange, and ascending to the public gallery the party witnessed business in full swing on the floor below them. Posts were standing in different places, and round each of these was a group of dealers doing business in the particular stocks whose names appeared on the boards attached to the uprights. The stock market was, however, very dull at the time, and although a considerable amount of business appeared to be in course of transaction, no scene of wild excitement such as that which occurred during the visit to the Board of Trade in Chicago was witnessed. Retracing their steps to Printing House Square, the delegates paid a visit to the office of

"The New York World,"

the highest building of its kind on the earth. This gigantic structure, which is generally known as the Pulitzer Building, contains 26 floors on 22 storeys, and is 375½ feet in height, the foundations being 35 feet below the level of the street. Of the 228 rooms in the building, 83 are occupied by the *World*, and the remaining 145 are let for business purposes. The iron skeleton would support the erection even if the walls were removed, and out of this part of the fabric alone 29 miles of railway could be constructed, while the electric wires in use would cover 48 miles. The handsome dome weighs 850,000 lbs., and, being brilliantly illuminated by electricity at night, forms a landmark which is readily discernible for many miles. When the delegates entered the office they were met by Mr M'Kernan, of the circulation department, who conducted them to the press-room, which they found literally packed with large machines, almost all in active operation. For the production of the morning and afternoon issues of the *World*, which together have an average daily circulation of fully 400,000 copies, no fewer than eleven presses are required. Six of these are quadruple Hoes, similar to the machine now in operation in the office of the *Weekly News*; while there are also four double Hoes, and the remaining machine is a press by Messrs Walter Scott & Co., of Plainfield, New Jersey, which prints five different colours on the paper before delivery. The last-mentioned is required for printing a portion of the Sunday edition of the *World*. The aggregate productive capacity of these presses is 408,000 eight-page papers per hour, or nearly 7000 per minute! The delegates remained for some time in the press-room, watching with great interest the marvellous rapidity with which the afternoon paper was being printed, their attention, however, being particularly directed to the wonderful colour press, which was throwing off the illustrated supplement for the following Sunday's paper. They afterwards ascended to the dome by means of one of the eight elevators, which are constantly running from the lower to the upper floors, and *vice versa*, and then climbing a ladder reached the lantern on the very summit of the building. From this coign of vantage they obtained a view which, perhaps, cannot be equalled in the whole world. New York, owing to the use by its citizens of anthracite coal, enjoys a remarkably clear atmosphere, and the weather at the time of their ascent being favourable the delegates had a radius of vision in all directions extending to upwards of forty miles. The city with its densely thronged streets lay at their feet, the men seeming but mere pigmies and the horses no bigger than dogs. Far to the northward they could see the open country and trace the course of the grand Hudson River; westward they completely overlooked Jersey City; and eastward, Brooklyn, "the city of churches," while farther out the swelling waves of the broad Atlantic were visible. The view indeed was one never to be forgotten, and a considerable time was spent in its contemplation before the party returned to the lower world. From Printing House Square to

Brooklyn Bridge

is only a very short distance, and this grand structure was seen under the most interesting conditions. It was now between five and six o'clock in the afternoon, when tens of thousands of persons, having finished their business in New York for the day, were returning to their homes in Brooklyn. The traffic on the bridge was therefore something enormous. Trains of cable cars crowded to their utmost capacity followed each other at intervals of a few minutes, and the carriageway on either side was thronged with vehicles of all descriptions, while there were also some thousands of pedestrians on the spacious elevated footway in the centre. The delegates crossed the bridge from New York to Brooklyn on foot, an operation which occupied fully twenty minutes, but in passing over they stopped at a few points in order to view the various craft which were sailing up and down and across the East River. They next proceeded up Centre Street in order to make a cursory inspection of

The Italian and Chinese Quarters.

Accordingly, on arriving at Canal Street, they struck eastwards until they came to Mulberry Street, and here they at once found themselves in all the filth and squalor of an Italian city. The carriageway and the footways were so crowded that only very slow progress could be made. In the former many vehicles had been unyoked, and to all appearance would remain on the street until their owners found occasion to use them next morning. Stalls and barrows, chiefly for the sale of fruit and vegetables, were in abundance, and the various hucksters seemed to be driving a fairly good trade, but the surroundings were such that the delegates were not tempted to patronise them. Small pieces

of humanity, composed for a great part of dirt and rags, were running about in scores, and sluttish-looking women were also far from scarce. Considerable numbers of swarthy complexioned men, fit mates for such women, were lounging about, and appeared to be fully occupied in doing nothing. Dirt and disorder were rampant, and the delegates, with both eyes and nose offended at every step, expressed no regret on arriving at the opposite extremity of the thoroughfare. Running parallel with Mulberry Street is Mott Street, by which the delegates returned to Canal Street. Here they felt in quite another country, as only a few steps separate the Italians from the natives of the Celestial Empire. John Chinaman was now in evidence, and while his surroundings were less squalid, his habitations seemed to belong to some other than the nineteenth century. Many Chinamen were seen, some of them very diminutive specimens, but there were others, big, robust-looking fellows, whom one would rather prefer not to meet in the shades of night. The predominating characteristic of all, however, was inexpressible ugliness, and the occasional glimpse of a grey-coated policeman leisurely going his rounds was a decided relief. Almost every other house was a laundry, but in the course of their travels the delegates also came upon a Chinese theatre. They were invited to enter, but all stated that they desired to see both the beginning and the end of the play, and, as they could not stay a week in New York in order to witness a complete Chinese theatrical representation, the invitation was declined. To

The Bowery,

which was close at hand, was the next order. This thoroughfare, although amongst the widest, is one of the busiest in New York. So wide is it, that the elevated railway running through it is broken up, and has the appearance of being two separate lines supported on single lamp-post-looking columns. Next to Broadway, the Bowery is the best known street in the city. The ground floors of the buildings in this street are almost wholly occupied either as beer saloons or retail stores of different kinds, but the street is also popularly known as the peculiar home of dime shows and museums. These institutions, more or less—generally less—interesting, are visited by considerable numbers, but their external appearance, at least, had no attractions for the delegates after their previous experiences in the country, and all of them were passed by. The most of the members of the party, however, made purchases of various kinds in the stores for the purpose of taking home some souvenirs, but in nearly every instance they could have obtained the same goods at much less cost in their own country, the excess of price in New York being due almost entirely to the suicidal M'Kinley tariff. The remaining hours of the evening were agreeably spent in a promenade through several of the busy streets of the city.

The Government of New York.

New York is governed primarily by a Mayor and thirty Aldermen, who are elected, one for each district, in November, and hold office for two years. There is also a President of the Board of Aldermen, likewise elected by the people, and who becomes the acting Mayor in the event of the Mayor being seized by illness or unable otherwise to perform his official duties. The present Mayor is Mr Gilroy, and the President of the Board of Aldermen is Colonel G. B. M'Clellan, a son of the well-known General M'Clellan. The salaries paid are as follows:—Mayor, $10,000 (£2000); President of the Board of Aldermen, $3000 (£600); and aldermen, $2000 each (£400). Full power to veto any Act passed by the Aldermen is vested in the Mayor, but he is subject to removal by the Governor of the State. The municipal history of New York is written black with corruption, and although measures have been taken from time to time to prevent waste and bribery, these, according to well-informed citizens, are still rampant. The Tweed frauds in connection with the building of the Sheriff Courthouse twenty years ago are well known. Boss Tweed and his gang were authorised to spend £50,000 on the structure, but it is said that when a tradesman sent in a bill of $1000, he was told to make it $10,000, and in this and other ways the total cost was run up to about £4,000,000. The famous Boodle trial in 1884, also revealed the fact that several of the Aldermen were paid $20,000 each (£4000) for a majority vote for the Broadway Cablecar Bill. To such a depth had the municipal rulers of the city sunk, that they were all accused of bribery, and many of them were sent to jail. Matters are probably not quite so bad now. But it would appear

NEW YORK CITY HALL.

that the Augean stable requires a periodic cleansing, as it is generally understood that for the most humble post in the patronage of the civic authorities, a certain sum has to be paid to the Tammany Hall Ring, who have the whole "political pull" of New York. After the Tweed *regime* of 1873, the manner of making appropriations was changed, the power being taken from the Aldermen and vested wholly in a special Board, consisting of the Mayor, the President of the Board of Aldermen, the Comptroller of the City, the President of the Tax Department, and the Corporation Counsel, whose vote must be unanimous. Each of the various departments of the city government is under a Commissioner subject to the Mayor, and holding office for from three to six years. The water supply of the city is drawn from the valley of the Croton river, about thirty miles to the north of New York, and is under the control of the municipality. The total cost of the water supply has been about $50,000,000 (£10,000,000), and in order to meet the charges of the department about $10,000,000 (£2,000,000) has to be raised annually. The total sum to raised by taxation during the current year amounts to $34,444,154.68 (£7,000,000). A new City Hall which is about to be proceeded with will involve a heavy additional expenditure. The old City Hall, which it is proposed to rebuild in another part of the city, was erected in 1803, and is a fine specimen of Italian architecture. The sides and front are of white marble and the rear of red stone—which has lately been painted white—the citizens being confident at the time of its erection that the city would never extend beyond this point. The Governor's room contains the desk and the chair used by President Washington. Many poor people use the seats in City Hall Square as beds at night. This year the Corporation proposes to divide $1,305,177 (£261,035) among asylums, reformatories, and charitable institutions,

and of this $275,000 (£55,000) is to go to the New York Catholic Protectory. The work of watering the streets is let by the Corporation to a Street Sprinkling Association, which levies blackmail on the citizens in order to recoup itself.

Grand Central Depot.

Mr Watson reports :—The Grand Central Depot, New York, is a large building in French style. It faces 42nd Street, across Fourth Avenue, and extends along Vanderbilt Avenue for nearly three blocks. Three railway companies occupy the upper storeys for offices, the ground flat being used for ticket offices, waiting, and refreshment rooms. There are twenty-one lines of rails in this station, all covered over. The main roof has 200 feet of a span, and is 695 feet long. About 250 trains leave this station every day, and about the same number arrive. With trains arriving I noticed a style of working that is not allowed in this country. Every passenger train when coming into the station came in with a run past—that is, uncoupling the engine when running, thus running the engine into one siding, or lye, and the passenger cars into another, guided into platforms with the brakesmen and con-

GRAND CENTRAL DEPOT.

ductors. I had a walk through the running shops there belonging to the New York Central & Hudson River Railway, and met with an old North British driver, George Tyndal, from Dundee. He had been eight years in New York. He showed me some of their engines. They differ very much from our engines. For instance, a great many of them have no gauge glasses. The only way they know how much water is in the boiler is by proof cocks, there being three on every engine. Then, looking into the firebox, you observe there is no brick arch, all the sparks being caught in a wire netting in the side of the smokebox, and they fall down into a hopper which can be emptied into the four-foot way at any time. That is why the smoke-boxes on American engines are so long. The smokebox door is also very seldom opened, for the way the tubes are sponged is by blowing through them with compressed air from the firebox end with the aid of a long iron nossle pipe which reaches through the fire to the tubes. The coals used are of a hard nature, and very little smoke or refuse comes from them. In one of the engine-sheds stands a boiler for generating steam for heating up the cars in the winter time. Pipes are laid all through the station so that steam can be connected to any train, and it can be heated up before the engine is attached. When the engine is attached to a train the steam pipe is connected in much the same way as the air brake pipes are connected. Then a steam cock is opened which blows through the train when on the journey. Even cooking can be done with this apparatus. Gas is used for lighting trains. It is pumped into a reservoir, and compressed to 180 lbs. per square inch. Then the tanks under the cars are charged by pipes leading through the station. This railway has four tracks of main lines to Buffalo and two to Chicago. Fast trains complete the journey by their route in twenty hours, six different engines being employed throughout the journey.

THE HOMEWARD JOURNEY.

THE DELEGATES' INVESTIGATIONS.

(From the Dundee Weekly News of March 24.)

The voyage home of the delegates, writes Mr Murray, was commenced on Saturday, July 29. They embarked on the previous evening on the Anchor Line steamer Anchoria, and again slept soundly under the Union Jack of Great Britain. The night's rest, after the prolonged and somewhat exhausting tour of the previous day, was most refreshing, and the whole of them, looking as merry and as lively as crickets, were on deck by half-past five on Saturday morning in order that none of the

PASSENGERS EMBARKING.

features of interest in the Hudson River or in New York Bay might be missed. Shortly after six the mooring ropes of the steamer were unfastened, and the vessel, having backed out from the wharf, proceeded down the river. Comparatively early as the hour was, a great many craft were also, like our own, on the move, as the New Yorkers and other Americans are thorough believers in the adage that it is the early bird which catches the early worm. A good few of the ferry boats between New York and Jersey City had commenced running for the day, and there were several other steamers either going up or down the river on inward or outward voyages. Past all these the Anchoria was safely navigated, and before long we had directly ahead of us the

great open bay, or harbour of New York, as it is generally styled, and on our left Castle Garden and the Battery at the southern extremity of Manhattan Island. The neighbourhood of

The Battery

is rich in reminiscences of Revolutionary days. On the site of the Washington Building, erected by the late Cyrus W. Field, to whom the country is indebted for the Atlantic cables, was the famous Washington Hotel, where General Washington at one time made his headquarters. The iron railing surrounding the Bowling Green, the cradle of New York, is the historic fence from which the knobs of the pickets were cut by the revolted Colonists, and used as cannon balls to fire against the British; and in the centre of the Green stood the lead statue of George III., which was melted into bullets by the American patriots in 1776. Castle Garden was until quite recently the landing-place for immigrants, and it is calculated that upwards of six millions of men and women from all the countries of Europe first touched here the soil of America on their way to establish new homes in the great Republic of the West. The place now presents the appearance it did before it was given up to immigrants, and it is about to be turned by the city into a mammoth aquarium. Right eastward from the Battery is Governor's Island, the home of General Howard, and the headquarters of the military division of the Atlantic. Directly opposite, on our right, is Ellis Island, which was formerly used as a site for a powder magazine, but is now the immigration depot of the United States. A few minutes more steaming brought us right abreast of Bedloe's Island, with its gigantic

Statue of Liberty.

In years long gone by it was the custom and recreation of the honest citizens of New York to hang pirates on this island, but it is now wholly appropriated by the marvellous creation of Auguste Bartholdi. This colossal statue, as may be known by many readers of the *Weekly News*, was presented by the French nation to the American people as a token of friendship and goodwill. The cost of the statue was met by public subscription in France, and the pedestal was built by public subscriptions collected in the United States. The total sum expended upon it was about £200,000, but this did not include any fee to the sculptor, who would accept of no remuneration for his labours. The statue, which is that of a female figure holding aloft a torch to enlighten the world, is 151 feet 1 inch in height from base to torch, and the total height from the foundation is no less than 305 feet 6 inches. It is composed of 450,000 lbs. of copper and iron. Some distance farther out we passed close to the Atlantic greyhound Campania on her way to New York, with her decks crowded by passengers. It was confidently expected that she would arrive on Friday afternoon and beat her previous record trip, but dense fogs had been experienced near the American shore, and had caused

OFF SANDY HOOK.

unavoidable detentions. Having passed the various other islands and forts, and the Narrows with their hundreds of heavy guns, the Anchoria early in the forenoon made Sandy Hook, and a little later the vessel slowed, and the pilot was transferred to the lightship. "Full speed ahead" was then given, and we fairly started on our

Voyage Across the Broad Atlantic.

At noon, when the sun was "shot," we had run 33 miles eastward from the lightship. Long Island was still visible on the port side, but in the afternoon we steamed right into a dense bank of fog, from which we did not completely emerge until Thursday of the following week. The Anchoria was now all our little world, and we at once began to make the acquaintance of those who were to be our companions for the next eight or nine days. The passengers altogether numbered upwards of 200. A good few were travelling steerage, and there were about sixty in the saloon, but the great majority belonged to the second cabin. The last-mentioned class naturally possessed the greatest interest in the eyes of the delegates, as it consisted principally of prosperous artisans and their wives, sisters, and families. Some of these, through hard work and the trying climate, had fallen into ill-health, and were hopeful that the ocean trip and the bracing air of the old country would restore to them their wonted vigour. The greater number, however, were making a holiday run across in order to visit the scenes of their youth and those whom they had left behind there; and in this connection we could not help remarking how much better off artisans generally are in America than their fellow-tradesmen in Scotland and England, as very few of the latter could spare the time required for such a holiday or afford the £25 or £30 which it would take at the least to cover it. The world is big, and contains many millions of human beings, but big as it is, and large as is its population, the circumstances under which people often meet each other are truly remarkable. America is a great country, and contains upwards of sixty millions of inhabitants, amongst whom Mr Osler and Mr Taylor resembled two atoms in a huge mass, but, nevertheless, the delegates soon learned from one of their fellow-passengers that he had a fortnight previous supped with the two gentlemen named at the house of a mutual friend in Rockford, some distance to the westward of Chicago. Two of the steerage passengers belonged to Dundee, and were on their way back to the homes which they had left only six weeks before. Misled by a newspaper report, one of them had hurriedly thrown up a good, steady situation in the city, and along with a friend, who was out of employment, set out with a light heart and full of hope that highly-paid work was to be easily picked up in America. On arriving in Philadelphia, however, they quickly discovered the mistake into which they had been led. As mentioned in a former report, the country was passing at the time through one of the most severe trade depressions which had been experienced for many years. Money was locked up, production in every industry was being curtailed, and many thousands of operatives were idle. One of the two succeeded in finding employment in Cramp's Shipyard, but it was of such a character that he felt it would be injurious to himself to retain it, and being unable to secure a start anywhere else, he resolved to return to Dundee with his companion, who in his quest for work had been quite as unsuccessful in the new as in the old country. During the voyage the latter unfortunately severely sprained his ankle, and suffered from the injury for months

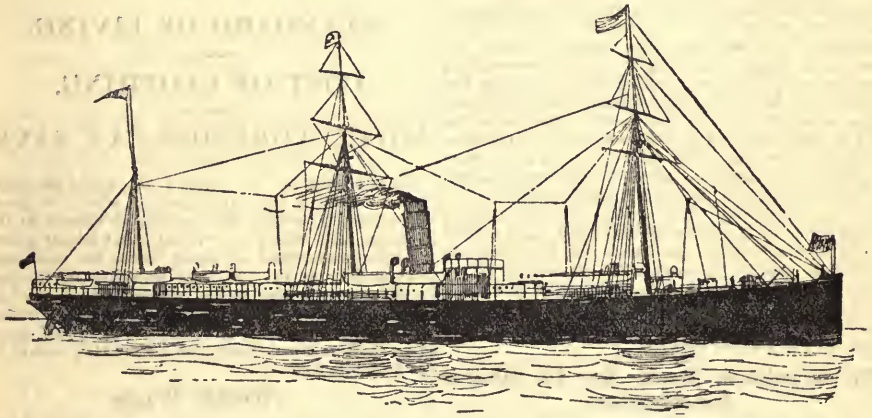
afterwards. The delegates secured comfortable quarters adjoining the rooms of the officers of the vessel, and in a very short time felt quite

At Home.

Captain Campbell proved himself the very *b au ideal* of a commander, combining the excellent personal qualities of frankness and geniality of manner, and the caution and prudence characteristic of Scotchmen, with the skill and experience of the thoroughly trained navigator. He was a man who not only realised but personally acted up to the serious responsibilities resting upon him, as during the many days and nights in which we were enveloped by the dense fog his solicitude for the safety of his vessel and the passengers would allow him, although he had the most vigilant of his crew always on the look out, to take only the least possible modicum of rest for himself, and in daylight and darkness he was always a steady occupant of the bridge. The delegates had boarded the Anchoria with their heads and books both well stocked with notes of their experiences and the information which they had obtained in America, and Captain Campbell, on the subject being mentioned to him, at once gave special and much appreciated facilities for the conversion of these into "copy" for the printers. With the other officers the delegates also soon got on the best of terms. Mr George Douglas, the chief officer, mentioned that his residence was in Whitehall Street, Dundee, and Mr Gorrie, the second officer, proved to be a cousin of Captain Cummings, of the Iona, and likewise hailed from Pittenweem. The other officers of the steamer were very attentive, and promptly rendered every service in their power, and the dietary on the vessel being varied, as well as plentiful and satisfying, the delegates spent altogether a pleasant and amiable time on the Anchoria. Although the writing of their reports necessarily occupied some hours daily, the delegates at other periods entered heartily into the recreations got up for the purpose of

"Killing the Time."

A dance or two was usually heartily engaged in on deck every day, and in the evenings excellent concerts were held in the cabin. Every one of these was mainly arranged by Mr Bennett, and he along with the other delegates contributed most largely of all to the harmony and enjoyment of the meetings. The wealth and the variety of talent displayed by the delegates in these social functions was quite remarkable, and many of the other passengers frequently expressed to them their obligations in this connection. On the evening of Saturday, August 5, the cabin tables were cleared away, and a grand ball was held. The lady passengers, as a matter of course, all decked themselves out in their smartest finery on this occasion, and, although the vessel did give a lurch at times, the dance was entered into and carried out with great spirit by all, and proved most successful and delightful. The fog had now been left a good long distance behind, and during the daytime the movements of several sportive whales and dolphins were watched with great interest. On the whole favourable weather was experienced throughout the voyage, and the progress of the vessel was steady and satisfactory. She steamed along at an average speed of about 13 knots an hour, and her daily runs up to noon of the respective days were as follows:—July 30, 305 knots; 31, 307; August 1, 305; 2, 303; 3, 314; 4, 314; 5, 307; and 6, 307. It may be here explained that as we were running eastward against the course of the sun our day now consisted of only 23½ hours, our watches having to be put half an hour forward every day, instead of the same time back as was the case in going out in the Iona. Previous to the last-mentioned run being posted Divine service was, as on the previous Sunday, conducted in the saloon by the Rev. Philip H. Cole, Shenectady, New York, at which Mr Sinclair, assisted by a choir composed of other members of the *Weekly News* Expedition, led the praise. That evening a concert of sacred music was held, and all retired early in the confident expectation that next morning the rugged north-west coast of Ireland would come into sight. Nor was this expectation belied, as about 5 a.m. on Monday, August 7, Mr Muir, who had been early astir, awakened his brother delegates with the joyful shout,



THE ANCHOR LINER ANCHORIA.

"There's Land Ahead."

All of us warmly congratulated Mr Muir, the mining representative, who, unaccustomed for several years to so much continuous daylight and fresh air — to say nothing of the personal troubles which some experience on a sea trip—had had our most sincere sympathy in his novel and trying circumstances. Hastily donning our attire, we rushed on deck to find the hills of Ireland looming up on the starboard bow, and

several of our fellow-passengers viewing them with feelings of considerable emotion. One aged man who had left his home many years before was particularly affected, and he was heard to exclaim, "America is a fine country, but Ireland is a better," with which sentiment many of his companions in similar circumstances expressed cordial concurrence. Early in the forenoon we came to Torry Island, and having passed Innistrahull, the Anchoria steamed at noon into the quiet sheltered waters of Lough Foyle. A tug was here in waiting, and to her about 100 of the passengers with their luggage were transferred. This operation was quickly accomplished, and the usual courtesies having been exchanged, the Anchoria steamed out of the Lough and made straight for the Mull of Cantyre, which had been showing itself for some time before we started to make the call at Moville. The Anchoria rounded the Mull in the afternoon, and then wheeling inside the striking Island of Ailsa Craig, or "Paddy's Milestone," as it is popularly called, made her way, with wind and tide in her favour, at a good spanking pace up the Firth of Clyde. The heather on the hills was seen to be in full bloom, and this sight, with the other grand beauties of this magnificent estuary, proved refreshing to the eyes and gladdening to the hearts of the delegates, and also threw the Americans on board into ecstacies. As we passed the Island of Arran the sun sank behind Goatfell in a sky resembling molten gold, which was brilliantly reflected in the intervening water, and no human eye could perhaps witness a grander spectacle. Earlier in the day we were hopeful that we would reach Glasgow the same evening, but the fates for once were against us, as when we arrived opposite Greenock it was nine o'clock, and the tide had been on the ebb for sometime. There was therefore nothing for it but to drop anchor for the night, and submit to be operated on by the search lights of the new Atlantic steamer Lucania—the sister ship of the Campania, which we had passed in New York Bay—and which was carrying out some experiments previous to proceeding to Liverpool in order to load for her maiden voyage.

The Expedition Breaks Up—Its Mission Accomplished.

At six o'clock on the morning of Tuesday, August 8, the voyage was resumed, and two hours later, after the delegates had had some experience of the unsavoury condition of the Clyde, the Anchoria was made fast to the Anchor Line Wharf at the Broomielaw, and her passengers disembarked. On landing, the delegates were welcomed back to Scotland by Mr Anderson, of the *Weekly News*. The Customs officers in the course of their duty made the usual inspection of their baggage, and then the party, its mission fulfilled, broke up with, on all hands, hearty expressions of lifelong friendship, and of hopes that all would be spared to meet again at some future time and recall to their minds their trip to America, and their varied and interesting experiences in that country. Mr Watson, Mr Mungo Smith, Mr Bennett, and Mr Muir, along with Mr Murray, the Conductor, drove straight to Queen Street Station, and were just in time to get seats in the 9 a.m. train to Dundee. Mr Muir left at Dalmeny in order to catch the local train to his destination, and Mr Bennett parted company with the others at Kirkcaldy, where his wife and family were spending a holiday. All that was now left of the main portion of the Expedition was thus the contingent from Dundee, and the members composing it arrived at half-past eleven in the forenoon at the Tay Bridge Station, where they were met by Mr Frederick Thomson—who, along with Mrs Thomson, accompanied the party from Montreal to Niagara—and Mr Frank Boyd, of the *Weekly News*, who warmly congratulated them on the safe and successful accomplishment of the purpose of the Expedition.

THE DELEGATES SUM UP.

A COMBINED REPORT.

WAGES IN AMERICA.

THE HOURS OF LABOUR.

HOUSE RENTS AND TAXES.

STANDARD OF LIVING.

COST OF CLOTHING.

WHAT WORKMEN CAN SAVE.

In summing up our reports we would mention, as the result of the investigations which we made amongst the artisan and industrial classes in the various cities which we visited, that labour generally is remunerated at about double the rates paid in the old country. In some branches of the iron and steel trade the wages are only about one-half more than those ruling at home, but in the textile and in some branches of other industries the operatives receive about three times what they would do in Great Britain.

Weekly Wages

are the exception, artisans in most cases being paid fortnightly and in several instances only monthly. As a general rule sixty hours are wrought per week, and only in some trades and in mills and factories is there a Saturday half-holiday. This half-holiday, moreover, is observed in most instances only during the months of June, July, and August. In the large cities the members of the building trades work either fifty-four or forty-eight hours per week, and on Saturday the same as on any other day. In winter these are usually idle for about four months. Several of the largest iron and steel works have adopted the three-shift system, each set of men being employed eight hours continuously. Holidays are few in number, and working men have little or no leisure or

Time for Recreation

of any kind, except on Sunday, when they may be seen in tens of thousands wandering about in the parks of any of the large cities. For married persons house accommodation costs from $10 (£2) to $20 (£4) per month, according to size and location, being from two to three times more than in Great Britain; except in New York, where the tenement system prevails, artisans, to a large extent, and more particularly in Philadelphia, where many of them either are, or are becoming,

Owners of Their Houses,

live in self-contained cottages, chiefly of brick and consisting of two storeys and cellar. The rents mentioned include all taxes, except the poll tax of $1 or $2 per annum, payment of which is the pre-requisite to voting in all elections. It may also be stated that the houses vary in size from four to seven rooms with bath-room in some cases. All the houses of the working men visited by the delegates were found to be more comfortably and neatly furnished than would be the case of the homes generally of their fellow-artisans at home. For unmarried working men, board and lodgings run from $4½ (18s) to $6 (24s) per week. In addition to this, they have to pay for the brushing of their boots—a considerable item in America, where a "shine" costs 10 cents—and the washing of their clothes.

The Standard of Living

is undoubtedly much higher in America than at home, and the men state that they would require to live better, else they would be unable to work as they are expected to do. A builder mentioned to a delegate, for instance, that if a "gang-boss" observed a man straighten up his back, he would tell him that he had better see the timekeeper. Fruit in its season is invariably seen in considerable quantities on the tables of working men, and butcher meat, either in the shape of pie, roast, or stew, is partaken of by most of them three times every day, but the delegates frequently heard it declared that the best beef was exported to Great Britain. Butcher meat ranges from 8 cents (4d) to 25 cents (1s) per lb. The working people in America keep themselves

Always Well Clothed.

Cotton goods and shoes are about as cheap as those at home, but the latter, it is stated, don't wear more than a few weeks. All woollen and worsted clothing cost, on account of the duties leviable, double the sum for which it could be procured in Great Britain. Medical attendance is very expensive in America, running from $1 (4s) to $5 (£1) per visit. Artisans, if they have steady work and are provident, can usually save about double what they would be able to do in Scotland or England, although it must be borne in mind that money in America has, comparatively speaking, a much lower purchasing value. Married people, in particular, find it very expensive, although education is free, to bring up a family; and this is probably the reason why the native-born Americans have, as a rule, so very few children. The

Savings of the Artisan Class

are generally invested with building societies, or in the purchase of homes for themselves. Local transportation by electric, cable, or other cars is remarkably cheap in all the large cities, as one can travel several miles for a nickel (2½d); but the quality of water supplied in every place visited was such as would not be tolerated in the smallest village in Scotland or England. The conditions of labour in America are certainly much more taxing on the system than those of the old country. The extremes of temperature are much greater, ranging in some districts from 15 to 20 degrees below zero in winter to about 100 Fahrenheit in July and August. During these months many kinds of work have often to be stopped owing to

The Excessive Heat,

and in practically every industrial establishment a large supply of iced-water is kept for drinking purposes and charged for usually at the rate of 5 or 10 cents per week. The delegates considered it very remarkable that during the whole of their tour they saw scarcely a single elderly man engaged in any kind of occupation, but they were informed that such were to be found in soldiers' homes. They met, however, many young and middle-aged men who had once been vigorous and active, but who had lost their health. It must also be noted that in almost every establishment visited Scotchmen were found, and these, too, by the way, holding, as a rule, positions of considerable trust and responsibility, who invariably stated that, although in some cases they did not take to American ways at first, they would never again, if they could help it, work in the old country. We also desire to acknowledge the very friendly feeling with which we were everywhere met, and the extreme readiness shown by employers and workmen to supply us with all the information which we desired.

(Signed) EBENEZER BENNETT.
THOMAS LOGAN.
ROBERT A. MUIR.
ROBERT DUNLOP.
DAVID BROWN.
MUNGO SMITH.
JOHN SINCLAIR.
DAVID G. WATSON.
WILLIAM SMITH.

A Word of Thanks.

The following report was drawn up by the Delegates immediately on their arrival home:—"We, the undersigned members of the Artisan Expedition to America and the World's Fair at Chicago, take this opportunity of thanking those readers of the *Weekly News* who, by recording their votes in our favour, made us the successful candidates. But to Messrs Thomson, with whom the scheme originated and by whom it has been so successfully carried through, we reserve our special thanks, seeing they have spared neither trouble nor expense in making all the arrangements and providing us with every comfort for the long journeys by land and sea, and from which we have derived much benefit and instruction. We would also congratulate them in having secured the services of Mr Murray as conductor of the tour, because of his genial disposition and thoughtfulness in the various circumstances in which we were placed."—Your obedient servants,

ROBERT A. MUIR.
WILLIAM SMITH.
JOHN SINCLAIR.
MUNGO SMITH.
ROBERT DUNLOP.
EBENEZER BENNETT.
DAVID G. WATSON.
DAVID BROWN.
THOMAS LOGAN.

The Conductor's Testimony.

Having completed my own contribution to the reports, I felt that I could not lay down my pen without bearing testimony to the manner in which the members composing the Expedition pursued their investigations in America. Previous to the organisation of the Expedition, the whole of the delegates were, with one single exception, quite unknown to me, but after my experience I can honestly say that had I been acquainted with them my surprise would have been exceedingly great if the popular vote had resulted in the non-election of any one of them. Each one seemed to realise instinctively, and at once, what information was required in the case of every separate investigation, and all of them, sometimes under very unpropitious climatic conditions, pursued their

inquiries with a zeal, a diligence, and a thoroughness, which left nothing to be desired. The area which they had to cover in a limited time extended to several thousands of miles, and the scope of the Expedition was admittedly large; but the delegates appreciated to the full extent the importance of the trust which had been committed to them by their fellow-workmen in this country, and these, I am sure, will now concur with me when I say that it could have rested in the hands of no more worthy representatives. Our personal relations throughout the tour were of the most amicable character. Nothing occurred to mar the harmony of the trip, and the sole aim and desire of one and all was to make the Expedition as great a success as possible. In might, indeed, be said that we met each other as strangers, wrought together afterwards like the best of friends, and parted sharing the feelings of brothers.

The ready and generous assistance tendered me by the delegates made my own work comparatively light, but there are other gentlemen to whom I must express my personal indebtedness, and whose kind offices in the way, more particularly of direction and supplying letters of introduction—both of infinite value in a country which was a perfect *terra incognita* to all of us—contributed largely towards the successful carrying out of the object of the Expedition. These were Mr Macdonald, Anchor Line agent, Chicago; Mr H. C. Torrance (formerly of Glasgow), Pittsburg; and Messrs William Low, Harry Chalmers, A. and W. Logie, and James Rattray, all previously of Dundee, now of New York. JAMES MURRAY, Conductor.

(From the Weekly News of Saturday, March 24th, 1894.)

OUR DELEGATES' IMPRESSIONS OF AMERICA.

THIS week we publish a summary of the investigations made by the artisan portion of the *Weekly News* Expedition to America. In a joint report the delegates present the conclusions they have arrived at as the result of their visits to the great centres of industry in Canada and the United States. It was their privilege to have access to all kinds of workshops and factories; they gleaned information at first hand from the wage-earners and from the employers as well relative to the conditions of labour; they had opportunities of seeing for themselves what home comforts were within the reach of the industrial classes; and the reports that have appeared in our columns from week to week have shown that they were quite capable of distinguishing between what are the blessings and what the drawbacks in the lot of the American workman. Coming now to sum up their impressions, the reader cannot fail to be interested in the combined report in which they give a general view of the conditions of artisan life in America. In the first respect, with regard to the remuneration of labour, it is found that the rate of wages is as a rule nearly double what is paid in this country. On the other hand, the American wage-earner has to work longer and much harder, while in very few instances is the Saturday half-holiday enjoyed. While wages in the building trades rule high there is a counteracting disadvantage of several months' enforced idleness every year. The workman often pays nearly three times as much for house rent as his fellow-tradesmen at home; but the fact that the wage-earner in America is able to save more money than is the general experience on this side of the Atlantic is proved by the great number of artisans who own their dwellings, by the superior style in which their houses are furnished, and by the high standard of living almost universally prevailing. Clothing is very expensive and the cost of medical attendance very high, but as a set off to that we are told that the cost of travelling by the cars is surprisingly cheap. Climatic conditions are also taken into account in considering the circumstances of the worker, for the extremes of temperature from which we in this country are exempt makes laborious work very exacting. In brief, the position of the American artisan seems to be this—he earns higher wages than the British artisan, but he has to work much harder; the good is soon taken out of his life, and old age comes prematurely; he has little time that he can call his own; fewer opportunities for recreation and enjoyment. He is able to reside in a superior house, but the purchasing power of his earnings is all over much smaller than in this country. It is natural that people who have chosen to make their home in America should be lavish in praise of the land of their adoption, but in the course of numerous interviews our delegates were again and again met with the declaration that such persons found themselves no better off than in the old country. On the whole, a calm review of the case must lead the British workman to conclude that any advantages which his American fellow-tradesman enjoys are more apparent than real, and that, taking one thing with another, the lot of the home worker will compare favourably with the conditions that are found to prevail in America. It will be observed that nothing affecting the welfare of the people has escaped the attention of the delegates, and sanitation, water supply, and various other matters of a similar nature are referred to in the combined report. Graceful allusion is also made to the kindly reception which they were afforded on all hands while in America, and to the ready goodwill with which facilities were placed at their disposal, and which contributed much to the success of the *Weekly News* Artisan Expedition.

THE ARTISAN EXPEDITION.

REUNION OF DELEGATES

PRESENTATION OF GOLD MEDALS.

DUNDEE COURIER AND *DUNDEE WEEKLY NEWS* EMPLOYEES' FESTIVAL.

INTERESTING SPEECHES.

(From the Dundee Courier of March 26, 1894.)

The employés of the *Courier* and the *Weekly News* held their annual festival and assembly in the City Assembly Rooms, Dundee, on Saturday. All departments were very numerously represented. Mr D. C. Thomson took the chair shortly before four o'clock in the afternoon, and was supported, among others, by:— Mr Frederick Thomson and Mrs Thomson, Miss M'Culloch; Mr A. T. Scott, Perth; Mr John Mitchell and Mrs Mitchell, Mr John Douglas, manager; Mr George Nicolson and Mrs Nicolson, Mr J. S. Neish and Mrs Neish, and the delegates who, on behalf of the *Weekly News*, visited the Chicago Exhibition. Mr E. Bennet, electrical engineer, Newcastle-on-Tyne, was unable to attend, through indisposition, but all the others were present, viz.:—Mr James Murray, conductor of the Expedition; Mr Andrew Osler, Kintyrie; Mr Mungo Smith, Dundee; Mr D. Brown, ship carpenter, Govan; Mr Robert A. Muir, miner, Kelty; Mr John Sinclair, builder, Cambuslang; Mr D. G. Watson, railway servant, Dundee; Mr Thomas Logan, cabinetmaker, Glasgow; Mr Wm. Smith, paper maker, Denny; Mr James Taylor, farm manager, Raesmill; Mr Robert Dunlop, steel worker, Motherwell. The heads of the other departments not already mentioned also attended as follows:—Mr F. Boyd, Mr G. Duncan, Mr K. Burke, Mr A. R. Anderson, Mr E. Arklie, Mr W. M. Leslie, Mr T. Robertson, Mr J. A. Purves, and Miss Ramsay. The audience, which numbered about 300, also included representatives from several of the branch offices. The task of purveying was entrusted to the Messrs Lamb, and their attention to the creature comforts of all afforded the utmost satisfaction.

Mr D. C. THOMSON was enthusiastically received when he rose, after tea, to make a few remarks. He said—Ladies and gentlemen, I wish to thank all of you very heartily for the honour you have conferred on me in asking that I should take the chair on this occasion. I do not look on it as a formal occasion, but as one where I am presiding over what may be very fitly termed a large family—(applause)—for the interests of all of us are linked in the great establishment where so many obtain their livelihood. (Applause.) I wish also to embrace this opportunity of thanking all who are engaged with us from day to day for the very hearty and willing way in which you co-operate in carrying on with us the large and growing business with which we are identified. (Applause.) The programme your committee has arranged for the entertainment of the audience is a lengthy one, and it is far from my intention to be anything but brief. There are, however, one or two points to which I would like to refer. In a big office like ours changes, in the very nature of things, must take place, although we may congratulate ourselves that in late years there have been very few changes in the staff. We cannot, at the same time, look round these boards without missing faces which were very familiar to us, and on this occasion I have to name two who had been long associated with us—I allude to poor old John Macfarlane and poor Fergusson, whose loss was felt by all of us. Some of the younger members of our staff have left the city to try their fortunes in other fields, and I am sure we are all proud of the success with which their efforts may be attended. Mr Alexander Paterson, one of our young sub-editors, as many of you are aware, stepped from the *Courier* Office into the editor's chair of an evening newspaper in Yorkshire, and I am assured that that paper is now one of the leading evening papers in England, and that Mr Paterson has been the mainspring of that success. (Applause.) Another young member of our staff has gone to the Metropolis, and there he is filling the position of London representative of the *North British Agriculturist*. I refer to Mr J. F. M'Farlane. (Applause.) I do not intend to inflict upon you any figures. Most of you are aware that our papers continue to make steady and substantial progress, and the number of people now engaged in our establishment exceeds 200. (Applause.) When I became more directly interested in the papers eight years ago the total number employed did not exceed eighty or ninety, so that I think we can congratulate ourselves on the progress we have made in that respect. (Applause.) Without these words of mine, a large assemblage like this is evidence of the growth of the concern—(applause)—and there are many of our people who are not present. There are, of course, the correspondents in America and in the East, who, owing to the great distance, cannot be expected to join us. There are also those two brave young ladies who are now on the banks of the Ganges—(applause)—and I am sure you all join with me in wishing them a happy tour and a safe return to their native land. ('Hear, hear," and applause.) One of my great pleasures to-night is to see with us eleven out of the twelve artisans who last summer crossed the Atlantic to inquire into the conditions of the working people in America. (Applause.) Enough has been said about the success of that Expedition without any more words of mine. You are all as well aware to-day as I am, and, as you know from the summary which appears in this week's paper, the delegates have now come to the end of their labours. They have done their duty nobly, and I take this opportunity, with the approval of the committee, to present to each of them a little gold badge as a memento of the great undertaking they carried out and carried out so successfully. (Applause.)

The Chairman then called on Mrs Frederick Thomson to present the medals, the delegates being all enthusiastically cheered as they received the gifts.

Mr THOMSON then said he was sure all present would join with him in wishing that the delegates would be long spared to carry the mementoes they had just received. (Loud applause.)

The medals, which were of the most artistic design, and were supplied by Mr James Ramsay, High Street, Dundee, bore the names of the respective delegates on the one side, and on the other the words—"*Dundee Weekly News* Artisan Expedition to America, 1893."

Mr SINCLAIR, one of the members of the Artisan Expedition, at a later stage addressed the gathering. He said—It is just about twelve months since

I first entered into correspondence with the proprietors of the *Dundee Weekly News*, and I am sure each of the delegates this afternoon returns to you, sir, his most sincere thanks for your kind invitation to such a sociable and enjoyable meeting as this. (Loud applause.) When one looks round this audience and sees the contentment which every employé seems to have it gives him the feeling that not only had the artisans been treated with kindness and consideration at the hands of the proprietors of the *Dundee Courier* and *Dundee Weekly News*, but that their employés are treated in a similar manner. (Applause.) I have, therefore, in name of the delegates, now to return to you our most sincere thanks for those very handsome and valuable gifts which you have generously given to us on this occasion. (Applause.) While we live they will be cherished as something that we will always be proud to look upon, and they will bring to our recollection many of the hallowed and sacred memories that we will ever have regarding our Expedition to America. Let me here say, if I am not taking up too much time, that the day we started away from our own land until the day we arrived back again in Scotland every attention, every kindness was extended to us, and everything was done for the comfort and for the convenience of the delegates who went to report on life across the water. ("Hear, hear," and applause.) I do not know whether we did our duty or not, but it is very gratifying to hear the admirable words addressed to us as to the satisfaction the Messrs Thomson have had in the work we have done. I am sure every member of the Artisan Expedition will, wherever he may be, or wherever he may go, always hold up the *Dundee Weekly News* as being a paper that does not only take up the interests of working men, but carries into effect all that it proposes. I do not think we should forget this afternoon those who are far away in distant lands of the world, those two sisters who have gone away a long and important journey. We sincerely desire and pray that they may return safe back again. The articles they will furnish will, we are sure, prove both interesting and instructive. I am glad to hear of the progress the *Weekly News* is making, and it is the desire of every delegate and of every well-thinking citizen of the country that the paper may long live and continue to prosper, so that it may be a blessing and a boon to many in the days to come as it has been in days past and gone. (Applause.) We all feel deeply grateful for these handsome gifts you have given us, and we will take care of them as long as we live. After we are dead and gone they will be heirlooms in our families, and perhaps they will be sources of dispute amongst those who are left behind—(laughter)—but they will remain to tell where we have been, and by whose generosity we were able to go so far. (Loud applause.)

