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Coal Briquetting in Nova Scotia

New and Promising Industry—Desirable Fuel Properties of Briquettes

In the modern methods of mining bituminous coal large quantities of slack are produced; and while in some sections of the country there is a market for the slack, for use in industrial plants provided with mechanical stokers, in other sections there is little or no market for it. For this reason a number of the operators in Nova Scotia are considering the installation of briquetting plants for the purpose of converting this slack into a higher grade and more suitable fuel.

Plant at the MacKay Mine

On account of the friable nature of the coal mined at the MacKay Mine much slack is made during mining operations. As there is little or no market for this slack coal the management installed a briquetting plant with a capacity of 10 tons of briquettes per hour. This is the first plant to be installed in Canada for the purpose of briquetting bituminous coal. Unfortunately, it was damaged by fire during the month of July.

The same company are also installing two similar units at the Colonial Mine, which are expected to be in operation this year.

The briquetting plants are of Belgian manufacture and are of the roll press type.

The following is a short description of the MacKay briquetting plant:

The coal from the mine is screened over a $\frac{3}{4}$ inch screen; the lump coal (over $\frac{3}{4}$ inches) is sent to market, and the fine coal is carried by a disc elevator to a 75 ton bin. The coal is discharged from the bin by chute into a 10 ton concrete pocket situated at the briquetting plant. The coal is then elevated by a bucket elevator to a 3 ton cone hopper. The coal is fed from the hopper to the disintegrator at any desired rate of speed by means of a revolving table and plough-shaped cutter situated at the bottom of the hopper.

The pitch after being crushed is fed into the disintegrator by means of a similar adjustable feed. From the disintegrator the coal and pitch is elevated to the mixer where superheated steam is added. The heated coal is then conveyed to the roll press by means of a spiral conveyor. The briquettes are usually soft as they come from the rolls but upon becoming slightly cool they become hard and withstand handling very well.

The pitch used as a binder for the briquettes varies from 6 to 8 per cent. of the weight of the coal. This pitch is one of the by-products obtained from the tar recovered at the Dominion Iron and Steel Company's coke oven plants.

The briquettes are ovoid in shape

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Water Powers of British Columbia

The water-power resources of British Columbia are being investigated by the Commission of Conservation and the resulting information is to be published, as soon as it can be made available, in a report to be entitled "The Water-Powers of Western Canada," which the Commission have in course of preparation.

The securing of even preliminary field information in a territory like British Columbia requires much more time than in a country less mountainous. Good progress, however, is being made. The British Columbia Government's Department of Lands, under the Hon. W. R. Ross, has made a substantial contribution to assist the Commission in its water-power research.

This practical assistance from the Department of Lands has enabled parties to be detailed for investigation on the mainland coast. These parties have been in the field since the beginning of August and are being directed by the Commission's engineer, Arthur V. White, who is in charge of the work.

The Commission has three field parties investigating the watershed of the Fraser river above Lillooet, extending to Tête Jaune Cache and westward beyond the Fraser Lake district.

To-day, if one views a map of British Columbia and asks what are the power possibilities of the interior of the province, no person can inform one. After the Commission has completed its present reconnaisance survey, it will be possible, first to form some reliable conception of the water-powers of British Columbia south of the line of the Grand Trunk Pacific; then later on, the country north of the new transcontinental line will be canvassed for information respecting its water-powers. It is pioneer work, and so to speak blazes the trail for the capitalist and the engineer. To describe and draw attention to these blazed trails is part of the work the Commission aims to accomplish through its publications.

Electricity on the Farm

Experience of a Practical Farmer with a New Farm Power—Some of the Results Obtained

Electricity seems destined to be the farmer's best hired man. The Hydro-electric Commission of Ontario is carrying on an active educational campaign, and is arousing keen interest amongst the farmers of Western Ontario.

In addition to the work of the Commission, some individual farmers have shown commendable enterprise in testing electrically driven machinery on their own farms. The experience of farmers in such a matter is of considerable interest. Mr. R. E. Gunn, proprietor of Dunrobin Stock Farm at Beaverton, Ontario, has furnished the following details concerning the use of electricity on his farm:—

"Electricity costs me $175.00 per annum at the farm for 100 lights and 20 H.P. in motors. This low rate was secured from the local power company for the reason that they had power going to waste and wished to get some return for it. The power company built the line to the farm (two miles) and put in and own the transformers. I wired the farm buildings and bought all other equipment.

"In relation to other powers as to cost, you can readily see that it is much cheaper than any other form of power except possibly that which could be generated by water, if we had it.

"It is a most efficient power for farm purposes. We run our milking machines, pump water, grind feed, cut hay and straw, cut wood, fill silos, and run other machinery where belt driving is possible and have no trouble in any way. The motors need but slight attention, which is more than can be said of any other power available such as steam or gasoline, both of which we have used.

Its advantages are:—

(*a*) Low cost.
(*b*) Ease of operation.
(*c*) Ease in moving power units from place to place owing to light weight.
(*d*) The little attention required to operate.
(*e*) Speed in starting."

Mr. Gunn claims that electricity can be generated profitably by the farmer if water-power is available, and he is inclined to the view that it can also be done economically by gasoline power. He further states that the insurance companies show a preference for the use of electricity if the wiring is done by a reputable firm of electricians.

New Era for Oyster Industry

Legislation of 1911 Provides for Clear Titles to Oyster Beds

Prospects for a prosperous oyster farming industry in the Maritime Provinces are much brighter than they were last year. Ever since the Judicial Committee of the Imperial Privy Council pronounced upon the Fisheries Reference of 1898, making it doubtful whether the Provinces or the Dominion had jurisdiction over the oyster beds, the man who wanted to engage in oyster culture could not obtain a good title to the foreshore where he wished to plant his oysters. But now that is changed, and the oyster farmer can proceed with the planting of his beds with full assurance that they will be acknowledged as his own, and protected from poachers. At the last session of the Dominion Parliament, an act was passed whereby the Dominion relinquished its claim to the right to grant leases to the foreshore, abandoning that privilege to any province desiring to possess it.

In a Badly Depleted Condition

Some such action making clear who should have the right to grant such leases was absolutely essential if the oyster fishery was to be saved from extinction. During the long years of this jurisdictional dispute, when it was impossible for anyone to obtain a clear title to lands suitable for oyster culture, the oyster beds were subjected to a ruthless free fishing that brought them to the verge of depletion. Indeed, the annual production decreased from 64,646 barrels in 1882, to 33,102 barrels in 1911; and this, notwithstanding the fact that the price in the past twenty years has increased by over 240 per cent. The experience of every other oyster-producing country showed that the only remedy for such conditions was the introduction of private property in oyster beds, and the prosecution of cultural operations on a large sclae.

Prince Edward Island to the Front

The application of that remedy is now made possible by the act of last session and Prince Edward Island, formerly the largest oyster-producing province in Canada, has seized the opportunity to restore its former prestige in that field of industry. The Province has entered into an agreement with the Dominion Government whereby it is given the undisputed power of

(*Continued on page 4*)

Making a Model City

Something about Australia's New Capital—A City as yet without a Name

City planning on a gigantic scale is being carried out by the Commonwealth of Australia. When, twelve years ago, the several provinces were brought under one confederacy, provision was made in the constitution for the building of a capital city in a federal district owned by the general government. The territory selected is in the Canberra district of New South Wales, and has an area of about 900 square miles. The site of the city is on the Molonglo river, some 300 miles north-east of Melbourne and about 170 miles from the east coast. It has an area of five square miles, and an average elevation of about 2,000 feet above sea-level. The site selected is in the midst of a wild, open country with no settlements and no railway communication, and the designers thus had a free hand in working out their plans.

During 1911, invitations were issued to leading landscape architects throughout the world, to submit competitive designs for the new city. The first prize, an outline illustration of which is given on this page, was awarded to a Chicago architect, Mr. W. B. Griffin.

Natural Conditions Considered

In his design Mr Griffin has taken excellent advantage of the natural characteristics of the site. Sheltering forested hills and distant snow-capped peaks to the south and west form the back-ground, giving a fine setting for the government buildings as viewed from the city proper. Three local mountains, (Ainslee, Black and Mugga Mugga) are reserved as natural parks, and these are to be utilized for aspect and prospect. They are treated as terminals of the principal axes of the plan and of many important vistas. Several lesser hills are utilized as the terminals of radial thoroughfares and as sites for important structures. Thus the capitol, the main parliament building, the city hall, and the market occupy such positions. The sheltered, flatter areas, are used for residential and industrial purposes. The river has been utilized to develop an important water feature of the plan, for decorative effect, recreation, and climatic amelioration.