A programme of unusual excellence was successfully carried through in the course of the evening. The orchestral selections of Scotch and English airs by the Misses Davidson were executed in such a masterly and finished manner as to call forth the heartiest plaudits of the large audience. Mr D. Gove gave a fine rendering of the "Bedouin Love Song," and at a later stage he was equally successful in his singing of "The Longshoreman." The songs "By the Fountain" and "Come Back to Erin" were contributed by Miss Booth in a sympathetic manner, and Miss Davidson's spirited rendering of "The Brier Bush" was warmly received. Mr George Hutchison, a well-known favourite, sang Sullivan's "In Days of Old" with characteristic effect, and the song "Once Again," by the same composer, was admirably executed by Mr W. Fisher. The ability of Miss Aggie Davidson as a piccolo player was fully demonstrated by the accomplished manner in which she rendered the solo entitled "Silver Birds." A pleasing variety was given to the programme by a reading, "The Short Gown Ball," by Mr J. S. Neish. The piece, which was specially written for the Christmas number of the *Dundee Weekly News* by Mr Neish, is brimful of Scotch humour, and the amusing incidents related were splendidly hit off by the author. One of the features of the programme was the appearance of Mr Allister J. Fraser, whose humorous songs were greeted with rounds of well-merited applause. Mr Fraser had on two occasions to respond to enthusiastic encores. The accompaniments to the singers were efficiently played by Mr Edward B. Hutcheon.

Mr J. MITCHELL, at the close of the programme, said—I have two requests to make. The first is that you will show your appreciation of the excellent programme of songs, readings, and instrumental music that we have enjoyed. I am sure you all feel greatly indebted to the ladies and gentlemen who have performed, for the readiness with which they have responded to the encores, and for the able manner in which they have sustained the programme. (Applause.) The second request is that you will render a hearty vote of thanks to the gentleman who has presided over us so very amiably this afternoon. (Applause.) In his opening address Mr Thomson said that for eight years he had been actively associated with the *Weekly News* and I am sure you will agree with me in this, that they have been rendered eight years of unalloyed pleasure through the kind forethought and generosity manifested by Messrs David and Frederick Thomson. (Loud applause.) There are, I am sure, no better employers in the city, and consequently the eight years have been like so many months. (Renewed applause.) We have, as Mr Thomson said, increased very much in number during that period. As a matter of fact, the proprietors have had to find for us a new home. (Applause). I don't think I am telling a great secret when I say that they have done more than this, and that one of them has been looking for a new home for himself. I have to ask you then to give him a specially hearty cheer. (Loud applause.)

Mr THOMSON briefly acknowledged the compliment.

At the conclusion of the festival the floor was cleared for dancing, which was engaged in with great enthusiasm till a late hour. Excellent music was discoursed by Mr C. Stuart's quadrille band, and Messrs W. Patterson and T. Donaldson were efficient floormasters.

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 fishing 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 *Dnndee 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 stilts 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 shalts, 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-houghed. 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.

The St Lawrence.

Perhaps no finer scenery exists in any part of the world than that which is to be seen in sailing up the noble St Lawrence, and to those who have the time and the money to spare no more enjoyable trip could be obtained than a visit to Montreal and back. Since passing the first point of Canadian land we have steamed inland fully one thousand miles, a distance equal to the length of Great Britain, and even yet we have only reached that point which is known as the Gates of the West.

On the afternoon of Thursday, 6th July, we completed the first stage of our journey by steaming into the Messrs Thomson's Wharf at Montreal Harbour about four o'clock in the afternoon American time, but nine o'clock in the evening home time. After being welcomed by Mr Frederick Thomson, one of the proprietors of the *Dundee Courier*, who was in waiting for us, we had a drive through some of the places of interest in the town, visiting amongst others the extensive workshops of the Canadian Pacific Railway Company, and went back in the evening to the Iona, where we had tea, and bade goodbye to Captain Cummings and the other officers, returning them our best thanks for the unbounded kindness and attention they had shown to the Expedition on the voyage out. At nine o'clock p.m. we took train for Toronto, a distance of 350 miles, which we reached at seven o'clock next morning. Being dark nearly the whole way I had not an opportunity of forming an opinion of the state of cultivation, but after the break of day I was much struck with the great and laborious efforts which have been made to reclaim the soil. Originally this district had been a continuous forest of natural timber of great size, and on cutting it down about three feet of the lower end of the trees have been left, which is meant to act as a lever in unearthing the roots after they have undergone a certain process of decay, and these blackened stumps sticking up from amongst the growing crops of corn had rather a startling appearance. The farms are sub-divided by fences. In well-wooded districts, where timber is still abundant, a four or six rail zigzag or snake fence is common. The heavy roughly split rails are laid one over the other, and although without posts this zigzag fence is strong, and holds back all kinds of live stock, even pigs.

Montreal.

On arrival at Montreal Mr Taylor and I visited the extensive agricultural implement workshop of Messrs Massey, Harris, & Co., where we were well received by the business manager, Mr Shenstone, who gave us a great deal of information about country affairs generally, and showed us through the works. All kinds of farm implements are manufactured here, a speciality being made of sheaf-binding reaping machines. The firm employ in their workshops at Toronto, Brantford, and Woodstock upwards of 1300 workmen, besides a countless staff of clerks and agents throughout all parts of the world. On an average they put out 30 binding machines daily all the year round, the value of their output amounting to $4,000,000 annually. Only the very best of material is used, the number of steam driver appliances for perfecting various parts of the machine being legion. A system of thorough division of labour is practised, each man working at the same job all the year round, so that neatness and uniformity of fitting is ensured. Each piece as it is taken off the workman's hands is examined, and if there should be any flaw is rejected, the greatest possible care being taken to see that every machine issued is perfect in its various parts.

Toronto.

As good luck would have it, it was market day in Toronto when we arrived, and we got into conversation with a good number of farmers, dealers, and butchers. The cattle are all sold in lots by private sale at so much per beast. As usual, at all markets there was a large proportion of big, lanky, ill-prepared brutes, but at the same time there was a proportion of beeves than which no better sorts or better fattened beasts could be desired. Two large dealers and farmers, the one an Irishman named Burnot, the other an Englishman named Ritchings had about 200 cattle each, this being about their weekly run, and I am safe to say that better butchers' beasts than these are not to be found in any market of Great Britain. They very much resemble the best sorts of cattle that are brought from England to Scotland as calves. The big proportion of them are only two years of age. They would be well worth £22 per head in the old country, and were selling at from £13 to £15 per head here, the prices quoted for the day being 5 to 5½ cents per lb. on the hoof. These animals are collected in the western counties of the province of Ontario from farmers holding and farming about 200 acres each. When being reared they are treated very much like stock at home. They are housed all winter, get hay and turnips *ad lib.*, and a liberal allowance of maize, wheat, and pease gristed and mixed together. The animals I saw had been all house-fed since last autumn. There were large quantities of sheep on sale, the breed of which I did not like, nevertheless a large number of them were big and well finished animals, which would have given £2 2s at home, and were being sold at from 18s to 20s. Pigs were numerous, thousands being on sale. They are remarkably well bred and well fed. They were selling at about 5½ cents per lb. live weight, Messrs Burnot and Ritchings both say that they have handled Canadian cattle for the last 20 years, and they are positive that no disease of any kind whatever exists in the Dominion. They say no healthier cattle exist in any other part of the world.

A Caithness Man.

William Levick, a native of Caithness, Scotland, has been a butcher in Canada for the last 20 years. He puts 175 cattle through his hands weekly—selling out wholesale to the retail fleshers, and never in all his experience has he met with a single case of lung disease. He is certain it has no existence in any part of the Dominion. The Jews have for the last ten years killed ten cattle at his place weekly, and we all know how particular they are to partake of nothing but only that which is without spot and without blemish, and during that time, although animals have been rejected for external blemishes, not one has been rejected for any internal disease.

I cannot as yet say that I am at all well impressed with the quality or management of the land of any district that I have yet seen, yet I am convinced that the soil of the districts from which the cattle I have been describing have been called must be both good and well managed, and I intend on my homeward journey to spend a day or two in inspecting it.

En Route to Chicago.

At seven o'clock on Sunday morning we took train for Chicago, and arrived in that city about ten o'clock p.m. Now, if anyone will take the trouble to calculate the time we were by the way, they will make it out to be fifteen hours, but, in this they will be out of their calculation, seeing that the actual time was sixteen hours. This is accounted for by the fact of United States time

being one hour behind Canadian time, and it was not a little curious that the arrival of our train at Detroit was timed at 2.30 and its departure 1.35, but all the same we were in time to catch it, and had a few minutes to spare. And while on this subject it may be mentioned that Chicago time is six hours behind home time, so that when the good folks of Scotland sit down to their breakfast at 6 a.m. the members of the *Weekly News* Expedition will be snug in bed at twelve midnight. Passing through the Province of Ontario, we paid good attention to the state of the crops and the mode of cultivation. Formerly the land had all been covered with heavy timber, a considerable proportion of which has been cut down with much labour. A large portion yet remains in its original state, affording a supply of lumber that will supply the wants of the district for many years to come. The farms are laid out very much in the same manner as Scotch farms, the fields being square and regular, and divided by zig-zag or snake fences. The majority of the houses are of wood, but commodious and elegant structures of brick are being erected. Barns and other outhouses are all of wood. Wheat, barley, oats, hay, potatoes, and turnips, are the staple crops, and several other products, such as peas and fruits, are sometimes cultivated. The wheat crop may be pronounced as fair but nothing more. We saw about half-a-dozen fields of fairly good oats, but generally this is a poor crop. Barley is very bad. We did not see a single field that could be said to be even fair. Peas look well but late. We did not see many turnips, and what we did see were merely brairded. Potatoes look healthy, but are very late. Hay is magnificent. Just now the farmers are in the middle of their hay harvest, and the weight of crop is altogether prodigious. Between London and Detroit the land is nearly all reclaimed, and all kinds of crops are much better than further east. Small fields of maize are frequently seen, and small patches of tobacco occasionally occur. Near Walkerville a considerable area of hops are grown, and tobacco is also raised in considerable quantities. We could see large numbers of nice airy sheds, which had been erected for drying the latter crop. The cattle are good sorts, and bear a strong resemblance to the best Yorkshire breeds. Horses, both for farm and road, are of the hackney breed, and appear good, serviceable animals. While grazing in the field a wooden frame resembling the two legs of a flail is hung over their necks to prevent them reaching through or over the fence to the grain crops. We saw very few sheep. I must say, however, that I am disappointed with the appearance of the crops in south-western Ontario. That the capabilities of the soil are good I am thoroughly convinced. I suspect there is a want of generous manuring, and that crops of the same kind are being taken too often in succession. I will, however, be in a better position to judge of that as I come home, seeing I intend to spend a few days amongst the farmers in that province. Fruit-growing is being largely gone into, and we could see hundreds of acres of newly-planted apple trees, in which grain crops were being grown between. The appearance of thousands of otherwise nicely laid out fields is blurred by the roots or stumps of enormous trees sticking up from amongst the crops. How a reaping machine can be successfully wrought amongst these obstacles is a difficult problem. Thousands upon thousands of acres are yet unreclaimed, but we saw no sign of new land being broken up.

Crossing the Line.

At Detroit we crossed the line which divides Canada from the United States, and had not proceeded far when we were startled to observe the Sunday being desecrated by men working on the fields. To the eye, the State of Ohio has a lovely appearance, extensive plains interspersed with clumps of wood and natural plantations, which have sprung up after the cutting down of the timber with which it was originally covered; large and handsome farm houses, and commodious outhouses, made of dressed wood and painted, are everywhere found. The fields are small, and divided into squares and oblongs by zigzag or snake fences, and judging by the lie of the land no fairer view could meet the eye of an agricultural traveller, but turning to the crops we observe something wrong there. The wheat harvest is in full swing both in Ohio and Indiana. Self-binding reaping machines have been at work, which have been set very high, the farmers here putting no value upon the straw, and horrid work has been effected. In fact it requires a second look at the stubble to make sure whether the field has been reaped or not.

American Crops.

The crop is not above a third of what would be reckoned a fair yield in Scotland. At a roadside station Mr Taylor, Raesmill, jumped out of the train and brought in a few heads. These were not above half filled, and the quality of the grain was miserable. During the last ten years the yield of the American wheat crop has been 13½ bushels per imperial acre, and I question very much if that amount will be reached this year. Maize is grown in large quantities, and is looking well. This appears to be the crop to which the most attention is paid. It has been well wrought, and the fields are very clean. Hay is a splendid crop, and mostly all in the cole. A great many fields are in a crop of red clover without any intermixture of grasses. These are well-grown and heavy, and, as they are not commenced to be cut, we apprehend they are to be seeded. Oats are in large quantities, but crops are poor. A few fields of lint are to be seen, not good. I saw no barley, potatoes, or turnips. Tobacco is common, but this is a late crop, and it is much too early to speculate upon probabilities. Large areas of the States are in swamps or slews, which are of no use. About 25 per cent. of the fields are interspersed thickly with blackened stumps of trees, stern witnesses of the primeval forests, and proof of the extraordinary exertions which had to be put forth before the land could be brought into cultivation.

Herds of milk cows, averaging from ten to twenty, are upon almost every farm. (We have not yet reached the ranches.) These seem to be of a cross between the Ayrshire and shorthorn breed, not so good as the Canadian breeds. Horses are of the light-legged breed, not so heavy perhaps, but appearing better bred than the Canadian horses. Few sheep are to be seen. Herds of pigs, heavy and well bred, are grazing in the fields. It will be observed that so far as I have seen, with the exception of the Ontarion cattle, I have seen nothing to admire about America. It would be invidious of me from a mere bird's eye view off the train to jump to conclusions as to the cause of the unfavourable appearance of the crops. I apprehend, however, that the climate of the States is too hot and forcing for the successful growth of ordinary farm crops. It is, however, well adapted for fruit-growing, which has been largely taken advantage of. Fruit orchards exist on almost every farm, apples and peaches being the main crop. Grapes also grow well, and are very profitable, and large vineries are being planted in favourable districts.

MR OSLER IN CHICAGO.

THE AGRICULTURAL EXHIBITS.

DAIRY BUILDINGS DESCRIBED.

INTERESTING PARTICULARS.

(From the Dundee Courier of August 1.)

Mr Andrew Osler, Kintyrie, 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, $50 \times 83 \div 80 = 51{\cdot}875$ 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 4½ cents per lb. Whey 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 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 Andy 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 conclusion 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 Waggon.

Kemp & Burkee, Syracuse, exhibit a manure distributing waggon—4 feet 6 inches wide by 7 feet long—fit to contain two tons of farmyard dung. The bottom of the waggon is composed of narrow strips of wood fastened loosely together, which are supported upon rollers at each side of the waggon, 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 knotter, 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 hake 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 axles, 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 furow 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 preferred 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 bumption, 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 nonplussed and left. Horse gangs, 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 vieing 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 are 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 bamboo cane 60 feet high, hemp, palm-

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 smugglers' 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 §-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, 205,383 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 carcase while being dressed, and there are iron runs for moving the carcase in halves or quarters from the hanging-rooms to the chillrooms. In the refrigerators the carcases are cooled off in a temperature of about 36 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

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,

A SIOUX INDIAN.

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 Moosejan, 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 loftly, 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 Minniewanka 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 Ranche, 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 loses 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 Ranche, 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 headsman 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 ponted 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 actimonycosis 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, Moshoro, 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 pedigreed 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 carcases 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 possibly 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 actimony-cosis 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 artemisiasoderiferous 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 superincumbent 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 horseback 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 toggery 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 Kamlooks 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 CANON.

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 Chilliewack, 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

CANOEING 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 Chilliewack 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 analagous 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 pines, 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.

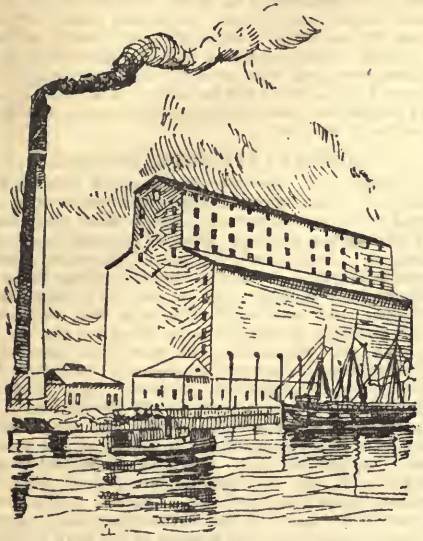
Huge Industries in Lumbering

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 sawdust, 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. The sand 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 Chilliewack, 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 16s to 18s 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 Chilliewack, 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 overflown 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, showing 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 Kootenays 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 :—

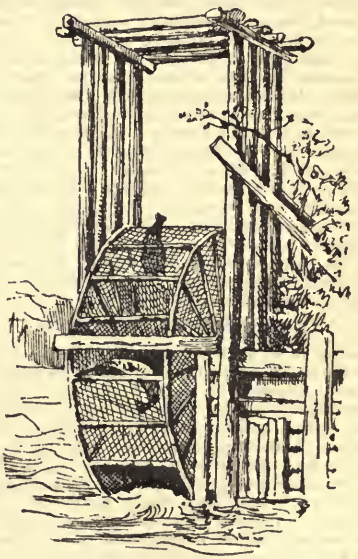
Putting up all night in a commodious wooden hotel in the little town of Chilliewack, I asked a waiter to have my boots blacked and ready for me in the morning. He looked indignant at the request, but showed me a shed outside where I got blacking and brushes and performed the operation myself. This was 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-blacking. 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 buck-board 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 carcases 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

spacious and lofty blocks of buildings, its public and municipal buildings and private residences being remarkable for their magnificence. It has altogether a distinctly British appearance, but there are in it whole streets occupied by Chinese, the strangely decorated and arranged shop windows of which have a unique Oriental appearance. It has already become a famous residential resort for wealthy people of the colder part of the Dominion; as, on account of the warm Japanese current striking its shores, it has a climate similar to that of Penzance in England. The principal harbour is that of Esquimalt, which has long been the rendezvous of the English squadron in the North Pacific, and contains naval storehouses, workshops, graving docks, &c. On the occasion of our visit a number of British men-of-war were anchored in the harbour. Next day we had a long drive in a circuit of twenty miles around the city, and were delighted with the advanced

Appearance of Agriculture

which met our gaze on every side. The country has more the appearance of a well-tilled Scottish rural district than anything I have seen in all America. . The farms are not large, but the fields are neatly and squarely laid out, and well fenced. The dwellinghouses, although of wood, are substantial and comfortable, and the farm erections are suitable for the holdings. All crops suitable to a temperate climate similar to that of Great Britain are grown very successfully. Sown grasses and clovers also grow, and hold well, so that a system of alternate husbandry and mixed farming similar to our own has been adopted. Since I came home the Agricultural Department of the Government of Canada have sent me their 1892 report for British Columbia, which contains very accurate statistics as to yields of crops, &c., and I find that last year's averages for the Island of Vancouver were:—Wheat, from 30 to 45 bushels per acre; barley, 30 to 35 bushels; oats, 50 to 60 bushels; peas, 40 to 45 bushels; potatoes, 180 to 200 bushels; and turnips, 20 to 25 tons per acre. The average prices were:—Wheat, 30s per qr. of 8 bushels; barley, 23s per qr.; oats, 20s per qr.; peas, 30s per qr.; and potatoes, £3 10s per ton. Cattle, horses, sheep, and pigs are reared in great numbers, and, although

The Grading of the Cattle

did not seem to me to be so judiciously attended to as on the mainland, still, they appeared to be well fed, and, although rough and scrubby, they were big and carried a good deal of flesh. Horses are light, active, and hardy, but somewhat unsymmetrical. Farmers are beginning to grade them up with Clydes and percherons, the Clyde grade being considered the best. Sheep are of an altogether nondescript breed, and stand much in need of grading up. Pigs are excellent sorts, and are fed to great weight, indeed it has been forced upon me from what I have seen of Canadian pig breeding and feeding that old country farmers might well take a lesson from their Canadian cousins in this line of business. Attached to every farm is a systematic and well laid out orchard of fruit trees and bushes, which are said to yield a prodigious crop, up to the value of £40 or £50 per acre, and from what I saw I can well believe it, for to my eyes the trees appeared literally laden with fruit. The area of land in the island capable of being cultivated is not by any means extensive, neither does it seem to me to be of such a deep, rich texture as that which I have already described on the mainland, but, the great bulk of the soil being of sharp loam upon a gravelly subsoil, is well adapted to yield a rapid and grateful response to the

Abundant Rainfall

which prevails there. As the system of alternate husbandry provides abundance of food for the house feeding of stock during winter, a good supply of farmyard manure is made and carefully applied to the land, which keeps it in good heart and good cropping condition. I was greatly obliged to Mr Higginson, Crown timber agent, who accompanied us all the way from New Westminster to Victoria and back, and who furnished me with reliable statistics as to the price of land in the district around Victoria. Land about ten or twelve miles from the city having partial clearing and fair improvement (that is fair housing and fencing) is worth from $50 (£10) to $75 (£15) per acre. Nearer to the city it is worth more, and unimproved land about three miles from the city is worth $150 (£30) to $200 (£40) per acre. Wild lands (unimproved) not farther than ten miles from the city are worth $40 (£8) to $50 (£10) per acre. The island is about 270 miles in length, and from 30 to 50 miles in breadth. It lies out from the western shores of North America about

80 Miles in the Pacific Ocean.

Its situation to the New World bears a great resemblance to the situation of Great Britain to the Old World. It lies in just about the same latitude, and just as the climate of Great Britain is tempered by the warm waves of the Gulf Stream, so is it tempered by the warm waves of the Japanese current. Its whole outline is boldly picturesque and beautifully diversified by mountain precipices, hills, dales, and lakes. It is in general thickly wooded, but many open grassy plains occur well fitted for cultivation and pasture. There are no rivers of any consequence but springs are abundant, and these forming into small streamlets, trickle down the mountain side and water the valleys below. Coal of very good quality is abundant, and the mines of Nanaimo give employment to great numbers of workpeople, these mines being the chief source of the coal supply for the mainland as well as for the numerous steam vessels which ply on the Pacific. Owing to the great influx of Chinamen to all the Western States and provinces of America, labourers are abundant and easily procured. It seems somewhat strange that none of these Chinamen ever think of settling upon the land, or of making for themselves a permanent home, their whole aim being to work for wages, and earn as much as will be sufficient to maintain them. When they go back to their own country they are parsimonious and thrifty, and live very cheaply, a small dish of coarse rice or paddy, as it is called, being considered by them a luxurious diet. No old men are to be seen

Among the Chinamen,

all going home after being a certain length of time in the country. Even the bones of those who die are exhumed after a time and sent back to China for burial. They are a diminutive, puny-looking race, but are said to be wiry and steady, but to those accustomed seeing a gang of Scotch or English navvies bending their backs to their short-handled shovels, and going at their work with energy and will, the sight of a gang of Chinese navvies, with their long-handled shovels, and upright backs, has a rather slovenly and off-putting appearance. Indeed, white labourers are always preferred, and rated accordingly, the average rate of farm labourers' wages being, for white, 4s per day, with board, and Chinese the same money, without board. Large numbers of Chinamen are employed as laundrymen, at which business they are said to be adepts, and do the work very cheaply. Any shirts which I got washed when out

West were done by Chinamen, the charge being 10 cents a shirt. I made inquiry into the cost of clothing on the West Coast, but as the price of suiting varies considerably according to the quality of cloth chosen it would be invidious to give any average as to the cost of a suit. However, as a general rule it may be stated that woollen goods are from 25 per cent. to 50 per cent. dearer than at home; cotton goods, off and on, about the same as at home; and boots and shoes 30 per cent. dearer.

AGRICULTURAL PESTS OF BRITISH COLUMBIA.

A GOOD SUPPLY OF VENISON.

DISEASES AMONG LIVE STOCK AND PLANTS.

AN ESTIMATE OF THE FARMERS' POSITION.

(From the Dundee Courier of October 24.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—Having dwelt at considerable length on the amenities and advantages of British Columbia and Vancouver Island from an agricultural point of view, I now intend in this letter to mention a few of the pests and troubles which the farmers have to contend against in this province. The worst evil of all, and the one which seems to give them the most bother, is the

Plague of Wild Horses.

These are bred in large numbers in the forests along the foot hills of the great mountains, and coming down to the cultivated districts in droves of several hundreds tear up, tread down, and destroy the growing crops, eating up the sweetest and best of the pastures, and enticing, and even driving away by force, the settlers' tame horses along with them, when they soon become wild and as difficult to capture as though they had never been handled. By shooting and otherwise the settlers might soon thin down these hordes of wild cayuses, but generally the Indians capture them when foals, brand them with their own mark, and then let them go free, after which were any one to capture and tame them the Indian whose mark they bore would be sure to claim them. For a settler to shoot a branded horse is penal, and he also lays himself open to be mulcted for the price of the animal. The settlers are unanimous in insisting that drastic measures ought to be adopted to extirpate this pest, and they recommend legislative enactments fixing a date, say a year hence, when everybody in the province must have all horses belonging to him gathered in, after which horses roaming at liberty will be under the ban of destruction. Further, it is recommended that a general round up be then organised to carrol up all the wild horses, and either have them captured or shot.

Ravages of Wolves.

Complaints are loud about the destructiveness of coyotes, small wolves, supposed to be a breed between the common wolf and the fox. These are sly, cunning creatures, and very destructive to lambs, pigs, and poultry. They are also reported as destroying newly dropped calves. A bounty is given by the Government for their heads, shooting and poisoning being the usual means of destruction. Common wolves, generally known as timber wolves, are numerous in the mountains, and during winter come down in hungry bands amongst the settlements, and are the terror of sheep owners, cattle and even horses sometimes falling a prey to their carnivorous propensities. The Government encourage their destruction by bounties, and the settlers periodically organise great battues and hunt them down or drive them back to their fastnesses in the mountains. Of all wild animals the bear is perhaps the most dreaded, all kinds of domesticated quadrupeds falling a prey to his powerful clutches. He is said to have a great predilection for pork, and does a great deal of mischief in the outlying settlements. With his powerful paws he soon undermines or knocks down the strongest walls of the pens where the pigs are confined, and, gaining access, makes short work of the herd. A story is told of a rancher at Similkameen, whose pigs came rushing into the house followed by a huge black bear, so fearless do the bears become when in search of their favourite diet. The rancher got out of a window, but subsequently shot the bear. Whenever a bear is known to be in the low country he is relentlessly

Hunted and Shot,

ingeniously deivised traps being also set for his capture. He is a keen object of sport, a bear being considered one of the most honourable trophies of the chase, and, his skin being a valuable peltry, he is constantly being hunted by Indians, and thus, every man's hand being against him, either for destruction or profit, this pest is not increasing. Lynx and panthers are not widely distributed in the province, but where they do exist they are very destructive to sheep. About Cowichan panthers are somewhat numerous, from ten to fifteen having been killed during the last twelve months within a radius of two miles. The settlers suggest that the Government bounty for their destruction should be raised to £5 or £6 a head for a few years to encourage sheep-raising. The skunk, a quadruped of the weasel family about the size of a cat, is very destructive to poultry. Last year a settler in Okanagan had 200 fowls killed by one skunk in a single night. The only way to avoid damage by them is to build henhouses that they cannot enter. The skunk is a most nauseous stinking animal, and depends very much for defence against its enemies on an excessively fetid fluid which is secreted in glands near the anus, and which when assailed it squirts forth with considerable force. It is almost impossible to remove the odour from clothes, and so loathsome is it that dogs flee at once and rub their noses on the ground till they bleed. The odour of even a dead skunk has been known to cause a nausea to the inmates of an apartment with closed doors and windows at the distance of 100 yards. Coons, weasles, minks, gophers, and moles also exist in the province, but are not reported as being extra destructive.

Deer are Plentiful,

and when they come down in large numbers are very destructive to fruit trees, peas, and garden crops. Nevertheless these are not looked upon as unmitigated evils, and the settlers are often more pleased than otherwise to get a visit from them. A good supply of venison is at all times a very desirable adjunct to a settler's larder, and it very seldom happens that a British Columbian farmer is without a good supply. Many people shoot the deer at night by the aid of a torch or a miner's lamp, the animal's position being betrayed by the glitter of its eyes. Only one cannot always be sure that the eyes belong to a deer. Rabbits and Arctic hares are also to be found, but, except that during snowstorms they are apt to girdle or bark fruit trees, they are not looked upon as a pest. Amongst birds magpies and blue jays are

reported as great pests. They destroy all kinds of fruit, especially the best kind of apples, pecking holes in them, which cause them to decay. They are also very destructive to potatoes, digging them up and carrying them away. In fact, these birds are always in mischief, but powder and shot keeps them in subjection, so that they need not necessarily be allowed to increase. Insect pests are more numerous than in the old country, wire-worms, caterpillars, grasshoppers, cutworms, potato bugs, turnip fleas, wasps, mosquitoes, gad-flies, botflies, sheepticks, aphis or planthouse or apple tree borers, onion maggots, &c., being amongst the most common.

Plant Diseases

are quite common, and sometimes cause great loss, potato blight and rot, smut of potatoes, smut in grain, peach yellows, gooseberry mildew, pear-leaf blight, black scab on apples, mildew on peas, &c., being amongst the worst pests. The Govern-ment, however, are at much pains, and spend a great deal of money in employing experts to in-quire into the cause of these diseases, discovering the preventives and remedies, and disseminating the discovery of these cures amongst the farmers. For potato blight a spraying with the Bordeaux mixture is recommended. The mixture consists of four pounds of copper sulphate (blue vitriol), six pounds of freshly slacked lime, and twenty-two gallons of water. For smut in grain one pound of blue vitriol is recommended to be dissolved in a pailful of hot water, and sprinkled over ten bushels of wheat. Should a large amount of smut be de-tected in the grain required for seed the solution is made stronger—double the quantity of bluestone being used. Another cure is to soak the seed grain for fifteen minutes in a salt brine of the usual strength for pickling pork—that is, as strong as float a fresh egg. For gooseberry mildew experiments conducted last summer have resulted in the dis-covery that the most successful treatment is with sulphurate of potassium, spraying the bushes at an early date with one half ounce of this substance dissolved in a gallon of hot water. For black scab in apples and pears the following mixture is re-commended :—Into an ordinary vessel capable of holding a gallon or more put two ounces of car-bonate of copper and one quart of ammonia (ask your druggist for strong ammonia). When the copper is completely dissolved pour the mixture into a barrel, and add twenty-five gallons of water. The solution is then ready for use. Spray all over the tree with a syringe or force pump.

Diseases Amongst Horses, Cattle, and Sheep

are not so prevalent as at home. Still, there are some ailments which affect animals and give scope for the exercise of the skill and science of the veterinary surgeon. Glanders in horses and hog cholera in pigs are reported as the most serious contagious diseases existing in the province. When-ever an animal is discovered to be affected with any of these complaints it is at once slaughtered and the carcase burned. Last year fourteen horses, one mule, and one hundred and sixty-three hogs were discovered affected, and ordered to be slaughtered. Cases of distemper and epizootic diseases are reported as prevailing amongst horses in some districts. No contagious diseases are reported as existing amongst cattle, but red water lump jaw, puerperal fever, and lung worm in calves sometimes carry off a few of them. Fluke, scab, and rot sometimes affect sheep. Weeds are a great bother to British Columbian farmers, the geniality of the climate and the great fertility and productiveness of the soil seeming to foster their rapid growth and spread them all over the country. The Canadian, Scotch, and sow thistles are re-ported to be the most noxious and persistent. Foxtail, sorrel, burdock, millet, dock, groundsel, nettles, fire weed, wild chicory, wild buck wheat, wild oats chickweed, wild mustard, wild parsnip, oxeye daisy, wild sunflowers, Chinese turnip, dandelion, camomile, and wild carrot or golden rod are all more or less troublesome. Pig weed, lamb's quarter, tumble weed, and stink weed are most noxious weeds and difficult to eradicate, and by their great productive powers, if neglected, soon spread to an alarming extent. So cognisant is the Government of the great danger of allowing weeds to propagate that very

Stringent Laws

have been enacted compelling settlers to keep them in check. But in spite of the long array of troubles and pests enumerated, I do not imagine for a moment that British Columbia is in a worse plight with regard to any of them than any other newly-settled country possessed of such a genial pro-ductive climate and other natural facilities; indeed, with the exception of the wild animal pest, no worse than our own island of Great Britain. Her insects, fungoids, and other plant diseases may be quite as numerous as ours, or even more so, but she has the advantage of us in having the Government carefully investigating into the causes of these pests, and prescribing the means of pre-vention and cure. How valuable it would be to us if our Government would adopt some such measures. She has the advantage of us in the keeping down of weeds, seeing that Government compels their annual destruction—a measure we stand very much in need of. Her cattle are very much healthier than ours, being subject to no in-fectious disease whatever, and, indeed, to no other kind of disease worth mentioning. Wild animals may be in excess as compared with our country, but the destruction of these is encouraged by liberal bounties from Government, and as the province gets settled up, so will these animals be extirpated or retire back into the mountains, and give the settlers no trouble. Taking, then, the Province of British Columbia and the Island of Vancouver, with their advantages and troubles as a whole, the former being certainly in advance of those of Great Britain, and the latter not much, if any, worse, it becomes

A Matter of Taste and Opinion

whether our farmers are better to continue as large tenants here, or go out and become small pro-prietors there. The money required to stock and carry on a farm of 200 acres here, would purchase and run an estate of 50 acres there, and as I have already shown, 50 acres judiciously laid out and attended to there, would bring in as much money annually as 200 acres would here, and dispose of the question of rent altogether.

IN THE NORTH-WEST TERRITORIES.

THE GREAT PRODUCTIVE WHEAT BELT.

(From the Dundee Courier of October 31.)

Mr Osler, the *Courier's* Agricultural Commis-sioner to America, writes :—Having in my last four letters dealt pretty conclusively with British Columbia and Vancouver's Island, I will now leave the shores of the Pacific Ocean, and, commencing my homeward-bound journey, will ask my readers to come in imagination with me over the Rocky

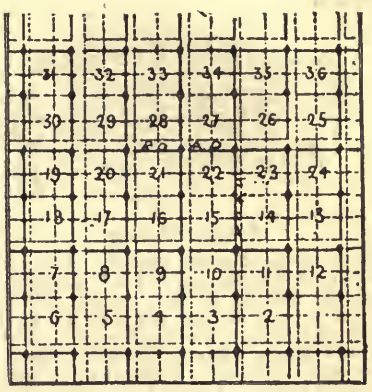
Mountains. Amongst their eastern slopes we will for some time to come roam in fancy over the almost boundless prairies, broken only in their monotony by an occasional bluff or summer-dried coolie, and until not many years ago the uninvaded hunting grounds of the uncivilised red men and the home of the wild bison, or American buffalo, the latter now altogether extinct, and only telling the tale of their recent existence by their trails and wallows, which are yet everywhere visible on the green sward, and by their bones, which meet the eye of the traveller on every hand, bleaching in the sun, and the former, judging by statistics, fast following in their wake to be also soon an extinct race. If any one will turn up a map of North America printed about the beginning of the present century, they will observe a vast portion in the middle of that Continent lying north towards the Arctic Seas marked "unknown," and it is this great district, then scarcely known to Europeans, and now known as the north-west territories of British America, that we have to deal with. These territories are bounded on the west by the watershed of the Rocky Mountains, which divide them from the province of British Columbia, on the south by the international boundary line, which divides them from the United States, on the north by the waters of the Arctic Seas and Hudson's Bay, and on the east by the provinces of Ontario and Quebec. But though adjoining to, and indeed bounded by the two latter named provinces, yet they are separated from them by a vast extent of forest lands, which for many years proved an insuperable barrier to the westward march of the white men, the first British subjects to penetrate the north-west provinces, having reached them by way of Hudson's Bay. This great extent of forest lands was for long known as

The Back Woods of America,

and extend from the north shores of Lake Superior to the Arctic Seas, with an average breadth of 800 or 1000 miles, and it is from the western boundary of this great forest, and from that to the Rocky Mountains, that the north-west provinces of British America are situated. They contain the provinces of Manitoba, with an area of 73,956 square miles; Assiniboia, 89,535 square miles; Keewatin, 282,000 square miles; Saskatchewan, 107,092 square miles; Alberta, 106,100 square miles; and Athabaska, 104,500 square miles, or all combined nearly nine times the size of England and Scotland put together. Keewatin and Athabaska lie far to the north, and are becoming famous for the richness of their mines, and also supporting a large population of Indians and half-breeds in hunting for fur-bearing animals; but as these districts are as yet beyond the scope of present cultivation, my investigations did not lead me in their direction, my travels being directed through the provinces of Manitoba, Assiniboia, Alberta, and Saskatchewan, all these being situated within what is known as the great productive wheat belt. The whole country is surveyed and divided into

Townships,

i.e., a tract of country six miles square, containing 36 sections of one square mile each. These sections are all numbered consecutively from 1 to 36, and for the convenience of settlers each section is subdivided into quarter sections of 160 acres each. Sections 11 and 29 in each township are set aside for school purposes, and are known as school lands. Sections 8 and 26 in each township belong to the Hudson Bay Company. The even-numbered sections are set apart by the Government as free grants to settlers, and the odd-numbered sections are set apart for sale. For twenty-four miles along each side of the great lines of railroads the odd-numbered sections have been granted to the railway companies as inducements to them to extend their lines into hitherto unsettled districts, and in such cases the lands are usually offered to the public at reasonable rates. Free homesteads of 160 acres

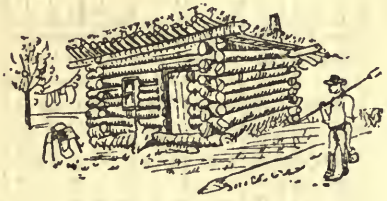


each may be obtained by any person (male or female) who is the sole head of a family, or by any male who has attained the age of 18 years, on either of the following conditions:—(1) By making entry and within six months thereafter erecting a habitable house and commencing actual residence on the land, and continuing to reside on it, for at least six months in each year for the three next succeeding years, and doing reasonable cultivation duties during that period; or (2) by making entry for the land, cultivating it for three successive years, so that at the end of that period not less than 40 acres be under cultivation, residing for at least six months in each year during that time within a radius of two miles of the homestead, and erecting a house upon the homestead and residing in it for three months next preceding the application for patent; or (3) by making entry, and within six months from the date thereof commencing the cultivation of the homestead, breaking and preparing for crop, within the first year not less than five acres, cropping the said five acres, and breaking and preparing for crop not less than ten acres in addition, and erecting a habitable house thereon before the expiration of the second year, and thereafter residing thereon and cultivating the land for at least six months of each of the three years next prior to the date of application for patent. The only

Charge for a Homestead

of 160 acres is the entrance fee of $10, equal to £2 sterling, and to induce parties to settle on the land the following bonuses are offered by the Government to those taking up land within eighteen months of their arrival in the country, viz.:—$10 to the head of a family, $5 for the wife and each adult member of the family over twelve years, and a further sum of $5 to each adult member of the family over eighteen years of age taking up land within the specified period. To those who actually wish to become settlers there is no difficulty whatever implied in these homestead duties. In every district in the North-West there are yet thousands upon thousands of acres upon which the settler can make choice of his farm where no updigging of roots is necessary or unearthing of stones, the land

being a green level sward. The plough, with two light horses or team of oxen, is sufficient in most cases to do the breaking, nor is the obligation of erecting a habitable house an undertaking which need frighten settlers, as it may be of the most simple and primitive description, the erections being for the most part of wood, a sufficient supply of which is given by the Government free. For a single man



A Log Shanty

is the cheapest and easiest erected. It is made of logs squared with the axe, laid the one above the other and notched at the corners, the spaces between the logs forming the walls are carefully clinked with pieces of wood and are then plastered over with clay, and if properly done the shanty is as warm and comfortable as a stone and lime building. The entire work can be done by the settler himself, although it would be as well to get the assistance of some one who knows about the work, the only outlay will be for the windows and planks for the floor and door and also the nails, the entire cost need not be over £2. For a married man a log-house is to be preferred. With the assistance of some one acquainted with the business and handy with tools the settler can in a couple of weeks finish the house, making it warm and comfortable. Such a house in size, say 12 feet by 16, can be divided into two bedrooms upstairs and a kitchen and sitting-room downstairs, the lowest cost of such

a building would be simply the cash outlay on boards and nails for flooring, doors, partition, and gables with four windows, and might be done for £10. In parts where timber is scarce,

A Better Style of House

can be built with sawn timber, with two rooms measuring 18 feet by 12 feet, for £24. Or a four roomed frame house, say 16 feet by 20, two bedrooms upstairs and kitchen and sitting-room below, will cost about £60. This is an average house, and will accommodate any ordinary family. Stables, barns, and other outhouses can be readily erected by the settler himself, the wood for these, as well as for fencing, being also supplied free. Should a settler desire to own a larger estate than the 160 acres given to him as a free grant he can generally purchase as much as he wants alongside, which, except in exceptional cases, such as vicinity to a town or the existence of valuable minerals, is generally offered by the Government at 12s per acre on easy payments spread over a number of years. Large areas of country called Indian reservations have been set aside for the exclusive use of the Indians. These are oftentimes the best of the land, and as the Indians are restricted from the powers of sale, they cannot be purchased by or settled upon by white men. It oftentimes happens however, that the Indians desert these reservations, when, if they remain vacant for a specified period, they are advertised for sale by public competition, and the proceeds devoted for the benefit of the red men.

MORE ABOUT THE NORTH-WEST TERRITORIES.

EDUCATIONAL FACILITIES.

THE GAME LAWS SIMPLIFIED.

PRIMITIVE ROADMAKING.

POSTAL AND POLICE SYSTEMS.

(From the Dundee Courier of November 7.)

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

Throughout the length and breadth of the North-West Territories the facilities for education are very superior, schools are already plentiful in all thickly-settled districts, and in any newly-settled locality any three ratepayers, two of whom shall be heads of families, may form themselves into a Committee to secure the erection of a school district, and may petition the Lieutenant-Governor for such erection, and, on his approval of the scheme, a poll of the ratepayers for or against it shall be taken. If the majority is favourable, the erection of the district into a school district will be forthwith declared. A school district must comprise an area not more than five miles in breadth and length, and must contain not less than four resident heads of families, and ten children of school age, which shall mean between the ages of five and twenty. The school shall be managed by a Board of Trustees, elected by the ratepayers, and it shall be the duty of the Trustees to select and acquire a suitable school site, as near as possible to the centre of the district, to engage a competent teacher, to have custody of all school property, and to make such assessment on real and personal property within the district as may be necessary to defray all lawful expenses connected with the

Management of the School.

Government aid is paid to every school organised under this ordinance as follows :—A grant of 75 per cent. of the teacher's salary to every school employing a teacher holding a first-class certificate from the Board of Education of the North-West Territories ; a grant of 70 per cent. to a teacher holding a second-class certificate ; and a grant of 65 per cent. for every teacher holding a third-class certificate. The balance is paid out of the proceeds accruing from the 1280 acres of land set aside in every section for school purposes, and if that should prove insufficient, an assessment is imposed to raise the necessary amount. No fees are charged from the children of ratepayers for attendance, but a small fee, only amounting to a few pence annually, may be charged for the attendance of those children whose parents are not ratepayers. All teachers are subjected to a rigid examination before being certificated and allowed to teach, and the schools are regularly and systematically visited and reported upon by a very efficient staff of inspectors. In addition to the public schools, collegiate institutes are provided for higher

education. These are maintained and governed in much the same way as the public schools. Although throughout the Dominion there is no established form of religion and no State-aided Churches, still the spiritual welfare and the education of the people are well provided for. Churches have been built and ministers placed in them in every populous centre, the ministers being chosen and paid by the people themselves. Presbyterianism is the most common form, but churches of all denominations are to be found, Episcopacy and Roman Catholicism being quite common.

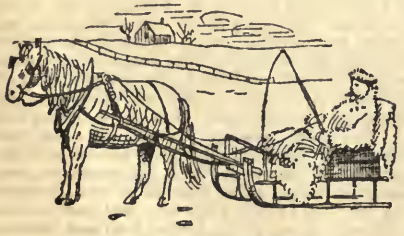
The Game Laws

are very simple, no game license or gun license being required by any one whose residence is in the Territories, but a license of £5 is required by all persons not domiciled therein. The guest of a resident may obtain a permit free of charge for a period of three days. No description of game may at any season be shot, hunted, or taken on a Sunday, and trapping of any species of wild fowl, grouse, &c., is prohibited. Close time during which animals cannot be destroyed is as follows:—Deer, from 1st January to 1st October; grouse, prairie chickens, pheasants, and partridge, 1st December to 15th September; woodcock, plovers, and snipe, 1st January to 1st August; wild duck, sea duck, &c., 1st May to 1st September; otter, beaver, musk rat, and sable, 15th May to 1st October; marten, 15th April to 1st November. Offences against the Act shall be punished upon summary conviction on information or complaint before a J.P. or Police Magistrate. Lakes are very numerous throughout the North-West Territories, and the country literally swarms with water fowl, such as ducks, geese, &c. The prairie chicken, a fowl about the size of our pheasant, is also found in great numbers on the prairie. The buffalo has altogether disappeared, but bears can yet be found in the more secluded parts, as also can timber wolves and lynx. There are no wild horses east from the Rockies, all the numerous bands of these animals being tame and belonging to the settlers, and branded with their own mark. It is a very serious offence to allow a stallion to go at liberty on the prairie.

Roadmaking

is very far behind in almost all parts of the Territories. Coating with metal is never resorted to. Any making the roads get is in the way of formation, and is called macadamising, but there is very little of that. All the repairs they get is by statute labour, each settler or labourer being obliged by law to give so many days' work of himself and his teams annually. In our country, where our climate is so moist and our soil so soft, the roads, under such a lax system, would soon be impassable. But there the dry weather which prevails during summer, and the hard nature of the soil, renders them where there is a good deal of traffic as hard as iron and very smooth, and during winter, when they are covered with snow and frozen over, they are very good indeed for sleighing purposes.

For a few weeks both in the spring and the fall of the year, however, when the weather is soft, they are very bad and almost impassable. Where slews or swamps have to be crossed large trees are laid down close together. This system of road-making is called corduroy, and, although it is rough and uncouth, it bears up the wheels of the vehicles and the feet of the horses, and answers the purpose very well. Roads are laid out parallel to each other, 66 feet being the breadth allowed by law. There is one mile distance between the north and south roads, and two miles distance between the east and west roads.



A SETTLER IN HIS SLEIGH.

The Postal System

of Canada extends to every village and hamlet in the land. The ordinary rate in the Dominion and between Canada and the United States is 1½d per ounce, or fraction thereof, and to and from the United Kingdom 2½d per half-ounce. The newspaper postage in Canada is nominal, and there are parcel, sample, and book posts at cheap rates. The money order system is similar to that in operation in the United Kingdom. The commission charged on local orders ranges from 2 cents (1d) for 4 dollars (16s) to 50 cents for 100 dollars (£20). Money orders are also issued payable in the United Kingdom on the same terms as those charged on similar orders issued in Great Britain payable in Canada. The telegraph system is in the hands of public companies chartered by Act of Parliament, and the rates are moderate. For a message sent by me from the town of Vancouver—the farthest west town on the mainland of British America—to Dundee the sum charged was 7s 6d. The telephone is also in very active operation in most of the towns and cities of Canada, and is used to a very great extent, the number of telephone messages sent yearly being about 64 millions. For the maintenance of law and order a force called

The Mounted Police

is employed. This force consists of 50 officers and 1000 men. The headquarters are at Regina, and there are stations at all the principal towns and centres in the North-West. A thorough system of discipline prevails, and, the men being all young, able-bodied, and active, and mounted upon splendid horses, this force has been found to be very efficient. Applicants for the force must be between the ages of 22 and 40, of thoroughly sound constitution, and must produce certificates of exemplary character. They must be able to read and write the English or French languages, must understand the care and management of horses, and be able to ride well. The term of engagement is five years, and the rates of pay are as follows:—Constables—First year's service 50 cents per day; second year, the same, with 5 cents per day added for good conduct; third year, the same, with 10 cents added for good conduct; fourth year, the same, with 15 cents added for good conduct; fifth year, the same—that is, 50 cents per day—with 20 cents added per day for good conduct, equal to 5s 10d per day. Members of the force are supplied with free rations, a free kit on joining, and periodical issues during the term of service. The minimum height is 5 feet 8 inches; minimum chest measurement, 35 inches; and maximum weight, 175 lbs. Married men will not be engaged. The colour of the uniform is a bright scarlet, with long top boots and spurs, cartridge belt round waist, and rifle. The men look very smart.

University Degrees.

Each of the principal Universities of the Dominion grants degrees to students who have passed the qualifying examinations for physicians and surgeons, and no person is permitted to practise without a license from the provincial medical boards. The privilege is generally granted without examination to holders of diplomas or degrees in medicine and surgery from British Universities; and certificates obtained by teachers or schoolmasters in the United Kingdom are available in Canada when endorsed by the Minister of Education in the Province in which the holder desires to reside. The foregoing rules, regulations, and conditions apply equally to all the North-West Provinces of Canada. In my next letters I will take up the districts I visited in detail, and describe their grain-bearing and stock-producing capabilities.

ALBERTA AND ITS RANCHES.

THE PROVINCE AND ITS INDUSTRIES.

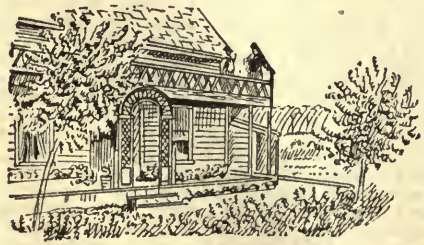
AGRICULTURAL FEATURES.

A VISIT TO ELBOW PARK RANCHE.

(From the Dundee Courier of November 14.)

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

The provisional district of Alberta, situated at the base of the Rocky Mountains, embraces an area larger than that of Scotland, England, and Wales put together. Up to 1883 it had no direct communication with Manitoba or Eastern Canada, the postal service being then through the United States. The construction of the Canadian Pacific Railway, however, ushered in a new era, and it has now direct postal and railway communication with all parts of the world. Alberta is bounded on the north by the district of Athabasca, on the south by the international boundary line, on the east by the provisional district of Assiniboia, and on the west by the summit of the Rocky Mountains. It includes in its 107,000 square miles every variety of forest and stream, grazing and agricultural lands, with deposits of gold, coal, iron, and petroleum. Alberta is divided into two judicial districts, known as Northern Alberta and Southern Alberta. The northern district extends from the northern boundary of Alberta to Mosquito Creek, fifty miles south of Calgary, and the southern district extends southwards from Mosquito Creek to the United States boundary line. A Judge of the Supreme Court presides over each district, the Judge for the northern district residing at Calgary, and the Judge for the southern district living at Macleod. Alberta was, however, formerly divided into three districts—Edmonton, Calgary, and Macleod—and as such they are still better known. The Edmonton district comprised all that part from the northern boundary of Alberta to a point on the Red Deer River, about 100 miles north of the town of Calgary. The principal town in the province is



FARM HOUSE AND GARDEN NEAR EDMONTON.

Calgary,

which was established in 1883 on the advent of the Canadian Pacific Railway. It is situated almost in the centre of the district which bears its name. It nestles in a sheltered valley in the triangle formed by the rivers Bow and Elbow immediately at their confluence, and is surrounded on three sides by the waters thereof, and walled in on either side by high precipitous banks. The present population is put at nearly 5000, and it is doubling itself every two or three years. It has good hotel accommodation, good public schools, one high-class school, Protestant and Roman Catholic private schools, five churches, one public hospital. There are two electric light systems. Its water supply is obtained by pumping with steam from the River Bow. It has good sewage arrangements, and large and complete stores of all kinds of merchandise. The town is the distributing centre for a very large district of agricultural lumbering and mining country around. Within the last two years two new lines of railway have been constructed, and connect with the Canadian Pacific station at the town. One extends 200 miles north to Edmonton on the North Saskatchewan River; the other extends south to the Macleod ranching and Lethebridge coal mining districts near the United States boundary. A good supply of coal is also obtained from Anthracite and Canmore, situated in the Rocky Mountains, and, indeed, the whole district is underlaid with coal, and new mines are in the course of being opened up. Large lumbering industries have been established in the district, and ponderous sawmills are in active operation in the town, which provide a good supply of sawn timber, boarding, and scantling for house-building purposes, the making of furniture, and other necessary purposes. The trees from which the timber is obtained are cut by great

Armies of Lumberers in the Rocky Mountains,

dragged by oxen to the rivers, and floated down to the sawmills for perhaps two or three hundred miles. Most of the buildings are of brick. There is a good clay field near the town, and the bricks are burned in a kiln close by. A good many of the houses are of wood, and quite a large number are built of stone and lime, which are handsome and substantial. At a short distance from the town, a large slaughtering establishment and refrigerating stores have been erected, and thence the carcases are sent in refrigerator cars by railway to the eastern markets, or westwards through the Rockies to the British Columbia towns. To the west, and within good view of the town, are the Rocky Mountains, ever beautiful, awe-inspiring, and majestic beyond description. Between these mountains and the town are the Foothills, extending northwards and southwards for a distance of 500 miles, with an average breadth of 100 miles. The valleys and hillsides, studded with numerous belts and clumps of wood and scrub, affording good shelter, and watered with innumerable rills and creeks, which take their rise in the mountains, comprised the choice feeding grounds of the American bison less than twenty years ago, and now re-echo to the soft music of the lowing herd and bleating flock. Arrived at Calgary on our eastward journey

we resolved to lie over for a day or two on purpose to inspect the numerous ranches of cattle and horses in the surrounding district. Having made our arrangements before retiring for the night, next morning a police waggon, drawn by a pair of spanking bronchos, and driven by a mounted policeman in scarlet uniform, drove up to the door of the hotel. Accompanied by Mr Thomson, homestead inspector, as guide, we were driven away in the direction of

The Ranches,

which lie between the Bow and the Elbow. The day was splendid, although somewhat hot, the temperature at mid-day being 105 in the shade. Nevertheless the air was exhilarating and bracing, so that we felt no discomfort, it being entirely devoid of that heavy sultry feeling which makes a much lower heat in the old country so ill to bear. The soil for some distance around the town is thin and barren, with many stones of a whiteish colour lying about and protruding from the surface, and appearances would indicate that at some previous period inundations from the adjoining river had washed away the soil and left it bare and unproductive. Soon we reach higher ground and the soil becomes better, being covered at this season of the year with a pretty abundant vegetation of prairie grass, all brown and withered to the consistency of well cured hay, which provides a good nutritious bite for the numerous herds of cattle and horses which we see everywhere around here. On the higher grounds, which we soon reach, there is a great scarcity of water, and not many cattle are to be seen, but bands of horses, each numbering many hundreds, are frequently seen. Horses can travel much farther to water than cattle can, and cover a much more extensive area of country in search of their food. Bye-and-bye we come in sight of Elbow Park Ranch, and are passed by Mr Robinson, the proprietor, who has been at Calgary on business, and is driving at a great pace a splendid trotting broncho stallion in his buck board. A word or two in passing, and we got a cordial invitation to pay him a visit. We followed on as hard as we were able, but though our redcoated driver plied the whip with a willing hand, we were soon left far behind.

Elbow Park Ranch

lies along the north bank of the Elbow River, which separates it from the Sarce reservation of Indians on the south side. Mr Robinson reports the Indians as quiet inoffensive neighbours. The Ranch is subdivided into large fields well-fenced, several of which are ploughed and seeded with oats, but as the district we are now in lies far up amongst the Foothills, grain seldom ripens, and is cut green for winter feed for stock, natural hay not being abundant here. Mr Robinson keeps about 800 horses on Elbow Park Ranch, and 1000 cattle on another ranch twelve miles farther up the Foothills.

HORSE RANCHING.

His cattle are shorthorn grades, which do well. He thinks, however, that they grow rather too much to bone, and to obviate this he intends to use Hereford bulls, which he believes will breed animals with a finer quality of bone, and more easily fed. His mares are mostly of the broncho breed, with a number of Ontario Clydes amongst them. He has four entire stud horses just now, which are kept in loose boxes same as at home. One is an old roan-coloured Shire, which has done good service, and left his mark on the stud. Another is a four-year-old pure-bred Clydesdale by Lord Erskine out of a Prince of Wales mare. This animal is said to be own brother to Lord Ailsa. He is a very good specimen of the breed, and is offering to breed well. The third is a pure English thoroughbred, and the fourth is a grade between a broncho and a thoroughbred, the latter being famed for getting fast-trotting roadsters. Mr Robinson has a good deal of housing about his premises, but only sufficient to house the winter-calved cows and weaklings. The whole herd of cattle and horses are wintered outside, being supplied in stress of weather with rations of oaten hay. Mr Robinson's death-rate among cattle is very low. Last year it was as low as 4 per cent. He is quite sure

No Pleuro-Pneumonia

exists in the province, and says that the atmosphere is so pure and dry that no lung disease of any description could be contracted, and that broken-winded horses brought from the eastern provinces, and let loose upon the prairie, soon recover, and become all right. Steers are kept to four years of age, and run from 1400 to 1700 lbs. on the hoof, and generally sell at 3½ cents per lb., or from £10 to £13 per head. To send live cattle from here to Montreal costs $12 (equal to £2 10s) per head, and from here to Vancouver, on the west coast, costs $15 (equal to £3)per head. Thus to bring oxen from Calgary to Glasgow would cost from £5 10s to £6 per head. Superior, well graded, good sized team horses bring from £15 to £25 each, and ordinary small-sized cayeuse or ponies bring from £5 to £10 each. Having been invited by Mr Robinson to enter his domicile, we were shown the pedigrees of several of his Clydesdale horses. The documents signed by Mr MacNeilage, Glasgow, testified to their being genuine. After getting some valuable information as to the ranching business of the country generally, and being treated to a libation of mountain dew from the old country, we bade him a reluctant goodbye, and went away to inspect several other ranches in the same district, a description of which will form the subject of my next letter.

VISIT TO A KINCARDINESHIRE MAN.

A FARMER'S DAIRY.

THE HOUSING OF LIVE STOCK.

A NOVEL METHOD OF FENCING.

AGRICULTURAL PESTS.

(From the Dundee Courier of November 21.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—Continuing our drive from Elbow Park Ranch, our next halt was at the ranch of Mr M'Pherson, a Scotsman from Banchory, Kincardineshire. Mr M'Pherson is a married man whose wife (a Scotswoman), three sturdy sons, and a daughter all reside with him on the ranch. He came to America in 1856, located in Ontario for a number of years, and came west to

Calgary some years ago. He keeps about a score of graded shorthorn cows and their followers. His wife superintends the dairy and makes butter for the Calgary market, the price for which runs from 10d to 15d per lb. Two-year-old steers sell up to £8 each. Mr M'Pherson has very good housing accommodation, and puts up his cattle in bad weather, feeding them with oaten hay and prairie hay, of which he is careful always to have a good supply. He keeps two Clydesdale horses—at least, he calls them Clydes, although I am doubtful of their purity, they being only middling sorts. His sons travel them through the district in the season, the fees charged being from £2 10s to £3 per foal, nothing being charged if there is no foal. He says they are badly bothered with timber wolves, which destroy quite a number of calves. Prairie wolves, or coyotes, are numerous, but do no harm, except occasionally amongst poultry. Near here is

A Cheese Factory

where a man and a boy are employed. The man attends to the working of the dairy, and the boy drives round with a waggon each morning, taking up the cans of milk from the farmers, and delivering them at the dairy, and taking back to them the whey and other bye products of the milk. Each consigner's milk is weighed on arrival at the dairy, and a careful record kept. The dairy is managed by a Committee of farmers in the district, who sell the cheese and divide the proceeds amongst the consigners, according to the quantity of milk delivered. The charge for working the dairy is 1d per lb. of cheese made. The average price of cheese at Calgary for the past few years has been 5½d per lb. Our next visit was to Mr Cullen, Springbank, the place taking its name from a good cool, natural spring of water, which rises at the foot of a bank a little way below the house. He keeps a good herd of shorthorn cattle, which he sells at two years of age fat, generally killing them himself, and selling the dressed carcase. The average weight is 760 lbs., the price usually obtained being 2½d per lb., or £8 per head. He grows oaten hay, and feeds his stock liberally during winter. He has extensive housing, and keeps his cattle in during bad weather, maintaining that all ranchers ought to be compelled

To Shelter Their Cattle.

His houses are built of great trees laid upon each other, and notched at the corners, poles being laid across the roofs, and the whole being covered with a certain thickness of straw, and clayed over. This makes a somewhat uncouth but perfectly comfortable domicile for stock. He keeps a good number of Berkshire pigs, splendid sorts, which have the run of a paddock with water, and are fed with grain and skim milk. His wife manufactures large quantities of butter, which sells freely at 10d to 1s 3d per lb. We had tea here, and I can vouch for the excellent quality and sweetness of the butter. I was surprised to find it so firm with the temperature approaching 110 degrees in the shade, but got my eyes opened in an unexpected manner. The supply of butter on the table being somewhat short, Mrs Cullen asked her son to replenish the dish. He shoved back his chair, and, lifting a trap door in the floor right beneath his chair, went down a stair to a cellar and brought up an ample supply of firm, cool, delicious butter. During summer this cellar is useful as a cold storage, and in winter potatoes and other commodities perishable by frost are placed. Mrs Cullen, like all other ranchers' wives, bakes all her own bread, and it was as good and palatable as though the loaves had come from the hands of a practical baker. She says that owing to the nutritive qualities of the prairie grass the

Milk is Much Richer

in butter fat than it is farther east the country, and that 21 lbs. milk will make 1 lb. butter whereas it requires 28 lbs. milk in Ontario. The land here is mostly all sold or taken up by settlers, but several of them would sell out if they got suitable offers. One farmer I met has 640 acres well fenced and partly broken, with good house, barn, and stable. He would sell at $10 or £2 per acre. He has also 640 acres pre-empted alongside, unbroken and unfenced, which could be purchased at 12s per acre. This land is quite an average of the soil of the locality. The district being situated within easy reach of the Rocky Mountains, where abundance of timber can be got for the cutting down and hauling, the fencing of the fields has been well attended to, all the ranches in the district being well enclosed. The fencing is of a kind not often seen farther east. Two posts about 5 feet long are crossed within 6 inches of the top, notched, and bolted together. The posts are not driven into the ground, but merely set on the surface, quick rotting being thus obviated. Strong logs 15 feet long are set into the cross on top, and form the upper rail of the fence, three or four other logs being nailed down one side of the posts or trestles. This forms a very substantial, durable, and most efficient fence. The district all around here is terribly

Over-run with Gophers.

Indeed, to such an extent have they increased that they are looked upon as the worst pest the settlers have to contend against. The gophers are small animals, about the size of a squirrel, of a light colour, and bushy tail, which they carry over their backs just in the manner of a squirrel. These animals burrow in the ground like rabbits, and increase with amazing rapidity. Every green blade is a prey to their rapacity, and where they are numerous they eat the grass as bare as a mown lawn, and work immense destruction to cornfields. During the spring months, when food is scarce, and when they will eat anything laid down to them, the settlers destroy them with poisoned grain, the poison being supplied by the Government. All along the way we drove we saw them in myriads, sitting on their hindquarters with their heads erect, and staring at us until we were within a few yards of them, when they would pop into their burrows, and were safe. Hawks and kestrels are their greatest enemies, and on that account these birds are carefully protected. We saw

A few Rabbits

in this district. The rabbit seems to be a non-descript sort of animal, having some resemblance to the rabbit, some to the hare, and some to the kangaroo, and having no great resemblance to any of the three. It does not burrow, but will take refuge in a hole if hard pressed. It is about the size of our mountain hare, and runs with a sort of leaping, springing motion like the kangaroo. Garter snakes exist in the district, but they are perfectly harmless. I was told there were rattlesnakes, but nobody that I met had ever seen any of them. On the way back to Calgary we came along the ridge of a high mountain bluff, on which the grass was rank and uneaten, and were told it was too far from water to be frequented by either cattle or horses during the drought of summer, but that on the arrival of the rainy season, when the slews and coolies would be filled with water, innumerable herds of horses and cattle would find their way there, and luxuriate upon the rich grass converted on its feet into well-made and nutritive hay. We arrived at Calgary about dusk, and although our team of

bronchos had pulled the heavy waggon containing the five of us along Indian trails that never had got the slightest shadow of making or repairing for a distance of sixty or seventy miles still they were as fresh and lively as when we started, and pricked up their ears, and bowled us along without the least sign of fatigue, showing that they are

Of Good Bottom,

and very hardy and durable. They were of the common, rough, scrubby breed, rough in their hindquarters, and having nothing to admire about them so far as their symmetry was concerned. Still they would make good, useful cab horses, and could be bought in any number at from £10 to £15. Arranging with our driver to hitch up another rig for us on the morrow to drive us to the Macleod ranching district, we retired to our hotel.

IN THE MACLEOD RANCHING DISTRICT.

INTERESTING EXPERIENCES.

A HORRIBLE INDIAN FESTIVAL.

A FINE GRAZING COUNTRY.

PROFITABLE DAIRY FARMING AND PIG-KEEPING.

AN AWKWARD PREDICAMENT.

(From the Dundee Courier of November 28.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—We put up for the night in the principal hotel in Calgary, and next morning, after getting a splendid breakfast of porridge and milk—the porridge made out of rolled oats, which we greatly relished—we sauntered along the street to find the Post Office in hopes of getting news from home. Every morning all the time we were away, whatever town we were in, we did the same, but found to our disappointment and chagrin that letters were like angels' visits, few and far between. The morning was fair, but the sun was obscured by a dense haze or mist, and to me it looked as if it was going to be a great downpour of rain, but we were told by the people of the place that the darkness proceeded from a bush fire in the mountains, and sure enough we then remembered that two days before, when coming east through the Rocky Mountains, we had passed through a great forest of fine timber all ablaze, and this was the smoke, more than a hundred miles away, that was enshrouding the district as if in a thick fog. Betimes our red-coated jehu drove up to the door of the hotel, and, our party being now augmented by some gentlemen farmers from Ontario, Mr Thomson, homestead inspector. Calgary, also hitched up his team of cayuse in his backboard for our accommodation, and, as it afterwards turned out, it was lucky for us that he did so. We

Started South

in the direction of the Macleod ranching district, and not far from the town we crossed the Elbow River on a substantial wooden bridge. I was seated on the dickey beside the driver, and for a time I must confess I saw very little of the country around, my attention being engrossed with the bad behaviour of our team of bronchos. They had only been once or twice in harness before, and were a pair of as wild, untamed demons as I ever sat behind. They had never been shod, and appeared as they had been very little handled. I soon saw it was to be a regular fight for mastery between the driver and them, but I saw at the same time that he kept cool and collected, and that he was a stout, resolute young fellow who knew his business well. So he kept them well in hand, and sometimes by coaxing, sometimes by a good application of whipcord, he managed them admirably. He told me one of them would make a good horse, but the other was a mean skunk, and the sooner he was shot the better, nor would it have taken much to have made him carry out his threat. I knew he had his shooting-irons with him, and I would not have been a bit surprised though he had dropped the savage brute in his mad career. Evidence that such things are sometimes done was not awanting, for we passed four dead horses by the wayside that morning. On the way out we met a great number of Indians, who had been at

The Annual Sun Dance

farther east the country, and were returning to the Sarcee Reservation, about 10 miles south-west from Calgary. First came the bucks, riding along ahead like gentlemen. They had neither saddle nor bridle, only a loop of a small rope attached to the nether jaw of the horse, and a piece of skin laid upon the horse's back as a substitute for a saddle. I observed that they mounted the horse from the opposite side as compared with ourselves. The boys were in charge of the bands of loose horses. They were mounted on horseback, and were armed with short-handled long-thonged whips which they used very dexterously. Last of all came the squaws, who had charge of the camp furniture and papooses, their mode of conveyance being called a travoie. Long poles are attached to both sides of the horse, and the ends trail far behind. The small ends of the poles are crossed over the horse's neck and fastened there, and immediately behind the horse a hammock or wicker basket is strung between the poles. Into this hammock the children and all their worldly possessions are packed. The old ladies were seated astride the horses, and urged them along at the hard gallop, and, although the children were getting

A Rough, Jolting Ride,

they were laughing and crowing with great glee, and seemed to be enjoying it very much. A number of foals whose mothers had the misfortune to be in the travoies were running alongside, and accompanying the cavalcade were a number of dogs, which they breed and rear for food in times of scarcity. These barked quite furiously at us in passing. Their herd of horses were of a somewhat mean order, small, droop-rumped creatures that would not draw above from £2 to £4 when at their best. They are, however, a hardy, mettlesome race, and will stand any amount of work and hardship. They are of all shades of colour —blacks, browns, greys, sorrels, chestnuts, and cream-coloured. Cream or lavender is the favourite, but chestnut is the most common.

The Indian sun dance is a horrible annual festival, and as I had a description of it from an eye-witness a recital of it will not be uninteresting. It takes place about the end of June or the beginning of July, when the whole Indians, male and female, for twenty or thirty miles round, gather to the place appointed, and pitch their camps in the vicinity. First a hole is dug in the ground, then the largest tree to be found within easy distance is cut down, hauled, and the stump end placed in the ground. An outer wall is then made, with many similar ones at regular distances. From these to the large centre-post rafters are strung. Then the whole is covered with green foliage, a large doorway being left open on the east

side facing the sun. When they are engaged hauling the trees to the sun lodge, three or four well-mounted bucks will drop their lariats over the stump end, the other end of the rope being attached to the horses' weatherlock. Then off they go, legs going, arms flying, laughing, shouting, and yelling, followed by a number of others, who discharge numerous shots among the leaves of the fallen tree and in the air to drive away the devil. The

First Part of the Dance

is the presenting of six virgins by the head chief to the sun as a token of the moral standing of the tribe. Then follows the making of braves, only one being made at a time. He, by a pre-arranged plan, finds his way to a place at the west side of the tepee, occupied by the medicine men, who perform the transformation act. While this is going on they are hidden from view. Suddenly the candidate for honours appears on the scene, a most perfect demon painted most hideously. Each aspirant wears different colours, and is almost nude. On either side of the breast can be seen two cuts, with blood oozing therefrom. Through these a skewer is passed, and between the shoulder blades a similar cut and skewer are seen. From the centre pole hang two light ropes, generally strips of untanned hide, a loop at the end of each. These loops are placed over the skewers on the breast, and a large turtle shell is hung by a cord from the skewer on the back. A whistle is then placed in his mouth, and the tom-toms strike up a hideous kind of music. Then the young man's father, friend, or relative steps forward, and every sound is silenced when he, in a continued flow of native eloquence, relates much of the young man's past, predicts his future, tells of his brave ancestors and their deeds, and ends by

Calling upon the Great Spirit

to protect him always. And now the real business begins. The tom-toms again strike up, the candidate keeping time to them with the whistle in his mouth, and beating time with his feet. He gradually creeps closer to the centre pole, and, bending himself back till his body reaches an angle of 45 degrees, the whole weight being now supported by the particles of skin under which the skewers pass, he, hopping up and down to the time of the tom-toms, moves along in a quarter circle. The skin on the breast is now stretched away from the flesh like a piece of elastic, and on he goes bobbing and whistling, when suddenly the skin on the breast gives way, and down he falls, but suddenly springs to his feet like a jumping deer, and stalks majestically away, and takes his place among the fighting men of his nation. Only those who successfully pass through this ordeal can take a place among the braves. Should they fail or faint they are squaws, and not considered fit to associate with the men of the council. All this time we have been bowling southwards at a great pace, up and down, over the east and west spurs of the Foothills. There are big ranches here, and all along the way is a fine grazing country, and one which affords almost perfect shelter for stock in the winter season, for, no matter which direction the wind blows from, it is an easy matter to find a lea corner behind the rugged rises or amongst the numerous clumps of wood which everywhere abound. Water is also plentiful, for in the hollow of every valley between the ridges is a stream or creek which, taking its rise in the Rocky Mountains, has an everlasting supply, even in the driest summers, from the melting of the snow. Generally speaking, there is not much cultivated land around here, and on a ranch proper the plough is seldom put into requisition, but on

Dairy Farms,

a great many of which we pass, where, perhaps, from twenty to thirty cows, with their followers are kept, a good extent of land around the homestead is cropped, generally with oats. The altitude is, however, so high—3500 feet above the level of the sea—that the ripening of the grain is very precarious, and no dependence is placed on it as a marketable commodity. Any grain that is reaped is gristed and fed to the pigs, and, along with the skim milk, makes splendid hogs, averaging from 20 to 30 stones per dressed carcase, and selling at 3½d to 4d per lb. Thus, the feeding of pigs is very remunerative, and from fifty to a hundred are kept upon every farm. The great bulk of the crop is, however, cut green, and converted into oaten hay, which makes good winter feeding for the dairy cows. The dairy industry, too, pays very well, for, considering that the land is obtained or held for little or nothing, and considering also that from 10d to 15d per lb. is readily obtained for the butter (quite as much as at home), and 5½d for cheese, such an industry must be far more profitable than in Britain, where high rents have to be paid for the land, and the cost of working is very much greater. Continuing our drive through scenes of this kind, we reach the open prairie, where no cultivation is to be seen, and where houses or homesteads are from six to ten miles apart. The whole district is

One Unbroken Expanse

of grass and flowers, with an occasional patch of low scrub, composed of Saskatoon bushes, on which a most delicious fruit, about the size of a gooseberry, called the Saskatoon berry, grows in great plenty. This is the berry which the Indians mix amongst their pounded meat in the making of pemmican, and which gives the compound such a delicious flavour. The vegetation is mostly composed of buffalo and bunch grass, which affords very nutritive feeding to the numerous large bands of horses and cattle which we see all round here. Traces of the extinct buffaloes are seen on every hand, trails deeply indented in the surface—just like sheep walks on our home pastures—all leading in the direction of watering-places, to which the buffaloes had wended their way in Indian file to quench their thirst. Numerous buffalo wallows, where the bulls had, in their playful moods, scooped out circular hollows with their fore feet and horns, and numerous skeletons lying where they had fallen victims to the murderous rifles of the Indian hunters, shot down in thousands for the sake of their skins, all testify to the vast numbers in which these bovines had existed at no distant date, although the place that knew them now knows them no more. We were now out of sight of all human habitation, and speeding at a great rate along a declivity where there was no trace of a roadway or trail. Just as we had descended the north bank of a summer dried coolie, and had struck the ascent of the southern bank, the spokes of one of the wheels of

Our Char-a-banc Collapsed

like the ribs of an umbrella in a gale of wind, and we were all thrown out upon the grass. Hastily picking ourselves up, feeling ourselves all over to ascertain if any bones were broken, and being satisfied that no personal damage had been sustained, we burst into a hearty laugh at the somewhat awkward predicament we were in. No house was within sight, we did not know where to find one, and our hotel was 35 miles behind us. We all concluded, therefore, that we were in for a night's camping out, which, so far as the weather was concerned, would have been no great hardship. But unfortunately we saw more serious troubles in

store. We had no provisions with us, except, indeed, a small refection of the liquid element which experience had taught us never to be without, in order to counteract the bad effects of the alkali with which the drinking water was generally impregnated. Worse than all, the mosquitoes were paying us most assiduous attentions, so much so, that it became a matter for calculation how much of us would be left if we were to be food for them for a whole night. However, we resolved to make the best of a bad bargain, and how we got out of the fix will be related in my next letter.

A VISIT TO QUORN RANCHE.

COW-BREAKING EXPERIENCES.

A "ROUND UP."

THE COWBOYS OF CANADA.

(From the Dundee Courier of December 5.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes :—In my last letter I finished by relating the breakdown of our conveyance out on the prairie far away from any human habitation, 35 miles south from the town of Calgary, amongst the foot hills of the Rocky Mountains, and how we expected we would have to camp out all night. We were holding a pow-wow amongst ourselves as to what we were to do, when Mr Thomson, homestead inspector, drove up, and took us out of our difficulty. He had his buckboard (a four-wheeled machine to carry two persons), to which was hitched a team of hardy chestnut cayuse. He informed us that Quorn Ranche was not very far away, but that a river (Sheep Creek) lay between us and it, and he advised that we should all proceed in the direction of the ford, and he would ferry us over one by one with his buckboard. He asked me to jump up beside him, telling the others to follow in his trail, the marks of the wheels being easily discernible amongst the rank grass. Accordingly, I was set down on the south side of the river, and he turned back to do the same service to the others. I got upon a trail, and followed it on alone until I came to

Quorn Ranche.

On approaching the buildings the first thing that attracted my attention was a stalwart, good-looking young fellow, 6 feet 2 inches at least, quenching his thirst at a pump which stood in the yard. Thirst is contagious (at least I believe so), and stepping up to him I asked if the water was good, and got the answer, "Very weak, sir, very weak." I said that might be amended by-and-by, but I was sorry I did not have my pocket pistol with me just then. I gave him my card, and we got into conversation, when he told me that he was the grandson of an Irish Baronet whose name I am not at liberty to mention, and that he had friends in Forfarshire in good positions, to whom he asked me to present his compliments on the first opportunity. Dick was very pleased to see a Scotsman, and in the absence of the manager did all he could to show me ranche life. He and another man were engaged

Breaking in a Cow,

and a most laughable farce it was. The milk on the ranche had run short, and a cow that was suckling a calf, and had never been handled before, was brought into the carrol. When I arrived she was jammed up between a wall and a big gate or door, and they were busy buckling hobbles upon her feet. Her four feet were then strapped so closely together as would just allow her to take short steps, but be unable to run. Two lariats were then thrown over her horns, and she was relieved from her confined position. Dick walked before with the end of one lariat in his hand, and the other man walked behind and held on by the other lariat. Then Dick led her forward, and when she attempted to go too fast the other man held her back, and she had rather a bad time of it between the two. She was awfully fierce, and struggled and bellowed most desperately, pawing up the soil with her forefeet, and even lying down in her endeavours to get free. Often she attempted to charge her guards, but her every movement was watched and checked, and she had to submit. After a time they led her into the byre, where she was tied up and given

Her First Milking Lesson,

the hobbles preventing her from kicking the operator. Half-a-dozen big, powerful hounds were lying about the premises ; they were of a grizzled grey colour, quite as tall as staghounds, but double their weight. They are kept for the purpose of hunting down the timber wolves which come from the mountains in great numbers, and would do a vast amount of damage amongst the stock if not scared and kept back by the hounds. Bears sometimes come down from the mountains, and the hounds are sent after them, but, strong though they be, they are no match for Bruin, and one stroke from his powerful paw would kill the best of them. They are therefore taught not to attack him in front, but to molest him in the rear by biting his heels, which causes him to turn in self-defence, and by this means he is detained until the cowboys come up and despatch him with rifles. There are 96,000 acres of land upon Quorn Ranche, which is leased from the Canadian Government at

A Halfpenny per Acre.

The stock consists of 1200 horses and 2000 cattle. When stocking the ranche the company purchased and imported 300 good upstanding carriage mares from Ireland, and purchased, regardless of cost, ten first-class thoroughbred stallions from England. The stallions are kept in loose boxes same as at home, and are well fed and attended to, a thoroughly practical English groom having been engaged and taken out to superintend these duties. The horses were all shown out to us, and I admired them very much. "Eagle's Plume" is considered the best. He is breeding remarkably well, and his offspring, both male and female, are greatly in demand for breeding purposes. When his services are let a fee of $100 is charged. "Acrostic" is also a splendid sire. He was imported from England in 1884 after winning the Ascot Hunt Cup. But it is invidious to individualise where all are so good. Such excellent parents cannot fail to breed well, and the colts of the Quorn Ranche are fast becoming famous throughout Canada, and at the annual draught sales are much on demand. A great many of them go for remounts to the Mounted Police, the average price at four years of age being £25. Mr Thomson volunteered to drive me over the ranche, and, Dick having saddled and mounted his bucking broncho, we sallied out for

A Round-Up.

We passed through some beautiful glens of really excellent pasture. It was brown and withered, to be sure, as all the grass on the prairie is at this season of the year, nevertheless it was plentiful and nutritious, as the horses, with their sleek, glossy coats, and actually rolling in fat, and the cattle, all thick fat, amply testified. The award is composed of buffalo and bunch grass, both very nutritious, and well mixed with pea-vine, a herb something like our Scotch tare, with leaves and pods almost similar. It is a sweet, nutritious plant, much relished by horses, and of excellent feeding

qualities. After proceeding some miles Dick gave a shrill whistle, upon which two mounted cowboys made their appearance from a clump of wood about a mile distant. He signalled some instructions to them, when they again disappeared, and shortly afterwards a great mottled

Band of Horned Cattle

came in sight, descending from the crest of a bluff far away on the right. We drove on to meet them, when Dick displayed some splendid horsemanship in rounding them up, his long whip with a terrible crack swishing along the sides of any obstreperous bullock that tried to break away from the band. At last they stood in a bunch, perfectly subdued and quiet, but they had an unsettled glitter in their eyes and a wild, untamed look about them, which intimated that they were ready to make a stampede on the slightest opportunity. There were three hundred four-year-old beef steers in the band—big, strong, thick-fleshed animals, a little rough in the bone perhaps, and not exactly the kind that would sell at the highest price per hundredweight here, yet withal good fleshers' beasts, the majority of them showing evident signs of careful grading up. They were all shorthorn grades, or Durhams, as they are called out West. According to my judgment, they would weigh about 12 cwt. on the hoof, and they were sold the day before I was there at £8 sterling per head. Fourteen cowboys are kept on the ranche during summer and ten during winter. Cowboys they are called, but if these are

The "Boys" of Canada

I wonder what like they will be when they are men—six feet every one of them, with great development of bone and muscle, hardy, active, young fellows all, and, oh! such splendid riders. This is the class of men from which Buffalo Bill picked his Broncho Busters who so astonished the natives of this country some two years ago, and how different they are from the befringed and long-haired genus which we have so often read about.

A "BRONCHO BUSTER" RIDING A BUCKING HORSE.

Why, these fellows have actually linen collars, and clean ones, too, peeping out from above their jumpers! They wear blue overall breeches and blue jumpers, and the only signs that betray their occupation are the big felt hats, and the lariats hanging in a neat coil from their big saddles.

Speaking about bucking horses, it is a remarkable fact that all the native horsea contract this vicious habit, and even the offspring of imported horses, if brought up on the prairie, are all more or less addicted to it. When going at full speed they will stop all of a sudden, with their forefeet firmly planted before them, head down, and back arched. Then they will leap up with all fours off the ground, with their back arched and rigid, and their heads almost touching the ground, and unless the rider have a thoroughly secure seat he is sure to be thrown. So thoroughly secure, however, are these cowboys' seats in the saddle, and so excellent horsemen are they, that the wildest horse on earth cannot pitch them off, and these broncho busters are never more at home or more in their element than when mounted on the back of one of those vicious bucking bronchos.

MORE ABOUT RANCHING.

"POT LUCK" AMONG THE COWBOYS

HOW SOME RANCHES ARE MANAGED.

CANADIANS AS CATTLE-BREEDERS.

(From the Dundee Courier of December 12.)

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

The cowboys on Quorn Ranche are paid an average rate of £6 per month, with rations. The value of the rations is not easily computed, but from what I saw I have reason to believe they live on the best the land can produce. They had no idea that we were to pay them a visit, and were in no way prepared for us, but asked us in to get a share of their dinner. We therefore got "pot-luck" as it were, and a better spread table no one need desire to sit down to, a whole leg of a heavy, well-fed calf being roasted, followed by rich, delicious puddings and fruit. A special cook from England is engaged. He is a married man, and in conversation with his wife, who sat at table with us, she told me she had not seen another woman for two years. There is a good deal of carrol accommodation about the ranche, and a few sheds, but the shedding is only meant for a few exceptional animals, such as milch cows, broken horses, and weaklings of either species, so that the whole herd of cattle and horses may be said to be

Wintered Outside.

It is said that, owing to the warm chinook winds from the Pacific coast, the snows never lie deep, and that stock have never any difficulty of obtaining their food; but, even granting this to be the case, I hold it is downright cruelty to animalsto keep them outside with the thermometer oftentimes down as far as 30 degrees below zero, and I am sure the death-rate would be considerably reduced were shelter provided during night, and such quantities of natural hay put up as would be a bite to the stock during heavy storms. There need

be no difficulty in obtaining plenty of hay, as any portion almost of the prairie would yield a heavy swathe with a mowing machine, so that the hay would cost no more than the labour expended on the curing. I am aware that

Ranching in America

just now is reported as being far from lucrative, and this knowledge made me most careful to inquire very minutely into the facts and prospects concerning the ranches. I am thoroughly convinced that they ought to yield a good profit, and if they do not there is something very far wrong with the management. Upon Quorn Ranche 25 acres are allowed to summer and winter each head of cattle beasts; the land would keep far more, in fact, it looks as if it were never eaten. The object, however, is to keep the grass rough and rank so that the stock may have no difficulty in getting at it amongst the snow. But, even allowing this large area, as the rent of the land is only one cent per acre, that is only one shilling and a halfpenny each beast costs for keep annually, and if kept till four years old, the cost of the food he has eaten all the days of his life only amounts to four shillings and twopence. If at this age he is worth £8, as just now they really are, surely it is impossible that the balance can all be frittered away in management and attendance. From what I learned, however, the management of too many ranches is

From the Billiard Table

of the hotel, perhaps some hundreds of miles away, and when that is the case it is little wonder though things go to the bad. But let a man with the necessary capital take up a ranche on his own account, and look after his own interest with as careful an eye as stockholders do in this country, then I have no hesitation in saying that I know of no investment that would pay better. To follow up this subject still farther, and see what relation the production of beef in the M'Leod district bears to its production in the old country, I may mention that to bring a steer from Calgary to Montreal by rail, a distance of 2200 miles, would cost £2 10s; ocean freight from Montreal to Glasgow, £2; food and attendance by the way, say, £1 10s, or perhaps £2—amounting to £6 10s altogether, which, added to £8, the value of the 12 cwt. steer before starting, makes his cost £14 10s, or 24s per cwt. live weight. So that, seriously speaking, I am not of opinion that we in this country have seen the worst in regard to the reduction of the value of our home production of beef by the importation of Canadian-fed cattle. It may be that just now our home animals are worth more per live cwt. than the Canadians are, seeing they are finer bred, but that is a defect which will soon cure itself. The very difference in value, as evidenced in our London and Glasgow markets, is showing the Canadian breeders the great necessity there is for

High-Grade Breeding,

and certainly they are upon the high road to attain that object, seeing that quite as high-class and finely-bred sires are being used in almost every herd as there are at home. It is only, however, by the ranche or prairie cattle bred upon those illimitable and almost free grazings, that I have fears of our home markets being flooded and prices still further reduced. In Ontario and other settled districts where cattle have to be kept upon the products of cultivation, I am not of opinion that they can be produced and sent here at cheaper rates than have been prevailing for some time past. But we in this country, by our short-sighted policy of refusing to admit the cheap Canadian stores, are rejecting the only chance we have of holding our own against the ranchers, and giving the Ontarians an opportunity, of which they are not slow to avail themselves, of purchasing western stores and putting them up to feed upon their cheap grains, and be able to send the finished article to our markets and sell it at such prices as we in this country, with our dear-rented land, can never contend against. It seems to me that the prairies of America are pre-eminently adapted for producing the raw material—that, in fact, the bones and frame must be built up and formed of cheaper materials than we have at our command; and that our home products, which are ever so much more costly and valuable, must be devoted to the production of beef alone (not bones), which is really the commodity which constitutes the value of the animal. Our inspection of Quorn Ranche accomplished, we began to bethink ourselves about how we were to get

Back to Calgary,

which lay due north nearly forty miles distant. We learned that about ten miles due east there was a railway running north and south between Calgary and the coal mines at Lethebridge, and that a train was due at Okotox Station at 9 p.m. which would take us to Calgary. There was no spring conveyance of any kind about the ranche, the manager having the only one belonging to the place away with him; but Dick made a cowboy hitch up two heavy farm horses into the farm waggon to drive us to the station. It had four wheels but no springs, and the horses were yoked abreast with pole between. The horses had to be driven at a hard pace to get to the station in time, and as there was seldom any semblance of a road the ride was rough in the extreme—rougher by far, I am quite sure, than an Indian travoie would have been. Darkness began to set in, and just as we were nearing Okotox an engine passed south the line. We wondered what could be the meaning of an engine going south just as our train was expected from the south, and when we got to the station we found the officials

In a Quandary

about it also. They had no telegraphic connection by which they could discover the cause, but thought there would be a breakdown somewhere in the south. There was no help for us but wait on, but, unfortunately, there was no waiting-room to wait in, and as we could get no intelligence as to when the train would come in we could not leave the station to seek shelter. Fortunately there was a store not far away kept by Mr Patterson, who, at one time, was a shoemaker in a village near Montrose, Forfarshire, and afterwards a farmer on Donside, Aberdeenshire We stepped into the store to make some small purchases, and soon discovered that Mr Patterson and I had several mutual acquaintances in the old country, and talking about them soon made us fast friends. Mr Patterson says there is a better chance of a man getting on in the world out there than at home, and if one is steady and industrious he is sure to succeed. A great proportion of Mr Patterson's store business is done by barter with the farmers around, and in this line he has been fairly successful. At five o'clock in the morning the train arrived, and with right goodwill we responded to the conductor's cry "All aboard," arriving at Calgary at 7 a.m., making twenty-four hours that we had been away on our M'Leod Ranche inspection tour.