Features of the Plan

The first primary feature of the plan is that the government buildings are placed on the south side of the river. They are thus somewhat isolated from the commercial sections of the city and at the same time are attractively placed with reference to the ornamental waterway. The next feature is the selection of several points for specific centres, such as the municipal market, railway and residential areas. From these points the streets radiate. The cross streets are arranged after a polygonal design. As far as possible building sites with acute angles are avoided. The parliamentary buildings are placed at a slight angle from north-south, east-west lines to secure advantages of light and shade.

The problem of transportation has been carefully worked out, and car lines will be within easy access of every portion of the city. The width of residential streets is in general 100 feet, and the avenues and business streets are 200 feet wide.

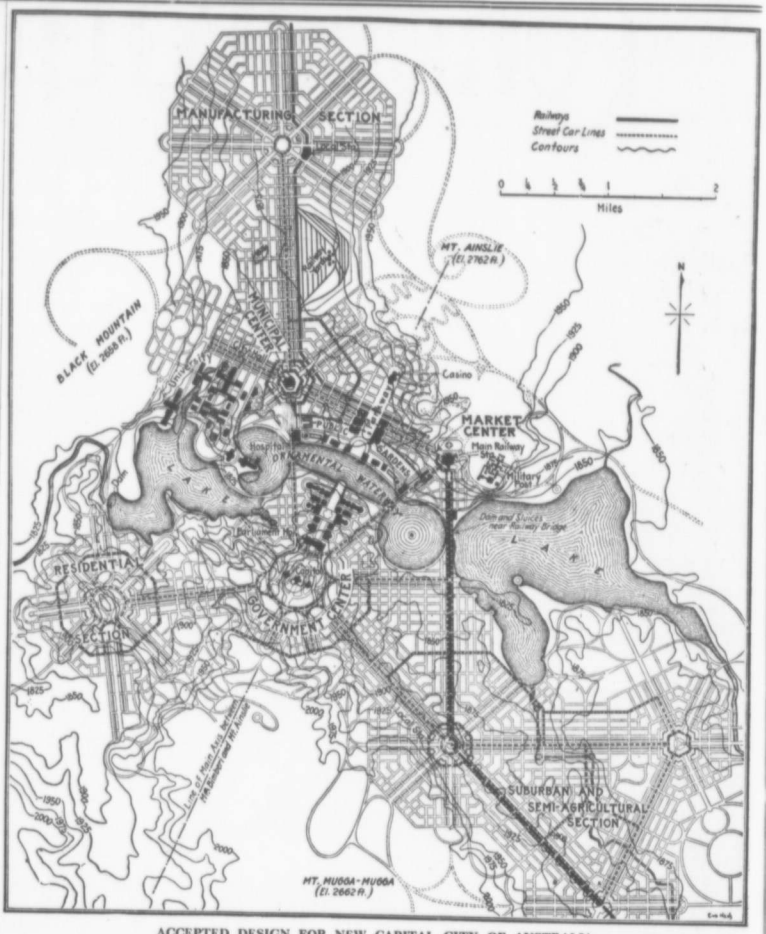
The Sewerage System

The sewerage system has not yet been worked out, but involves the separation of sewage from the storm-water, because of the wide variation in the freshet run-off. This run-off water will be conveyed to the Molonglo basins by an open-channel system. For the filtration of sewage, there are excellent alluvial and sandy tracts along the river, which may be used for irrigation and fertilization. It is not improbable that several different areas will be made to serve different sections of the city.

The Proposed Water Supply

The water-supply will be obtained from the Cotter river which is satisfactory both as to quality and purity. It is a mountain stream having a mean flow of over 50,000,000 gallons daily.

World-wide interest will be taken in this unique work of constructing a model, modern city. The conditions appear to be admirable from a sanitary and general public health standpoint, and doubtlessly every appliance that science has devised will be used to keep them so. Then too, the local government of the city will be carried on by a government commission. Thus another illustration of the federal district idea will be provided by a Commonwealth where socialistic policies seem to have been exceptionally thrifty.



ACCEPTED DESIGN FOR NEW CAPITAL CITY OF AUSTRALIA

Bovine Tuberculosis in Relation to Public Health

More Effective Inspection of Milk and Meats Needed

Pure food is a factor of the utmost importance in the maintenance of public health. Hence, no community can afford to neglect the proper inspection of the foods consumed by its citizens. Perhaps the most important foods from a public health standpoint are milk and meat. Experience has served to show that these can only be furnished to city and town dwellers in a satisfactory condition where effective inspection is enforced. In view of the fact that it has been established beyond doubt that tuberculosis may be conveyed or transferred from animals to man, steps should be taken to prevent the sale and consumption of tuberculous milk and meat. Milk from

diseased animals is especially dangerous, although diseased meats are, too, a serious menace.