EN ROUTE FOR EDMONTON.

RAILWAYS AND RAILWAY TRAVELLING.

FARMING IN RED DEER COUNTY.

AN INFLUX OF SETTLERS.

TROUBLE WITH THE REDSKINS.

(From the Dundee Courier of December 19.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes :—Our train from Okotox took us into Calgary at 7 a.m., and was due to start to Edmonton, whither we were bound, at 9 a.m. So we went to our hotel and had breakfast, and after packing up our baggage again proceeded to the station. Shortly the conductor's cheery announcement, "All aboard," warned us to take our seats. Edmonton lies 196 miles straight north from Calgary. On leaving the latter city the route is for some distance east the main line of the Canadian Pacific Railway (the C.P.R., as it is called). Leaving the main line, we cross the Bow River, and then the track trends in a north-east direction so as to get to the eastwards of the rolling spurs of the foothills. It then proceeds almost in a straight line northward over a country almost as level as a billiard table. We frequently cross rivers of considerable size, all flowing eastwards to join the Saskatchewan on its way to Hudson's Bay, but even the rivers do not detract from the levelness of the prospect, there being no valleys along their sides, the waters having merely cut a deep gully for a channel through the soft soil, and these being generally spanned by steel girders,

The Railway Track

is continuous along the flat surface with scarcely any cuttings or embankments. This line had been remarkably easy and cheap in its construction, a ditch merely being excavated on each side, and the soil taken out of it thrown upon the track and levelled. The ties or sleepers were then laid upon the soil, and the rails fastened to them with spikes, with no metal chairs such as we have in our home railways. I thought the construction very inadequate and unsafe, but it is the same throughout all America, and, in my opinion, in all that great Continent there is scarcely a mile of railway that our Board of Trade would allow a train to run upon. I understood before going to America that their speed of travelling was much faster than ours at home, but my experience is that it is very much slower. To travel the 196 miles from Calgary to Edmonton took us from 9 a.m. to 9 p.m., being a speed of barely 14 miles an hour, and even when travelling with the express upon the main lines we could never calculate upon a greater speed than 25 miles an hour. Nor are they particular in keeping up to their advertised time. The first thing passengers do on going into a station is to examine the blackboard in the booking-office window. Occasionally it will be written with chalk

"Train on Time,"

but oftener it will be marked several hours behind time. One morning when on the main line at the income of daylight I was awakened by the unusual stillness that prevailed. I dressed, and went out, and found the engineers busy cooling a hot box on one of the axles of the engine. There was no station or house of any description in view, and I had a good time of it for two whole hours picking strawberries on the prairie before the conductor's "All aboard" told me they were again ready to start. Such delays would certainly not be tolerated at home, and in contrast to their rate of speed how different I found it on my first railway journey on my arrival home when travelling by the Flying Scotsman between London and Dundee. The distance of 434 miles was covered in ten hours, including two half hours spent by the way to allow of passengers taking refreshments. For some distance north of Calgary the surface vegetation has a white sickly appearance, and to a casual observer looks as if it had been attacked with mildew. There is, however, no mildew about it, the white appearance being caused by a thick growth of a weed called wormwood or sage, a plant having medicinal qualities and an acrid, bitter taste. This weed is not eaten by stock, and where it prevails to any extent it detracts very much from the value of the pasture. Large areas of the great plains in the drier districts are much overrun with it, and my opinion is that

Settlers should be Careful

not to locate themselves where it is prevalent. As we go north the wormwood weed gradually becomes thinner as the soil becomes thicker, and as we approach the district of the Red Deer River it disappears altogether, and the verdure assumes a green and luxuriant appearance. Up to this time we have not observed many herds of stock, but we have passed many rich hay meadows, where the farmers are busy with mowing machines securing large quantities of hay. In many places several machines are following each other, and on the same day, only a few hours after being cut, the teamsters come along and pitch, haul, and build it into monster ricks, which are drawn to a head in such a manner as to be safe from drawing water without any thatching. In the district through which we have been passing there are not many homesteads to be seen in the vicinity of the track, the settlers having mostly located a little bit farther west amongst the rolling spurs of the foothills, where nicely sheltered spots have been fixed upon for the erection of the buildings, and in most cases also the stock have been kept up amongst the foothills, so as not to destroy the hay on the plains. But whenever the hay crop is all secured, cattle and horses in almost incalculable numbers will be let down to luxuriate upon the rich herbage to be found there.

The Red Deer County

may be said to extend from 46 miles north of Calgary to 30 miles north of the Red Deer River, some 80 miles in extent, and extending east and west of the Calgary and Edmonton Railway from 10 to 15 miles, containing one and a quarter million acres of splendid agricultural land. The first 20 miles of this stretch of country north and south, or from Searletts to the Lone Pine, is undulating prairie, free from brush, and well adapted for the growth of cereals, and it is said that roots wherever tried do well. From the Lone Pine north for 60 miles the country is park-like, dotted over with groves of spruce and poplar, and interspersed with numerous rivers, creeks, lakes, ponds, and hay sloughs. The principal rivers are the Red Deer, the Little Red Deer, the Medicine, and the Blindman—the first a mountain stream of 150 yards' average width, and a pure spring water; all the others originate in spring lakes along the line of the foothills, but some distance east of them. Many of these streams, or rivers as they would be called here, afford good water power, and sawmills are in active operation at every convenient centre. Up to within two years ago, when the railway was built, comparatively few settlers were to be found here, but its fame having gone forth settlers are

fast crowding into it. Even from the States

Farmers Are Coming In

great numbers to take up land here. Every male, if he be eighteen years of age, and a woman, if she be the sole head of a family, gets 160 acres of land from the Government for nothing, and if the settler breaks up a few acres annually for the first three years, and builds a habitable house on the holding, he gets his patent papers, and the land belongs to himself and his heirs for ever. Millions of acres around here are lying waste waiting to be sold, so that a newcomer has plenty of scope from which he can take his own choice in selecting a quarter section, and if he wants more than a quarter section (160 acres) he can purchase any quantity alongside at 12s 6d per acre, payable in instalments, spread over eight or ten years. This section of country is not what is properly known as a ranching country. The snow, often falling to the depth of 18 inches, and remaining for weeks together, endangers stock that are left to depend solely upon what they can procure for themselves, but for stock held in such numbers as can be housed or shedded and fed when occasion requires, it is

Unsurpassed on the Continent.

The grass is rich and abundant, the water is plentiful and pure, and wood for the erection of shedding and fencing is cheap and convenient. From Government statistics put into my hand I find the following yields recorded :—

Variety.	Bushels Per Acre.	Lbs. Per Measured Bushel.
Wheat, Defiance and Ladoga, ..	42	63
White barley, ...	55	56
Black barley, ...	35	70
Oats, Sandwich, ...	70	46
Oats, White Egyptian, ...	65	48
Oats, New Welcome, ...	60	48
Peas, ...	30	66
Flax, ...	23	60

Potatoes 400, and Turnips 600 bushels per acre.

The fuel problem is solved by the fact that, in addition to this district being fairly well wooded in all parts, and the upper waters of all the rivers being lined with dense forests, extending far up among the foot hills of the Rocky Mountains, the entire district is reported by the geological survey to be underlaid with coal of excellent quality, though no workings are yet opened. The Calgary and Edmonton trail is a beautiful and natural road running through the centre of the Red River district for 80 miles. The recent expenditure of the Territorial Assembly in bridging the streams has made it a very excellent traffic road. Branching off from the main road are numerous trails, convenient to any section of the district, and the firm smooth face of the country allows the settler to make a road with ease in any direction that suits his convenience.

Towns are Springing Up

at almost every railway station. Some of them already contain several thousands of a population. These town sites are all surveyed and laid out in uniform squares and streets before any houses are allowed to be built, so that uniformity and convenience in the embryo city is provided for and maintained. Some of these towns are being built where good sized timber, principally poplar, at present grows. The wood is being cut down and cleared off the streets, and around the houses groves and rows of trees are left standing, a row of nice comely trees being left along each side of the street. Thus those young towns will be well sheltered, and provided with excellent avenues and boulevards, which towns of the growth of centuries might envy. Just as I was finishing this article the post handed in some letters to me from America. One of the Crown agents tells me there is every appearance of trouble with the redskins in British Columbia. At the fall Assizes just finished two Indians were tried for murdering a white man, convicted, and sentenced to death. No fault was found with the justice of this sentence, but immediately after when a white man was tried for murdering an Indian, found guilty of manslaughter, and condemned to twelve years' penal servitude,

a Howl of Indignation

got up amongst the Indians at the leniency of the sentence. Amongst those who watched the case with great interest was an old Indian chief who had been a friend of the murdered Tom. When the sentence was pronounced he became very angry, and, turning to the Chief of Police, expressed his indignation thus—"Twelve years in Skookum House for killing one Indian. Too bad, too bad. Next time white man kill Indian, Indian know what to do. He no live to get twelve years in Skookum House. Indian murder, he have to die; white man murder, he have to die too."

IN THE RED RIVER DISTRICT.

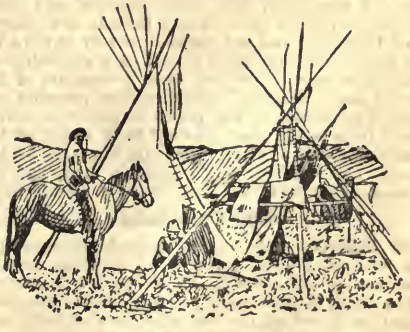
VISIT TO AN INDIAN RESERVATION.

TYPICAL REDSKINS.

UNITED STATES FARMERS GOING NORTH.

(From the Dundee Courier of December 26.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes :—As we steam northwards over the plains of the Red River district we observe a large train loaded exclusively with cattle following close behind us. There seems to be no block system in vogue on the railways here, for this train is never far behind us, and comes close up at the stations at which we stop. I went back at one station, and had a look at the cattle. They were mostly cows and heifers, and some stockers. They were all horned, and flaked red and white. They did not seem to be particularly well-bred, but in one car were a number of shorthorn young bulls, fairly good sorts. These cattle were from British Columbia, and were the property of some settlers recently arrived between Red Deer and Edmonton. The same party had brought through about 100 horses, and were herding them on the prairie on very good grass that belonged to nobody, and was costing them nothing. We crossed Battle River, and entered



SARCEE INDIAN CAMP.

An Indian Reservation

governed by three chiefs—Samson, Ermine Skin, and Bobtail. The land appeared excellent, as indeed the land on all the Indian reservations generally is. We saw very little cultivated land on these reservations, but great plenty of cayuse and some cattle. The cayuse were for the most part mere ponies, but a few of the young ones were bigger and better sorts, indicating that some weak endeavours were being made to improve the breed. The cattle were big, but fearfully rough and scrubby; the worst I saw in all my travels. They would, however, be excellently adapted for draught, being big of bone and strong muscled, and, as the work oxen which I saw in the possession of the white settlers in the neighbouring districts bore a strong resemblance to those cattle, I have no doubt but that the most of them are purchased from the Indians. The grading system now practised by mostly all the whites, tending to diminish the size of bone and increase their fattening proclivities, renders the cattle bred by them less suitable for draught purposes. A lot of these Indian cattle got upon the track and scampered before us with their

Tails Hoisted Like Flags

for a long distance. Our driver slowed the train and screamed incessantly with his whistle, but it was a long time before they gave in and cleared out of our way. At Wetaskwin Station we see a lot of samples of grain in the straw hung up for show.

BLACKFOOT BRAVE.

These were very tall and rich in the ear, and gave us some idea of the richness of the country we were coming to. Wetaskwin in the Indian language signifies the hill of peace, and takes the name from a knoll near the station where a treaty of peace was concluded between the Indians and the white men. There were a great many Indians on the platform offering pipes fashioned of pipe-stone, beaded mocassins, and other trinkets, and sham buffalo horns for sale. These Indians are Chrees and Blackfeet, and are certainly a very shrewd lot of people, entirely alive to the easy gullibility of the white race. It is their clear perception of the white man's weakness for relics that prompts the astute gentlemen of the plains to load themselves with these wares and take up their stand at the railway station. These pipes are imported by the gross, and cost perhaps a shilling each, and the Indians charge at least from seven to ten shillings.

The Crowfoots

are straighter and more finely-built men and women than the majority of Indians we encountered, and time was when they struck terror to the hearts of those daring settlers whose enterprise and hardihood led the way into this vast and fertile territory. They are tame enough now though, and those for whom Cooper's novels have had an early charm find room in their hearts for regret and disappointment that the blanketed nondescripts standing with outstretched palms, these frowsy beggars, are the real material from which the novelist built his red-skinned hero. A bevy of young squaws attract our attention. These are certainly the

SQUAW SPECTATORS.

best-looking representatives of the red race we have yet seen. It may be that the chiefs in the Tepee camp below the station are astute enough to select the best-looking girls for this expedition. They run along beside the cars holding out their hands and reiterating the word "money," of which they seem to have a good understanding. Many kind-hearted passengers throw these damsels small silver coins, for which they scramble and fight in a most unseemly fashion. Soon they are left behind, and attention is again drawn to the large herds of ponies grazing on the rich grasses that stretch away on each side of the track from east to west, and through grazing lands and herds of horses, foaled and bred where they now roam wild, the train rushes for the next couple of hours. Each pony bears his owner's brand, and he is as safe almost though he wanders a hundred miles from home as though penned in by a six-foot fence. Again the country undergoes a change. We have left the Indian reservations behind us, and have reached a district open for

White Settlers,

and though it was only opened up two years ago by the construction of the railway, it is already dotted with farmhouses and other buildings. A good deal of land is under wheat, and the crops appear good. Square black blocks every here and there indicate where farmers are breaking up the prairie. The district is thickly interspersed with clumps of timber, which afford good shelter, but there are plenty of open plains, where the settler can put in his plough, with neither tree, scrub, nor stone to interrupt its course. Hundreds of farmers from the United States are coming north and taking up land round here about. They say they are tired of a country where the average of wheat-taking one year with another is not over 13½ bushels, and prefer to come to a country where they expect never to reap less than 30 bushels an acre, and sometimes 50. They say they were borne down with taxation in the States, but which they will almost be entirely exempted from in Canada; that, although

The Winters

are more severe, they find the climate more salubrious and healthy than the States. They also say that the Government of the Dominion is much more equitable than that of the United States, and that life and property is safer in the north-west territories of Canada than in any other part of the world they know. As we pass northwards lakes and ponds become very numerous. These are beautiful expanses of water, surrounded by wood-

lands, and literally swarming with ducks of every description, geese, swans, and innumerable other species of waterfowl that I don't know the name of. Prairie chickens, startled by the onward rush of the train, arise on each side of us in myriads, all proving that it is a splendid country for sportsmen. The district has a park-like look, and with its grand old woods and broad expanses of meadow, with browsing herds half-hidden amongst the luxuriant herbage, reminds a native of the old country of the princely avenues surrounding the castles and manors of our aristocratic proprietors, the only blur to the landscape being frequent broad strips through the woods, where the tall trees stand forth like signal poles against the sky, dead, bare, and branchless, marking the track where the fire fiend has swept along.

SPOTTED-TAIL'S PRIME MINISTER.

VISIT TO EDMONTON.

RAILWAY EXTENSION IN THE NORTH-WEST.

AN EXCITING ADVENTURE WITH HOTEL PORTERS.

A SUTHERLANDSHIRE SCOTSMAN'S GREETING.

ACROSS THE SASKATCHEWAN.

(From the Dundee Courier of January 2, 1894.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—We are now at Edmonton, a town of considerable importance built on the banks of the great North Saskatchewan River. Only two passenger trains arrive there weekly (on Mondays and Thursdays), and two leave weekly (on Tuesdays and Fridays). So we got there on Thursday evening, and had to stay until Tuesday morning, which gave us good time to inspect the town and the country around. The principal part of the town is built on the very brink of the perpendicular banks of the river, and as the Railway Company have failed as yet to bridge the river, and have constructed the station on the south bank, a new town is fast springing up around the station, and a good deal of jealousy exists between the owners of property and town lots on the different sides of the river. Certainly the Railway Company have the making or the marring of the success of either side in their hands. Should they persist in refusing to bridge the river, and carry the railway into the north town, the enterprise of the settlers is sure to direct itself to the south side, and the future town will develop itself there. But should the river be bridged soon, the old town would retain its present high prestige and increase. Over and again the Railway Company have been petitioned

To Extend Their Line

across, and there are hopes they will shortly do so, but the hesitation to decide is retarding the onward progress of both sides, owing to the uncertainty as to which of the towns is likely in the future to be of the greater importance. Last summer a proposal had been made, and surveys were being taken with the intention of building a bridge for the construction of an electric railway to connect the old town with the station. Much dissatisfaction and disappointment were sustained by the route through the Kicking Horse Pass being fixed upon by the Canadian Pacific Railway Company for the construction of their line, it being fully expected that the main line would have been brought from Winnipeg, up the Prince Albert and Battleford Valleys, along the banks of the Saskatchewan, through the town of Edmonton, and along the old Mackenzie trail, piercing the Rockies by way of the Peace River Pass. This route would have opened up a richer district of country, and developed the resources of the North-West Territories in a greater degree, but the object of the railway company in building this track was to obtain the nearest and speediest route between the Atlantic and Pacific Oceans irrespective of the best mode of developing the agricultural resources of the North-West. However, there are yet hopes that the Prince Albert Railway will before long be extended to Edmonton, and, once that is so, the construction of a line through Peace Pass to British Columbia is only a matter of time. Edmonton has water

Communication to Winnipeg,

and a number of steamboats carry passengers and freight during the summer months by way of the Saskatchewan and Lake Winnipeg, but the route is so circuitous, and so beset with bars of rock, rapids, and shallows, that navigation is very dangerous. As the resources of the North-West are opened up, however, there is no doubt whatever that western enterprise will improve the way, and make navigation safe for fair-sized vessels, and then Edmonton will have direct communication with the Atlantic by way of Hudson's Bay. There are 198 miles between Edmonton and Calgary, and until the branch line of railway was opened two years ago all the traffic was carried over the old Indian trail between these towns by bullock waggons, and during winter by bob-sleighs. The Government have bridged all the rivers except the Red Deer, which is crossed either by a ford or by a ferry raft. But before the advent of the main line of railway to Calgary eight years ago the whole traffic to Winnipeg was by bullock waggon. The journey going and coming occupied three months. Little wonder though the great agricultural capabilities of the district lay long in abeyance.

Beset by "Liveried Gentlemen."

A great crowd of passengers occupied the train by which we travelled, and when we arrived at the station a very busy scene presented itself. A great number of carriages, some with four horses, and some with two, were waiting to convey passengers to the old town on the north side of the

river, and hotel porters crowded the platform soliciting patronage, making a perfect Babel of noise in shouting the name of the hotel they represented. Amongst the most importunate were the representatives of the Victoria and the Albert. When I got to the small platform at the rear end of the car, with a valise in each hand, a dozen liveried gentlemen gathered round, all grasping at my grip-sacks, and shouting "Victoria," "Albert," &c., &c. I declined to give up my property, and ordered them to clear out, but one fellow, more importunate than the others, barred my way, and, extending his arms, looked as if he was going to hug me, grip-sacks and all. I saw verbal remonstrance from me was of no use, so glancing for the position of his toes, I let myself down two steps at a time not over gently, and my full weight (and that is no joke) coming full force on his corns, made him clear out in a couple of hurrics. If he screeched before, he howled then to a different tune, and hopped away with his paw in his hands. As I reached the end of the station platform a respectable-looking old gentleman extended his hand, and recited in a dramatic attitude, "My foot is on my native heath, and my name is Macgregor." This turned out to be Donald M'Leod,

A Sutherlandshire Scotsman,

who had gone out nearly fifty years ago in the em ployment of the Hudson Bay Company, and had made his pile, he having a good deal of property in the town, besides several farms in the neighbourhood. Donald had been apprised of our coming, and had come to the station to give us a welcome, and his quotation from "Rob Roy" was his mode of introducing himself. We got into a carriage drawn by four spirited horses, and were driven away in the direction of the old town, and, of course, had to be ferried across the Saskatchewan. The great river, 200 yards broad and very deep, runs in a gorge between perpendicular walls 200 feet deep, cut out by itself in the soft clay. A zig-zag carriage road has been cut down the wooded banks at each side. This road is very steep and very rough, a great part of it being corduroy, *i.e.*, paved with great trees laid side by side across the roadway. Down this incline we went at a break-neck pace, having a regular race with some other vehicles also laden with passengers, all striving who would be first at the ferry, the launch being wrought on the principle of "smiddy room," first come first served.

A Saskatchewan Ferry Boat.

To work the launch a strong steel rope is pitched from cliff to cliff some distance above the ferry, on which runs a wheel with a hook. From the hook to the launch are two smaller ropes, one being attached to each end. When the launch is laden and about to start, the ropes are manipulated with hard tackle, and the head of the launch is drawn up until it presents an angle of about 45 degrees to the run of the river, and the downward sweep of the water, bearing upon the side, forces it across, the wheel on the cross ropes preventing it from being swept down the river. In returning, the opposite end of the launch is drawn up stream, and the force of the water, bearing on the other side, propels it in the contrary direction. Provided the ropes are sufficiently strong, this is quite an efficient and

Cheap Mode of Transit.

There are three such ferries wrought on the same principle within a short distance of the town, and for the working of which the lessees have to obtain a license from Government. On the rail of each launch a bill is attached on which, printed both in the English and French languages, is a copy of the license, and also the rates of charges and rules of the ferry. The river was quite thick and muddy when we were there, it being in flood, caused by the melting of the snows in the Rocky Mountains, and we were told that all summer it would continue in the same state, but that in the fall it would diminish in volume and the waters become as clear as crystal. In this state it would continue until the summer thaws again swelled it into flood.

AGRICULTURAL FEATURES OF EDMONTON DISTRICT.

A SOIL OF INEXHAUSTIBLE FERTILITY.

ABUNDANCE OF TIMBER.

THE STAPLE AGRICULTURAL PRODUCTS.

PRODIGIOUS YIELDS OF CROPS.

(From the Dundee Courier of January 9.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes :—Around Edmonton the soil is a black vegetable mould, from one to three feet in depth, overlying a light coloured marley clay subsoil twelve feet in depth. This rests on a blue clay which is broken at irregular intervals by water-bearing seams of sand or gravel, and by beds of coal of varying thickness. There is practically no stony or sandy soil except in isolated or outlying localities. This soil is not only exceptionally fertile to commence with, but has practically an inexhaustible fertility. If the black mould were worked out there would remain the twelve feet of marley clay underneath, which is almost equally fertile, and can never be wrought out. Of course, the land is the better for good tillage, and manure as well, but instead of there being a continued battle as in the best parts of Great Britain to keep up the fertility of the soil, necessitating the bringing in of extraneous manures, this land can be kept at the highest pitch of fertility for ever merely by good cultivation, and returning to it the refuse of what is taken from it. The difference the staying power of the

Fertility of the Soil

makes to the farmer, whether at home or abroad, cannot be over-estimated. It is the difference between wealth and poverty. The farmer who settles on a farm in a region where the soil lacks depth may do well for a time, but as the years go

his land after going up to a certain pitch in value invariably declines as it becomes worked out, for the simple reason that the farm consumes too much according to the amount it produces. The result is disappointment and loss. How many localities can be pointed out all over the Dominion where settlers went in on light, quick-producing land, and spent the best years of their lives in making in their homes, only to find that their land had become worthless through exhaustion, and that, therefore, their lives had been wasted. On the other hand there were those who went on deeper and more difficult land to reclaim and work, and found a veritable gold mine, which, by keeping up its fertility, while wealth and the conveniences of civilisation grew around it, continually increased in value and made wealthy the owners almost in spite of themselves. This is

The Kind of Land

that the Edmonton district has to offer to settlers to a degree not attained by any other part of the North-West territories that I visited—where a man may take up a farm and be satisfied that his children's children will find it as fertile as he did—where a man having once driven his stakes need never require to pull them up. The surface of the country is very gently undulating except where cut by the deep valley of the Saskatchewan or the lesser valleys of its tributaries. Woods and prairies alternate irregularly. In some parts there are large plains free from timber, and in others considerable stretches of wood lands composed of large trees. Towards the North and West the proportion of wood increases until at about 60 miles distance, the forest region is reached, Towards the South and West the proportion of plain increases until, at a distance of from 75 to 150 miles, the woods entirely disappear and the great plains are entered upon, extending without a break to the Gulf of Mexico. The great distinguishing feature of the Edmonton district as compared with other sections of the North-West is the abundance of timber. Nearly half of the whole surface of the Edmonton district proper is covered with large or small woods.

The Effects of Forestry

on the climate of a country are nearly all beneficial, such as more equal distribution of rainfall. This is one of the most important points to be considered. Then, again, evaporation from the soil is very much reduced. There is a vast difference between the condition of the bare soil on the open prairie and the soil of the glades intervening between these wooded groves, the belts of wood preventing the strong force of the winds with their great evaporating power. Nor can the beneficial effect to live stock, produced by the frequent occurrence of these shelter belts, be over-estimated. The timber of the district is chiefly poplar in the agricultural sections, with large forests of spruce and tamarack to the West and North. The poplar, both white and black, grows large and straight, and makes excellent building logs. The grey willow grows to a very large size in some places, becoming a tree rather than a bush, and makes capital rails for fencing. The spruce of the district is very superior, both in size and quality, and forms very good lumber, suitable for all purposes of building for which pine is ordinarily used. The River Saskatchewan above Edmonton drains a spruce-bearing area of 150 miles, ensuring a supply of timber for many years, and making lumbering one of the most important of Edmonton industries. The staple

Agricultural Products

of the district are wheat, barley, oats, potatoes, cabbages, and all other hardy vegetables, cattle and dairy products, hogs, sheep, horses, and poultry. In the production of all these articles I am quite sure that I am within the mark when I say that Edmonton is not excelled in all the North-West Provinces. The wheat marketed at Edmonton during the past winter brought a higher price per bushel than that marketed at any point in Manitoba, and Edmonton took first prize for grain in the straw over strong competition from all parts of the territories at the Winnipeg Industrial Exhibition in 1891. It is now an ascertained fact that the nearer we approach to the northern cultivation of wheat the quality becomes the better, and Edmonton being the most northerly district in the Dominion where cultivation is carried on to any considerable extent, the quality of the wheat grown there is of the highest marketable grade, being small in the pea and very hard, and containing more gluten and less starch than wheat grown further south. It brings a higher price in the British markets than the wheat from any other district or country, and higher even than the produce of our own soils. It cannot be denied, however, that the district is occasionally (perhaps once in ten years) subject to

Early Frosts

which, when they occur, considerably deteriorate the quality of the wheat. But, as the trend of the land is downwards as we go north, and as the warm Chinook winds passing through the Peace River Pass temper the climate, frosts are not so common as they are much further south, and not so frequent as they are further east the country. Besides, the district is almost entirely exempt from the scourge called "cooking," which so often and so disastrously blights the wheat crop in the States. Fifty bushels of wheat are often reaped per acre, and it is no uncommon thing to grow forty bushels upon first breaking, and, taking the average of a few years, thirty-five bushels per acre may be put down as the general yield. A vast difference this from the average of the United States, which for the last ten years has only run thirteen-and-a-half bushels per acre. Still, as early frosts do sometimes injure the wheat crop before harvesting, experienced farmers advise not to put one's whole dependence upon this crop, but to divide the risk by having a portion of the farm in oats and barley. Oats grow prodigious crops, often yielding from eighty to a hundred bushels and even more per acre, less than sixty being considered a poor crop, the weight per bushel running from 38 to 50 lbs. Barley has yielded sixty bushels an acre, and two-rowed barley, such as the English market demands, grows to perfection around Edmonton, and is considered

A More Certain Crop

than either wheat or oats, as, owing to its early ripening habits, it is rarely or never nipped with August frosts. Edmonton is situated in what is known as the great fertile wheat belt, and, in my opinion, it has been most deservedly named, for never in all my travels, whether at home or abroad, have I witnessed such prodigious and rich crops of wheat, barley, and oats as I did there. And even though no crop had been upon the ground the soil would have spoken for itself. Never in my experience did I see a soil so rich in all the requisites for crop-growing purposes as the soil around Edmonton.

THE ATTRACTIONS OF EDMONTON.

ITS MINERAL RESOURCES.

GOLD PROSPECTING OPERATIONS.

ANGUS "DODDIES" ON THE RANCHES.

RELATIVE MERITS OF GALLOWAYS AND WEST HIGHLAND CATTLE.

A REMARKABLE INCIDENT

(From the Dundee Courier of January 16.)

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

All around Edmonton the country is thickly wooded with Balm of Gilead poplars, and as the town is increasing very fast, the land has been surveyed and laid out in regular street blocks. The wood along what are to be the streets of the future is being cut down and roadways formed, the walks at the sides being floored with boarding. The trees on the squares where the buildings are to be are left growing, so that builders will have their choice of leaving whatever number of trees they wish around their houses. The result will be that even the new streets will be interlined and the houses surrounded with stately groves of timber, which will afford good shelter, and give even the new town a park-like boulevard appearance. Perhaps the greatest disadvantage Edmonton at present labours under is the want of a good water supply. As I said before, the town is built on the very brink of the perpendicular cliffs of the great Saskatchewan, 200 feet deep. This great gorge completely drains the country for a great distance from each side of the river, so that there are

No Natural Springs,

and wells would have to be dug to the level of the river before water could be touched. Pumping from the river would be an easy matter, but for six months of the year, that is during summer, the water in the river is thick and muddy by the melting of the snow on the mountains, and altogether unfit for domestic purposes. Water carts are employed to bring the water from a distance and distribute it in bucketfuls to the householders. The town has an electric light system of which the people are justly proud, the dynamo being driven by a powerful steam engine placed down at the edge of the river. Fuel is abundant and cheap; any quantity of firewood can be obtained from the surrounding country at little more than the cost of cutting and hauling. Besides, the district is all underlaid with coal, seams of which jut out all along the banks of the river, and at low water the inhabitants have nothing more to do than hew out their year's supply and cart it home. Several coal drifts have been run in right below the town, and as these drifts extend to just above the level of the river no plant whatever is necessary for hauling the coal to the surface. Consequently the supply is very cheap, the usual price being 10s per ton. The subsoil of the whole district is permeated with

Gold Dust.

A good show is obtained wherever the soil is excavated to any depth, and at low water a great number of people find employment in washing for gold along the bed of the river. When I was there the volume of water was just beginning to fall, and this industry was just commencing. I stood several hours beside a party of prospectors who were just commencing operations. They were getting a good show, but not in sufficient quantities to encourage them to prosecute their labours, but as the river fell so as to enable them to get deeper into its bottom they knew they would be more fortunate. The banks buy the gold dust from them, and each prospector can usually calculate upon making the value of $3 daily. Petroleum had been struck shortly before I was there, about thirty miles north from the town, and I met Mr Gordon Cumming with a party of prospectors on their way to inquire into this discovery, with the intention of commencing operations for working the oil if the information proved correct. Mr Cumming is the principal partner in Quorn Ranche in the M'Leod district, which I have already described, and he has another ranche in the Edmonton district stocked with

Aberdeen-Angus Cattle,

which he told me suited the country very well. He said he had a steady demand for the bulls bred upon this ranche, and that these when graded with the native cattle gave the best possible results. I could quite corroborate this, for upon several ranches which I inspected in Edmonton district where Aberdeen-Angus bulls were being used the offspring were very superior. It must be understood, however, that in this district the cattle are housed during winter, and hand-fed with prairie hay and gristed grain, and to this fact, I believe, may be attributed the great success of the Angus doddies. There can be no denying the fact that where ordinary care is given to shelter and feed, no finer or better breed of cattle can be found than the North of Scotland black skins. Still I think that other breeds might prove better rustlers, and where the stock are left exposed to the inclemencies of the weather and extremes of temperature, and have to find their food and gather it for themselves from off the prairie, the Galloway or West Highland breed might suit the country better. For one thing they have a thicker, heavier coat of hair, and are better fitted to resist the cold. And, moreover, a hide heavily coated with thick, wavy hair is likely to be an article of considerable mercantile value in the future, to take the place of the buffalo robes so much sought after, but now quite unobtainable.

The Breeding of Galloways

with coats suitable for this purpose is sure to be one of the great aims with ranchers in the future. But still, although the Galloway might be better fitted than the Angus for supplying an imitation buffalo robe, I cannot help thinking that the West Highlander would supply a skin better than either of them, that as a rustler he would be far superior, and as a beef producer would prove equal to the best. The great bulk of cattle in this district are shorthorn grades, and although pains are being taken to improve the breed a great deal has yet to be done before they come up to our home breeds. Some knowing ones out there insist that the finer they are graded up the worse they are fitted for the country; that the native scrubs are acclimatised, and stand the winter better than any other breed; that they are cuoning enough always to seek a lea corner during a storm; and that a scrub cow will do what no other breed will—stand between her calf and the force of a gale, and protect it from the storm. It may be thought that Edmonton being so far north—nearly 300 miles from the international boundary line—must necessarily be much colder and inclement in winter than farther south. Such, however is not the case. The run of the

rivers being northwards, the land trends lower as we go north. The contour of the mountains permits of

The Warm Chinook Winds

from off the Pacific having more effect, and Edmonton being much nearer the Pacific than the provinces of Assiniboine and Manitoba the snow does not lie so deep, nor are the winters so severe as they are in these provinces, or even to the south of the International boundary. It is a well known fact that when buffaloes existed in numbers on the plains they instinctively went north to their winter quarters, and a strange incident occurred some years ago which quite confirmed the wisdom of this wonderful trait. In stocking the Cochrane Ranche, the cattle were purchased in the eastern provinces and brought West. A very severe winter set in very early, and the cattle, being quite unacquainted with the district, broke up into small bands and wandered hither and thither. A large number went east and a large number went south. Both these bands could be traced for great distances along the plains by their dead bodies being discovered all along their trail, and very few of them were got back alive. A large number remained all winter unaccounted for and no trace could be got of their whereabouts, but in the spring a rumour came south that a number of strange cattle were grazing near Edmonton. Cowboys were sent north to examine this band, and were recognised by the brand that they belonged to the Cochrane Ranche. What surprised everybody was that all the cattle that went north not only survived, but were actually rolling fat.

TOURING ROUND EDMONTON.

INDIANS AND THEIR HORSES.

A STRANGE SIGHT AT THE MARKET.

FRUITS AND FLOWERS IN LUXURIANCE.

A PICNIC ON THE PRAIRIE.

AN INDIAN HYMN BOOK.

(From the Dundee Courier of January 23.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—We stayed four days at Edmonton, and every day we had a drive out of perhaps thirty miles to the country, taking a long detour and returning by a different trail, and every day journeying in a new direction. The first morning, after finishing breakfast, we were joined by our quondam friend, Mr Donald M'Leod, and a Crown land agent, when a council of war was held, and our programme arranged for the day. Orders were given to "hitch up a rig," and after being furnished with maps and charts of the district we started north in the direction of Sturgeon River. A short distance from the town we met many Indians and half-breeds. The Indians in this district are Chrees, Stonies, and Iroquois, and the white blood of the half-breeds is mostly French. The French half-breeds are not at all liked by the whites. They are a cunning, treacherous race, and are credited with putting the Indians up to a lot of mischief and discontent, and it was mainly through their instigation that the Indian rebellion of 1870 was incited.

The Indians and Half-Breeds

that we met were mostly all driving a pair of ponies or cayeuse in four-wheeled waggons, and had quantities of fruits picked on the prairie and vegetables, which they would barter in the town for provisions. The half-breeds mostly all farm small patches of land farther back the country, and are said to raise good crops. The most of them are, however, rather negligent of their farms, and leave them for long intervals to go hunting for furs in the Far North. All kinds of road vehicles, whether belonging to whites or reds, are four-wheeled and drawn by two horses, the most of the roads, which at the best are mere Indian trails, not being practicable for one

A CHREES INDIAN'S FAMILY.

horse moving on them. These trails seldom get any making, and are only formed by the wheels of the vehicles and hoofs of the horses, Consequently there is a ridge between the tracks, on the top of which, if only one horse was used, he would have to walk, though the footing would be very awkward. But when two horses are used, each horse runs in the broad rut made by the wheels, which by much traffic is beaten hard and smooth, and makes a fairly good road. The rules of the road are different from those which obtain in this country, and, in meeting, drivers draw to the right-hand side. When driving mares have foals, the foals are allowed to accompany the machines, and it was no uncommon thing to see a couple of

Foals Scampering Alongside

a machine in which the owners were driving to church or market, and taking a suck from their dam when a stop was made. And, whether the parties were going to church or market, the machines were seldom unyoked, a metal weight of perhaps 8 or 10 lbs. being laid at the horse's fore foot and the rein tied to it. The horses are trained to stand in this position without making any disturbance for any length of time. But to us it was rather a strange sight to see scores of machines standing along the sides of the streets or around the walls of the churches with the horses fastened in this manner, with dozens of foals playing around and scampering through between the machines. On this journey we also met many waggons drawn with oxen, hauling firewood or hay to the town. These oxen were harnessed with collars much the same as horses, but few of them had bridles or even halters of any kind, a small string merely being tied to the horn of the near ox. These oxen seemed to step along quite as nimbly as horses, and were hauling loads which I fear the horses of the country could not have moved. The horses are all of the light-legged broncho description, and, although they are of various sizes, I saw none that could be called even medium heavy-weights; nor do I think the heavy-weight draught horses of the old country would find much favour in the district. The work horses are required to move along at a much faster pace than at home, and because of that speed is considered a greater desideratum than power.

Cheap Horses.

As showing how inexpensive horses are to raise, and how easily a man may increase his stock, and

how safe a man's property is though not looked after, I may recite an instance. Mr Anderson, Crown timber agent at Edmonton, had a favourite driving mare which went lame, and was quite useless for work. Unwilling to destroy her, he let her out to the prairie, and heard no word of her for four years, fully believing she was dead. Shortly before I was there a distant rancher told Mr Anderson that the mare was with him, and that she had three colts with her. Mr Anderson would give no credit to the tale, and would not even put himself to the trouble of going to see, but his daughter having more faith in the story, asked her father if he would make her a present of the old mare and her progeny, and undertook to inquire into the matter. To this proposal Mr Anderson at once consented, and the young lady got her brother to go to ascertain. Sure enough it was the old mare, and the three colts were her own foals, which she had borne since last seen by the owner. The young man brought the quartette home with him and presented them to the young lady, and I had this story from the mouth of old Mr Anderson himself. For a good distance around Edmonton the land is thickly overgrown with low scrubby timber, mostly Balm of Gilead poplars, scarcely suitable for building purposes, but excellently adapted for fencing, and not at all difficult to clear off the ground. Great

Expanses of Low Willows

occur every here and there, and even where these are pretty thick, and as high as almost to cover the horses, the breaking plough can be put in and works pretty well. The lands where these willows grow are generally considered the most valuable. In erecting fences no tools are needed but a good axe and an iron beaker for boring the holes in the ground for the uprights, no nails or hammer being necessary. The poplars are cut to about the length of four yards, and these form the bars for the fence. The two uprights at the ends of these bars are merely shoved into the holes made by the beaker, and the bars are welted in between these with bands of willow. When five bars are used, which is often the case, this makes a capital fence, quite sufficient to keep back even the larger animals. Large open spaces occur every here and there between the wooded groves, where grass grows very rich and abundant, and which, unlike the grass on the plains farther south, is green and succulent. In these open spaces wild roses grow in great profusion, and the ground is literally carpeted with wild flowers of every hue.

No Prettier Scene

can be imagined than these prairies covered with a glow of richest blossom cultivated by the hand of Nature. The most common flowers are golden rod, ox-eye daisy, sunflower, wild vetch, wild anemone, fireweed, wild sage, &c., and what delighted our Scottish eyes most of all, was the pretty Scottish bluebells which grew there in great profusion. Intermixed with buffalo, peavine, and other prairie grasses, these form a sward which cannot be surpassed for thickness, and so tall and luxuriant that a person has not a little difficulty in walking through it. This great luxuriance of vegetation growing year after year from the beginning of time, and fading and decaying where it grows, has formed a surface soil of vegetable mould of great thickness and richness, which nothing "on the top of arth" as the Yankees say, can surpass for crop growing purposes. Wild fruits are very abundant, strawberries being extra plentiful, in some places to such an extent that in walking along a person's boots are painted crimson, and his footsteps have the appearance of a trail of blood. Wild gooseberries are also plentiful, but very small, not above the size of our black currants. A most delicious berry called Saskatoon grows very abundantly on a bush about the size of our red-currant bush, and there are other kinds of small fruit too numerous to mention. We had brought lunch with us and held

A Picnic on the Prairie,

having a most sumptuous and delicious dessert of wild fruits, picked where we squatted. Close beside us was a camp of Indians, and, although we were so close as to hear them talk in their own language, none of them came near us. After lunch, old Donald amused us by holding a conversation with them in the Chree dialect. They have a soft, melodious tone of voice and accent, very sweet and pleasing to the ear. Books have been got up and printed in their language, and, as I was presented with one of their hymn books, my readers may be gratified by my quoting the first verse and refrain of the well-known hymn, "Hold the Fort"—

Ma, ne we-chā-wa-kun-e-tik!
Cheest, kisk-e-wā-hoon;
Ke to-tām-e-now-uk āk-wa,
Pāit-eo-tā-wuk.
"Mit-chim-eek, ne pā it-oo-tan,"
Jesus Christ it wāo;
Nus-pim-ook; "Ke-ya Mun-e-to
We-ye-che-he-yak."

A TYPICAL FARM IN THE NORTH-WEST.

THE SYSTEM OF MANAGEMENT.

EXTRAORDINARY YIELDS OF GRAIN.

SEVEN FEET TALL WHEAT.

NOVEL MODE OF POTATO CULTURE.

WHAT LAND AND LABOUR COSTS.

A SHORT-SIGHTED AMERICAN POLICY.

(From the Dundee Courier of January 30, 1894.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—Continuing our drive northwards, we came to the village of St Albert, about nine miles from Edmonton. The village is built close beside the Sturgeon River, and has two general stores, blacksmith's and carpenter's shops, two hotels, a steam flour mill, a Post Office, quite a number of dwelling-houses, and telephone communication with Edmonton. On the north side of the Sturgeon River, the deep, sluggish stream which is crossed by a long wooden bridge, and up a short steep brae, is situated the handsome and imposing Cathedral Church of St Albert Catholic Diocese with the residence of the Bishop, and close beside it is a convent of Sisters of Charity, who conduct an orphanage and an hospital. At the blacksmith's shop we met Mr Maloney, a successful farmer of that district, who was superintending the repairing of his sheaf-binding reaping machines preparatory to harvesting. Our companion, Mr Donald M'Leod, introduced us to him, telling him we were Scottish delegates come to view the land, and that he had brought us to see his

Seven Feet Tall Wheat,

which had so astonished the United States delegates who had called there the week before. Mr Maloney is an Irishman, and expressed his pleasure to have farmers from the old country calling upon him. He was sorry he had no wheat 7 feet tall to show us, but if 6½ feet would do he could show us plenty of that length. "Oh," said Donald, "that is quite long enough for us. Jump into the buck-board and we will go and see it." On the way to Mr Maloney's farm we drove through a beautiful piece of country, situated on a lovely slope hanging down to the Sturgeon River. It is nicely wooded, with nice intervals of open glades that make splendid farms, not in the least difficult to break, and having such a home-like, old country appearance that I quite made up my mind that if ever it should be my lot to take up my home in a foreign land it was here that I would endeavour to pitch my camp. We passed close in front of the Convent, and stopped to have a look of the garden belonging to the Sisters of Charity. It was in splendid order, and the crops of vegetables were really grand. Fruits of all kinds were hanging on the bushes in clusters, but there were

No Fruit Trees.