Of course the financial loss incident upon prohibiting the sale of diseased milk and animals would be considerable. Under present conditions this would undoubtedly fall heaviest on the farmer. But why should the country be forced to maintain extra tuberculosis sanitoria, when preventative methods would be not only more effective but more humane?

Municipal Abattoirs Necessary

At the present time all meat sold in Canadian cities and towns, except that slaughtered for export or interprovincial trade, is not subject to inspection at the time of slaughter, and may, therefore, be considered to be slaughtered clandestinely. The proper time to inspect meats is at the time of slaughter when the viscera is *in situ*. Unless the inspection is made then it is likely to be of no avail. When it is known that often the primest animal may be dangerously infected with tuberculosis, the importance of inspection at the time of slaughter is readily seen. It is surely high time that at least the larger centres should insist on the establishment of properly regulated municipal abattoirs. The days of the noisy, reeking, and ill-kept slaughter-house should surely be numbered in every intelligent community.

Tuberculous Milk a Menace

Again, the problem of preventing the sale of tuberculous milk is of even greater importance than regulation of the meat industry. The danger from the use of infected milk is considerably greater than in the case of meat.

It is undoubtedly possible by using care in the production, and by careful inspection of the herds to obtain pure, wholesome milk. The trouble has been, and is, to far too great an extent, the fault of the consumer. Certified milk, that is, milk that is as nearly germ free as it is possible to obtain it, is an unknown commodity to most users. Even where the value of cleanliness in the dairy is appreciated by the consumer, it is not uncommon to find a total disregard of the danger of using milk from tuberculous cows.

Earnest efforts are being made to stamp out tuberculosis in man. Would it not be the part of wisdom to remove the cause of a great deal of the trouble by stamping it out in cattle and other animals used to produce human food? Let the consumer steadily demand the certified products, even if the price is higher, and in a short time disease and dirt will be generally banished from our food supplies. The remedy rests with the consumer.

Many a health officer is 100 per cent. efficient and only 15 per cent. effective, because municipal authorities prefer a high death rate to a trifling increase in the tax rate.

Barnyard Manure

Its Importance to the Farmer—How to Care For and use Manure

The manure problem is a fundamental problem for farmers of today and to-morrow. One of the most important lessons for them to learn is how to produce good barnyard manure; and then to care for it and use it rationally.

In many parts of Canada the manure is simply thrown away. In other places, notably in the West, it is burned; and in places where the manure has accumulated around the stables, the stables have been moved away, instead of making use of the manure. This means a great annual loss. At the present price of plant food, the amount of manure produced in the United States every year is worth nearly $2,500,000,000. In 1908, the value of the whole corn crop in the United States was only $1,601,000,000. These figures show the very great importance of manure production.

Value as Fertilizer

Manure is usually valued according to the amount of nitrogen, phosphoric acid and potash it contains. This method does not give any value to the humus which is a very important part of the manure. It holds moisture which aids in bringing the plant food in the soil into soluble condition and makes the soil more friable and easily tilled.

Experiments at Rothamsted, England, during fifty years on land (1) unmanured, (2) manured continually, and (3) manured during the first twenty years only, showed a gradual decrease in the crop on the unmanured soil and a gradual increase from year to year on the manured soil. When the application was stopped there was a gradual decrease, but at the end of thirty years after the last application, the yield was still double that on the unmanured part.

Sources of Loss

The greatest sources of loss are from allowing the liquid portion to run away, leaching by rain, and from heating or fermentation.

The liquid is much more valuable in plant food per pound than the solid. In cow manure the total liquid portion is about the same value as the total solid portion. Yet many farmers arrange their stables to drain off the liquid. *Don't do it.* From $10 to $15 worth of fertility can be lost annually in this way from each cow kept. Use some kind of absorbing material to prevent loss of liquid.

How to Apply Manure

Where possible, the manure should be spread on the field as made. It saves handling twice, and there is a greater tonnage then than at any other time. The effect of green manure will be seen for a longer time than rotted manure on account of the decomposition taking place in the soil. If this cannot be done, by all means have a covered shed where the manure is put and where it will be packed by stock tramping on it, and where it will be kept moist. If it is kept tramped and moist and if the shed has a cement floor there will be very little loss.