At least there were none in bearing order, though some had been planted on trial, if they would stand the severity of the winter. Another great want to my eyes in the gardens of these North-West territories is the almost entire absence of flowers, and I conclude that flowers of all kinds grow so luxuriantly and naturally on the prairie that the people do not think it worth while to take up space in their gardens with them. Arriving at Mr Maloney's farm, we were kindly entertained by him in his domicile. And here, I may remark upon the great kindness and attention shown towards us by every person we visited, the reception we got from everybody making it more like as if we had been on a tour amongst old and well-known friends rather than amongst strangers. After dinner we had a walk with Mr Maloney over his farm, and found the reports we had heard about the excellency of the crops were not overstated. In fact, I never, even in this country, where we pride ourselves so highly on our advanced system of farming, saw such

Luxuriant and Rich Crops

of wheat, barley, and oats as I saw there. It was the same all over the farm—not a single patch that could be called inferior, and so clean, too, there not being a single weed to be seen on the whole farm. It was not so much the length of straw that

AN AMERICAN FARMHOUSE.

I admired—although it was so tall that when we sent Mr Taylor into several of the fields he was entirely lost to view—but it was in the great thickness of the straw and the richness of the ears that it excelled. I inquired into Mr Maloney's system of management, and the use he made of his straw and dung. He told me that his system for the most part was one of continuous grain crops—wheat, barley, and oats alternating—and that if a field appeared to be getting dirty he made it bare fallow and cleaned it during summer. His teams were working a field of fallow when we were there, and on this field he was spreading his farmyard manure. It was receiving the last furrow, after which it would be ready for seeding with wheat in spring. Mr Maloney says he converts as much of his straw as possible into manure, and applies it where he thinks it will be safe, but he has to be very careful in his manurial applications. The soil is so naturally fertile that there is a danger of making it too rich and rendering the crops useless.

One Field of Wheat

which we inspected, and which was all that could be wished, had been in wheat successively for five years, but last year he planted two acres along the bottom with potatoes, to which he gave a fair application of farmyard manure. The potatoes gave a good yield, and this year it was sown with wheat the same as the other portion of the field, the result of last year's manuring being that the wheat rushed up with too great luxuriance, and was so lodged with the July rains that it absolutely rotted. Mr Maloney's estimate of his yield of grain this year, and which I can well believe, is that his wheat will thresh 50 bushels per acre, barley 60 bushels, and oats 100 bushels. The prices obtained last year were—For wheat, 65 cents per bushel; oats, 25 cents; and barley, 30 cents. The nature of the soil is the same as I have already described as obtaining around Edmonton—a deep black vegetable mould of extraordinary richness and fertility lying upon a subsoil of marley clay, equally fertile—so that his land is practically inexhaustible. The farm lies pretty high, with a natural slope facing the south, well sheltered with clumps of wood, and watered with small streamlets meandering through it. Mr Maloney entered it in 1882, and paid $2 per acre for the proprietorship of the land.

The Wages Paid

to his regular farm hands are $20 a month, with board, and extra hands in harvest are paid $2 a day. The land around here is mostly all bought up by settlers or speculators, so that homesteaders cannot locate near the town, but there is any amount of free land of the same quality to be got only a few miles distant. One-twentieth part of the land in the vicinity of the town is not under cultivation, and any quantity can be bought from speculators at from 12s to 20s an acre. Government lands are charged $3 (equal to 12s 6d) per acre. Grazing lands to almost any extent can be rented from the Government at one penny per acre, and permits are given to settlers by Government to cut hay at 5 cents per ton. If a permit is obtained for five tons, a man can cut ten and never be challenged. Mr Maloney had a great crop of potatoes, but his mode of cultivation is somewhat strange. The potatoes are planted about three and a half feet distant from each other both ways, and as they grow they are earthed up with a spade into separate hills. This is also the way that Indian corn or maize is cultivated. In Mr Maloney's case this system was in a manner forced upon him, seeing the field was all planted with young currant bushes, and he could

not well have wrought the potatoes with the plough without running the risk of injuring the bushes. But bushes or no bushes, the

System of Potato Culture

is the same all over the country, and by it I have no doubt that they will raise a large number of big sized tubers in each hill, and it may be a great yield per acre. Nevertheless, I am apprehensive that the system may tell against the quality; at least, I know that over-grown potatoes in this country are not appreciated, and there could be no more certain mode of making them put forth an abnormal growth than giving them so much space between the plants to grow in. To my taste the American potatoes were too sweet and watery, and too stringy and waxy in texture, and altogether lacking that delicious, dry, mealy flavour which makes our home-grown esculents so highly relished. Whether this is due to the climate, the soil, the mode of cultivation, or the kind of potato I am not prepared definitely to say, but I am very much inclined to believe it is due to the climate being too forcing, and that they are grown too fast. But be this as it may, the Americans are certainly

Standing in Their Own Light,

and debarring themselves from participating in a great treat, when they prevent the importation to their country of our superior and delicious Scottish grown potatoes by their prohibition tariffs. Just now Scottish farmers are selling their potatoes at home at the rate of 6 lbs. for a penny, and if it were not for the tariff they could be delivered in American markets at the rate of 4 lbs. for a penny. Surely if American consumers knew how they are punishing themselves by preventing us from giving such a delicious, wholesome, and cheap food stuff, they would never tolerate the embargo for a moment.

MORE ABOUT THE NORTH-WEST TERRITORIES.

A VISIT TO THE MOUNTED POLICE.

HINTS TO INTENDING SETTLERS.

HOW LAND IS ACQUIRED AND WORKED.

THE CARRIAGE OF PRODUCE.

(From the Dundee Courier of February 6, 1894.)

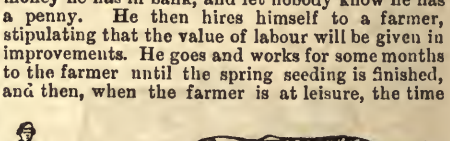
Mr Osler, the *Courier's* Agricultural Commissioner, writes:—The next day after visiting St Albert district we drove down the district lying to the north of the Saskatchewan River, a distance of fifteen miles. Crossing the river at Fort Saskatchewan, we visited the quarters of the mounted police, where we were kindly received and entertained by the Commandant of the Fort, Major Griesbach, and his second in command, Major Sneider. Here a large contingent of mounted policemen are stationed in barracks—a most orderly and well-trained body of men—their uniform and general appearance very much resembling the appearance of our cavalry soldiers at home. Major Griesbach showed me through the whole fort, which is splendidly garrisoned and equipped. They have large stores filled to overflowing with provisions and clothing of every description; their armoury is most efficiently fitted and supplied with all the necessary weapons of warfare; the stables are filled with well-trained and well-seasoned horses. I minutely inspected a number of young horses, then under training, and observed that they bore the Quorn Ranche brand—the ranche which I have already minutely described. They were good-sized, well-bred animals, as all the horses bred on Quorn Ranche really are; and I learned that they had been recently purchased at 125 dollars each. The single men live in large, well-appointed quarters. All the houses are of wood, and very comfortable and commodious buildings they are. The

Influence of the Mounted Police

force in maintaining law and order throughout all the North-West of Canada both among white men and red men is most wholesome and efficient, and life and property is just as safe there as it is in our own favoured island of Great Britain. Major Griesbach is very proud of his garden, and asked me to go and take a look at it. All kinds of vegetables and fruits that we grow, except fruit trees, were in cultivation, and yielded a large amount of produce. Peas were an extra good crop, and all through the North-West territory peas, both in garden and field, appeared to yield remarkably heavy crops. The Major is a great florist, and his garden was well stocked with many varieties of flowers, and in this respect differed altogether from the other American gardens I saw. Starting from the Fort, the Major, although suffering from indisposition—having risen out of bed to welcome us—resolved, for the sake of spending the evening with us, to accompany us to Edmonton. So we drove up the south side of the river until opposite Edmonton, where we ferried across. All the way, both going out and coming home, we passed through a splendid district of country. One-twentieth part of the land is not yet under cultivation, but every here and there we come upon large block squares where the sod has just been turned by the plough, and where new farms are in process of being formed. Here again I must say this is a grand district for new settlers. I do not think it quite so good as the St Albert district that I described in my last letter, but still it is not far behind. Suppose a young man, without encumbrances, and with a little money, say £50, comes to the country, the

First Thing to be Done

is to select his homestead of 160 acres, which he gets free from the Government on payment of £2 of office dues, on receipt of which he will obtain his homestead papers. He should then put whatever money he has in bank, and let nobody know he has a penny. He then hires himself to a farmer, stipulating that the value of labour will be given in improvements. He goes and works for some months to the farmer until the spring seeding is finished, and then, when the farmer is at leisure, the time



BACK-SETTING THE PRAIRIE SOIL WITH OXEN.

for payment has arrived. The young man gets the farmer's team of horses or oxen and brush plough and goes and breaks up his own land, ploughing it 12 inches broad and 4 or 5 inches deep. The farmer finds it more easy to pay in work than in money,

and far more value will be got in this way by the young settler than if he had been paid in dollars. The reason is plain. If the farmer is not long begun (and most of the farmers in that district are only newly begun) money with him will be scarce, and he would scruple to engage to pay what he knew he did not have to give, but when it can be paid by the use of his own teams at a time when there is little else to do, it is easy to accomplish, and an engagement of that kind will not be difficult to get. As soon as a sufficient breadth of his land is broken, haying, followed by harvest, takes place, all which time he works to the farmer. Then follows threshing, after which he must go to his own farm. The farmer is now due him wages for haying, harvesting, and threshing, and the open weather in the fall allows time for its performance.

The Farmer Helps Him

to cut down and haul wood for building purposes, a sufficient quantity of which he gets free from Government. He also helps him to build his house, stable, and barn work, which can be done at very little outlay, certainly not exceeding the value of his labour. He now resides on the farm all winter, living on the money he brought with him, and occupying himself in splitting rails for fencing, &c. In spring he again engages himself to the farmer, on the same terms as formerly, the ten or fifteen acres which he got broken the previous summer are ready for seeding without more work, and as soon as the right time comes he gets the farmer's teams and implements, and goes and sows and harrows it in. He continues to work with the farmer all spring, and in summer he has more breaking done by the farmer's horses in repayment of work. Haying now comes, and he and the farmer working together puts up a little for winter use. His ten or fifteen acres of grain crop must also be harvested and threshed by the farmer and himself working mutually together. The work which he has given to the farmer will exceed the value received in work at haying, harvesting, and threshing to himself, and will afford him a nice tidy sum wherewith to purchase pork, flour, &c. Winter again comes, and he now resides in his own house, fixing up and preparing for spring work. In spring he again engages the farmer, and goes through the same routine, and this year he will have thirty acres in crop, and will break more if desired, always getting from the farmer the value of his work in improvements. The produce of this crop should and

Will Make Him Independent

of the farmer by affording him money wherewith to purchase a team of horses, two or more cows, implements, &c. It is preferable that new settlers go in for work oxen instead of horses. The reason is that for the first two or three years the work of the farm is principally hauling in chains, and for this oxen are equally as good as horses, and at breaking the sod, as turning up the virgin soil of the prairie is called, they are considered much better. In new soils it is a wonder if some obstacles are not occasionally struck by the ploughshare, and with a team of horses in the plough this would probably cause a smash up, and perhaps a runaway, whereas oxen come to a dead halt on feeling the least obstruction to the even running of the plough. And although slow of movement, still for rough and heavy work generally, they are steadier and far stronger, and therefore more serviceable than horses. Besides oxen are much cheaper to buy, and practically cost nothing for food beyond the labour of providing them with hay for winter and spring. In summer one end of a long rope is attached to a stake or picket driven into the ground, and the other end fastened around the animal's horns. In this manner they are secured against straying while having sufficient liberty to graze, and so provide themselves with food. In America

No Two-Wheeled Carts

with shafts are ever used, carriage being accomplished with four-wheeled waggons drawn by two horses or oxen with pole between. Whether these waggons are better than carts or not I am not prepared to say, but it is the fashion of the country and likely to continue so. For one thing, one-horse carts would not be very handy on the trails, as the roads are called. These seldom get any forming, being merely tracked by the traffic over them, and the teams being always in pairs, one animal walks in each track, which, by the action of the wheels and hoofs, forms a hard-beaten and pretty smooth roadway. Between the tracks, however, is generally a grassy ridge, on which a single horse between the shafts could hardly walk, and perhaps this also is the reason why road vehicles of all kinds are four-wheeled and drawn by two horses. While speaking of road traffic I may mention that the rules of the road when meeting are entirely the reverse of ours, drivers holding to the right hand instead of to the left. For the benefit of intending settlers I will conclude this letter by giving the prices of a few of the articles likely to have to be purchased by a newcomer.

Yoke of oxen, ...	$130	=	£27 8
Two cows with calves, ..	70	=	14 12
Waggon, ...	75	=	15 12
Plough, ...	30	=	6 5
Harrow, ...	16	=	3 7
Set of harness for oxen, ..	10	=	2 2
Cooking stove, ...	26	=	5 8
Small tools, ...	25	=	5 5
Gun, ...	12	=	2 10
Two pigs, ...	5	=	1 1

In addition to the foregoing list the settler will require seeds, a certain quantity of furniture, provisions, &c.

NORTH-WEST FARMERS AT CHURCH.

A VISIT TO BLACK MUD RANCHE.

DESCRIPTION OF THE BUILDINGS.

CHARACTER OF THE STOCK.

(From the Dundee Courier of February 13, 1894.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—We are still at Edmonton, and on Sunday Mr Taylor and I worshipped in the Presbyterian Church there, the incumbent of which is a young minister named Mr M'Queen, from Glasgow. The service was exactly the same as in our Presbyterian churches at home. There was a very good harmonium, which was very well played by a lady member of the congregation, and the singing was very correct, earnest, and sweet. I was seated in the middle of the church, and had no book, but when we stood up to sing the first hymn the minister observed our want and descended from the pulpit and handed us books. I thought it was very kind of him, and wondered how many of our own ministers at home would have been so considerate. The church is entirely of wood, but is very artistically and comfortably furnished and finished. The pulpit is a kind of platform, very little raised above the general floor level of the church. There are no galleries. The congregation

seemed very devout and attentive, and I saw no sleepers, which I rather wondered at, the temperature in the shade being above 100. Some of the worshippers had come great distances, and had driven to church in four wheeled bugggies with two horses, which they did not unyoke, but merely tied to posts around the church. A number of foals, whose mothers were in the buggies, accompanied them, and scampered and frolicked around, making their mothers pay tribute by way of a suck whenever they wearied. In the afternoon we again got our driver to hitch up a rig, and had a drive out to the ranche of our friend, Donald M'Leod, which lies beside Black Mud River, about ten miles south from the town. On this drive we encountered

The Worst Roads

we had seen in the country, having to pass through a great many slews and swamps, in which the buggy sank up to the axles. In many places these were laid with corduroy—large trees laid side by side across the road, very open in some places—but the horses seemed to know their business well, and by discreetly avoiding the holes and planting their feet upon the firm logs, they piloted their way nicely. The bridges were also very dilapidated, and our driver had several times to dismount and arrange the planks before venturing upon them. One bridge was completely broken down at the end, and lay with a fearful slope to one side, but our driver, after testing it with his own weight, said he thought it safe, so we ventured and got safely across. On reaching Black Mud Ranche we found Donald in waiting for us, and adjourned to his house to have tea, after which we sauntered out to have a look of his buildings and stock. Donald's buildings are very extensive, and all of wood, whole trees being squared and laid on each other and notched into each other at the corners. A roof tree is laid lengthwise along the middle of the building, only a foot or two above the level of the wall, and from it to the walls roof poles are laid, the whole being covered by a thick coating of prairie hay or straw, and clayed over. There are large carrols around each building, and altogether Mr M'Leod had good winter accommodation for his stock. The

Houses for the Farm Hands

are erected in the same way, clayed between the interstices of the logs, and plastered with clay in the inside. In this way plenty of warmth is secured, but they are small miserable hovels. On many farms the stables and byres are roofed by building a rick of straw or hay over the walls, and as these are seldom thatched and no means are taken to prevent the water from getting in, the stuff is always rotting and diminishing in bulk. Each succeding crop of straw is piled on top, and in time these steadings have the appearance of huge dung piles. I told one man that if his stable had been within two miles of my farm in the old country that I would have given him £20 for it for manure. Mr M'Leod's ranche is stocked with breeding herds of horses, cattle, and sheep. The brood mares are mostly of the native broncho breeds, graded up with sires of a stronger calibre for draught purposes. I could not exactly say what breed his stallions are, but would suppose them to be a grade between Ontario Clydes and Percherons. They have good thick, well-shaped bodies, short legs, and altogether of the class that seems to be most appreciated in the country, but they are far behind our Scotch Clydes, both in size and quality of bone. In fact, all the stallions I saw in the country, with the exception of a few imported Clydes, were too round of bone, with somewhat fleshy legs, and short, upright pasterns, and in my opinion

A Thorough Grading Up

with Clyde blood would be very beneficial. Mr M'Leod's cattle were not a particularly handsome lot so far as our Scottish eyes could judge them, but I learned that Donald's object in breeding is quite the reverse of ours. He is a large carting contractor, and uses a great many work oxen in his waggons and bob-sleighs, and for that purpose he wants them big and strong. Consequently, although his breed of cattle be what we would call rough and scrubby, they suit his purpose better than our finer bred and smaller-boned animals with quicker fattening propensities would. His sheep are called Leicesters, but certainly they have nothing pertaining to the appearance or stamp of our home Leicesters. I know they have no Highland blood in them, but in appearance they rather resemble the offspring of crossbred ewes with Leicester tups. But whatever breed they may be, I believe they suit the exigencies of the climate much better than pure-bred Leicesters would. These, I think, would be too soft and tender for the climate of the North-West, the thermometer sometimes going thirty degrees below zero. Nor do I think that any part of the North-West is so well adapted for the rearing of sheep as it is for horses and cattle. For a great part of the summer the grass is too dry, being cured on the stalk to the consistency of well-made hay, very nutritive indeed for cattle and horses, but not the right thing for sheep. My idea of

Sheep Pasture

is that it should contain as much moisture as is necessary for their maintenance without their having to drink water, and that when they have to drink they never do so well, especially when they have to walk a considerable distance to obtain it. Cattle and horses, especially the latter, are different; they will do very well on dry food provided they have free access to water. The great heat is also against sheep. The summers are very warm for weeks, the thermometer standing at over a hundred degrees in the shade, and the poor creatures may be observed with their tongues lolling out like hunted dogs, so that they cannot possibly feed well. Donald's lambs were considered good for the country, and were being drafted away as fat; they would, however, only be looked upon as medium stores at home. Flockmasters are much bothered with a weed called spear grass which grows thickly on the prairie. It has a small stalk about eighteen inches high, on the top of which is a single seed like wild oats. This seed is very hard and very sharp at the point, and an inch or so of the flower stalk is as hard as a piece of brass wire, and twisted like a screw. When this seed and small piece of stalk gets amongst the wool the motion of the animal causes it to work its way into the flesh, and as it often pierces some vital part, many animals are lost before the evil is discovered. Sheep are not, however, so liable to be struck by maggots as they are here—the dry nature of the climate renders every part of the fleece too dry to allow the eggs of the fly to be hatched—nor are they subject to footrot. Taking Mr Donald M'Leod's ranche as a whole, we were very favourably impressed with his mode of managing his stock. There were several systems on which we would have been inclined to have suggested some alteration, but these pioneer farmers know by experience their business better than we can tell them. Besides, it was not our business to endeavour to teach our Canadian cousins, our mission being to get rather than to give information.

DRIVE OVER THE PRAIRIE.

GOLD PROSPECTORS INTERVIEWED.

A DESERTED INDIAN RESERVATION.

ANIMAL AND INSECT LIFE ON THE PRAIRIE.

A FASCINATING FIELD FOR SPORTSMEN.

(From the Dundee Courier of February 20.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—Still another day spent in the neighbourhood of Edmonton, for, as I said before, there are only two train services to and from it weekly. As we came to it on a Thursday, and were not ready to start with the return train on Friday, we had to stay until Tuesday, and had thus the best possible opportunity of inspecting the district. On Monday morning, while seated at breakfast in the hotel, we were called upon by Mr Thomas Anderson, Crown agent for the Edmonton district, and Mr Walter, an extensive joiner, wheelwright, farmer, and rancher, and these gentlemen offered to accompany us on a drive to the Beaver Hill, Sandy Lake, and Clover Bar district. Having obtained a buggy and a pair of horses, Mr Walter took on himself the position of driver, seeing he was most intimately connected with the lie of the country. Mr Anderson is an Englishman, a scion of the aristocratic classes, who emigrated early to Canada and made his mark, finding a busy life as a Government representative much more congenial to his taste than an idle life at home. He may be said to be the ruling spirit of the place, and is much liked and highly respected. Mr Walter is a Scotsman who went out there many years ago with nothing in his pocket, and by working steadily at his trade as a joiner has made an independence, and has latterly added farming and ranching to his business. He also is much liked and highly respected, and I would strongly advise people going out to Edmonton with the intention of settling to go to Mr Walter and be advised by him. Our journey was again to the south side of the of the Saskatchewan River, which we crossed at the ferry below the town. When crossing we observed several prospectors

Washing for Gold

on the south shore of the river, and Mr Anderson proposed that we should go and observe them at their work. On reaching them it was found that they were infringing the rules of the place by digging in below and undermining the perpendicular banks. They explained to Mr Anderson that the river was yet too full to allow of working in its bed, and that if they were not to be allowed to work into the banks they would have to stop until the river diminished in volume. But Mr Anderson would not allow of the banks being broken, so after a sharp discussion and a smart rebuke they had to desist. Their *modus operandi* is to have a long box or trough lined with crimson woollen cloth charged with mercury, into which they shovel the sand and gravel from the bed of the river, and, washing this with water the gold dust is fixed by the cloth and mercury and freed from the soil. They were getting a good show of gold when we were there, but not so much as to prove remunerative, and they would likely delay operations until the river fell, when they would get farther down into the sand bars, where they would be more successful. The gold dust obtained from the bed of the river is purchased by the bankers of Edmonton at £3 per ounce. When the river is low and operations are in full swing, the gold-washers earn about $7 a day, and many farmers and farm servants make a good pile at this sort of work in their spare time. Continuing our drive southwards in the direction of Sandy Lake, we struck out from the trail, and crossed miles after

Miles of Uncultivated Prairie,

where there was no semblance of a road. To describe the rich luxuriance of this prairie scene would be simply impossible. The surface is by no means a complete level, but is gently undulating, with numerous ponds and small rivulets, and clumps and belts of trees here and there. Between these clumps and belts are broad expanses of open prairie literally knee deep with grass and flowers of every shade of colour. These open spaces would make splendid farms, very easy to break and improve, there being no stones to unearth, no roots to dig out, where, in fact, there is nothing more to do than put in the plough and drive away. A great part of the district through which we drove is an Indian reservation, which was set aside by the Government for the sole use of the Indians when the country was surveyed some years ago, but which has now been deserted by the red men. The Dominion Government is now selling the land to white settlers at from 12s to 17s per acre, the proceeds to be devoted to the maintenance of the Indians. Owing to the great luxuriance of vegetation, after it becomes dry and withered, prairie fires are a much more serious and dangerous affair here than farther south, where the sward is much shorter and less abundant. The numerous clumps of wood through which these fires had passed, with their dead trunks and naked branches, stood weird and ghost-like as we passed along, showing us how frequent and destructive these prairie fires are. Every here and there along the courses of the small streams are

Great Beaver Dams.

The dykes extend a long distance to each side of the stream, and are convex towards the current, so as to give more strength in resisting the force of the water above. They are broad at the bottom and narrow towards the top, and we could not fail to admire the extraordinary instinct and industrious habits by which these creatures are enabled by such an expenditure of labour and skill to erect such extensive and substantial habitations. None of these structures were, however, of recent date. We saw none of the animals themselves, and I apprehend that their almost human instinct teaches them to retreat before the advance of man. Musk rats are abundant. This animal bears a strong resemblance to our brown rat, but is somewhat bigger, its body being about 15 inches in length. Its fur is in demand and forms an article of commerce. Its flesh, at those seasons when it is fat, is much relished by the Indians, and is said not to be unpalatable. It is aquatic in its habits; its burrows are always under water, so that it must dive to reach them. On passing the margin of some shallow ponds or swamps I saw what I took to be small coles of hay, from three to four feet high, built amongst the water, and could not understand why they should be placed there. It turned out that these were the huts of the musk rat, constructed of coarse grass and mud, which the animal collects and works together. It is called by the Indians "Sondeli."

Ant Hills were Numerous

all along the way we passed, and the wheels of our buck-board would frequently bump upon a small one concealed among the tall grass. Very

generally they are from two to three feet high, of a circular, conical shape, rounded on the top, and resembling a mound of dried clay. On a stick being pushed into some of them, the insects swarmed out in myriads, but they did not seek to attack us, although I have no doubt they would give an ugly bite if they got the chance. On breaking up the mounds, the whole inside was seen to be intersected with open galleries or roadways, and the first care of the ants seemed to be to seize the larvæ which we had exposed, and carry it down the nest to a place of safety. I was often told that rattlesnakes and other dangerous reptiles existed in places we were going to, but always when we reached that place and inquired, none of the inhabitants had ever seen or heard of any, so that I am doubtful if any poisonous snakes exist in the North-West territories of Canada. Garter snakes are plentiful, but these are perfectly innocuous. On the journey I am describing I saw one of these garter snakes. It was about 26 inches long, and about the thickness of a heavy whip, of a most beautiful speckled colour. Insect life on the prairie is numerous beyond all description. On walking over the plains every footstep raises them in myriads. Butterflies of large size and of every colour under the sun flit about in every direction. Grasshoppers are found in swarms. One species, possessed of wings of a dark crimson colour, has a great resemblance when on the wing to our dark red butterflies, but is much larger. It does not appear to be capable of any lengthy sustained flight, but leaps up from amongst a person's feet when walking through the grass, and flies to a distance ot twenty or thirty yards. The

Prairie Chicken,

a fowl about the size of our hen pheasant, and somewhat resembling her in colour, is very numerous on these plains, and affords excellent sport during the open season. No license is required to shoot them, but no person is allowed to sell them or send them out of the country. Every few yards a covey of ten or twelve would start up before us within nice shooting distance, and I regretted very much that it was then close time so that I could not get a shot at them. Sportsmen go out to the prairie in their buggies accompanied by pointer dogs, and when the dog makes a point, they drive up to him and oftentimes shoot without dismounting. Every lake and pond we passed was literally dotted with ducks of many kinds, geese, and swans. These also give grand sport in the open season, and settlers need never be at a loss to have their larders well supplied for winter with the best and most savoury of fowls' flesh.

A MODEL HOMESTEAD.

TWO ENTERPRISING LONDONERS.

HOW THEY BECAME AGRICULTURISTS.

THRESHING OPERATIONS IN CANADA.

(From the Dundee Courier of February 27.)

Mr Osler, the *Courier's* Special Commissioner, writes:—Still bowling south in the direction of Sandy Lake, over endless expanses of prairie, where no semblance of trail or road is to be seen, through which tall grass that reaches up to the axle of the buckboard, bumping upon ant hills concealed amongst the grass, and through deserted beaver dams, we at last reach the farm of Cloverbar, where we unyoke in order to feed the horses and procure shelter for ourselves for an hour or two from the blazing sun which threatened to roast us alive. Cloverbar Farm is owned by two young men called Elliot, who emigrated from London some five or six years ago. Their father was a coachman, and they knew nothing about agriculture, in fact they had never seen a plough at work until they came to Edmonton, and knew nothing whatever about the rearing and management of stock. They had very little money, but they were possessed of health and strength and willing arms, stout hearts, and independent, persevering spirits that enabled them to overcome all difficulties and carve their way to success. When they arrived in the country the eldest brother was just over eighteen years of age, and was, therefore, entitled to a homestead of 160 acres of free land, which he took up and located on, breaking up and bringing his farm under cultivation, and erecting his buildings. The younger brother was only sixteen years of age, and therefore could not get his homestead, but he

Hired Himself to a Farmer

and earned money to support himself and brother while the latter was breaking up his land. Two years later, when the younger brother was eighteen, they saw that the eldest brother's farm would support them both, and the youngest being now entitled to his homestead took up his 160 acres of free land alongside his brother. And now they work the whole 320 acres as one concern, living in the same house, herding all their stock together, and housing them in the same buildings. They are very handy with tools, and have in their leisure time erected a nice four-roomed house of dressed timber, which is very comfortable, and even elegant. Their barns, stables, sheds, and carrols for cattle, accommodation for pigs, and houses for poultry, and even pigeons, are very commodious, and are composed of squared logs, covered with straw and clayed over, and although not so elegant as old country steadings these buildings are equally as comfortable and as well fitted for the welfare of stock as anything we have at home. To show how young men possessed of energy, perseverance, and steadiness may get on out there I will now give a vidimus of

The Possessions

of these two young men. They have 12 acres of wheat, 30 acres oats, 10 acres barley, 2 acres potatoes, 1 acre turnips and mangolds, 14 cows, 14 calves, 14 one-year-old steers and heifers, 14 two-year-old steers and heifers, 10 horses, 12 pigs, a large number of poultry, mostly of the Plymouth Rock breed, and a large number of pigeons, which affords them excellent pies on festive occasions. They have no housekeeper or any womankind about them, but they are themselves nice and handy at housekeeping, and manage the dairy to perfection. We had tea here, prepared by one of the young men, and better done ham and egg, or nicer baked bread, done by themselves, I never partook of. Their yield of grain last year was 35 bushels wheat, 50 bushels oats, and 40 bushels barley per acre. This year their crops are much better, and all over they expect to exceed last year's yield by 5 bushels per acre, the prices they got being 70 cents per bushel for wheat, 25 cents per bushel for oats, and 30 cents per bushel for barley—the prices for the two latter being scarcely up to an average rate, the grain being badly damaged in harvesting. The brothers must have been well advised in selecting

their cows, and have since displayed much skill in grading them, their stock being the nicest lot of grade cattle I saw in the whole country. The cows are good Durham grades, and their bulls are of the pure Aberdeen-Angus breed, purchased from the fine breeding herd of

Angus Doddies

belonging to Mr Gordon Cumming, tracing back to some of the best blood in Forfarshire. The result is that the young stock are nearly all black and polled, inheriting to a great extent the thick, blocky, short-legged, fine-boned, quick-feeding propensities of their sires. The whole herd are grazed during the summer on the prairie on grass that belongs to nobody, so that the grazing does not cost them a penny. They are not herded, but are allowed to roam at will, one of the brothers taking an occasional ride out on horseback to turn them back if they stray too far. In winter they are comfortably housed at nights and are allowed out on the prairie during the day. The young stock get a daily allowance of prairie hay, but no grain. The feeding stock are liberally fed on hay and light grain, and sold off fat at three years of age, the average weight being 640 lbs. of dressed carcase, for which they obtain 7 cents per lb., or from £9 to £10 per head. The hay for winter feed is cut off the prairie with mowing machines, a permit being given by Government to cut any quantity at 5 cents per ton, but it is never weighed, and little supervision is taken of the quantity, and if a man gets a permit to cut ten tons he can cut twenty and never be challenged, the Government agents rather encouraging settlers to secure plenty of winter feed, so as to maintain as many head of cattle as possible, the license being merely imposed to prevent parties from establishing a right to the land without purchasing or homesteading.

Working a Homestead.

Any occupant of a homestead, quarter section, having no timber of his own may upon application obtain a permit to cut such quantity of building timber or fuel as he may require for use on his homestead not exceeding the following:—1800 lineal feet of building logs, 400 roof poles, 2000 poplar fence rails, 30 cords or loads of dry wood for fuel, and any quantity of burnt or fallen timber of a diameter up to 7 inches for fuel or fencing purposes, and if that is not sufficient he may upon payment of a quarter dollar (one shilling) get a permit to out all he needs from off the nearest Government lands. The brothers Elliot had taken full advantage of this privilege, and besides taking as much free timber as erect their stables and other outhouses also had their farm all well fenced, the only outlay on all their improvements being the expenditure of their own labour, cutting down the wood, hauling, and erecting. The building of the house had of course cost more—the sawing and dressing of the timber, the cutting of the shingles, nails, and other necessaries—but the whole cost in addition to their own labour, according to their own calculation, did not exceed $100 (£20). During

Spring and Haying

they hire in one extra hand, and during harvest and threshing they sometimes have two additional hands, but in all ordinary seasons they manage the whole work on the farm themselves. No farmer that I visited in all Canada had fixed in threshing mills of their own, the whole threshing in the country being done with portable threshing machines hauled from place to place with traction engines, the fuel used being straw, fed into the furnace in a steady stream by a machine invented for the purpose. The owners of the threshing machines carry a full staff of men with them to work the machines, who are boarded and lodged in portable bothies also carried along with them. The threshing commences as soon as the wheat is cut, large quantities of it never being stooked, the climate being generally so dry that the grain is ready for threshing and storing the moment it is cut off the stalk. Harvest generally takes place in the month of July when the days are long, and the threshing men being paid by the number of bushels threshed. Operations go on continuously from sun up to sun down at the rate of 1500 bushels a day of wheat and 2000 bushels a day of oats and barley, the rate charged by the mill-owner being 4 cents per bushel of wheat, 3 cents for barley, and 2½ cents for oats. An automatic arrangement on the machine records the number of bushels passed through daily. The grain is run from the threshing-machine into the box of a waggon, and hauled by the farmers to the nearest grain elevator, where the whole waggon-load is dumped at once into a great hopper, where it is weighed, and run by the elevating machinery into the dressing-machines, and then run to the different bins, into which the particular quality of grain may be graded. After the threshing is finished and the machine hauled away, a match is struck and shoved in below the straw pile, and this, I must say, is a most thorough and expeditious mode of redding up a cornyard, and it is also looked upon as a kind of *feu de joie* announcing to the neighbourhood that the work of threshing is accomplished.

FAREWELL TO EDMONTON.

A CHEAP ESTATE ON THE PRAIRIE.

A FIELD FOR INTENDING EMIGRANTS.

THE DAIRYING INDUSTRY.

GOLDEN OPPORTUNITIES FOR SCOTTISH GIRLS.

(From the Dundee Courier of March 6.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—On our return journey from Cloverbar to Edmonton, Mr Walter made a detour on purpose to see a large extent of prairie which he had rented at a few coppers per acre from the Government for haying. The sward was largely composed of peavine, and would yield about three tons per acre. He thought it about ready for cutting, and intended to start quite a number of mowing machines in a day or two, the only obstruction to the working of the machines being the ant-hills, which, I am sure, would prove a serious bother. Near Edmonton we came upon a large parcel of land which Mr Walter had purchased some years ago, a great part of it being broken and under crop. Mr Walter has few buildings to speak of on his farm. His crops were really grand. He computes he has 60 bushels of barley upon first breaking (that is the first crop after the prairie has been broken up), 70 bushels oats upon second

breaking, and 40 bushels wheat per acre, and I am sure that no one who saw his crops grow would estimate them at less. Mr Walter keeps on an average 100 head of cattle. He generally feeds off at three years of age, but sometimes has a few four-year-olds.

Winter Feeding.

Every morning during winter a man distributes a load of prairie hay amongst them, each animal consuming about 1½ ton of hay during the winter season, and the feeding steers get 1 gallon gristed barley a day. The young animals not feeding off get nothing but the hay, but are constantly out on the prairie, where they pick up a good deal of food for their own support. Last year Mr Walter sold 21 three-year-old steers in one lot to a British Columbian dealer. The gross live weight of the 21 animals was 26,068 lbs., and the total price obtained was $938.45, this making the average live weight 1241 lbs., the average price £9 5s per head, and the average rate per cwt. 16s 10d. He also sold two three-year-old cattle to the Hudson Bay Company at £10 each. Another gentleman named M'Kernan, a neighbour of Mr Walter's, sold 28 cattle—all three-year-olds—the gross weight of which was 34,079 lbs., or 1220 lbs. per head. The price obtained was $3.60 per 100 lbs., or £9 13s per head. Neither Mr Walter's nor Mr M'Kernan's cattle were ever in a house. Mr Walter pays his farm labourers $15=£3 a month, with rations; and his carpenters $1½=6s 3d a day, with rations. In the south town of Edmonton —that is on the south side of the river—there is a new flouring mill, erected by and owned by the Edmonton Flour Milling Company, and managed by Mr Robert Ritchie, who kindly showed us through the works. It is fitted up on the patent roller flour milling principle, with a capacity of turning out 100 barrels of flour a day. They are having steady employment all the year over, and during last season have been purchasing wheat from the farmers around at from 60 to 70 cents a bushel, or from £1 to £1 3s 4d per quarter. They sell the best flour at $3=12s 6d per 100 lbs., and baking flour at $2.75=11s 5d per 100 lbs. It will be observed that these prices are very much higher than at Winnipeg or in any other district of the North-West territories, the reason being that the other industries of the district give employment to

A Much Larger Population

than the cultivated areas are yet able to support. Previous to the erection of the mills, the flour had all to be shipped from Winnipeg, a distance of 1000 miles; but, before the construction of the railway, only two years ago, it had to be hauled from Winnipeg with bullock waggons, the journey occupying three months. Although, as I said before, the town of Edmonton is not well supplied with water, the country around is well watered with running streams and creeks, and where wells have to be dug, water is always found within 20 or 30 feet of the surface. Digging and building a well costs $1 per foot, and all throughout America it is customary to place a pump in the well, driven by a windmill overhead. These windmills are a prevailing characteristic of American landscapes, in some districts every farm being provided with one. On our return to Edmonton in the evening we found a regular *fete* provided for us, for, as we were to leave in the morning, quite a number of friends that we had made had collected to spend the evening with us in conversation. Naturally the talk turned upon the embargo imposed upon Canadian store cattle in Britain, and much indignation was expressed as to the attitude of the Home Government in regard to them. None of those present had ever heard of the existence of pleuro-pneumonia in the Dominion, except through the British newspapers, and none of them believed that the disease existed or ever did exist in the country. Before leaving Edmonton I would like to draw the attention of struggling farmers at home and middle-aged ploughmen with large families to the splendid chance which awaits them in this district. They themselves and every son they have over eighteen years of age will get 160 acres of as good land as there is under the sun for practically nothing, the small sum of £2 only being to pay for registration and office fees. If they have five sons that will be an estate of close on a thousand acres they will get amongst them for £10. Nor will the girls be in the way.

Dairying Pays First-Rate

in all the North-West Provinces, there being a steady demand and ready market for butter at from 10d to 16d per lb., and cheese bringing 5½d per lb. The rearing of poultry also pays well. Common hens bring from 2s to 2s 6d per pair, and chickens from 10 to 12 cents per lb. Turkeys bring from 12 to 15 cents per lb., and eggs sell at from 15 to 25 cents per lb. These prices are not much below what we obtain here, and with no rent to pay for the land the industry must be much more lucrative out there than here, and female labour relatively more valuable. Consequently dairymaids are greatly in demand and receive good wages. No farmer out there can get on well without a wife to look after his housekeeping and dairy business, but there are hundreds upon hundreds of prosperous young farmers out there who cannot get wives, for the simple reason that there are very few young women out there to make wives of. On some farms men do the milking, drive the churns, and make up the butter, but men at this job are just like fish out of water, and women are at all times to be preferred. Let any number of our bonnie rosy-cheeked Scottish lassies accustomed to housekeeping and dairying go out there, and prove themselves adepts at these occupations, and I will guarantee that before a twelve months are over they will have the refusing of a score of respectable well-to-do young farmers, any one of whom would make a desirable husband. But to both men and women I would say—"Don't go out there and expect to achieve an independence by leading an idle life." The person who would succeed must be prepared to work, ay, and work hard too. Labour is dear, dearer even than here, and a farmer is obliged to take the leading part in all his own operations. If he has a large family to act as helps, he will be all the better off, for out there

> "Children are blessings, and he who hath most
> Hath aid for his fortune and riches to boast."

And nowhere in the world is Nature more prodigal of her gifts than she is out there to the man who steadily and energetically "earns his bread in the sweat of his brow." But to a man accustomed to farm work here the work he will have to perform will not be one bit harder out there. And to say, as I have often heard it said, that a person going out has to forfeit all the pleasures of life is mere nonsense. There the people are just as social, as friendly, and as neighbourly as they are here. They live as well as we do, if not better, and they have their seasons of leisure, when they join at social meetings, festive gatherings, and sports of every description, and enjoy the pleasures of life just as heartily and well as we do in the old country.

DEPARTURE FROM EDMONTON.

A VISIT TO IMMIGRANT LODGING-HOUSES.

THE JOURNEY TO MONTREAL.

SCENES BY THE WAY.

SHEEP FARMING IN CANADA.

IN THE TRACK OF PRAIRIE FIRES.

(From the Dundee Courier of April 3.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes :—Leaving Edmonton we crossed over the Saskatchewan River and proceeded to the railway station to take train back to Calgary. Near the station are situated the immigrant lodging-houses, erected and maintained by the Government. These lodging-houses are partitioned into nice comfortable bedrooms with clothes presses and other conveniences. There is one common kitchen in each house, provided with a cooking stove and all other necessary culinary and laundry utensils. Immigrants on arrival are admitted to these houses and allowed to stay until they obtain houses of their own. Of course they have to provide their own bedclothes and food, but that is no hardship, seeing there are plenty of provision stores close by. Plenty of fuel is provided free. As these houses are looked after by the Government agents, a man may have no hesitation about leaving his wife and family there while he himself is away

Fixing Up a New Home

at a distance. All the way between Edmonton and Calgary we saw numerous newly-arrived settlers busily engaged in breaking up their homesteads. Many of them were living with their families in canvas tents, which seemed rather an agreeable mode of bivouacking during the summer months. A great many of these new settlers were from the United States, and all declared that the agricultural capabilities of the soil in that district were immensely superior to anything they had been accustomed to, that the taxation was lower, and that the laws relating to the occupation of the land were much more favourable than in the States. Gradually as we proceed southwards the vegetation becomes less luxurious. We leave the nicely-wooded park-like country behind us, and approach the open plains, where the sward is brown and withered. The grass is cured on the stalk into well-made hay, forming good, nutritive food for horses and cattle, but is, in my opinion, somewhat too coarse and dry for sheep. Having stayed over night at Calgary, we next morning took our seats in a splendid Pullman car on the Canadian Pacific Railway, and started on our long journey of 2200 miles to Montreal, having received word by wire that our vessel the Iona was to sail from the latter port in ten days. As we proceed eastwards from Calgary we only see pioneer farms in groups here and there at long intervals. We came in sight of the farms owned and run by

The Canadian Colonisation Company,

and large bands of cattle, sheep, and horses are to be seen grazing. Near Swift Current is one of these farms, on which 19,000 sheep and 8000 lambs are kept. The sheep are divided in lo's of 2000 each. One shepherd is allowed to each lot during summer, and gets a man to assist him in winter. Good shepherds are paid £6 per month with board. Fifty tons of hay for every thousand sheep is all that is put up every season, and it is seldom all used, but it has to be ready in case of a severe winter. The hay is put up by contract, costing 12s per ton, so that in any case the sheep do not cost more than 7d per head for extra keep during winter. The wool is pressed into bales by horse-power, and brings from 6d to 7d per pound. Mutton put on rail at Swift Current is worth 4d per pound. Up till a short time ago there was a law prohibiting the keeping of sheep, but under certain reservations as to herding and fencing they may now be kept in any number. Hitherto the rent of the land rented from Government has been one halfpenny per acre, but in future it will cost a penny per acre. The whole of these open plains are reticulated with buffalo trails and pitted with their wallows. The trails lead in the direction of water, and resemble the sheep walks in the meadows and pastures of our own country. The wallows are deep, round, saucer-like indentations, where the bulls had scooped out the soil with their horns and fore feet. So long as the Indians had only bows and arrows and the tomahawk with which to attack,

The Buffaloes

were comparatively safe, and the number killed did not exceed the natural increase, but when the rifle was put into their hands the fate of these bovines was sealed, the Indians and half-breeds killing them wholesale for the sake of their skins, the carcases being left to rot where they fell. The result is that no buffaloes now exist on the plains, but in many places the prairie is literally white with their bones, and at every railway station piles of thirty or forty tons each are collected, proving how numerous these animals had been not more than a dozen years ago. The country around here becomes more broken and numerous lakes and ponds occur in the depressions, while now and again we cross deep summer-dried gullies and creeks. We see no trees, not even a bush, for a hundred miles or more, and without them the short buffalo grass all withered and brown gives the country a desolate, barren look. In many places the soil is thickly impregnated with alkali, which may sometimes be seen coating the surface like a shower of snow. This alkali is very deleterious to plant life, which accounts for the stunted, barren

Appearance of the Vegetation.

And, as the waters of the lakes and streams are generally highly alkaline, these districts cannot be at all well adapted for the keeping of stock. Besides, the surface is in many places overgrown with a nasty milk-coloured weed called wormwood or sage, which gives these great plains a desolate, barren look. This weed is possessed of medicinal qualities, and has such a bitter acrid taste that no stock will eat the grass where it grows. In my opinion these districts where alkali exists in large quantities, or where sage or wormwood monopolises the surface, ought to be avoided by settlers in locating their homesteads. As we proceed eastwards we every here and there come upon an expanse of some hundreds of acres black with the ashes of a recent prairie fire, and every now and again we are plunged into a dense cloud of smoke enveloping the railway for miles, and we pass through prairie fire after prairie fire as we sweep along. These prairie fires are very tame affairs in comparison with what we have been accustomed reading about, a low front of

smothered flame creeping slowly along, and not half so dangerous like as a heath fire at home. The most of these fires are said to be caused by sparks from passing engines, and fire breaks are made all along on both sides of the railway track. These fire breaks are made by ploughing strips of the prairie a few yards broad on either side of the line, and about thirty yards distant, and as these ploughed ridges extend nearly all the way from Winnipeg to the Rockies I am quite within the mark when I say that I have seen furrows 800 miles long. Such furrows would give our crack Scottish ploughmen a grand chance of trying their skill at drawing a straight feering.

CALGARY TO REGINA.

AN IMPEDIMENT TO DEVELOPMENT.

THE CAPITAL OF THE NORTH-WEST.

AT THE HORSE RACES.

INDIANS ON THE COURSE.

AN UNPLEASANT EXPERIENCE.

(From the Dundee Courier of April 10.)

Mr Oder, the *Courier's* Agricultural Commissioner to America, writes:—From Calgary all the way to Regina the general aspect of the country is rather uninviting to the eye of the agriculturist. We see no trees, not even a shrub, for a hundred miles or more. Isolated farms at intervals of five or six miles are to be seen, and the wooden farmhouses looming up in the broad expanse of prairie fifteen or twenty miles away appear like ships scattered on the ocean. It is said that the railway passes through the worst district of the Canadian North-West, and indeed our experience was that such was the case, for every place we stopped at we had a drive out a distance of perhaps thirty or forty miles from the line, and we invariably found that the soil improved the farther inland we went. In planning the railway the engineers selected the nearest and most direct route to the Kicking Horse Pass through the Rockies, but, in my opinion, that was a mistake, seeing that by taking a slight detour at the cost of adding a few miles to the length of the track a much richer agricultural district would have been passed through, and the resources of the North-West would have been better and much more quickly developed. As it is, travellers passing through without stopping to examine cannot possibly be favourably impressed with the appearance of the country. At Regina we stopped over two nights, and took time to have a walk through the town and a drive out to the country around. Regina is the capital of the North-West Territories, occupying a central position on the banks of the Wascana River, and its progress since the advent of the railway has been very remarkable and striking. Here are situated the headquarters of the mounted police, where more than 300 men are usually kept in commodious and well-appointed barracks, there being a magnificent riding-school for practice in the winter. Here is also situated the Government House, where the Lieutenant-Governor and his staff carry on the legislative business of the Territories. By their side is the Indian Department building, wherein the Indian Commissioner and a large staff conduct the Indian business of the Territories. Numerous churches, large schools, commodious hotels, banks, stores of every description, the never-ending grain elevators and dwelling-houses, mostly all of solid brick, give the town a very substantial and imposing appearance. There are upwards of 2000 inhabitants. Nine hundred electric lights are constantly in use, and sixty telephones are distributed through the town. There is a commodious curling rink, covered in and lighted with electricity, and I learned that

The Roaring Game

is very popular and much resorted to in the winter season. East from the town is a well-made racecourse, with a substantial permanent grand stand, and, as the annual horse races took place when we were there, we spent a day in witnessing them. A great concourse of people were collected, all rigged out in holiday attire, and as they all spoke the English language and conducted themselves exactly similar to what people do here, it was difficult for us to realise we were amongst a crowd of foreigners. They displayed a keen interest in the result of the races, and a good deal of bookmaking was going on. The races were keenly and numerously contested, the best running horses being of English descent. The trotting horses were all run in harness, the buggies to which they were attached only weighing 47 lbs. They only consisted of shafts and wheels built after the style of our bicycles. The driver sat close to the horse's tail, and with his arms stretched forward on each side of the animal urged him on at a great speed. The heads of the horses were all tightly reined up with what is called an overdraw check. A strap is attached to each side of the bit, passed up the horse's face, and brought back between his ears, and tightly fastened to the turret of the saddle. This made the horses run with their noses high up in the air—somewhat ungainly, I thought—and it also seemed to me that the tight manner in which they were reined up impeded their action to a considerable extent. They had also galloping contests and games at polo. I thought the running pretty good, but, as I am not well acquainted with racing records, I will give the speed, and connoisseurs can judge for themselves:—Trotting in harness, 2 minutes 35 seconds to the mile; polo ponies galloping, half-mile in 35½ seconds. Many hundreds of Indians had collected to witness the races. These people had their camps pitched on the prairie close by. The Indians take all their worldly possessions with them when they go on a visit, and the bands of loose horses that surrounded their teepees grazing on the prairie were innumerable. I fancy they were holding

A Horse Market

amongst themselves, but could not be sure of this, as no white men were mixing amongst them. The red people, both male and female, seemed to take a great interest in the races, but none of them came within the ring, all standing upon the railway track, which passed upon an embankment close beside the racecourse. It appears that formerly the Indians went keenly into the horse-racing contests, and created a good deal of amusement by their uncouth manner of riding, but since the introduction of English-blooded horses they, finding their native cayuse have no chance in the contests, have given up competing. In the evening I observed the Indians wandering in great numbers through the town making purchases at the stores, but none of them entered the hotels or public-houses, and I did not see a single Indian the least the worse of drink, although there were many whites whose appearance showed they had been worshipping at

the shrine of Bacchus. Indeed, it is a penal offence for a white man to give an Indian drink under any pretext whatever. Shortly before we visited Regina, a white instructor upon an Indian reservation had inadvertently left a press unlocked in which was a bottle of whisky. An Indian stole the bottle and got himself intoxicated. The white man was tried for the offence, convicted, and sentenced to six months' imprisonment without the option of a fine. Sauntering along the street Mr Taylor and I came upon an Indian lad leading a young bear. He had a smattering of English, and we got into conversation with him, and tried to buy the bear. He asked $4 for it, but as the possession of such stock was scarcely in our line we declined the purchase. The town being so crowded we had a difficulty in procuring a bed, but through the intercession of some parties to whom we had letters of introduction, we were accommodated in an attic room in one of the hotels. A great noise and uproar prevailed nearly the whole night through, and just as Mr Taylor and I were composing ourselves to sleep the bottom of the bed gave way, and we were precipitated to the floor, but we had been accustomed to roughing it by this time, and, without even rising to examine matters, we drew the sheets around us and lay still.

A TOUR AROUND REGINA.

FRATERNISING WITH THE BLACKFEET INDIANS.

VISIT TO A GOVERNMENT EXPERIMENTAL FARM.

AMERICAN SYSTEMS OF CULTIVATION.

(From the Dundee Courier of April 17.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes :—On the forenoon of the day we left Regina we had a drive out to the country around. In the Government pamphlets and other prints this is reported as a good agricultural country, but, to tell the truth, we were only fairly-well impressed with its appearance, though this may have been due to the time of year we visited it, the dry, withered, somewhat-stunted, and thin appearance of the grass not recommending itself to our fancy. The crops of wheat were fair, but nothing in comparison to those we saw around Edmonton. We saw some herds of very good cattle, shorthorns, or Durhams, as they are called, of a very good grade, and the efforts and care which we observed were being exerted on every hand to improve the quality of the cattle were such as to make us believe that in a few years the herds of the Dominion will not be behind those of the old country. A great number of cows belonging to the townspeople were being grazed around the town in one common drove, several mounted cowboys being engaged in herding them. The price paid for each cow for herding is $1, and to winter a cow costs from $12 to $15 for hay. Milk sells at 5 cents per quart in summer and 8 cents in winter. A cord of wood for fuel costs from $3 to $6 according to the time of year. We saw waggons drawn by two oxen abreast bringing in great loads of firewood to the town. They were harnessed in collars, and it was only on rare occasions that we saw the old-fashioned wooden yoke over the necks in use. They had

No Bridles or Halters,

only a small cord tied to the horn of the near ox, which the driver held in his hand. From what I saw I am inclined to think that the oxen of the country are more serviceable in draught than the native horses. On driving around, we were struck with the great piles of buffalo bones which everywhere met our view. These bones are worth about $7 per ton for the sugar refineries, but, judging from the large quantities on hand, there does not seem to be much demand for them. The word Wascana, the name of the river upon which the town is built, is an Indian name meaning the place of bones, and refers to a great precipice near the town where great numbers of Indians would annually collect for hunting expeditions, and, forming a cordon around the herds of buffaloes, drive them in great numbers over the precipice where they were dashed to pieces. This they did in a strange belief that the more they killed annually the more numerous would they become. At the station were collected great bands of Indians, and they were more stately and warlike than the majority of Indians we have yet seen. These Indians belong to the tribe called Blackfeet, and time was when they struck terror to the hearts of the white men. They are tame enough now though, and those travellers for whom Cooper's novels have had an early charm find room in their hearts for regret that these blanketed nondescripts standing with outstretched palms—these frowsy beggars—are the real material from which the novelist built his red-skinned heroes. A number of young squaws, probably the best-looking young ladies from the Tee-pee Camp near by, ran alongside the train reiterating the word money, the meaning of which they seem to have a clear perception of. Just as the train was starting some kind-hearted passenger threw them a number of small coins for which they scrambled and fought, tumbling and rolling over each other in a most unseemly fashion, making us contrast in our own minds the rude outlandish behaviour of these

Damsels of the Plains

with the staid deportment and lady-like bearing of our young women at home. Leaving Regina, we pass Que Appelle, and continue our route to Indian Head, which we reach early in the afternoon. On this journey the prairie is broken and bumpy, and numerous ponds and slews occur in the depressions. Large expanses of the land are covered with a low scrub of a kind called buffalo willow. We pass numerous deep summer-dried coulies and creeks, the banks of which are thickly overgrown with scrub, amongst which the grass appears greener and more luxuriant. A coulie is a deep hollow or ravine opening into the valley ; a creek is a stream or ravine opening into a coulie. On arriving at Indian Head, we were met at the station by Mr Mackay, manager of the Government Experimental Farm at Indian Head, who had been made aware of our coming. Getting seated in a four-wheeled buggy, drawn by a pair of high-stepping bronchos, we were first driven to the hotel in the village, where we bespoke bedrooms, then out to the experimental farm, where we were most hospitably entertained by Mr Mackay in his own house. And here I cannot help remarking about the frequency of fruit in the *menus* of American meals. Every diet is prefaced by a service of delicious grapes, pears, bananas, cherries, peaches, or whatever sort may be in season—a custom which we relished very much.

The Government Farm.

After dinner Mr Mackay drove us over the farm, and we were much struck with the general excellence of the crops. The chief object of the farm is, as its name denotes, one of experiment, and to show forth to the farmers the best methods of cultivating the soil, the propagation of improved kinds of grain and other seeds, and the production of trees suitable for the soil and climate. Monthly bulletins are sent out to all the farmers of the territories describing every new process tried and the result—describing all new grains and plants, the time they take to grow and ripen, and the quality and value of the produce. Forty-nine varieties of wheat were being experimented on, and as many of barley, oats, peas, and maize. The common sunflower that grows as a flower in our gardens at home was being cultivated as a field crop out there, and is expected to be successful. It yields a large quantity of seeds very rich in feeding properties, and is very easily cultivated. It is said that a good crop of sunflower will thresh 50 bushels per acre, and that each bushel will yield a gallon of very valuable oil, the residue being pressed into cakes of a high feeding value. The stalks yield a fine fibre well adapted for textile or paper-making purposes. The sunflower grows and ripens to perfection in our gardens at home, and I see no reason why it should not be tried as a field crop here. A field of these tall plants in full bloom, with their large golden yellow heads following the course of the sun, has a most imposing and beautiful appearance. Besides the cultivation of crops and propagation of new seeds,

Experiments are Carried on

with live stock to discover the kinds best adapted for the country both as beef and milk producers, and at present shorthorns, polled Angus, and Holsteins appear to be the favourites. All new implements are also tried, and their utility demonstrated to the public. One circumstance which seemed strange to me was that the applications of superphosphates does not seem to have any appreciable effect, proving that, if properly cultivated, the virgin soil of these prairies has inherent all the requisite ingredients for the production of crops without any auxiliary assistance. In the evening Mr Mackay's son, who assists his father on the farm and in the laboratory, drove us out for a long distance through the country around, and we passed through what might be said to be a perfect manufactory of wheat, miles after miles of the land being covered with the cereal alone. It is a grand sight to pass through between great fields of golden wheat, waiting for the hand of the reaper to convert it into dollars. In the middle almost of every field was a round portable granary capable of holding a day's threshing. Into this the grain is run from the threshing machine and stored until it becomes convenient to haul it to market. The usual and most approved system of cultivation is to take two wheat crops in succession, and to have one-third part of the land in bare fallow. After the spring seeding is accomplished the fallow is wrought and cleaned, and any farmyard manure that has been made is applied. This gives plenty of work for the farm staff and teams between spring and harveat, by which time the bare fallow brake is ploughed and ready for seeding in spring. The spring work is thereby facilitated very considerably, and in preparing for the second crop of wheat the stubble is merely burned and the seed put in with a press drill without any ploughing at all. Under this system there is really

No Spring Ploughing,

which is a great advantage, as the seeding is got through much more quickly and earlier—a great desideratum in these territories where work is oftentimes so long retarded by the continuance of frost. Besides, the land not turned over in spring retains the moisture much better than that which has been recently ploughed. The average yield of the wheat here would, in my opinion, be about 25 bushels per acre, and the price obtained runs from 12s to 14s per quarter.

INDIAN HEAD TO BRANDON.

MEETING WITH A KIRRIEMARIAN.

HIS SUCCESS IN AMERICA.

THE LUMBER TRADE.

(From the Dundee Courier of April 24.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—Before leaving the district of Indian Head we had a drive through the great Bell Farm, which huge concern has been so often described. Formerly this farm was run by a company, Major Bell being the principal partner and manager. The company is now dissolved, and Major Bell runs the farm on his own account. A large portion of the land was sold, the Government purchasing 680 acres for the experimental farm. The Brassey Farms lying to the south of the railway track were also bought from the Bell Farm. On the East Brassey Farm there are 53,000 acres altogether, 1300 acres being in wheat and 150 in oats. We drove through one field of wheat on this farm, in which there were 900 acres. On the Bell Farm there are yet 1500 acres of wheat, and, except that some of the fields appeared rather overgrown with certain weeds, the place appeared well managed. We saw twelve self-binding reapers on this farm. On returning to our hotel in the evening I got rather a surprise, being told that a Kirriemuir man was in waiting for me. This turned out to be Andrew Dundas, a native of Kirriemuir, Forfarshire. Andrew followed the occupation of a ploughman when at home, but getting tired of that he got on as fireman upon an ocean-going steamer, and, landing in America, found his way out West. Andrew had very little money, but homesteaded a quarter section of land near Indian Head, and by industry and steadiness he has wrought his way to independence. He has now 480 acres of land all his own, 150 acres of which were in wheat. He has about 20 horses and 70 cattle. He says he is pleased with the way he has succeeded, and although he intends to come to Scotland to see his friends he could never think of staying here again. He thinks there is a far better chance for able-bodied men willing to work out there than there is at home. At least, he says that at home he never could have aspired to be anything better than a common labourer, but out there he is

His Own Master,

with a comfortable home of his own, and good prospects for his family. He sold $555 worth of cattle last year. Few farmers have threshing mills of their own, the grain all being threshed with portable threshing mills, wrought by traction engines. The fuel used is straw, which is fed into the furnace by a machine invented for the purpose. It is said that straw gives a sharp, quick heat, and keeps up a good head of steam. The owner of the

the mills carry a full staff of hands along with them, and charge for the threshing at 4 cents per bushel for wheat, but if only four men are provided the price charged is 1½ cents per bushel. In this way 2000 bushels are often threshed. During the threshing the farmer's own men and teams are employed hauling away the grain to the elevator, where it is dumped from the waggon loose into a hopper, weighed, and passed through the dressing machinery, and raised by the elevating machinery into the various binns into which it is graded. The farmer gets a receipt from the elevator company for the number of bushels consigned. This receipt is a negotiable document, and when the farmer sells the grain to the flour miller or grain merchant he hands him the receipt and gets his money, and the elevator company have to deliver a like number of bushels of the same grade, though not necessarily the same wheat. It is said that this part of the country is somewhat subject to warm winds, which cook the wheat sometimes, destroys its grade, and renders it less valuable. Occasionally it is nipped by frosts, but snaps of frost are becoming less frequent now that the bulk of land is being brought into cultivation. The great bulk of the land hereabout is being devoted to wheat-growing, and few herds of cattle are to be seen, but this I think a mistake, as a system of mixed farming seems to pay better, the feeding of cattle and pigs with the weak grains being a more profitable way of using them than selling them at a very low rate to the miller.

A Hint to the Farmers.

We left Indian Head about mid-day on Friday, and proceeded eastwards to Brandon, a distance of 180 miles. During this journey we passed through some very poor portions of country, and saw many hundreds of acres of wheat that would never be worth reaping, doubtless owing to its continuous cultivation, much of it being completely smothered with weeds. Sheaf-binding reaping machines were at work in every direction; in fact, on my whole journey I never saw anything else than self-binders at work—sometimes drawn by three horses, sometimes by three oxen. I was much surprised by the carelessness displayed by the farmers in keeping these costly machines. They are scarcely ever put under cover the whole year through, and we saw hundreds of them lying rotting about the homesteads. Implement sheds would effect a vast saving to the settlers, and apart from that I suggested that they might draw their implements together when they were finished with them, and build piles of straw on the top of them to keep them dry. As the idea seemed to take, I have no doubt but that many of the farmers to whom I spoke about it will avail themselves of this suggestion. The town of Brandon has a population of about 6000. It is nicely situated on rather steep ground immediately south from the railway station. The Assiniboine River flows past the north side, and rising from the river on the north side is a somewhat steep, well-cultivated country. Some miles to the south may be seen the Brandon Hills all covered with wood, and between the town and the hills is a broad expanse of well-cultivated farms, with farmhouses and steadings. Brandon itself is

A Splendid Town,

with broad, regular streets, a great many of the stores and public buildings being very large and very elegant. I counted about half a dozen great grain elevators, and visited one very large sawmill, owned and run by Mr Christie. He cuts his lumber in the Riding Mountains, 400 miles above the mills, and floats it down the Assiniboine River and its tributaries to the mills, where it is diverted and kept back by a great slanting boom. The river is about 100 yards broad, and when I was there the whole of it for about four miles above the mills was completely covered from side to side with great trees waiting to be operated on. The mills are driven by a 200 horse-power engine, and cut about five million feet of timber annually into scantlings, boarding, flooring, shingles, &c., which are run away from the mills by machinery and built into great stacks of deals, covering acres of ground. Between these stacks railway sidings are run for convenience in loading. The sawdust and planings are automatically run to the engine furnaces, and used as fuel. The slabbings and trimmings are sent down hoppers, cut up into convenient lengths, and sold to the townspeople for fuel. Mr Christie employs 75 hands at the mills, besides great armies of lumberers in the forests. There are two great planing machines, sawmills complete, with four saw edgers and trimmers. The great logs are dragged from the river with powerful self-acting machinery; caught with great arms, which adjust them upon the saw table; automatically run through the planing, edging, and trimming machines, and out into the great yard to be built into the stacks, without scarcely ever being touched by human hands. There is a good steady demand for the dressed timber in the immediate neighbourhood for house-building, furniture, machinery, implements, and other purposes.

DRIVING AROUND BRANDON.

MORE ABOUT EXPERIMENTAL FARMING.

WIND AND WINDMILLS.

AMERICAN COOKERY.

AGRICULTURAL WORK AND WAGES.

(From the Dundee Courier of May 1.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—On Saturday morning, while we were sitting at breakfast in the hotel at Brandon, Mr Thain, Government agent for the district, called and offered to spend the day driving us around the country. This kind offer we thankfully accepted, and shortly his buggy and pair of horses drove up to the door, and we got seated. Our first visit was to the Brandon Government experimental farm, managed by Mr Bedford. This farm, like the experimental farm I have described at Indian Head, was a wonder of neatness and methodical management. The farm buildings were of the best description, and the arrangement for the cattle and horses very much resembled some of our best steadings at home. The huge barn was a wonder in itself, being sufficiently large to store all the hay and straw required for the stock over winter. In one end was the grain store and the gristing and straw-cutting machinery, the power for which is obtained from a windmill placed over the barn. Mr Bedford manipulated a lever and put the mill in operation, and I was delighted with the smooth steady way it did its work and with the easy

manner of controlling it. By self-acting governors it adapts itself to the air currents, and no matter how strong the wind blows it never races or goes faster than the desired speed, and if the gale rises too strong the vane is so constructed that it throws the fans right into the teeth of the wind and stops it altogether. These windmills are very numerous out West, and very useful, and it is surprising to me that more advantage is not taken of wind power at home. The root cellars, containing sufficient room to store all the roots grown on the farm, are beneath the barn under the ground level, where it is impossible for them to be touched with frost, and they are said to keep very well here. We saw some very good specimens of pure-bred cattle about the steading. Two bulls of the shorthorn and Holstein breed had been bred in Ontario, and were well grown and developed. There were some really excellent females about the place. Mr Bedford had a one-year-old shorthorn quey led out for our inspection, and I must say that I never saw a sweeter or better specimen of the breed at home. We drove all over the farm, and got a great deal of insight into the systems of

Canadian Husbandry.

Here, as at Indian Head, the approved mode is to take two wheat crops in succession and the third year bare fallow. The same difficulties apply to sown grasses here as at other places out West, no kind being as yet got hardy enough to stand the winter, but great hopes are entertained as to the success of a grass called Hungarian brome lately introduced. Mr Bedford told us that in his nursery he had 84 variety of trees all doing well. We then drove to the great Sandison farm, and had a look through the buildings. On this farm was the only stone and lime farmhouse I saw in all the country. It was really a grand house, and was erected the year before last at a great cost. The stables, made to hold 25 teams of horses, were built of logs, and roofs covered with straw. Turf walls three feet thick were built outside the log walls, which rendered the stables exceedingly comfortable, making them less cold in winter and less warm in summer. We then drove to a farm owned by an Aberdeenshire gentleman named Mr Nicoll, who kindly entertained us to luncheon, and while waiting its preparation by his wife in the large capacious kitchen I had an insight into American cookery. Every kitchen has an excellent cooking stove fitted up with all the necessary accessories for cooking and baking, and all American housewives bake their own bread. Mrs Nicoll was busy baking when we went in, and her bread as it came from the oven was as good and palatable as could be produced by any baker here. Mr Nicoll owns and farms 480 acres. He keeps four men, whom he pays from $22 to $25 per month during summer, and from $35 to $40 per month during harvest. He reckons his average yield of wheat over a series of years would be 18 bushels per acre. He says summer fallowing is a necessity, and that the land would be all the better of being manured. He is contemplating growing a forage crop to plough down green on purpose to manure the land. He is satisfied sowing upon stubble with press drill without ploughing is to be a success. After this we had a very long drive to the farm of a Scottish gentleman called Matthewson, the name of the farm being Longview. We passed through

A Great Wheat-Growing Country.

The crops varied greatly in appearance, and it appeared to me that continuous wheat-growing was being too much persisted in. On the way we met a number of Indians, and I asked Mr Thain if they were at all troublesome. "Oh, no," he said, "none whatever. The Yankees say there are no good Indians but dead ones, but, instead of fighting them as they do, we build homes and schools for them, educate them, and learn them to cultivate the soil. We find them peaceable, industrious, and well behaved." At Longview we had tea, and I found old Mr and Mrs Matthewson very intelligent and communicative. They kept a great many pure breeds of poultry, the eggs of which are much in demand for hatching. They keep a good many cows for dairy purposes, and rear a great many pigs. Pigs are worth 18s 9d per live cwt.; turkeys, from 6d to 7½d per lb.; hens' eggs, from 7½d to 1s per dozen; butter, 7½d to 1s per lb.; hens, from 2s to 2s 6d per pair. Cattle at two years of age are worth about £5 10s each, and when three years old are worth about £3 per head more. Three-year-old horses, unbroke, are worth about £16 each. Lambs are worth about 3½d per lb. live weight. Mr Matthewson's average yield of wheat is 18 bushels per acre, and he has 420 acres under wheat and 65 in oats, 90 head of cattle, and 26 horses. He pays his men $25 for summer months, and from $12 to $14 during winter. We saw a very large four-year-old shorned bull at this farm, and their way of managing him appeared strange to us. A rope twenty yards long was attached to his neck and fastened to an iron pin driven into the ground, and that was the full extent of his grazing area. He was very poor, and no wonder, seeing the grass was bare cropped with a flock of sheep that grazed around the homestead. Mr Matthewson said he bought them for pure-bred Leicesters, but they seemed to me to be a very nondescript breed, and not at all like Leicesters, and when I told Mr Matthewson this he confessed he had auspicions that he had been "taken in." Here as at other places, I thought the pasture too dry for the successful feeding of sheep, and, indeed, they were plucked and stunted like, and altogether devoid of the healthy flush of thriving that we like to see them assume here. A big drove of pigs of all ages were grazing about, hurdles covered with prairie hay being erected to protect them from the scorching sun, and to which they could retire at will. They are being fed with steeped grains, no grisating or cooking being resorted to. I am of opinion, however, that it would pay much better to have the grain gristed or broken. The pigs are all of the black Berkshire breed, and very good sorts they are, and they appeared in

Excellent Thriving Condition.

A day or two before I was there he sold twelve pigs for £33. He keeps 250 hens. On our way back to Brandon, a distance of 20 miles at least, we took a long detour, and our way was continually bordered by great fields of wheat, the most of it within a week or ten days of harvest, and averaging, I would say, from 15 to 20 bushels per acre. Ninety feet of space is allowed to the roadways, all lying in the original prairie grass except the beaten trail, which winds hither and thither along the statutory road space. Occasionally we left the Government road and followed an old Indian trail slanting through the fields, and on these trails the track is generally very narrow, the land being cultivated close to the wheel ruts. At one place we were bowling along at a great pace between great fields of wheat, so close to us that we could have plucked the ears of grain on each side of the machine without rising from our seat, when we saw a machine, driven by a lady, coming to meet us. Two foals were following the vehicle, their mothers being in the buggy. She was driving very fast, and

I was wondering how we were to get past each other, when, without slackening her pace, she drove right in amongst the wheat, and, the foals following her, the trail was left clear for us. When at Mr Nicoll's farm, before referred to, he yoked his own machine and drove me around to see his crops. We came to a 90-acre field which he wanted me to inspect minutely. He drove the buggy and pair right into it, and, taking a wide circle all amongst the crop, we had an excellent view of it. The most of it was on second breaking, and would yield fully 20 bushels per acre. When at the experimental farm we saw them starting with a self-binding reaper to harvest a field of barley. There was no bout opened with scythes around the outside, but, driving in the reaper, they kept as near the outside as possible, and afterwards cut the outside margin by going the reverse way. Most farmers at home would think this a somewhat wasteful process, but it is the system on which the whole thing is done out West. Most farmers here would also think it sacrilege to drive through amongst a field of standing crop, but they do not stand upon such nice punctilios on the other side of the Atlantic.

A FIFE BAILIE NICOL JARVIE.

WESTERN HOLIDAY-MAKING.

LOST ON THE HILLS.

(From the Dundee Courier of May 15.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—On our arrival at Brandon from the somewhat lengthy drive which I described in my last letter, we were informed by mine host of the hotel that amateur theatricals were to be enacted in the City Hall that evening by a party of the citizens, who had been in training under a professional artiste for some weeks. The abilities of the performers being well spoken of, and the play being "Rob Roy," we were naturally interested to see how this thoroughly Scottish dramatic piece would be enacted and appreciated in a foreign land. Accordingly we procured tickets, which cost half-a-dollar each. The tickets were all numbered, and corresponded with the seats, which were all consecutively numbered, and when we went to the hall and produced our tickets we were shown by a porter to the seat bearing the same number as our ticket. I observed that although a person was late in arriving his seat remained vacant until he came, and as no more tickets are ever sold than there are seats, there is never any crowding or inconvenience. The audience were remarkably appreciative, orderly, and well-behaved. The actors were in excellent training, and did their parts remarkably well, and, barring a little murdering of the Scottish vernacular, the play was as well performed as I have ever seen it in a Glasgow Theatre. Die Vernon was personified by a young lady, who performed her part admirably. Helen Campbell was enacted by a young married lady, the wife of a prominent citizen of the place. Her acting was very good, but her accent partook more of the cockney than the Doric, and she also seemed to me to be rather too young and too good-looking for a typical Mrs Macgregor, and the colour of her cheeks were auspicious of rouge, the more especially as she was the only rosy-cheeked lady I had seen in the country. But the actor who brought down the house, and who tickled the risible faculties of all present, was Bailie Nicol Jarvie. There was no blundering of the vernacular with him, and he appeared quite in his natural element. His first sentence convinced me he was a

Veritable Scotsman,

and so it proved, for on Monday morning, when I was walking along the street looking for a shop where I might purchase some views of the town, I saw the chief of police, and, stepping up to him, I asked if he could tell me where I would find such a shop. "Ay, cud I, brawly," he answered with a smile. I started, and said I would bet he was Bailie Nicol Jarvie. He said—"Ay, A'm a' that's for 'im," and I said—"You're a Scotsman, too." "I am that," he replied, "and frae the kingdom o' Fife." He took me to a shop, where I made my purchases, and then I asked him to accompany me to the hotel, and get introduced to my companions. He came, and we spent an hour or two in interesting and instructive conversation. He told me his father was a grieve on a large farm in Fife, not far from Dundee, his name being Kirkcaldy. He has got on very well in Canada, having steadily climbed to the head of his profession, and is much liked and highly respected. On Sunday we had a drive of at least 40 miles out and 40 miles in by another road to the south of the town of Brandon. For a long distance we passed through a good agricultural district, the land being mostly all broken and under wheat. The yield appeared fair, and would average, I would say, about 18 or 20 bushels. As we went further inland we saw greater expanses of the original prairie, and passed numerous great black squares where the sod had just been broken with the plough. We did not see many cattle about, the land being mostly all devoted to grain-growing purposes. We came to one field where a flock of eight score of pure bred Shropshire ewes and lambs were grazing. The field on which they were had been seeded with oats in spring, and after it had grown a certain length the ewes were put on to graze. It provided good succulent food for a time, but unfortunately there was too little of it, and when we examined it there was little sign of oats to be seen, but the whole field was covered with the rank growth of a weed unknown to me, and which the sheep would not put a mouth on. The ewes were excellent sorts,

True to Their Breed,

but they did not seem to me to be in a good thriving state, and the lambs were stunted and small—at least they appeared so to me, though several citizens of Brandon who were with us in the buggy, thought them remarkably good. I observed a water-cart and troughs in the field, showing that water was having to be driven to them. Continuing our journey, we left the agricultural region behind us, and got into what is known as the Brandon hills, and passed a wild unbroken, scrubby, well-wooded district, with numerous ponds and small lakes occurring in the depresssion. Many boats with picnic parties were rowing about on these lakes, and the margins swarmed with holiday-seekers. Several large tents were pitched at convenient places along the shores, and, as I observed they had their bedding material and cooking utensils with plentiful stores of provisions along with them, it was obvious that these pleasure parties meant to make a lengthy stay, and indeed I learned that this is a common way of doing a holiday out west, hotel-keepers and furniture dealers providing tents on hire for the purpose. Amongst these hills the soil appeared very thin, stony and barren, and not at all suited for cultiva-

tion. Nevertheless, in glades and openings in the woods we came upon occasional clearings where some hardy settler was making for himself a homestead. This is a splendid district for sportsmen. The coveys of prairie chickens were literally rising before us in swarms, and the ponds and mus-kegs were black with great swarms of wild ducks. Deer is also plentiful, and there is no lack of wolves and even bears. We saw the huts of the musk rat built like coles of hay amongst the water in the shallows of the lake, and the curious inhabitants, something like our grey rats, but bigger, sitting eyeing us from the top. Gophers are also numerous, and I saw either a badger or a beaver—I don't know which—start across the road in our front. Driving along the trail we were following (only marks of wheels amongst the grass at the best) gradually became more indistinct, and at last disappeared altogether. After a time our driver had to confess that he had fairly lost his whereabouts, and did not know which way to turn or go. A

Council of War

was held, and as our party knew that the trails to Brandon all led in a westerly direction it was resolved to strike across country in an easterly direction, in order the sooner to get upon one of these north and south trails. But which was east? That was the rub. The sun was obscured, and there was nothing to direct us. How we longed for the instinct of the Indian, who could tell his way by the forest signs, but, being inferior to the Indian in that respect, we had to rely upon our own resources. Luckily for our party I remembered I had upon me a small pocket compass, and, referring to it, we steered our course accordingly. After an hour's driving through thick scrub and dense undergrowth—sometimes higher than the horses' heads—and so thick and strong as almost to lift the buggy off the wheels, we got upon a north-going trail, and following it for another couple of hours we emerged from the forest. When we reached the clearing a fierce gale was blowing, which lifted the coal-black dust off the cultivated land in clouds, and wafted it into our faces. The weather was uncomfortably warm, and we were perspiring freely, and the dust sticking to us we were soon all more like niggers than white men. However, it was dark when we arrived in town, and we got to our hotel unobserved. After a thorough scrubbing in the lavatory we had supper and went to bed, but we had more on hand before we went to sleep. A swarm of mosquitoes had got into the room, and no sooner were we down than they clustered on our face and hands, and their attentions becoming unbearable we resolved to have a war of extermination. Mr Taylor occupied another bed in the same room, and we arose and turned on the electric light and commenced operations. The mosquitoes betrayed their presence by their sharp, shrill buzz, somewhat like the buzz of a honey bee below a cloth. We soon got them all killed, and then lay down and slept the sleep of the just.

A HERD OF PURE "DODDIES."

GRAIN MILLS IN BRANDON.

MORE ABOUT WINDMILLS.

(From the Dundee Courier of May 22.)

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

On Monday morning we drove out to a farm owned by a gentleman named Macgregor, and saw a number of Shire stallions. Mr Macgregor used to import a large number of Shires and Clydes, but has to a great extent given that up, though he yet keeps a number of good serviceable stallions. He keeps a herd of pure Angus Doddies, which he finds suits the country and climate remarkably well. I admired his cows very much indeed. One three-year-old heifer bred by Sir George Macpherson Grant of Ballindalloch, Scotland, was really a splendid specimen of the breed. She was in grand showyard condition, and would have been ill to beat, even in the showards of this country. He also keeps a large breeding herd of pigs. West from Brandon the Assiniboine River divides itself and forms an island, partly plain and partly scrub, and it is this island that he has selected for his piggery. The pigs feed on the grass on the plains, and when the scorching rays of the sun become too strong for them, they retire to the cooling shades of the scrub, and they have access to nice cool wallows along the shallow margins of the river. Altogether, a better site for a piggery could not well be imagined. As it suits the nature of the pigs to perfection, Mr Macgregor has lately imported some pure Tamworth boars and sows, which he is crossing with the native black Berkshires. The produce are beautiful creatures. The ground colour of this cross is black, mottled all over the body with pretty red spots. Mr Macgregor says this cross is to be a perfect success, and has far exceeded his most sanguine expectations, and the flesh of the cross is also said to be superior to any of the pure breeds, having more red flesh in proportion to the white than that of any other kind. The pigs are fed on a daily allowance of steeped wheat, to which they come at the call of the herdsman. Mr Macgregor has demonstrated by experiment that one bushel (60 lbs.) of wheat will produce fifteen lbs. of pork, and in this way no more profitable method could be adopted of utilising the cheap grains of the country, and as he can purchase plenty of frosted and light wheat at twenty cents per sixty lbs., pig feeding must be a lucrative industry. Our next visit was to the

Flouring and Oatmeal Mills,

owned and run by Mr Kelly, in the town of Brandon. These mills have a daily output of 250 barrels flour and 100 barrels oatmeal; but the latter is not meal in the proper sense of the word, but rather, as the article is called, rolled oats. The oats are dried and hulled in the usual way, and then ground to the consistency of rough grains about the size of rice. The stuff is then softened with steam, and passed through between smooth rollers, and the finished article is in the shape of broad flakes something like broad bran. It is no use for cake-baking, but makes excellent porridge, which are highly-appreciated. I had porridge of these rolled oats every morning all the time I was in the country, and I thought, and every Scotsman that I met agreed with me, that they were an improvement upon the old system. The only fault I had to this dish was that they gave too little of it, but latterly I got up to the dodge of ordering porridge for two. Brandon seems to be the dividing point from which grain is sent east to the Atlantic seaboard; and westwards through the Rockies to the Pacific coast. The west-bound route is certainly the shortest, but as, in sending to Montreal, much of the way is by water down the lakes and rivers the east-bound route is the cheapest, but, on the other hand, better prices are obtained at Vancouver than at Montreal. But situated just as it is near about the dividing point, the freight is consequently higher to seaboard than it is from any of the other great

centres on the Canadian Pacific Railway, and thus farmers there are more handicapped in disposing of their produce than they are at any other point on that great line of railway. The freight from Brandon to Vancouver, a distance of 1300 miles, for wheat, barley, and oats is 60 cents per hundred pounds, and from Brandon to Montreal, 1560 miles, it is 47 cents per hundred pounds. When farmers send grain to the elevators the charge is 2 cents per bushel for cleaning and loading, and one-half cent a month for storage. On the afternoon of Monday we left Brandon on our way to the Souris district, near the international boundary line.

A Destructive Gale.

Taking train at Brandon Station we went back upon our journey for some distance. Going westwards on the Canadian Pacific Railway for about ten miles to Kemnay, then joining a branch line, we struck southwards towards the international boundary line, but before describing this journey I would like to say something about the weather. Up to Sunday evening the temperature had been excessively warm, with the thermometer at mid-day registering 100 degrees in the shade. On Sunday night a fierce gale sprung up, and a great thunder storm ensued. The flashes of lightning were literally incessant and very bright, and towards morning there was a great downpour of rain. When the rain abated the gale again sprang up, and on Monday afternoon it was blowing a perfect hurricane. The wind soon dried up the moisture of the previous night, and as we passed along our route we could see the dust rising in great clouds from amongst the roots of the wheat in every field, and the fine mould was being collected in wreaths in every sheltered hollow along the side of the track. The wheat was just approaching ripeness, harvest being begun in many places, and we were sure from the manner it was being tossed about by the wind that the loss by shelling would be very considerable. At the small town of Souris we changed trains, and had a couple of hours to wait, and to put off the time we had a walk through the town. We found it to be a busy distributing centre for the country around. Storekeeping is the principle business, and we saw lots of country people in their buggies driving from door to door making their purchases. There are quite a lot of blacksmiths' and mechanics' shops in the place, and they all seemed to be doing a "roaring" trade, repairing old and fitting up new self-binding, reaping, and threshing machines and traction engines. The town is all surrounded by prairie, upon which lots of horses and cattle were grazing with no fences to keep them from straying. Two bands of young horses came wandering into the street when we were there, and a number of young scamps got several wolf hounds, of which there were plenty lying about, and hunted them away. We did not enjoy our walk over much. The gale was lifting the fine dust and grit off the street and blowing it into our eyes in clouds, and we were literally almost blinded, so holding our hats on with both hands we wended our way back to the station to obtain the shelter of the waiting-room. At the station was

A Windmill,

pumping water into an elevated circular cistern for the supply of the railway engines, and although we had often seen these machines at work in fair winds, we were interested to observe how this one behaved in the boisterous, unsteady gale which was then prevailing, and so we stood watching it until the arrival of our train, when the engine drew up to the tank to take in water. Unlike the huge unsightly four-armed windmills which may sometimes be seen in our country, the American windmills are light, aerial, ornamental machines, most efficient in their operations, and thoroughly under control. The sails are composed of long thin narrow slats (something after the fashion of our venetian blinds), extending from the outer rim to near the centre of the wheel. By a simple contrivance these slats can, by the manipulation of a lever, be furled up in clusters, and bring the machine to a dead stop, or, by pulling a lever, the face of the wheel is thrown round parallel with the vane, and entirely out of the current, and so is obliged to stand still, By the use of governing weights the sails or slats are automatically turned to any degree of obliquity to suit the wind prevailing at the time. If it blows strong the weights turn the slats less obliquely, so as to present a less resisting surface, thus giving the wind less power over the machine. If it falls to a calm the governors set the sails to the greatest degree of obliquity, so as to give the wind the full maximum of power, and if it blew a blizzard or hurricane the strength of the gale automatically sets the sails thin edge on into the teeth of the wind, so that it has no power upon it at all. It was very interesting to me to observe, as the wind rose and fell, how the sails opened and shut, adapting themselves to the strength of the current, and the machine moving around as slowly, steadily, and smoothly as though it had been blowing a steady equal breeze. It is wonderful also to observe how little wind is necessary to propel these mills. Oftentimes when it appeared perfectly calm the only sign of stir in the air was the motion of the windmills, which are so numerous everywhere in the country, and I do not think it is too much to say that one-half the water supply of America is raised from deep wells by wind power. They require no attention except occasional oiling. By a simple arrangement they stop themselves when the water tanks are full, and start again when water is drawn. They are most efficiently and strongly built, and seldom go out of order, and the high trestled towers upon which they are erected are so strongly constructed that they are calculated to withstand the strongest blizzards to which the country is subject. It is surprising to me that these mills are not in more frequent use here. There are many purposes for which they could be profitably utilised, and I predict that as they become better known, as they will be before long, so will they come into more general use.

IN A PROHIBITION TOWN.

PREPARING FOR SQUALLS.

EASTWARD HO!

A QUAKER SETTLEMENT.

(From the Dundee Courier of May 29.)