Experiments in the West have shown that a very light application of barnyard manure in the spring after sowing, as a top dressing on soils having a tendency to blow, gives excellent results; not only preventing blowing but giving increased yields from the added plant food.

COAL BRIQUETTING IN NOVA SCOTIA

(*Continued from page 1*)

and have been used with considerable success upon the Intercolonial Railway and for domestic purposes.

The Inverness Railway and Coal Company are also installing a briquetting plant at Inverness, C.B., for the purpose of briquetting the slack made during mining operations.

Advantages of Briquettes

Briquettes when properly made with a suitable binder possess, the following advantages over raw fuel:

1. The even size of the briquettes permits of a more regular and thorough combustion in the firebox or furnace, as the spaces that exist between adjacent blocks allow of even distribution of air through the fire and the pressure drop through the fire is also less.

2. A good briquette holds its shape in the fire, so that even when coking coals are used they do not coke together sufficiently to cut off the air for combustion and the gases are burned as fast as distilled off.

3. Practically no smoke should be obtained from the combustion of good briquettes.

4. Briquettes generally burn to a fine ash rather than a clinker, as in the briquetting process the mixing and grinding thoroughly distribute the ash material, which in the raw fuel exists in spots and layers and is fused into clinker instead of falling through the grate.

5. The characteristic fineness of the ash from briquettes allows of keeping a better fire with less attention and poking than is possible with raw fuel under the same conditions.

6. The evaporation per pound of fuel is greater for the briquetted than for the same coal in its natural state. This advantage is maintained at all rates of evaporation.

7. The capacity of a boiler is considerably increased by the use of briquetted fuel.

8. The weather-resisting qualities of many coals, and especially lignites, are greatly improved by briquetting.

9. Briquettes apparently give a longer flame than run-of-mine coal.

10. It is much easier to raise and to keep up steam with briquettes than with run-of-mine coal.

11. Higher rates of combustion are possible with briquettes and consequently higher power.

12. When properly made there is less loss from breakage during transportation of briquettes than of run-of-mine coal.

Experimental Farms and Stations

Something about the Work of the Dominion Department of Agriculture

At the close of the fiscal year (March 31st, 1912), the system of Dominion Experimental Farms and Stations includes, in addition to the Central Farm at Ottawa, the following branch farms and stations, which are given in geographical order from east to west:—Experimental Station, Charlottetown, P. E.I.; Experimental Farm, Nappan, N.S.; Experimental Station, Kentville, N.S.; Experimental Station, Ste. Anne de la Pocatière, Que.; Experimental Station, Cap Rouge, Que.; Experimental Farm, Brandon, Man.; Experimental Farm, Indian Head, Sask.; Experimental Station, Rosthern, Sask.; Experimental Station, Scott, Sask.; Experimental Station, Lethbridge, Alta.; Experimental Station, Lacombe, Alta.; Experimental Farm, Agassiz, B.C.; Experimental Station, Invermore, B.C.; Experimental Station, Sydney, Vancouver Island, B.C.; a total of fourteen farms and stations. In addition, sub-stations are maintained at Kamloops, B.C., and at Fort Vermilion, on the Peace river, Alta. Experimental work has also been carried on during the year, though no land is owned or rented by the Department, at Athabasca Landing and at Forts Smith, Resolution, and Providence, all in northern Alberta.

While much of the work done during the year has been a continuation of the investigations of years past, some of its features have been so elaborated as to be practically new. These are chiefly in connection with the Western Farms and Stations where stronger emphasis is being placed on the necessity of diversified farming. The testing of varieties of cereals, fodder corn, roots, clovers and grasses was again carried on, and the annual distribution of seed for the improvement of crops was made, under some new regulations, calculated to make it of more value to the Canadian farmer.—*Report of the Minister of Agriculture, 1912.*

Crop Rotations for Eastern Canada

The following rotations have been under test at the Central Experimental Farm for fourteen years. Under proper management any one of the three will produce good results. Look them over carefully, choose the one most applicable to your conditions and give it a fair trial. It will increase your crop returns, help keep down the weeds and assist in maintaining the fertility of your soil.

Rotation No. 1

This is of three years' duration and is well suited for intensive dairy farming where soiling crops are used.