Mr Osler, the *Courier's* Agricultural Commissioner to America, writes:—Warned by the conductor shouting "All aboard," we again took our seats in the train and proceeded to Napinka, a small town near the International boundary line. We passed through a district which was altogether a great plain, with much of it still lying in the original prairie state. The crops were not up to much, and I was not favourably impressed with its resources either as a grain-growing or grazing country. After getting tea at Napinka, we went out to have a view of the country around. The gale had considerably abated, but there were evidences of its

ravages on every hand. Hay stacks were tossed about, the light sandy loam of the fields had been lifted up and collected in miniature wreaths in the depressions; and, worst of all, the crops of wheat were badly shaken. On an average I do not think the yield of wheat would have been above twelve bushels per acre, even though it had been all got; and I am quite certain the half of the grain was shelled out and lying on the ground. The outlook for the farmers was very poor indeed. We had a walk over some newly-ploughed fields. The ploughing was very neatly done. The furrows, about 14 inches broad and 3 inches deep, were turned completely over, and lying flat on the grassy side. In some places they were begun to back set—that is, they were with a different kind of plough turning the furrow right back again, and by going about two inches deeper a loose soft mould was thrown on the top. After this it was ready for seeding, the seed being put in by a press drill. The soil here was loose and sandy, and very thin and light. The grass on the prairie was withered and scanty, and very unlike the luxuriant herbage we had seen further north. Few cattle were to be seen, any we did see being milk cows in rather thin condition. We returned to our hotel, and found a motley crew collected in the smoking-room. We knew we were

In a Prohibition Town,

but for all that we saw they had been imbibing somewhat freely. They appeared to belong to the working classes, and were vociferating loudly and disputing among themselves. They seemed a quarrelsome, lawless set of men, and I was glad to retire from amongst them, but did not feel altogether safe in my bedroom. There was no lock or snib to the door, so I drew the head of my bed up to its back that nobody could get in without awakening me. I had no defensive weapon, and it was the only time I regretted not having a revolver. I looked for a poker, but there was none in the room. There was, however, an ink-bottle on the mantelpiece, and I emptied it of its contents, tied it on the corner of my handkerchief, and prepared to defend myself should I be molested. I didn't undress, but went to bed in my clothes, but not to sleep. The uproar continued the whole night through. Once the latch of my door was turned, but when I shouted out, "What's wanted," the hand was withdrawn, and I heard footsteps retiring. When we came downstairs in the morning no signs of the rioters were to be seen. They had either left or were in bed sleeping off their debauch. The night at Napinka, with all its inconveniences and troubles, was doomed to be the last night we spent in bed on American soil, and glad would we afterwards have been to have got our heads upon a pillow, even although our environments had not been all that was pleasant. A few days before we had been wired to by Mr Reford, the Messrs Thomson's agent in Montreal, that the Iona was to sail on the Saturday, but, as bad luck would have it, we incidentally saw in a paper an advertisement stating that she was to sail on the Friday, so to be in time it now became necessary that we make

A Race for Home.

Napinka is 250 miles south-west from Winnipeg, and 1700 miles from Montreal, so, calculating our rate of travelling at twenty-five miles an hour—the fastest we experienced even by express in all our travels on the American continent—and giving allowance for a few hours' stoppages for luncheon, &c., at intersectional divisions, we found that the earliest possible hour of our arrival at Montreal would be 9 a.m. on Friday. On Tuesday morning then, after getting breakfast at Napinka, we proceeded to the station; and, in compliance with the conductor's cheery "All aboard," we took our seats in a comfortable first-class car. We proceeded eastwards on the branch line of the Canadian Pacific Railway leading from the Souris Coalfields to Rosenfield, where we joined the Great Northern Railway 20 miles north from Gretna, on the International boundary line, then down the great fertile valley of the Red River to Winnipeg. On our way we passed the stations of Delorane, Boissevain, Killarney, Pilot Mound, Morden, Morris, and many more. The most of the way is through a perfectly flat, grand agricultural country. The soil appears to be of a rich, deep, heavy nature, apparently for the most part consisting of alluvial deposit, being so low-lying and flat. It is only in accordance with the law of Nature that swamps and marshes should be of frequent occurrence, and, indeed, I would say that one-half of the land is too wet for cultivation. These slews are not, however, the unmixed evil which many would suppose, seeing they grow great crops of natural grass, which makes splendid hay. Indeed, stock are said to prefer it to hay made from cultivated grasses and to thrive better upon it. The dry portions of the land seemed to be all under cultivation, and the crops appeared fairly good. The bulk of the crops were wheat, but we saw good fields of oats, barley, and flax upon almost every farm, and the cultivation of potatoes and turnips appeared quite general here. Indeed, the system of cultivation appeared to be more mixed and to be more in accordance with the customs of agriculture

In the Old Country

than in any other district of America we had seen. We passed through what is known as the Menonite settlement, composed of a great number of Quaker German emigrants from Russia, who left that country to escape the conscription so irreconcilable with their principles. And as they arrived at an early period, when the Indians were very unsettled and dangerous, they for their own defence and safety had built their habitations and steadings together, and so formed the nucleus of villages, many of which have now become important towns. The farms which surround the villages are mostly small fields laid out in regular oblongs, each with its own particular and separate kind of crop, and have a neat, tidy, old countrylike appearance. These settlers are said to be industrious and thrifty, and to be all mostly in prosperous circumstances. Pilot Mound, which we passed on this journey, was the place from which came the cattle beast which was suspected to be infected with pleuro-pneumonia when it landed in Britain, and which had the effect of stopping the importation of Canadian stockers. It was on this journey I interviewed the parties who gave me so convincing proofs of the non-existence of that disease in the Dominion, all of which I detailed at length in a former letter. Going down the Red River Valley the farms and fields are much larger, and we saw crops of grain than which no better could be desired. The land is deep and rich, but the preponderance of wet land to dry land is perhaps rather great, and as we approach Winnipeg the great bulk of the land is too marshy and wet for cultivation, but affords great crops of natural hay; and so level and even is the surface that a mowing machine might be wrought for scores of miles in one direction without the slightest obstruction. Altogether, I am of opinion that the country we have passed through to-day between Napinka and Winnipeg is the best land we have seen, with the exception of Edmonton; and as the country becomes more settled up and

land more valuable, means will be found to dry a great many of the slews, which will then make grand farms. The beds of the rivers are all very deep within perpendicular banks, and great ditches made from them through the low-lying parts of the country would make excellent leaders into which the drains could be run.

DRIVING ROUND WINNIPEG.

A GREAT CITY.

TRAFFIC OF THE NORTH-WEST.

ARRIVAL AT MONTREAL.

(From the Dundee Courier of June 26.)

Mr Osler, the *Courier*'s Agricultural Commissioner to America, writes:—We arrived at Winnipeg about 5 p.m., and as our train for Montreal did not start till eleven, our guide, Mr Burpe, secretary for the Dominion Land Board, took us to the Dominion Land Office, where we met Commissioner Smith, with whom we had a long talk. I handed in an elaborate report of my impressions of the country, with which he was well pleased, and regarding which the Dominion Government have since written through their officials to the Messrs Thomson, proprietors of the *Courier*, congratulating them on the faithfulness of their Commissioner. After this Mr Burpe obtained a rig, and drove us through and around the city of Winnipeg, and we were much struck with the great size, elegance, and architectural design of the majority of the buildings, the great width and orderly appearance of the streets, and the basking, opulent, and prosperous look of the inhabitants. Situated just where the forest ends and the prairie begins, with thousands of miles of river navigation to the north, south, and west, and with the railways and Indian trails radiating in every direction like the spokes of a wheel, Winnipeg has become, what it always must be, the commercial focus of the North-West. It was formerly known as Fort Garry, a lonely trading station of the Hudson Bay Company, the gate of the old fort being still standing. The old name is now abolished, and

The Winnipeg of To-Day

is a flourishing town of more than 20,000 inhabitants. Returning to the Lelland Hotel, we ordered supper, and reluctantly bade goodbye to Mr Burpe, our kind and obliging cicerone, who had accompanied and guided us in all our wanderings through the great North-West and over the Rocky Mountains, even to the gates of the Orient, and who had been so assidious and painstaking in catering for our comfort, enjoyment, and information. I already said that our train was timed to leave Winnipeg at 11 p.m. So, proceeding to the station a little before that hour, we went to the booking-office on purpose to obtain sleeping berths, but found to our disappointment that they were all engaged. This was rather a staggerer seeing we had three nights and three days' continuous railway travelling before us. However, we had to face the inevitable, and commenced our long journey of 1424 miles with little prospects of comfort. The cars were quite crowded, and each passenger had no more than his own sitting space, and even though there had been more room the seats in American cars are so short—only sufficient to seat two persons—that there was no earthly chance of getting a stretch out for a sleep until we reached our journey's end. Leaving Winnipeg, we strike northwards down the Red River Valley on the east side of the river, through a flat, rich thickly-populated and well-cultivated country. On reaching East Selkirk the railway makes a sharp bend, and, turning to the east and south, we soon leave the broad level expanses of prairie behind us. We now pass through a wild,

Rocky, Broken Country.

The deep rock-bound lakes with waters as clear as crystal are very numerous, and are said to be thickly stocked with many kinds of fish which are easily caught. We pass for long distances down the side of great rivers all eastwards and southwards bound, and we cross many others on girdered bridges of great length; the rivers seem all in a hurry, and we are seldom out of sight of dancing rapids and foaming cataracts. The whole district through which we pass is thickly wooded with great trees of natural growth of enormous girth and height. Forest fires have swept through the woods in places, and the gaunt, tall dead trunks with their naked branches stretched against the sky are weird and ghost-like as we glide through them in the moonlight. Up through this terrible district by much the same route the railway now takes General Wolseley led an army from Fort William to Fort Garry (now Winnipeg) in 1870 to quell the Indian Rebellion, and I saw two of his boats lying stranded just beyond the station at Savanne. Four hundred and thirty miles from Winnipeg we reached Port Arthur, a shipping port on the north shore of Lake Superior, and here travellers set their watches forward one hour in conformity with eastern standard time. I may mention that all west from Port Arthur the Railway Company do not use a.m. and p.m. as we do here, but after 12 o'clock noon they go on 13 and 14 o'clock up to 24 o'clock at midnight. A short distance from Port Arthur is Fort William, the terminus of the eastern division of the Canadian Pacific Railway and the Lake Port of the Canadian Pacific Railway western section. Here along the shore of the greatest sheet of fresh water in the world is scenery more diversified and beautiful than anything the mind can conceive. The wide green waters of Thunder Bay are enclosed by abrupt black and purple basaltic cliffs on the one side, and by hills rising roll upon roll on the other. Here on every side we see evidence of

The Enormous Traffic

of the North-West—long trains laden with grain, flour, and other freights, great piles of lumber, coal, and merchandise, long wharves crowded with shipping, with the railway grain elevators looming above all. Three of these elevators at Fort-William are monsters, each having room to store from twelve to fifteen hundred thousand bushels of grain. The enormity of these figures is difficult to conceive, but when I say that any one of these elevators or grain stores would hold a year's crop of all the grain grown in Forfar and Kincardine shires my readers will be able to form some conception of their enormous size. Nearly all the grain brought from the North-West Provinces by the C.P.R. is transferred from the railway here, run up into the elevators, and stored there until it is convenient to ship it down the lakes and rivers to the Atlantic ports. If time had been at our disposal we certainly would have preferred leaving the railway here and coming to Montreal by boat, but we had no choice. Our time was limited, and we had to stick to the iron horse as the quickest means of reaching our journey's end. Leaving Fort-William we run along the precipitous shore of Lake

Superior for hour after hour, with deep rock cuttings and viaducts constantly occurring. At times we are back from the lake and high above it, again we are running along the cliffs, as low down as the engineers dared venture through tunnels and over immense embankments and bridges, everywhere impressed by the extraordinary difficulties that had to be overcome by the men who built the line. We move on through never-ending hills, forests, and lakes, and on Thursday we reach Sudbury, a new looking town planted in the forest. All the way from Winnipeg to Sudbury, a distance of one thousand miles, may be said to be

One Continuous Forest,

for only at long intervals do we come upon some hardy backwoodsman clearing for himself a farm, the monster piles of tree roots lying here and there upon the fields, and the blackened stumps sticking up from amongst the fields of standing grain, giving evidence of the vast amount of labour which has to be expended before a farm can be reclaimed here. I said to an Ontarian farmer, who was sitting beside me in the train, that I could form some conception of the breadth of this great forest, but could he tell me how far it extended north? He looked at me in a confused kind of way, and said that nobody knew. No wonder then though the Canadians say that "Scotland might easily be lost in one of their woods beyond the power of white man to discover it, were it not for the smell of whisky." But wild and rough as it is, the country is full of natural wealth. Valuable minerals and precious metals abound, and from here mainly is procured the timber to supply the wants of the great and fertile countries lying to the east and west. We come upon great sawmills, around which are huge stacks of deals covering acres of ground. Near Sudbury are the most extensive copper and nickle deposits in the world. Large quantities of ore are shipped from the mines, and a number of great smelting furnaces have been erected to reduce the ore on the spot. At Sudbury a branch line of railway leads off to Algoma Mills, on Lake Huron, and thence to Sault Ste Marie, at the southern outlet of Lake Superior. Leaving Sudbury we pass through a rough, rugged, and tree-clad country. The large, clear rockbound lakes are very numerous. We pass Lake Nipissing, an extensive and beautiful sheet of water, 40 miles long and 10 miles broad, on the shores of which is situated North Bay, a new town with 1800 inhabitants. At Mattawa, an old fur-trading port of the Hudson Bay Company, and now a town with 2000 inhabitants, the line joins the

Valley of the Ottawa

River, which it follows until within a short distance of Montreal. We pass the town of Ottawa, the capital of the Dominion, and in the dawn of the early morning I could see the Government Buildings and the Parliament House of the Dominion with their Gothic towers and many pinnacles, making a magnificent group, on a high cliff overlooking the river. I am not able to speak definitely upon the agricultural prospects and appearances of Ontario, the rate at which we were going precluding the possibility of judging correctly, but we see that the country is thickly populated and well cultivated. The fields are squarely laid out and well fenced, alternate husbandry prevails, and crops of all kinds similar to those grown at home are fairly good. Cattle, grazing in the fields just as they do here, give this district a very home-like appearance. Many wooden houses are to be seen, but the most of the newly-erected farmhouses and steadings are of brick or stone roofed with shingles, and have an opulent and comfortable appearance. Large orchards are attached to every farm, the trees literally loaded with beautiful red-cheeked apples, which make our mouths water. Groves of sugar maple are frequent, together with timber plantations, and clumps and rows of trees along the sides of the highways and fields give the country a park-like, rich, and pleasant appearance. We reached Montreal at nine a.m. on Friday, thoroughly jaded and tired. We had never been in a bed, and our clothes had never been off since we left Napinka on Tuesday morning. Beyond a snooze on our seats in the car, with nothing to support or steady our heads, we had

Never Got Any Sleep.

The weather had been excessively warm, and as we were always in a state of perspiration the dust raised by the train had adhered freely to our bodies. I assure you I was in such a condition that I would not have cared for meeting any of my old country acquaintances on the streets of Montreal. So we hired a cab, and drove straight for the wharf, and were gladdened by seeing the red funnel of the Iona standing up amongst the shipping. The officers observed our coming, and gave a welcoming cheer. We stepped on board, and got thoroughly chaffed and laughed at for our dirty, uncouth, and uncivilised appearance. I dived below, and begged the steward to have the bath immediately charged, and I was soon enjoying the delicious coolness of the water pumped from the mighty St Lawrence River. Donning presentable apparel, which I had left behind me in a trunk in the Messrs Thomson's office at the docks, I emerged to the civilised world with a somewhat civilised appearance once more, but two stones lighter in physical corporation than when I stepped down the Iona's gangway two months previously.

The City of Montreal

has been so often described in our home papers and literary works that I consider it would be superfluous of me to take up the time of my readers in dwelling upon it. There is, however, one institution existing in its midst which ought to be better known about here than it is, and which I cannot pass over without making some mention of. It is that of the St Andrew's Home, a building as large as a modern hotel, and as well furnished and appointed. It is kept by Mr and Mrs Donald Campbell, a most exemplary old Scotch couple. It belongs to the Montreal St Andrew's Society, and is entirely kept up and supported by Scotchmen and Scotch women in Montreal. It is for the reception of Scottish emigrants, to provide a home for them where they will be comfortable and safe, and to entice and draw them away from the slums and also from the land sharks, who are always on the outlook to plunder strangers on their arrival. Provided an emigrant is Scotch and not a cabin passenger, he or she is cordially invited to go to this home, taking their wives and families with them, if they have any, and they will be well provided for and comfortably kept without money and without price, until they get into a way of doing for themselves. This is no sham, but a downright reality, and it is the earnest desire of the Society that the fact that such a home exists in Montreal should be as widely known as possible, and the more that take advantage of it the better pleased the Society is. I would specially recommend this home to young women going out to Canada. In Mr Donald Campbell they would find a friend who would be both able and willing to give them a fatherly advice as to their future actions and prospects, and in Mrs Campbell they would find a mother in whom they could repose the greatest confidence—a mother who would be ready and willing to do all that a

mother possibly could in looking after their welfare, and who, by her great influence in that great city, would get them into comfortable situations, where they would be well paid and kindly treated. Mrs Campbell told me that she could find employment in Scotch families for any number of girls, and she wished me to let this fact be known in Scotland, and to recommend the girls to go straight on to her, when, if they behaved themselves, there was no fear as to their future welfare. To married men, too, this home would be invaluable, seeing they could leave their wives and families there in perfect safety, and without any costly bills running up, while they themselves were away on the outlook for work or land. On arriving at Montreal I was taken possession of by a gentleman born and bred in Thrums, now located in Montreal, and a very successful merchant and highly-respected burgess of that city. He was very kind in his attentions and hospitality, and devoted Friday evening and the whole of Saturday in showing me around the town.

CHATS WITH ONTARIO FARMERS.

SCENES ON THE IONA.

SHIPPING CANADIAN CATTLE.

TREATMENT ON BOARD.

(From the Dundee Courier of July 3.)

Mr Osler, the *Courier's* agricultural commissioner to America, writes :—I have already said that as we passed through Ontario and Quebec, in so far as the railway passed through these provinces without stopping, I could scarcely of myself hazard an opinion as to the state and prospects of agriculture. I must now, however, go back upon my journey, and give the gist of conversations which I had in the cars with several Ontario farmers who had been away seeing friends in the Far West, and who came with us all the way from Winnipeg to Sudbury. Henry Carter, farmer, Guelph, has farmed land and reared cattle for sixty years. He rears twenty calves annually, and keeps them until sold off fat at three years of age. He grazes them during summer upon the arable and waste lands. From middle of September to middle of October they are put on rape, after which they are put up for stall feeding, getting chopped hay, together with peas and oats gristed and mixed with a few roots. They average when sold from 1500 to 1600 lbs. on the hoof, and this year the price got was $5.12\frac{1}{2}$ per 100 lbs., live weight, averaging about £16 per head. His stock consists of good grade shorthorns, pure bred shorthorn bulls being purchased. Mr Carter goes in for

Mixed Farming.

Timothy grass and clover seeds are sown amongst the last grain crop of the rotation. The first year's grass crop is cut for hay, which generally averages two tons per acre, though last year it yielded three tons per acre. The following three years the fields are grazed with stock, and, on breaking the grass, peas are sown, followed by wheat, then barley and oats, a half break of each, after which comes green crop, composed of turnips, rape, and potatoes, followed by wheat, sown down with timothy and clover seeds. Wheat averages 25 bushels per acre, barley 30 bushels, oats 50 to 70 bushels, peas 32 bushels, turnips 30 tons, and potatoes $4\frac{1}{2}$ tons. All the produce is consumed on the farm, with the exception of wheat, which is sold. The straw is all converted into farmyard manure, and applied to the land. Servants are paid $175 per annum, with board. Mr Carter says that farms all under cultivation, with suitable buildings and fencing can be purchased at from $45 to $60 per acre, and fair good farms farther from a station can be bought at $20 per acre, farms run from 100 to 200 acres, and when let on lease, bring from $2\frac{1}{2}$ to $3 per acre. The soil is generally sandy loam. Fat pigs are worth $8\frac{1}{2}$ cents per lb. of dressed carcase. The kind of sheep kept are Leicesters, Cotswolds, and Downs. John M'Kerlie Fergus has been a rearer of cattle and farmer for 40 years, he keeps a breeding stock of twelve cows, the calves from which are reared and fed off as steers; in addition to these he purchases a score of calves annually, and keeps the whole until they are three years of age when they are sold fat, averaging from fourteen to sixteen hundred pounds on the hoof. He sells his cattle in Toronto stockyards, and last year they brought $5\frac{1}{2}$ per hundred pounds on the hoof. His cattle are grazed on the sown grasses in the fields, and in the woods all summer, and stall-fed during winter, the calves and one-year-olds get hay *ad lib.*, and a limited quantity of gristed peas, oats, and roots. The steers rising three years of age getting their full of all these ingredients. His system of cropping is similar to that of Mr Carter, but his yields are not quite so good. Wheat averages 15 bushels per acre; barley, 35; oats, 30; peas, 20. The average prices are—Wheat, 64 cents per bushel; barley, 45 cents; oats, 25 cents; peas, 55 cents; and potatoes, 50 cents. His servants are paid 20 dollars a month with rations. Neither of these gentlemen ever heard of pleuro-pneumonia existing in the country, except only what they have read about in the British papers. They believe the scare to be a political stratagem on the part of the British Government, and consider the Dominion of Canada very badly treated by the embargo put on Canadian store cattle.

On Board the Iona.

It had been announced to us that the Iona would leave her berth at five o'clock on Sunday morning, so Saturday evening, the 20th August, found us on board, with our baggage safely stowed in our former quarters, namely, that known as the doctor's room. All the freight of flour, grain, and hay had been loaded by dusk, and it only remained to get the cattle, numbering 552, on board, when the vessel would be ready for starting on the homeward journey. I was told that the cattle were all lying at the stockyards, and that they would be shipped between two and four o'clock in the morning, and, being desirous to see them put on board, I resolved to stay out of bed until they came. A very busy scene was being enacted on board, a great number of carpenters being engaged erecting the cattle fittings, the clinking of the hammers, driving home the nails, and the rasping of the saws, reducing the boards to the desired length, making an unceasing and unharmonious noise. I was sitting in the saloon reading a vast pile of letters from friends at home, which I had only received on my arrival at Montreal, the only budget of letters that I had been able to get delivered for six weeks. When about one o'clock I heard a most extraordinary bellowing of cattle, intermingled with the shouting and yelling of men, I rushed to the side, and observed a drove of upwards of two hundred steers driven along the shore and into the large shed on the Thomson Wharf. Stepping down the gangway and into the shed, I had a good view of the beasts. A large space of the shed opposite the ship had been cleared for their reception, bales of hay being built around like walls to confine them within proper bounds, and so arranged that

the compartment narrowed towards the end of the gangway connecting it with the ship. The gangway is a narrow passage, with the bottom and sides made of strong planking, with the bottom or floor thickly bestrewed with hay, so as to make it less frightsome to the cattle. The cattle were in a great state of fright and excitement, and terribly heated; in fact, they were just as wet with perspiration as if they had been swum through water, and the sweat was not only dropping, but actually running from their bodies. I never saw cattle so hot in my life, and I make no wonder though they catch chills on board after being warmed up to such a pitch, and I am of opinion that some supervision is necessary to prevent the beasts being treated in this fashion before being shipped. They were allowed to stand a short time in the shed, and when all was ready the barricade at the end of the gangway next the cattle was renewed, and in an instant the shouting and vociferating of the drovers and longshoremen recommenced, some hitting freely with sticks, others proding with spikes attached to the end of short poles, and all

Yelling Like Demons.

The cattle were so frightened that they were fain to run along the slip and into the hold to get away from their brutal and noisy tormenters. Once in, a less noisy gang were in readiness to receive them, who, provided with coils of head ropes, slipped a noose over the horns of each steer, and passing the other end through a hole in the head beam, quickly secured him in his place. The work was done so expeditiously that in less than an hour all the 200 were tied, and another 200 or more were waiting in the shed, and before four o'clock all the 552 cattle were on board and safely bound. 210 of these were placed on the upper or hurricane deck, and 342 on the main or shelter deck. All along the sides of both decks from foc'sle to wheelhouse the cattle stood with their hind quarters close up to the outside of the ship, and their heads, facing amidships, are attached by the horns to a beam 3 feet 3 inches above the deck, the rope by which they are bound giving them about two feet of head room. An alleyway passes along in front of their heads. Amidships are other two rows of cattle, with their heads facing outwards to this alleyway, and their hindquarters meeting in the middle of the ship. Troughs to hold feeds and water are placed below the head beams, and the alleyway forms a convenient passage by which the cattlemen can feed and water the beasts. The head beams are firmly bolted to the ship's stanchions, and strong wooden divisions are erected between every four of the animals. 2 ft. 8 in. by 8 ft. is the space allowed for each steer, and it is amply sufficient to allow them to lie down at pleasure. Timothy hay is fed to them *ad lib.*, and I calculated they eat about a stone of 22 lbs. daily. A mixture of ground oats, maize, and peas is given to them twice a day, from 6 to 8 lbs. being the daily allowance. Fresh water from tanks in the bottom of the ship is given them twice a-day. The first day or two the cattle appeared tired and leg-weary, and terribly jaded and drawn up in their bellies, caused by the long journey of 344 miles from Toronto to Montreal in the cars, but excepting a few that appeared somewhat frightened they rested very well, and appeared quite peaceful animals. It was evident these cattle had all been tied up before or they would not have taken so readily to the

Treatment on Board.

It is said the prairie cattle are more difficult to deal with. It is difficult to get them to submit to the constraint of confinement, and they do not rest well or eat sufficient for their maintenance on the voyage, but by the third day the cattle on the Iona were perfectly reconciled to their quarters and rested as well and fed as freely as they would have done in a comfortable byre at home, and by the time they were put on shore at Deptford I could perceive they were far better filled up and decidedly improved in appearance. At no time during the voyage is the manure cleared away. From the way the cattle are placed in the ship this would be quite impracticable. Certainly the devising of some means by which this could be accomplished daily would be a great desideratum, but I cannot see how this could be managed without too much space being taken up to allow of its being done. But they are by no means in the bad mess that might be supposed, for, as a consequence of all their food being of a very dry nature, the droppings are comparatively dry also, and these being littered over every day the cattle have quite a presentable appearance. I think the Thomson Line of steamers, in so far as they are fitted up for the cattle trade, to be as near the acme of perfection as could possibly be conceived; in fact, although I studied the matter minutely, I did not observe a single feature in the fittings or arrangements of the ship in which I could suggest an alteration. I think, however, that the regime of attendance might be altered for the better. On board the Iona there were 25 cattlemen, four or five of which were bosses, or one man for every 22 cattle, and I could not see any use for nearly so many men on the job. They did not have half work, and they were so thick in the alleyways that the one hindered the other. In a farm steading at home one man is expected to sort eighty cattle, having the byres to muck daily, and hurl heavy barrowloads of turnips. Neither dung nor turnips have to be dealt with on board, the meal and hay is drawn up from the holds with tackle, and conveniently placed for dividing it out with buckets and forks, and the water is run by hose into large tubs conveniently placed at short distances along the alleyways. The whole work is light and easily accomplished, and I see no reason why a cattleman should not be able to feed as many cattle at sea as on land. It may be argued that might do in good weather, but if it is rough, what would be the result with so few, but the officers told me that neither are the general class of

Sea Cattlemen

any use in rough weather. In fact they do not appear on deck at all, and at such times the work has to be done by the sailors. Without going the length of suggesting that each man should have to feed eighty cattle, I should decidedly say that a man should have no trouble in attending to fifty; this would allow eleven men for a cargo such as the Iona carried, over whom there would require to be one general boss, the whole men to be selected by the ship's company, and directly amenable to the orders and superintendence of the ship's officers. By such a system the cost of transit would be greatly lessened, and the proper attendance and welfare of the cattle better assured. I considered that the weight of the cattle on board would average about 1250 lbs. on the boof. I learned that they cost $4·60 or £11 per head at Toronto; the cost of bringing them from Toronto to Montreal is $36 per car load of twenty head, or 7s 6d each; and the cost of attendance, hay, &c., in the stockyards at both ends and on the railway would run up to about £1 per head; feed and attendance on the voyage, stockyard expenses at London, commission on sales, &c., about another £1; freight on vessel £2 per head, which with insurance, &c., added will bring

the expenses of the journey up to fully £4 per head—the total cost of the animal up to the time of his being cashed in London being £15 10s, or 28s per cwt. live weight. We had a pleasant voyage all the way home. Coming through the Straits of Belleisle, we saw five or six icebergs, some of them of great size, a strong head wind was against us, which retarded our progress, and we had to lie at anchor both in the St Lawrence and English Channel, in consequence of thick fogs. We drew up to the pier at Deptford, and disembarked the whole 552 cattle in the short space of half-an-hour, without a single casualty or case of sickness amongst them the whole voyage (cattle are not subject to sea sickness as human beings are). We reached our destination in London on Saturday evening too late for the train, and on Sunday evening, at 8 p.m., Mr Taylor and I took our seats in the "Flying Scotchman," and reached Dundee at 6 a.m., and, after having breakfast, we went to the *Courier* Office, where we met the Messrs Thomson, and gave them an account of our stewardship, and thus concluded our eventful journey of over 12,000 miles.

CONCLUSION OF THE TOUR.

IMPRESSIONS OF AMERICA.

THE COUNTRY'S RESOURCES.

ITS AGRICULTURAL PROSPECTS.

WHAT BRITISH FARMERS HAVE TO FEAR.

(From the Dundee Courier of July 7.)

Mr Osler, the *Courier's* agricultural commissioner to America writes:—I have now taken my readers with me in imagination in a descriptive tour over the billows of the great Atlantic, through the United States and Canada, over the wilds of the Rocky Mountains, out into the Pacific Ocean as far as the island of Vancouver, and home again to Dundee, where I must now bid them an affectionate goodbye. But before doing so, I would like to make a few general remarks upon the impressions I have formed in regard to the western hemisphere and its relations to this country. Well, as a grain importing country I do not think America can harm us more in our markets than it has already done. True, it has cheap land and abundance of rich virgin soils, which require no manures for many years, but it has dear labour to contend against, just as we have, and the long land carriage which has to be paid for before their grain is got to a seaboard will always handicap them in respect to the British markets. Still their surplus produce has to be got rid of, and as our markets provide the only outlet, they will continue to send it, even although it may be at a loss, and I am therefore of opinion that the tendency from America would be to raise the price of grain stuffs, but when we turn to India and Africa, with their countless millions of acres of splendid wheat-producing soils, which can be purchased at next to nothing, and teeming populations, who supply labour at the cheapest possible rate, together with low ocean freight, which land their produce at our doors for a mere trifle, so that, taking everything into consideration, I have no hope whatever that any improvement will take place in our market in regard to prices. Still, I surely think that we have touched bottom, and that no considerable reduction is to be anticipated. But with regard to meat stuffs—that is, beef and mutton—I am very much afraid that we have not by a long chalk seen the worst. True, I do not think that America is well adapted for the production of sheep, and if we had only it to compete against us, I would have no fear for a reduction in the price of the fleecy tribes; there is, however, no doubt whatever but that the trade in frozen mutton from Australia, already assuming gigantic proportions, is only in its infancy, and that it will year by year increase as establishments for slaughtering and refrigerating are opened up. And considering the cheap rate at which mutton can be produced there and sent over here, there is not the shadow of a doubt but that in a very short time the price of the home article will be run down and greatly lowered. It is, however, in regard to

The Cattle Trade

that we (the British farmers) have to fear America most. I have already shown that well-fed prairie cattle can be raised at the foot of the Rocky Mountains, and sold in our home markets at 22s per cwt. live weight or thereabout. At present home-reared cattle of similar quality are selling at about 30s per cwt. live weight, and farmers are unanimous in declaring that even at that price they are losing money by their transactions. What then is to be the result when the American cattle trade assumes such proportions, as it assuredly will do, as to cause a levelling down. I know very well that cattle in the eastern provinces of America, or, indeed, in any part of that continent where they have to be reared, or agricultural products cannot possibly be produced and delivered here at the rates I have quoted, hence the outcry amongst American cattle rearers as to the low prices, but it is the western provinces where good pasture lands are rented from Government at ½d or at most 1d per acre, that are to run down the prices both in Eastern Canada and the States and at home. But the farmers in Eastern Canada have an alternative which a short-sighted policy on the part of our Government has deprived us of, and which they have not been slow to avail themselves of, and is proving a source of relief to them in the meantime. By purchasing cheap stores from their western neighbours and putting them up to finish off upon their cheap meals and other products, they are enabled to put fatted beeves upon our markets, which neither they themselves, if left to their own resources, nor us could contend against. Why, then, should we be deprived of the same privilege if the finished article (that is, the fat steer) is to be allowed into our markets to run down our prices? Why should we be debarred from procuring the raw material (that is, the car or store ox) at the same cheap rate? It seems to me that the prairies of America are pre-eminently adapted for producing the raw material; that in fact the bones and frame must be built up and formed of cheaper materials than we have at our command in this country, and that our home products, which are ever so much more costly, must be devoted to the production of beef and bones, which is really the commodity which constitutes the value of the animal—that, in short, if we are to be in a position to compete successfully against the foreigner, we must get the Canadian store cattle at a cheaper rate to put beef on and finish off here. And the getting of these cheap stores, which we surely will do before long, is

The Only Bright Speck

that I can see in the whole agricultural horizon, and every farmer in this country should employ his utmost influence with our home legislators in getting the present embargo removed. And now that an exhaustive inquiry is being made into the

health of Canadian cattle, it is to be hoped that the greatest care will be taken to have it conducted upon proper lines. I have already described my voyage home upon the Iona, which carried a cargo of 550 Canadian cattle, which were all put ashore at Deptford, London. While they were being disloaded I had a walk through the cattle lairs there, and was surprised to find great quantities of United States and South American cattle confined in the same sheds waiting for slaughter with in some cases only a narrow passage between, and I thought how easy it would be for a little carelessness or connivance to cause a mixture of the herds. Surely when such a momentous issue depends upon the result separate sheds ought to be provided by the Government, where a mixture of the cattle would be impossible. I have now only one duty to perform, and it is to return my warmest thanks to those parties who lent their powerful influence and assistance to make my tour a pleasure and a success. And, first of all, my best thanks are due to the Messrs Thomson, proprietors of the *Courier*, who spared neither trouble nor expense in completing all the arrangements and carrying them to a successful issue. To Mr Murray, the Conductor of the *Weekly News* Expedition, I also feel greatly indebted for his unvaried kindness and attention during all the time I was in his company. To all the officers of the good ship Iona, and especially to Captain Cummings, the commander of that vessel, would I convey my best thanks, for so kindly and unweariedly attending to our comfort and welfare during the voyage out and home. Nor would I forget the members of the *Weekly News* Expedition, one and all of them being able and intelligent men, well qualified, from their great powers of observation and descriptive abilities, to discharge the duties which they had undertaken. We, indeed, formed a very mixed company, no two of us being of the same occupation or district. We had altogether different views and aspirations with regard to things in general, and the debates and conversations that took place amongst us were of a most varied description, but most interesting and instructive. We were withal

A Happy, Jovial Company,

and all of us contracted and cemented friendships which can only die with ourselves. I have also to acknowledge the deep debt of gratitude I lie under to many kind friends and new acquaintances I met out West. It would take up too much space to name all the gentlemen who ingratiated themselves in our favour by their kindness, hospitality, and help, but I cannot stop without mentioning Mr Burpe, Winnipeg; Mr Anderson, Edmonton; Mr Coleman, Edmonton; Mr Higginson, New Westminster; Mr Thomson, Calgary; Mr Thain, Brandon, &c., and the commandants of the mounted police at the various forts, for so kindly supplying us with machines and drivers to go out to investigate the country. Major Griesbach, at Fort Saskatchewan, and Major Sneider were particularly attentive in this respect, going out with us themselves and giving us all the information in their power. And, lastly, would I return most grateful thanks to my readers who have followed me in the columns of the *Courier* throughout all my wanderings, many of whom have so often expressed the pleasure they have experienced in perusing my articles, and thanked me repeatedly for the amount of information I have been able to give them in regard to the New World. In closing my correspondence on the New World, I have only to say that, although I must now bid adieu to that subject, I have no intention of being a stranger to them, but intend still, through the columns of the same paper, to keep up my connection with them in another capacity, and trust they will give me the same kind attention and consideration in perusing my articles on matters connected with home as they have done in regard to matters on the other side of the Atlantic.

DUNDEE COURIER AND DUNDEE WEEKLY NEWS ARTISAN EXPEDITION.

AGRICULTURAL COMMISSIONER'S REPORT.

(From the Dundee Weekly News of July 29, 1893.)

CROFTERS IN CANADA.

Mr James Taylor, Raesmill, Arbroath (Agricultural Representative on the *Weekly News* Expedition), reports :—After a very good passage across the Atlantic we first sighted land on the morning of the 2d July. All that day's journey was along the desolate-looking coasts of Newfoundland and Labrador, where scarcely any vegetation is to be seen except some stunted trees and shrubs, with a house or two at long intervals along the coast. After reaching Father Point, it is more inhabited, and cultivation seems to improve. The farms are mostly small, ranging from thirty to forty acres, and the occupiers are all their own landlords. It is no uncommon occurrence to see a horse and a cow going together in the plough, where only one horse is kept. Their cattle seem to be rather rough, and have a "want of rib," as we in Scotland would term it. We can see some flocks of sheep, but cannot very well say of what breed. Their horses are all of the light "mustang" kind—a very good class for doing light work, and working in the light "buggies" they use on their farms. The crofters are for the greater part of the year engaged in fishing, and the good lady of the farm is generally mistress of that department. After passing Quebec things in general begin to improve. The land is better and earlier, and more stock kept. We can now see some very good herds of cattle, and swine are grazing in lots together. Fences are of the most primitive kind, not fixed together in any way, just hung together, the one leaning against the other. The crops appear to be mostly of oats, with an occasional patch of barley and very little wheat. There appears to be a tendency to move further west, and many of the small crofts are deserted and the land rapidly going back to its natural state. After we come nearer Montreal crops begin to improve very much and are much earlier, some very fine crops of hay being cut down.

State of Farms.

We landed in Montreal on Thursday, 6th July, and had a look through the city, but did not see much to which an agricultural correspondent can refer. We took train at 9 p.m. for Toronto. As seen from the train farming is in rather a backward condition until we come into the vicinity of Toronto, when it improves considerably, also farm buildings are in better order and fences seem to receive more attention, and it is also much earlier. They are in the middle of their hay season, and it seems a very fair crop. The principal crops seem to be wheat, barley, oats, mashley, but very little turnips or potatoes. Their horses are all of the mustang breed, what we in Scotland would call "shalts." We see some very good cattle in this district, and pasture is plentiful. Fences are all of wood, no stone, wire, or hedge fences being to be seen. Their farm buildings are also much of the same kind as seen in the province of Quebec, consisting of farmhouse built with wood but very comfortable-looking and a barn.

A Famous Agricultural Machine Establishment.

Arriving at Toronto we had a rest, and set out to visit the works of Messrs Massey, Harris, & Co., Limited, engineers and manufacturers of farm machines and implements. Upon asking at the works we were very cordially received by Mr Shenstone, manager, who at once showed us through the place. The most interesting part of their work to me was the part engaged in the construction of the "Massey Harris" wide open binder. This machine is built almost entirely of steel. The entire frame work, including elevator frames, truss rods, and frames are of solid steel, and that, too, largely of angle steel, the strongest form known for agricultural machine construction. The driving wheel, grain wheel, parts of knotter, cutting apparatus, and shafting, are all of steel. The "Massey Harris" machine is about as simple in construction as a binder can be. Being so light and having the gearing at the centre under the decks, it is easily and correctly supported, and can be shifted a greater distance without danger of throwing a heavy weight on the necks of the horses. Most binders shift only a few inches, and the grain must therefore be moved endways to the knotter. It is obvious that the less the grain has to be shifted, the less "shelling" there will be and the better sheaves. The construction of hay-mowers is also a large branch of their business. They are made of various sizes, cutting bars being from four and a half to seven feet wide, as they have to suit the requirements of all crops and all countries.

American Implements of Husbandry.

They also do a large business in drill-sowing machines. They are not the same as used in Scotland. Their "Shoe" drill-sowing machine is the kind commonly used in America. It is narrower than the machines used in Scotland. They cost £12 upon rail. They also do a large business in the construction of threshing machines, mostly of the movable kind, as they best meet the requirements of the American, who likes to set his mill in the middle of his field, and when that is finished shift to another field. I shall be better able to pass my opinion upon their merits when I see them at their work, as I expect to do in a few weeks. Messrs Massey, Harris, & Co. have also large works at Brantford and at Woodstock. In all they employ 500 hands, not including clerks, agents, &c. Find men mostly steady and reliable, and generally Scotchmen turn out best, and get the most important positions. The whole work is done on the system of piecework, which Mr Shenstone finds works best. The men are making from 12s to 16s a day in some departments, and the average wage over all the work is 8s a day. Four years is the common term of apprenticeships, with the exception of ironmoulders, who have only three. By their rules any labourer may rise from the ranks and do the work of a skilled tradesman without the interference of any union, and there is no union connected with the work. They are all members of a mutual benefit sick society, of which the superintendent of the works is manager,

and payment is made every fortnight. They work 55 hours per week, having a half-holiday on Saturday, and a fortnight is the general rule for holidays during summer. Messrs Massey, Harris, & Co. have a strong objection to working overtime, and never do so unless in cases of absolute necessity.

A Good Farming District.

Upon leaving Toronto for Chicago we find crops after leaving Toronto much the same as in Eastern Ontario. As we proceed they gradually begin to improve, and by the time we reach the London district they are very much better, and we are now in a very good agricultural district. Wheat is very good, and in that district wheat harvesting will be general in a fortnight. Wheat and hay are the principal crops grown. Barley and oats seem to be a failure, and are still very green. Turnips are not much grown, and what are sown are very far back, in most instances just beginning to braird. Potatoes are also looking very well, but are not extensively grown. Thousands of acres of unreclaimed land, mostly in marshes and bush, are still to be seen here. A very difficult and expensive speculation it must be to make it fit for cultivation. In many instances we can see good crops growing and the tree roots still in the ground just as the trees had been cut down, as they cultivate the ground for a number of years before attempting to "draw" the roots. They have a kind of ploughs called "Stump-jumpers" for ploughing land where the tree roots are not yet removed. They slip over the roots guided by a wheel in front without injury to horses or plough. As we came into the south-western district of Ontario, "the garden of Canada," I was struck with the great improvement of crops of every kind. Fruit is grown extensively here; apples, oranges, peaches, bananas, cherries, cucumbers, fields of hops and tobacco, &c., are growing luxuriantly. Indian corn is also grown very extensively here, and has every appearance of being a good crop. Farm buildings are also much improved here, being more after the style of those in Scotland, and more substantial-looking than the solitary "barn" of Northern Canada.

A Wasteful System.

We have seen very little live stock of any kind since leaving Toronto, as they prefer hay crops to stock-rearing. Their horses are mostly the same breeds as in the north, but are better sorts. After we passed Detroit into the States we come into a track of rather poor country. The worst feature I see in Canadian farming is that they burn all their straw, although in some instances we can see they have begun to put their farm manure upon the land, a system that would pay Canadian farmers, and ought to be adopted.

(From the Dundee Weekly News of August 5.)

M'Cormick Harvesting Machine Works.

Mr James Taylor, Raesmill, the agricultural representative on the *Weekly News* Expedition, thus describes the works of the M'Cormick Harvesting Machine Company in Chicago:—

I visited M'Cormick's harvesting machine works on the 13th of July, and was shown through the works by Mr Armour, the manager. The works, I believe, are the largest of their kind in the world. They cover 45 acres, and are, on an average, five storeys in height. There are 2200 hands employed, but no apprentices of any kind. Of the total, 987 are employed at so much per day, the others being all employed on the piecework system. They turn out on an average 800 machines per day, mostly self-binding reapers and mowers. The quantities of metals used in the works are 100 tons of grey iron daily, 80 tons of malleable iron daily, and 25,000 tons of steel yearly. The rates of wages are about the following:—Moulders, being upon piecework, can make as high as 4½ dollars per day; blacksmiths, 4 to 5 dollars per day; while mechanics and those paid by day wages have about 2 to 2½ dollars. They work ten hours per day, with no Saturday afternoon, and get about a week's holidays every year. They are all non-Union men, and all seem to be well satisfied with their position. In my opinion they work a deal harder than Scottish tradesmen do, as they were all working as for dear life, even although the thermometer stood at 90 in the shade. When working overtime they get the same pay for eight hours as in their ordinary day they would do for ten. One very smart-looking machine came under my notice as being particularly well adapted for smaller farms. The "Queen of Reapers" it is called. It is a very handy and available machine, being very light in draught. These machines are sent to every part of the world, and seem to be very durable.

(From the Dundee Weekly News of September 2.)