(*Continued on Page 4*)

Waste in Beehive Coke Ovens

Retort Ovens in General Use in Germany—Some of the Economies Effected by Retort Ovens

Canada and the United States are far behind Germany and other foreign countries in adopting the economies resulting from the coking of coal in by-product ovens. In Germany, at the present time, little or no coke is made except in retort ovens. When the economies which may be effected by the use of retort ovens have been so clearly demonstrated not only by plants which have been constructed in Europe, but also by plants in the United States and at Sydney and the Soo in Canada, it seems difficult to understand why they are not more universally adopted in Western Canada. One of the reasons given is the lack of profitable markets for the resulting by-products.

By-Product Ovens Economical

The following are some of the economies which may be effected by the use of by-product coke ovens as against the use of beehive ovens:

First. The quality of the coke is just as good for metallurgical purposes as beehive coke.

Second. The yield of coke in by-product ovens is from 10 to 15 per cent. higher than the yield from beehive ovens.

Third. While the cost per retort oven as compared with beehive oven, is greater, the capacity is from three to six times as great.

Fourth. In retort ovens, the following by-products are saved:

1. **Gas.** With an ordinary coking coal this amounts to about 5,000 cubic feet per ton at 500 B.T.U. per cubic foot. This gas can be used for firing under boilers, running gas engines, illuminating purposes or for any other purpose for which coal gas may be adopted. If used in gas engines about 250 horse-power hours can be obtained from the surplus gas from one ton of coal.

2. **Ammonia.** This amounts to about 20 pounds of ammonium sulphate to the ton of coal charged and is worth about $71 per ton. The ammonia may be recovered as ammonium sulphate for fertilizer or as a concentrated liquor for refrigeration purposes.

3. **Tar.** This amounts to from 7 to 9 gallons per ton of coal charged and is worth from 2 to 3 cents per gallon in the crude state. The tar is worth far more if distilled—creosote, light oils, carbolic acid and pitch being recovered. The pitch is valuable as a binder in the manufacture of coal briquettes.

Hence the total value of by-products saved per ton of coal charged into an oven is as follows:

Higher yield of coke—10 to 15 per cent. coke at $4.50 per ton (average value for beehive coke in Western Canada)	$0.45 to .67½
Gas–5000 cu. ft. at 10c. per M	0.50
Ammonium Sulphate–20 lbs. at $71 per ton	0.71
Tar–7 to 9 gals. at 2c. per gal	0.14 to .18
Total	$1.80 to $2.06½

In 1910 Canada produced about 367,285 tons of beehive coke, valued at $1,658.987, from 575,582 tons of coal, consequently there was over $1,110,000 wasted in by-products by the use of the beehive ovens.

The Province of Ontario has six forest reserves having a total area of 17,930 square miles. In addition to these, there are two provincial parks the combined area of which is 2,075 square miles.

THE OYSTER INDUSTRY

(*Continued from page 1*)

issuing leases to the foreshore for oyster-farming purposes, and is having its foreshore surveyed so that the non-producing but potential oyster area may be divided up into plots to be leased to those desiring to plant oysters. Prince Edward Island produces the finest oysters grown anywhere and under the new conditions prevailing there is every prospect of it adding hundreds of thousands of dollars annually to the wealth of its inhabitants.

Dominion Still has Legislative Jurisdiction

Although, under the new arrangement, the provinces can secure the undisputed right to grant leases to oyster areas, the Dominion Government still retains the legislative jurisdiction over the fishery, in which it was confirmed by the Privy Council decision previously mentioned. It thus has the right to set the dates of the close season, prescribe what gear may be used, and impose other restrictions which conceivably, might interfere with the proper development of the industry. Such a possibility, however, is unthinkable. In fact, the Dominion authorities are doing all in their power to foster the rehabilitation of this once-flourishing fishery and may be depended upon to exert every effort to assist the provinces in the work of development and conservation. It is to be hoped that both New Brunswick and Nova Scotia will follow the lead of Prince Edward Island, secure the right to lease their oyster areas, then survey them and parcel them out to lessees who will thus be in a position to enter whole-heartedly into the business of growing oysters.

CROP ROTATIONS

(*Continued from page 3*)

1st Year.—Corn or other hoed crop. Apply manure during the winter at the rate of 15 tons per acre, shallow plough in the spring, work well before sowing.

2nd Year.—Oats. Seed down with 10 lbs. of red clover, 2 lbs. alsike, 6 lbs. alfalfa and 6 lbs. timothy per acre.