THE STATE OF ILLINOIS.

Far Advanced in Agriculture.

Mr James Taylor, the agricultural delegate on the *Weekly News* Expedition, writes as follows from Rockford, Illinois:—As far as I have yet seen of America I have found the State of Illinois, and more especially the north-west part of that State, to be farthest advanced in agriculture. There the principal crops grown are Indian corn, oats, and a little barley, and hogs are also extensively fed for the Chicago market. The soil here is generally of a fine deep-black loam, three to four feet deep. The land is more in rotation of cropping, having been longer under cultivation than most parts of America. Land here can be bought at from £8 to £20 an acre, according to its quality, buildings, location, &c. I will give a farm of 160 acres as a fair specimen of their rotation of cropping:—40 acres of maize, 40 acres of oats, 40 acres of permanent grass, with a little barley and as much potatoes as they require for family use. The average amount of stock kept upon a farm of that size would be 6 cows and 10 or 11 calves, which they rear up to feeding age. They feed with corn, and sell off at about 4½ cents per lb. They would also sell about 150 fat hogs under one year old. Oats here average 40 cents (1s 8d) per bushel, and maize 50 cents (2s) per bushel. We have also visited

The Town of Granite Falls,

which is situated in Yellow Medicine County, Minnesota. This town was first settled 28 years ago, and is entirely supported by farmers located in the district. Farming is not so far advanced as in Illinois. Land can be bought at from $20 to $25 (£4 to £5) an acre, according to quality. Corn and wheat are the principal crops grown. Wheat yields on an average 18 bushels an acre, oats 35 bushels, and maize about 45 bushels.

Ploughmen's Wages

here are from $20 to $22 (£4 to £4 10s) a month, with bed, board, and washing. That is for eight months of the year. The other four months many of them are compelled to go idle, as only a comparatively small number of hands are kept on during winter to feed stock, &c., for which they get from $10 to $15 (£2 to £3) a month. The farmers, like those in Scotland, have to engage extra hands during haying time and harvest, for which they give about $75 (£15)

for two months. Many of them go lumbering in winter, and a goodly number go altogether idle during the winter months, as it is not easy to find employment.

Cost of Clothing, Food, &c.

I give the cost of clothing for a working man to show how it compares with the wages earned—Sunday suit, $12 (£2 10s); suit for underwear, $2 (8s). Overalls for working men, which are always worn, cost $1½ (6s), and they require three suits of overalls per year. Cotton shirts, 50 cents (2s); hat (working), $1 (4s); socks (cotton), three pair for 25 cents (1s); working shoes, $1½ (6s). Plough boots cost $2 (8s) per pair, but shoes are mostly worn. Skin overcoat for winter, $10 (£2); felt boots for winter wear, $3 (12s); fur caps for winter, $1 (4s). Very few married men are employed as farm servants, and their ambition seems to be to get farms of their own. The general rule is that they all live in the same house with the farmer, and all take their meals at one table. They have no regular hours, and must work from daylight till dark if asked to do so. What is called a "poll" tax is imposed for the maintenance of the public roads. Each man, be he farmer or servant, between the ages of 21 and 50, has to work for two days every year gratis upon the roads, or pay $1½ (6s) in money each day for a substitute. Farm hands are rather scarce, and there is the same tendency as in Scotland to seek employment in large towns or get farms of their own, one cause of that being the want of house accommodation for married ploughmen, as in this district there is not such a thing as a ploughman's house to be seen. In my opinion, as far as I have seen, the Scottish ploughman is much better off than his cousins on this side of the Atlantic. A ploughman in Scotland can depend upon getting work all the year round according to engagement, while the American has only work he is sure of for eight months a year.

(From the Dundee Weekly News of September 9.)

OVER THE ROCKIES.

TWENTY-FOUR O'CLOCK.

GLIMPSES OF THE REDSKINS.

PLOUGHING BY BRIGADES.

THE ROCKY MOUNTAIN PARK.

Mr James Taylor writes:—It rained heavily when we left Winnipeg, but as we proceeded westward we left the rain behind and came into fine clear weather. The country after leaving Winnipeg is apparently as level as a billiard table, a belt of almost unoccupied land stretching as far as Poplar Point, seven miles out, due to the fact that it is mostly held by speculators, and the scattered farms visible are chiefly devoted to dairy products and cattle-breeding. After passing Poplar Point Station farms appear almost continuously. The crops grown appear to be mostly wheat, oats, and timothy hay, no maize, and very little potatoes or turnips being grown. We next came to the station and town of Portage La Prairie, on the Assiniboine River, the market town of the district, and one of the principal grain markets in the province. It has also large grain elevators and flour mills, besides other industries. Between Portage La Prairie and Brandon stations succeed one another at intervals of six or eight miles, and at nearly all are tall and massive elevators for the convenience of farmers in the neighbourhood, with now and then a flour mill. After passing through a bushy district, with frequent ponds and small streams, containing many stock farms, for which, having a plentiful supply of water, it is well adapted, the railway rises from Austin Station along a sandy slope to a plateau, near the centre of which is situated the town of Carberry, an important grain market. The next stop is Brandon. It is what is called on the railway a divisional point, as

The Standard Time

changes here to "mountain time," one hour slower. The time changes four times between Montreal and Vancouver. There is Eastern time, Central time, Mountain time, and Western time, falling back an hour each time as we proceed west. They have also abandoned the a.m. and p.m. system on this railway, and just run on from twelve noon to twenty-four o'clock. Brandon has the largest market for grain in Manitoba. It has five grain elevators and a flour mill. Beyond Brandon the railway now draws away from the Assiniboine River and rises to a "rolling" prairie with small patches of cultivated land here and there. As we come to Virden Station the farms are gradually disappearing, as the land here is again held by speculators. The frequent ponds and copses here offer excellent opportunities for sport. Water fowl and prairie chicken seem to be abundant. At Broadview Station a reservation of Cree Indians is not far away. As we stop there for several minutes we get a fine view of some of the "redskins" with their war paint and feathers.

Westward

we now follow a gradually rising prairie, bounded by low wooded hills at the south. This section is almost exclusively devoted to wheat and cattle. A little beyond Sintaluta Station is the celebrated Bell Farm, containing 100 square miles, and from the next station, Indian Head, near the centre of the farm, the headquarters buildings can be seen on the right. The neat square cottages of the farm labourers dot the plain as far as we can see. The furrows on this farm are usually ploughed four miles long, and to plough one furrow outward and another returning is a half-day's work for a man and a team. The ploughing is done with an almost military organisation—"Ploughing by brigades and reaping by divisions." We enter, after passing Broadview Station, into

Many Miles of Golden Prairie,

as far as the eye can reach along a broad treeless

expanse, which stretches, varied here and there by small towns and frequent herds of cattle and horses, to the entrance to the Rocky Mountains. Calgary is our next stop. It has a population of 4500. It is charmingly situated upon the level prairie in sight of the white peaks of the mountains. It is the centre of the trade of the ranching country, and the chief source of supply for the mining districts in the mountains beyond. Lumber is largely made here from logs floated down the Bow River. From Calgary a branch line of the Canadian Pacific Railway runs north to Edmonton, thus throwing open a new and vast country, which is already attracting settlers in large numbers. As

We Approach Kananaskis,

the mountains suddenly appear close at hand, and seem an impenetrable barrier, their bases deeply tinted in purple, while high above, dimly outlined in the mist, are distant snowy peaks. We reach Canmore, and here an observation car is attached for the convenience of passengers. From the station a striking profile of the Three Sister Mountains is obtained, with the Wood and Pigeon Mountains looming up behind. On either side of the beautiful valley the mountains rise in solid masses westward until the great bulk of the Cascade Mount closes our view. Five miles beyond Canmore the Rocky Mountain Park is entered, and we alight there and receive a very cordial welcome from Mr G. A. Stewart, land surveyor and park-keeper. This park is a national reservation, 26 miles long by 10 miles wide, embracing parts of the valleys of the Bow, Spray, and Cascade rivers, one very fine lake, and several noble mountain ranges. We were driven all over the island, and also to the famous hot-water springs, the more important of which have been improved by the Government, and picturesque bathing-houses have been erected, and placed under the care of attendants.

(From the Dundee Weekly News of September 16.)

FROM WINNIPEG TO VANCOUVER.

EN ROUTE FOR THE CANADIAN RANCHING DISTRICTS.

THE WILDEST OF THE ROCKIES.

Mr James Taylor, further describing the journey from Winnipeg to Vancouver, writes:— We resumed our journey next day, leaving Bamff at 12.30, and it may be said to be here that the wildest of the Rockies begin. After passing Castle Mountain Station, at the base of the great peak whose name it bears, the mountains on each side become exceedingly grand and prominent. As we reach Laggan Station any one who is inclined can get a seat in front of the engine, and Mr Osler and myself availed ourselves of the opportunity of having a seat upon a "cow-catcher." We can now get a splendid view from our seat in front. At first enchanting glimpses only are caught through the trees as we look ahead, but before Eldon is reached the whole long array is in plain view. Turning to the left and looking back, the central peak of Pilot Mount is shaped like a pyramid high above the square-fronted ledges visible below, and squarely opposite the sombre precipices of the Castle Mount, resembling a castle in every way, with towers and battlements complete. West of the entrance into Vermillion Pass stretches the long, rugged, wall-like front of Mount Temple, and beyond it, standing supreme over this part of the range, the helmet-shaped Mount Lefroy, the highest and grandest in this whole panorama. At Laggan we return to the observation car. The railway here leaves the Bow River and ascends a tributary from the west, which courses through a gap in the Bow range. Looking westwards through this gap towards Bow Lake and

The Huge Peak of Mount Hector,

a view is obtained of the first of the great glaciers. It is a broad, crescent-shaped river of ice, 1300 feet above, and a dozen miles away. The station at the highest point of the mountains is Stephen, 5296 feet above the level of the sea, and, like the enormous mount some miles ahead of it, is named in honour of the first President of the C.P.R. The line here now begins to descend very rapidly. We cross the Wapta Lake at Hector, and, crossing the deep gorge of the Wapta or Kickinghorse, the scenery is now sublime, and almost terrible. The line clings to the mountain side at the left, and the valley on the right rapidly deepens until we can see the river like a silver thread a thousand feet below. Looking to the north, one of the grandest sights to be seen during the whole journey is now visible away to the north, with great white glacier-bound peaks upon either side. Looking ahead, the dark, angular peak of Mount Field is seen. On the left the stately head of Mount Stephen, 8000 feet above the valley, and the spire-like top of Cathedral Mount, still further on the left, occasionally appear over the tree tops. On the shoulder of Mount Stephen is shining a great green glacier, 800 feet in thickness, which is slowly pressing forward, and over a vertical cliff of great height. We still follow the course of the Wapta River, and as we are descending a steep gradient the train, with reversed engine, commences its descent on the western side of the pass, and near Palliser the track enters a deep canon, where the vertical sides of the mountain rise up thousands of feet, and yet so near each other that a stone may be thrown from one side to the other. Down this vast chasm go the railway and river together, the former crossing from side to side to ledges cut out of the solid rock, and twisting and turning in every direction, and every minute or two

Plunging Through Small Tunnels,

made in the projecting angles of rock that seem to bar the way, with the towering cliffs almost shutting out the sunlight, and the roar of the river and the train, increased an hundred fold by the echoing hills. The passage of this terrible gorge will never be forgotten. The train suddenly emerges as if into daylight as Golden is reached. The broad river ahead is the Columbia moving northwards, and we can now see the Selkirks beyond rising from their pine-clad bases, and lifting their ice-crowned heads to the sky. At Donald Station our time again falls back one hour as we change here from Mountain to Pacific time. Here we pick up an extra engine as we are now going up a gradient of 116 feet per mile, and we soon leave the river 1000 feet below. Opposite is a line of huge pine-clad hills, showing occasionally snow-covered peaks above the timber line. Nature has worked here on so gigantic a scale that many travellers would not notice the extraordinary height of the spruce, Douglas fir, and cedar trees. Looking ahead we can now see the heads of

Eight Magnificent Mountain Peaks

in grand array. A little further on we reach Cedar Creek, and a little on is a very high tressle bridge over a foaming cascade, whence one of the most beautiful prospects of the whole journey can be had. So impressed were the builders with the charm of this magnificent part of the mountains that they named it "The Surprise." At Glacier House we are within fifteen minutes walk of the

Great Glacier, a vast plateau of gleaming ice extending as far as the eye can reach, as large, it is said, as all those of Switzerland combined.

Leaving the Glacier the train enters upon

The Most Exciting Part of the Journey,

the descent of the "Loops." The line makes

THE LOOPS.

several startling turns and twists—first crossing a valley that leads down from Ross Peak Glacier, then doubling back until we can see half-a-dozen parallel lines of railway, and along these the train, by doubling itself again and again, and moving at not more than six miles an hour, has to crawl downwards to a depth of 500 feet. We now follow the Illecillewast River, with its waters pea-green, from the Melting Glaciers. The gorge is sometimes of considerable width, filled with a forest of gigantic trees, for which British Columbia is famous. Just east of Albert Canon Station the train runs suddenly along the very brink of several remarkably deep fissures in the solid rock, whose walls rise straight up hundreds of feet on both sides. The most striking of these canons is the Albert, where the river is seen 300 feet below the railway, compressed into a boiling flume scarcely 20 feet wide. The train stops here for a few minutes to give passengers an opportunity of viewing from the solidly-built balconies the boiling river below. As we approach Craigellachie the Columbia River is crossed by a bridge half a mile long. Here the last spike was driven in the Canadian Pacific Railway—the lines from east and west meeting here. Still onward we go to the pretty town of Kamloops. A divisional point on the railway, and also an old Hudson's Bay post, and through the Thomson River valley to Cherry Creek and Spatsum. Three

ALBERT CANON.

miles beyond Ashcroft the hills press close upon the Thomson River, which cuts its way through a winding gorge of almost terrifying gloom and desolation, fitly named

The Black Canon.

Emerging, the train follows the river as it meanders swiftly among the round-topped, treeless, and water-cut hills. The scenery now becomes very striking and peculiar. The train runs upon a ledge cut out of the bare hills on the irregular south side of the river, the headlands are penetrated by tunnels, and the ravines spanned by lofty bridges, and altogether it is a sight that leaves a strong impression upon the memory. The mountains now seem to draw together again, and the railway winds along their face hundreds of feet above the struggling river. This is the Thomson Canon. The gorge rapidly narrows and deepens, and the scenery becomes wild beyond description. The frowning cliffs opposite are streaked in many striking colours, and now and again snowy peaks can be seen glistening through the clouds. At Lytton, a small trading town where ranchmen and Indians appear in numbers, the canon suddenly widens to admit the Frazer River, the chief river of the province, which comes down from the north between two great lines of mountain peaks. The railway now enters the canon of the united rivers, and the scene becomes even wilder than before. The old Government road attracts attention all along this valley—it is sometimes forced to the height of a thousand feet above the river, and is pinned by seemingly slender sticks to the face of a gigantic precipice. The canon alternately widens and narrows. Indians are here and there sitting on projecting rocks down at the water's edge spearing salmon or scooping them out with dippets, and in sunny spots the salmon are drying upon poles. Chinamen are seen on the occasional sand or gravel bars washing for gold; and irregular Indian farms and villages, with their quaint and barbarously decorated graveyards, alternate with the groups of huts of the Chinese. At Boston, four miles below, the principal canon of the Frazer commences, and the scenery is not only intensely interesting but startling. The great river is forced between vertical walls of black rocks, where repeatedly thrown back upon itself by opposing cliffs, or broken by ponderous masses of fallen rock, it madly foams and roars.

FRAZER CANON.

Emerging at North Bend, the train enters the grand canon of the Frazer, the awe-inspiring character of which is beyond description, and when we again reach daylight at the pretty riverside station of Yale, it seems as though we had come through what has been described as "a journey through the regions of eternal night." We are now within 100 miles of the Pacific coast, and the country widens out into

Flat Grassy Plains

backed by the dense forests for which British Columbia is famed. Stopping off at Harrison Station, as we had resolved to visit the Island of Chilliwack, we were rowed across the Frazer River by a native Indian. After a very pleasant stay for a day on the island, we resumed our journey next morning by steamer down the river to New Westminster, where, after a look round the city and a view of its fine marine harbour, we again got upon the cars, and in less than an hour we reached Vancouver City, the Pacific terminus of the railway. The city was founded in 1886. From May to July that year its growth was very rapid, but in July a fire spreading from one of the surrounding forests, which are so numerous in that district, swept every house but one in the place, and with this exception every building now in it has been made since that time. Its situation is most perfect as regards picturesqueness, natural drainage, harbour facilities, and commercial advantages. It has many splendid buildings of brick and granite, and some of its private residences would do credit to a city of a century's growth. Its streets are well made, and it is lighted with gas and electric light. An ample supply of pure water is provided by means of pipes laid to a mountain stream opposite. From

Vancouver City

we went by steamer 80 miles across the Pacific to Victoria, the capital of British Columbia, and drove to many places of interest in the city and around the island. This ended our journey West, and after staying in Victoria we again proceeded East to visit the North-West Territories and ranching districts of Canada. I have long wished to see the West Coast of America, and see the sun act behind the waters of the great Pacific, and my wish has to-night been granted to the full.

(From the Dundee Weekly News of September 23.)

THE CHICAGO STOCKYARDS.

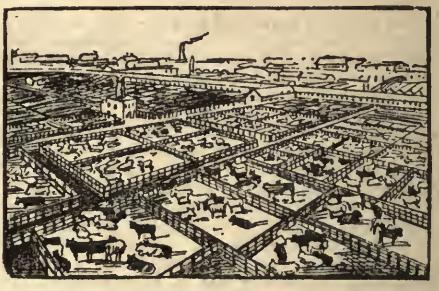
ARMOUR'S PACKING-HOUSES.

CANNED MEAT OPERATIONS.

Mr Taylor, Raesmill, Arbroath, reports:—During our stay in Chicago I on two occasions visited the stockyards, which are situated on the south-west side of the city. Centrally located and drawing

MR PHILIP D. ARMOUR.

supplies from a fertile country of almost unlimited extent, Chicago has for many years controlled the packing business, and indications point to the maintenance of her supremacy. The output of hog and beef products manufactured in Chicago has of late years increased enormously, and gives employment to many thousands of men. Finding it impossible to visit the works of all the different firms, we selected Armour & Co.'s houses as being capable of giving us a good idea of how the different processes of killing and packing are done. In 1886 the number of hogs killed by Armour & Co. was 20,000; in 1892 it was 1,750,000. The number of cattle killed by the same Company in 1892 was 850,000; sheep, 600,000. Usually the cattle are left in the



UNION STOCKYARD.

pens adjoining the beef-house twenty-four hours after having been driven from the stockyards. This ensures an even, cool temperature. They are then driven into narrow passage-ways beside the pens, each compartment being only large enough to hold one animal. Overhead is a raised platform, upon which stands the grim executioner. The cattle are killed by the stroke of a heavy hammer. Sometimes by means of a heavy spear the spinal column is severed at its junction with the skull. Directly opposite the animal as it falls is a sliding door, which is lowered, and the animal is drawn on to the dressing floor by a chain attached to the

horns. It is then raised automatically by the hind-quarters, and suspended from a rail, and busy hands attack it. The head is cut off, and the tongue removed by one man, the feet stripped by the next, the entrails are removed by another; the hide stripped off by one, and a general finishing touch given by another. The

Killing and Dressing

process over, the animal still hangs suspended from the rails, on which it is now moved past the weighmaster, who records its weight and nature, and then it is slid along on the rail to the chill-room. Here the air, by means of cold air machinery, is kept constantly near the freezing point. The chill-rooms of Armour & Co. have a capacity for 15,000 carcases. Here the carcases are allowed to hang from 40 to 80 hours, and then, still suspended from the rails, they are run out to the loading platform, divided in fore and hind quarters, carefully inspected and transferred to the refrigerator cars standing ready to receive them, and are then distributed to all parts of the country. Every carcase is inspected by an officer of the City of Chicago Health Department, who issues a certificate as to the health and soundness of every animal, which certificate is transmitted to the dealer who buys the meat. About 1200 men are employed

KILLING CATTLE.

in Armour's Beef House, and the killing capacity is about 5000 cattle per day. The cleaning, cooling, and shipping of the carcases is, however, not all that has to be done, as almost every item of the by-products is utilised. The entrails are properly cleaned and cured, and, when packed in salt, form a very important industry, being chiefly used as sausage skins. The tongues go to the canning department. The shanks and heads, after being trimmed, are transferred to the glue works. The hides are taken to the cellars underneath, where they are inspected and classified, and then packed with layers of salt to cure. The cured hides are sold to tanners, but Armour & Co. contemplate starting tanneries of their own. No part of the animal is wasted. The livers and hearts are shipped in the refrigerator cars along with the dressed carcases to supply the Eastern demand. The horns are sold to comb-makers, the shin bones to knife-handle and knitting-needle manufacturers, while the switches, or tail-ends, find a ready market with the hair-mattress manufacturers. And in fact every part of the animal is utilised in some way, thus rendering possible the development of the buisness on so large a scale, and giving the consumers the benefit of prime, sound, wholesome beef at the lowest possible price. A great deal of inventive talent has been devoted to the perfection of the refrigerator cars, for the transmission of the dead meat over the country and to the Eastern shipping ports, the average cost of one of these cars being £200—$1000—and Armour & Co. own 3200 of them, paying the railroads, of course, for "hauling" (as they call it), but themselves supplying the vehicles of

DRESSING BEEF.

transportation. The cars are thoroughly washed and cleaned before and after loading, while large and expensive icing stations are planted midway between Chicago and the large Eastern centres, that the cars may be re-iced during transit. The work is all done on the piecework system, and is minutely sub-divided, and the unaccustomed spectator is astonished at the rapidity with which the experienced hands perform their work, each in his own different department. The

Canned Meat Department

is one of the most interesting of the whole business, and I was afforded an excellent opportunity of seeing all the different processes. From the top floors where the meat is cooked and trimmed down to the label-room where the finished cans are painted and packed everything is life and bustle. Good, prime, well-selected beef is used for making this great staple, but besides there is a multitude of articles turned out. Ox tongues, lunch tongues, canned soups in great variety, potted ham, potted tongue, roast beef, compressed ham, canned tripe, canned pigs' feet, Oxford sausage, and, in fact, almost every delicacy in the meat line is thus preserved in convenient form and guaranteed to keep sound and sweet in any climate. Corned beef, when cooked, is stuffed into the cans by automatic machines. The cans are filled with the proper quantity, and then tested by hand, then they are capped, soldered, and sealed up. The "processing," as this sealing is named, consists of the insertion of the can, when closed, in boiling water or steam. After a time the air, which has been forced to the top, is permitted to escape by means of a small perforation in the top of the can. As the heated

air is blown out the hole is immediately re-soldered and the cans are again subjected to the hot bath. After this they are treated to a cold shower, washed, freed from grease, dried, painted, and labelled. The labelling is done with much dexterity, in fact, the visitor is apt to suppose that it cannot be done thoroughly. A close examination, however, shows us that the girls who perform this work have attained a deftness that is really wonderful.

Extract of Beef.

Armour's extract of beef has taken a firm hold on the popular palate. Its manufacture and preparation for market possess much interest to the observer. With the assistance of experts thoroughly practised in the latest developments and discoveries of science as applied to the extraction and concentration of all that is stimulating and palatable in fresh beef of fine quality, Armour & Company are able to produce an extract superior to anything of the kind in the world. It is admitted by all that extract of beef made from the coarse and practically wild cattle of South America cannot possibly equal in substance and flavour that produced from the well fattened and graded beeves of the United States. Forty-five pounds of lean beef are required to make one pound of Arm ur's extrac'. The consumer is saved all the time, trouble, and expense for fuel and obtains this concentrated soup stock cheaper than it can be made from the beef and bone.

"Billy the Bunco Steer."

There is still one more valuable adjunct of the business which must not be missed. This time it is neither a man nor a piece of machinery, but an old and venerable member of the bovine tribe known as "Billy the Bunco Steer." He has long had the freedom of Packingtown, is monarch of all his brethren, and bears his honours easily. His particular line of work is to lead the unsuspecting train load of cattle from the cattle pens to the slaughterhouse. Every day, with a regularity born of high intelligence and much habit, he takes up his station at the cattle pens. When the time to

"BILLY."

move arrives "Billy" takes his victims in hand, and having probably communicated to them in bovine language that there is something good to eat over the way he marches deliberately at the head of his regiment, and delivers them safely within the slaughterhouse pens. Having thus betrayed his friends, he turns coolly and marches off to perform the same service for another load. Old "Billy" is a *drawing* card.

(From the Dundee Weekly News of November 18.)

AMONG ALBERTA RANCHES.

A SUCCESSFUL ABERDONIAN.

BREEDING ENGLISH HUNTERS.

A SUGGESTION FOR LEGISLATION.

Mr Taylor, the Agricultural Representative on the *Weekly News* Expedition, writes:—Returning from British Columbia we spent three days at Calgary, a very substantially-built town with nearly 5000 of a population, situated at the confluence of the Bow and the Elbow rivers. From the town a fine view of the Rocky Mountains is got. The buildings are chiefly of good sandstone, which is very plentiful in the vicinity. The North-West Trading Company do an extensive dead-meat trade here. They also do an extensive export business with Vancouver and Victoria. To enable them to carry on their business successfully they have built a slaughtering and cold storage establishment about a mile from Calgary. The trouble in shipping live cattle was the falling off in weight and quality during transit. The cold storage building is capable of holding the carcases of 2500 cattle and 2000 sheep. Here they can be preserved for several months. By this method ranchmen can bring in their cattle, see them killed and weighed, and get their money at once. The Ean Claire and Bow River Lumber Company has timber mills with a capacity of 30,000 feet of lumber and 10,000 laths per day. For somes miles round Calgary the Company is well settled, but crop-growing does not appear to be very successful, owing to the drought, although there are some very good fields of oats to be seen.

Elbow Park Ranch.

We drove out in company with Mr Thomson, Homestead Inspector, for about twenty miles to the west, and visited the Elbow Park Ranch, owned by Mr Robertson. This gentleman has been in the ranching business for five years, breeding shorthorns and Herefords. He sends all his cattle to Montreal at a cost of £2 8s a head. Mr Robertson is most emphatic in his assertions that no pleuro-pneumonia exists among cattle in Canada. We

CATTLE RANCHING IN ALBERTA.

then visited Mr M'Pherson, a native of Banchory, Aberdeenshire, who came out to Ontario in 1856, and moved west to his present farm in Alberta in 1883. Mr M'Pherson is quite well pleased with the way he has succeeded in America, as he came out a poor man, and has now a well-stocked farm free of debt. His cattle are all of his own raising, and of the shorthorn breed. He finds there is

A Scarcity of Farm Hands

in his district, and wages here are from £5 4s to £6 a month, with the perquisites common in America. During the summer months men's hours are from 7 a.m. to 6 p.m., with an hour and a half off at mid-day. There is a good deal of land still to be taken in in this district, and it can be bought at from 16s to 20s an acre. Next day we drove from Calgary to the Quorn Ranch, 25 miles south of Calgary. The Quorn Ranch is one of the principal ranches in Alberta. It is 17 square miles in extent, and is well stocked with cattle and horses. We were met by Mr Richard Broderick, a native of Ireland, who did everything in his power in the way of showing us the stock and driving us over part of the ranch. On it there are 1500 horses and several thousand head of cattle. The twelve stallions are nearly all imported from some of the best blood in Britain, several of them having been prize-winners.

300 Mares from Ireland.

Three hundred of the mares were imported from Ireland four years ago, and a number of their stock will be sent to England this year to be trained for hunters and cavalry remounts. Horses bred in Alberta are noted for their endurance, and such a thing as a broken-winded horse has never been known there. Water and natural shelter abound in this place, and the grass is of the best quality and plentiful, making the district highly suitable for stock-raising. But, with all these advantages, there is no denying that Alberta has a severe winter. In fact, I think it ought to be made compulsory that no ranchman or farmer should keep more stock than he can house and feed during the most severe part of the winter. Their present system of allowing them to go outside in all weathers without any attempt at shelter or feeding whatever must often cause great cruelty and privation to the animals, besides being a loss to the owners. In my opinion, some such method as I have suggested, if adopted, not only would add greatly to the comfort of the animals, but increase

The Profits of the Ranchers.

The Iron Ranch is held on a lease from the Government at one per cent. an acre yearly. There are fourteen men employed upon it during the summer season, their wages ranging from £6 to £7 per month during summer. Eight is the usual number kept during the winter, when the wages comes down to £1 12s per month, with rations.

(From the Dundee Weekly News of December 2.)

THE CANADIAN NORTH-WEST

Edmonton District.

Mr Taylor, Raesmill, Arbroath, the agricultural representative on the Expedition, continuing his report of his journey from Vancouver, says :—After spending two days in the Calgary district we took train on the morning of August 3 for Edmonton, 200 miles north of Calgary. The greater portion of the land lying along the line of the Calgary and Edmonton branch is a country unsurpassed in all the natural elements necessary to ensure its prosperity. The settlers who have already tried their fortunes in this district have proved beyond doubt that the land is fruitful and capable of maintaining a large population. Edmonton is a town of over 2000 inhabitants situated on the north bank of the Saskatchewan River amid beautiful groves of poplar trees. It is lighted by electricity, and has a complete telegraphic system, and many institutions which bespeak the progressive character of the Canadian citizen. We visited Mr D. Maloney's farm, and saw a field of wheat of extraordinary growth, which Mr Maloney expects will yield from fifty to sixty bushels an acre. Last year his oats yielded 100 bushels, and his barley sixty bushels an acre. His crops were undoubtedly the best we saw in the Edmonton district, and gave evidence of what splendid crops can be grown under proper cultivation without the aid of any manure. Government land can be bought in this district at 12s an acre, and it will take £4 an acre to clear and break it. Farm hands are rather scarce, and are paid from £4 to £4 10s a month, harvest hands receiving 8s a day, with food and lodgings. Next day we visited Fort Saskatchewan, where is stationed a detachment of the North-West Mounted Police, eighty strong. The soil is of a more sandy nature. We

Visited Many Farms

too numerous to mention individually. At several of them we saw timothy hay growing, which has been sown for several years. The crops were well advanced considering the lateness of the spring. The soil on the south side of the Saskatchewan River, between the Fort and Edmonton, is of a rich sandy black loam, very similar to that of British Columbia, with a clay sub-soil. In Eastern Canada it is imagined by some that the Edmonton country must be too far north to successfully grow wheat, but when one is here and sees the crops that are grown, and hears the settlers talking of the very fine crops produced in the districts of the Peace and Mackenzie Rivers, several hundreds of miles farther north, he is convinced that it is one of the best districts in Canada. Edmonton, as a matter of fact is in the same latitude, 54° (longitude, 114°), as Dublin and York, and consequently is further south than Scotland Coal is found all over this district, and can be seen standing out from the banks of the Saskatchewan and Sturgeon Rivers. The seams vary from two to twenty feet deep. What is burned in the town of Edmonton is taken from a tunnel run in under the town from the bed of the river. We also saw men washing for gold from bars along the banks of the river opposite Edmonton. The gold is washed out in the form of fine dust, and every year the floods bring down fresh deposits of mud, in which the gold is found. To extract the gold from the sand a blanket is used covered with mercury, to which the gold adheres, the sand being washed off with the water. Miners can make from two to six dollars a day, and the amount taken out in some seasons amounts to 20,000 dollars worth. At Fort Saskatchewan we saw some samples of the gold taken from the river there.

Breaking the Prairie.

When in the Edmonton district we had a splendid opportunity of seeing first ploughing on the prairie, or "breaking" as they call it here, and I had the pleasure of holding a furrow myself. It is generally broken earlier in the season, about the middle of July, to give some time for the decay of the vegetation for cropping next year. In some places two furrowed "sulky" gang ploughs are used, drawn by three or sometimes four horses or oxen, as

the case may be. We were told, however, that the work is always best done by single-furrowed ploughs, which can be drawn by two horses. The breaking is very shallow, not over two inches deep, and the furrows, which, of course, fall flat, are twelve or fourteen inches broad. After the lapse of five or six weeks the land is ploughed again, the process being called back-setting. Practically speaking, the first furrow is just turned back, only they go a few inches deeper. As soon as a thaw sets in and the frost is out sufficiently to allow of the ground being harrowed in the spring, a commencement is made to the seeding. The

PLOUGHING THE PRAIRIE.

seeds are mostly put in by drills, and after it has received a run over with the disc-harrows the land gets no more work, as rolling is considered impracticable in most cases on account of high winds, which blow away the soil in exposed places and leave the seed bare where it has been rolled. It is the general rule to take two or three crops of wheat and then allow the ground to lie fallow. By this means the fallow land is got properly ploughed and cleaned during summer, and appears to work very well, as we saw some splendid crops of wheat after one year's fallow. On inquiries we found that it is

A Prevailing Idea

that the application of manure to wheat lands is as yet unnecessary, and the general desire is to get manure out of the way. But there can be no doubt that, rich as the newly broken-up North-West territories are at present, their fertility cannot be maintained indefinitely under continued cropping. In my opinion, the farmers ought to prepare a method for returning to the soil the elements which they take from it by continued cropping, and the sooner a regular method of mixed farming is adopted the greater will be the success of this great agricultural country in the future. When farmers do not possess steam-threshers of their own, hired threshers are used, the owner of the thresher having a gang of men moving with him from place to place. The farmer has only to cart away the grain, and, if he has sufficient teams available and a railway station within reasonable distance, the grain is at once sent on to the nearest elevator. The average charge for threshing is from 4 to 5 cents a bushel, and they can put through from 2000 to 3500 bushels of wheat per day. Straw, of course, is no object, and consequently they leave a very high stubble when cutting, generally from 6 to 8 inches of straw being left on the ground, by which means the bulk to be carted and threshed is greatly reduced and the threshing made much easier.

Homesteading Regulations.

Any male person not under 18 years can obtain a free grant of land to the extent of 160 acres by paying an entry fee of $10. At the time of making entry the homesteader must declare under which of the three following systems he wishes to hold his land, and upon application for his patent must prove that he has fulfilled the conditions named therein—

(1) Three years' cultivation and residence, during which period the settler may not be absent for more than six months in any one year without forfeiting his entry.

(2) Residence for two years and nine months anywhere within two miles of the homestead quarter section (160 acres), and afterwards actual residence in a habitable house upon the homestead for three months at any time prior to application for patent. Under this system 10 acres must be broken the first year after entry, 15 additional in the second, and 15 in the third year; ten acres to be in crop the second year, and 25 acres the third year.

(3) The five years' system, under which a settler may reside anywhere for the first two years (but must perfect his entry by commencing cultivation within six months after the date thereof), breaking five acres the first year, cropping these five acres, and breaking ten acres additional the second year, and also building a habitable house before the end of the second year. The settler must commence actual residence on the homestead at the expiration of two years from date of entry, and therea ter reside upon and cultivate his homestead for at least six months in each of the three succeeding years.

Application for patent can be made before the Local Government Agent or Homestead Inspector, but before doing so the settler must give six months' notice in writing to the Commissioners of Dominion lands of his intention of doing so. Government lands can be bought outright (unless where they are specially reserved) at 12s an acre, but I think any man going to America, or rather Canada, with the intention of buying land if he has the means, should buy land within reasonable distance of a railway station, and an improved farm if possible, of which there are always some to be disposed of at from £1 12s to £2 an acre, according to its location. Settlers and others are warned against

Cutting Timber

upon Government lands without first obtaining from an authorised agent of the Crown a permit to do so. Any owner of a homestead quarter section having no timber of his own may upon application obtain a permit to cut such quantity of building timber, fencing timber, or fuel as he may require for use on his homestead, not exceeding the following:—1800 lineal feet of building logs (no log to be over 12 inches at the butt end), 400 roofing poles, 2000 poplar fence rails (not exceeding 5 inches at the butt end), 30 cords of dry wood, burnt, or fallen timber up to a diameter of 7 inches, inclusive, for fuel or fencing.

(From the Dundee Weekly News of Jan. 13, 1894.)

CANADIAN NORTH-WEST.

The Regina District.

Mr J. Taylor, the agricultural representative, reports:—We left Edmonton on the morning of August 8th and reached Regina next day before noon. It is a very substantially built town, with 2200 inhabitants, and is the capital of the province of Assiniboia. The land here is of a clayey nature, but we saw some magnificent crops where it is broken, and the luxuriant crops of fruit and vegetables to be seen growing in the gardens give good evidence of the capabilities of the soil. But the country in general around Regina, as in many other parts of the North-West, has a very bleak and bare appearance, which I think ought to be improved by planting belts of timber, and until the Government see their way to plant sections of land here and there with trees, to afford shelter to cattle and break the force of the high winds, this district will never be well adapted for stock-raising or mixed

farming. There is a scarcity of farm servants and labouring men in this district and wages are consequently high, farm servants getting from £4 to £7 per month, with board and lodgings. Masons earn 16s a day; bricklayers, £1; carpenters, 10s to 12s a day; common labourers, 6s to 7s. A man who can turn his hand to anything would have no difficulty in finding remunerative employment here at £4 a month to commence with. Where Scottish ploughmen are satisfied, I would say, "Stay where you are," but any who have a wish to try and better themselves in a foreign country I can safely recommend them to try the North-West, where, if they are prepared to rough it and take whatever employment can be found, there is no fear but they will get on and do very well, as food and clothing are comparatively cheap. There need be no fear of want of employment, as even during the winter season remunerative work can always be obtained in the shape of cutting and hauling timber, bricks, &c. A suit of clothes costs £5 8s; boots, 10s; flour, 6s to 10s per 100 lbs.; oatmeal, 10s per 100 lbs.; cornmeal, 12s per 100 lbs. Beef and pork sell from 3½d to 5d a lb.

Indian Head District.

Our next visit was to Indian Head, where we visited the Government Experimental Farm. At the Experimental Farm wind storms have been very destructive to their crops, and very much of a drawback to the working of the experimental plots. The soil is of such a fine sandy nature that it blows very badly, and often leaves the seed bare. To cope with this Mr Angus M'Kay, the manager, has planted belts of young trees all over the place, and

INDIAN HEAD EXPERIMENTAL FARM.

as they are coming away very rapidly, in two or three years they will afford complete shelter. The growth of these belts of trees throughout the prairie cannot be too much encouraged. Besides taking away the bleak appearance of some parts, they will help materially to equalise the climate. Mr M'Kay drove us round for about sixteen miles, and we saw some splendid fields of wheat and oats. In this district scarcely any crop but wheat is grown, a system which I think is a great mistake as the crops run some risks from frost, and should they get spoiled, as unfortunately they sometimes do, they have nothing else to rely upon, whereas in a system of mixed farming the risk would be materially lessened. Next day we drove through the Bell Farm and Brassey Farm adjoining. There are 13,000 acres upon the Bell Farm, of which 1800 acres are in crop, mostly under wheat, with a small percentage of oats. Some of the wheat fields have an area of 320 acres, and have a grand appearance, as we saw them just within one week of harvest. At Major Bell's steading we saw twelve reapers and binders drawn up in array ready to start work some of the following days. There are between thirty and forty horses kept on the farm, and about twelve men employed all the year round. As hired help is required during harvest, and is difficult to procure in this locality, the Major generally gets from thirty to forty Indians for harvest. They pitch their tents on the prairie close at hand, and I am told they make very fair harvest hands. We also visited the Brassey Farm. Lord Brassey is the owner of a large track of land round Indian Head, and has it divided into four separate farms of 2500 acres each, and farmed by four different companies with separate corporations. Lord Brassey's object is that these companies, who have considerable capital, should provide employment for labourers coming into the country. On these farms they are "breaking" and extending year by year, and some splendid buildings are being erected.

(From the Dundee Weekly News of February 17.)

CANADIAN NORTH-WEST.

Brandon District.

Mr James Taylor writes:—We arrived at Brandon on the 11th of August, and spent three days in its neighbourhood. Brandon is the largest and most important town between Winnipeg and Vancouver, with a population of 5000. Next day we drove out to the Brandon Experimental Farm, about two miles from the town. It contains a section of 640 acres of mixed land, part of it being on the hillside and part in the valley of the Assiniboine River. In so extensive a province as Manitoba soils of different qualities are to be met with, and here, happily, the farm answers the requirements of almost all of them. The principal farm building is a huge barn 100 feet long by 30 feet wide, and in which there is a silo, a root cellar, and all the modern improvements required upon such a farm. They have also straw-cutters and pulpers, oilcake crushers, &c., which are driven by means of a huge windmill, which is fixed upon the top of the barn, and it proves very handy and inexpensive. These windmills are used on nearly every stock farm in America, generally for pumping water for the animals. A number of pure-bred shorthorns, Galloways, Ayrshires, Holsteins, and grade cattle are kept. Experiments are made of the different methods of feeding both with cattle and pigs. A great many varieties of wheat, oats, barley-rye, and Indian corn are tested every year. Every endeavour is being made to obtain a wheat equal in quality to the Red Fyfe, but which will ripen earlier, and although many earlier varieties have been obtained none of them have as yet come up to the standard of the Red Fyfe which appears to be best adapted to the climate. Mr Angus M'Kay, manager of the Experimental Farm at Indian Head, very kindly gave me samples of a few of his favourite varieties of wheat, barley, and oats which I intend to sow, and it will be interesting to note how they are suited to our climate. The tests being made in grasses, both native and foreign, suitable for sowing down throughout the country, are perhaps the most important subject dealt with upon the farm. The forestry department also receives a deal of attention. The benefit to be derived by Canadian farmers from these experimental farms is incalculable, not only at the present time but in years to come can the results obtained from them be observed and appreciated. We next visited the famous Sandison Farm. This enormous farm is situated about eight miles from the town of Brandon. It extends to 6000 acres, of which about 3000 are in crop, 2500 being under wheat, and 500 in oats. The fields are all of a section each, one mile square and furrows one mile long, which means

that every field is as large as the biggest of our arable farms in Scotland. The stables, which can accommodate 64 horses, have a coating of three feet of turf outside and a turf roof—rather primitive-looking buildings in our estimation, but we are told they are very warm and comfortable.

(From the Dundee Weekly News of March 10.)

Brandon to Montreal.

Mr Taylor, Raesmill, Arbroath, reports:—

After leaving Brandon we took train for Napinka, and from there through the fine wheat-growing districts of Southern Manitoba, landing in Winnipeg on the 15th of August. We had now come to the last stage of our journey, as our route now lay between Winnipeg and Montreal, a distance of 1424 miles. Between Winnipeg and Rat Portage, a distance of 130 miles, the country still assumes the unmistakable prairie features, which are nowhere more prominent than around Winnipeg itself. As we proceed we gradually enter upon a "hard" country, the railway passing through scenery of the wildest description. As we reach Fort William we get our first sight of the great Lake Superior. Fort William was formerly a Hudson Bay Company's post, the fur house of the old fort now being used as an engine-house for the great coal docks, and some of the largest grain elevators in the world overshadow all. Along the northern shores of Lake Superior the line runs through a wild, picturesque region of forests, lakes, streams, and rocky ridges. Nepigon is one of the grandest parts of this great trans-continental route, lying as it does amongst the abrupt headlands of the great lake, traversing deep cuttings in the rocks, creeping at one moment along the open pebbly beach, to disappear the next instant with a terrible roar into a tunnel hewn out of the solid rock, and emerging again only to pass over a trestle bridge the mere height of which makes one feel almost giddy. At Sudbury, where we stop for half-an-hour, are the most extensive copper and nickel deposits in the world. Large quantities of the ores have been shipped from the mines, and a number of smelting furnaces are being erected near Sudbury to reduce the ores on the spot. Little villages around sawmills continue to occur, and newly-made farms are not infrequent. We are told there is plenty of good land near by, but the railway here, as in many other places in regions such as we are now traversing, follows the streams and the "breaks" in the country. And the best of it is not to be seen from the car windows. The lands belong to the province of Ontario, and are open to settlers in lots of 80 acres without price, but timber cutting as yet seems to be the principal industry. As we near Montreal the country loses its "hard" character, and the valley is divided into narrow well-tilled French farms, mostly devoted to dairy produce and the growing of apples, as we saw some fine orchards with crops of apples that were really extraordinary.