3rd Year.—Clover hay, two crops expected.

Crop Rotation No. 2

An excellent four-year rotation made up of equal areas of hoed crops, grain, hay and pasture.

1st Year.—Corn or other hoed crop. Plough previous August, manure 20 tons per acre, work at intervals and ridge up in the fall.

2nd Year.—Grain. Seed down with 10 lbs. red clover and 12 lbs. timothy per acre.

3rd Year.—Clover hay, two crops expected. Second crop may be saved for seed.

4th Year.—Pasture, or if not needed for such purpose, timothy hay.

Crop Rotation No. 3

This is for five years' duration, and contains a relatively larger proportion of grain than No. 2.

1st Year.—Grain. Plough previous August, top work and rib up in October. Seed down with the grain 10 lbs. red clover per acre which allow to grow to be turned under the following spring.

2nd Year.—Corn. Apply manure during the winter or spring at rate of 25 tons per acre, shallow plough in spring turning under both clover and manure.

3rd Year.—Grain. Seed down 8 lbs. red clover, 2 lbs. alsike and 10 lbs. timothy per acre.

4th Year.—Clover hay, two crops.

5th Year.—Timothy hay or pasture.

The New York Land Show

"Back to the Land," was the familiar designation applied to the great exhibition which was held in Madison Square Garden, New York, last autumn. It had for its avowed purpose the encouragement of the immigrant classes to engage in farming instead of herding together in the large cities.

Its success cannot be doubted. Probably never before was such a complete collection of the agricultural products of America brought together, nor such a wide interest aroused in a purely agricultural exhibition.

As a result of this initial success of the American Land and Irrigation Exposition, the officers felt warranted in holding a second show during 1912. It will be held in the Seventy-First Regiment Armory, New York, from November 15th to December 2nd, 1912. South America will also send exhibits for competition this year, so that the show will undoubtedly be larger even than last year.

Canada was worthily represented at the first show. A Canadian farmer carried off the highest prize of $1,000 in gold for wheat. It was a sample of Marquis wheat, first produced on the Central Experimental Farm, at Ottawa, in 1903. Another farmer from British Columbia carried off the highest prize for potatoes. These triumphs have been a splendid advertisement for Canada, and it is to be hoped that Canadian farmers will this year demonstrate their ability to win out in competition with farmers, not only from North America, but from South America as well.

Nickel and Navies

Nickel Necessary in the Manufacture of Modern Armour Plate — World's Supply Comes Largely from Canada

It has just been discovered that Canada possesses the key to the European naval problem. When Schneider in 1889 introduced the use of nickel into the manufacture of steel armour plate, he little realized that he was placing in Canada's hands a great means for maintaining the peace of the world.

Battleships without nickel steel armour would be utterly helpless before modern guns. If nickel were no longer obtainable, armour construction would go back a quarter of a century.

Canada to-day produces about 90 per cent. of the world's supply of nickel. Practically all of the remainder comes from New Caledonia, an island in the south-western Pacific controlled by France.

In 1910, the value of nickel ore and matte exported from Canada to the United States was approximately $3,450,000. As the only refineries in America are in the United States, nearly $^6/_7$ of the Canadian nickel was refined to the south of the border. The refining process raised the value of this Canadian ore to nearly $12,000,000. The major portion of this refined nickel is used in the manufacture of nickel steel.

Consequently, if Canada were to prohibit the export of nickel, the nickel steel industries of Europe would fall into decay, and high-grade armour plate for battleships would be an impossibility.

Naturally such a course would be a bit hard on the Canadian nickel producers, but then see what it would do to the world's expenditure on navies.

In these times of wars and rumors of wars it is assuring to know that Canada possesses such a potent weapon making for world peace.

The deep oil well drilling at Milton, Ontario, has given results which are, on the whole, satisfactory. Three new wells have been completed, and one of these was only some 1,300 feet away from the Brandon Syndicate's well in which oil was found, and which attracted other drillers, as stated recently in this column. All three new wells have proved failures. One more has still to be brought in, and should this be dry, it is likely that further efforts to get oil in this neighbourhood will be abandoned. The curious thing is that the geological conditions are in theory those of a good oilfield.

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The United States silver production for 1911 was 57,796,117 ounces, valued at $31,787.866, being less than double the amount of silver sent out by the Cobalt camp alone in the year. Cobalt's 1911 output was 32,000,000 ounces valued at $16,500,000.—*Journal of Commerce.*