

Canadian Official Record.

Published Weekly by the Director
of Public Information.

Offices: Hope Chambers,
Sparks St., Ottawa.

Tel. Queen 4055 and Queen 7711.



Copies of the CANADIAN OFFICIAL RECORD will be mailed free of charge to members of Parliament, members of the Provincial Legislatures, members of the Judiciary, daily and weekly newspapers, army officers, mayors and postmasters of cities and towns, and to all public officials and institutions who are in a position to disseminate official news.

Subscription Rates.

One year \$2.00
Six months 1.00

Cheques, money orders and drafts should be made payable to the CANADIAN OFFICIAL RECORD.

EXTRACT FROM ORDER IN COUNCIL No. 2206.

"The Committee of the Privy Council further observes that as this war is being waged by the whole people of Canada, it is desirable that the whole people should be kept as fully informed as possible as to the acts of the Government which are concerned with the conduct of the war, as well as with the solution of our domestic problems; and for this purpose an Official Record should be instituted to be issued weekly for the purpose of conveying information as to all Government measures in connection with the war and as to the national war activities generally."

EMPLOYEES ON STEAM RAILWAYS OF CANADA

Amount of Compensation Also is Recorded in Department Report.

The number of employees on the railways of Canada and their compensation, each year since 1911, is shown in the report on railway statistics, issued by the Department of Railways and Canals, as follows:—

RAILWAY EMPLOYEES.

Numbers.	
1911	141,224
1912	155,901
1913	178,652
1914	159,142
1915	124,142
1916	144,770
1917	146,175
1918	143,493
Compensation.	
1911	\$ 74,613,738
1912	94,237,623
1913	115,749,825
1914	111,762,972
1915	90,215,727
1916	104,300,647
1917	129,626,187
1918	152,274,953

Earnings per Train Mile.

The earnings per train mile of government-owned lines in 1916-17 amounted to \$1.86 and in 1917-18 to \$2.15, an increase of \$0.29 per mile, as stated in the annual report of the Department of Railways and Canals.

Grape Market Good.

Offers now being made by wine manufacturers in the Niagara District would indicate that grape growers will receive very satisfactory prices for their crop, as stated in August issue of the Fruit and Vegetable Crop Report, published monthly by the Fruit Commissioner's Branch, Department of Agriculture.

B.C. Tubers Light Crop.

Reports received from British Columbia regarding the condition of onions and potatoes are somewhat unfavourable, as stated in the August number of the Fruit and Vegetable Crop Report, issued monthly by the Fruit Commissioner's Branch, Department of Agriculture. The crops are generally light and backward, due to dry weather.

DIRECT USE OF COAL AS FUEL WASTES MANY VALUABLE BY-PRODUCTS

Advantages of Coking Coal
are Presented in Paper on
the Coal Resources of
Country

PRODUCTS RECOVERED

In a monograph on the subject of the "Coal Resources of Canada—Their Relation to the Industrial Development of the Country," by Mr. F. E. Lucas, published in The Final Report of the Fuel Controller, the advantages of utilizing coal in the production of coke, rather than using coal directly as a fuel, are pointed out. After showing the favourable qualities of coke as a fuel, the paper says:

"In the production of coke many valuable by-products are obtained: gas, tar, ammonia, benzol, toluol, xylol, and naphtha, or combining the latter four, a motor fuel much superior to the best gasoline obtained.

"We are not getting anything like the amount of light, heat, or power we should, or could get, and in getting this extra light, heat and power, we would not only be conserving the coal supply but getting cheaper power and at the same time recovering other products which would be of great economic value to the country and lead to the extension of existing industries and the establishment of new ones.

"Starting with the importation of anthracite, which is practically all used as domestic fuel. This can be almost entirely eliminated, and in so doing give as large returns on the invested capital as any industrial concern in the country.

"Referring back again to the by-products, a word now about their use and the markets available.

GAS.

"If the plant is near a large city or thickly populated district, it might all be sold for domestic lighting and heating. This is done in many districts by selling direct to existing gas companies, for no gas company can produce gas at the price at which a by-product coke plant can afford to sell it. Or if there are large industrial works within reach, it can be sold to them and at such a price as to be more economical than coal, or it can be used in gas engines and power developed. The figure generally accepted as being

reasonably conservative for gas-engine practice is 11,500 B.T.U. per horse-power, and it will be readily seen how tremendous quantities of power can be made available from this source.

Gas supplies for domestic use must have the sulphur extracted. This is done by iron oxide, from which the sulphur can be recovered for the manufacture of sulphuric acid, which is needed for the production of ammonium sulphate.

TAR.

"This product can be used directly as a boiler or furnace fuel by being burned in the same manner as oil, or it can very cheaply be dehydrated and the more highly volatile matter extracted and then used for road binding. Even for firing it would be found advantageous to dehydrate. Some tars, depending on the temperature and conditions of the coking process, can be used as fuel for Diesel engines. The most economical way to handle the tar, however, is to distill it and recover the various volatile fractions, such as the benzol, toluol, naphtha, the carbolic oils, creosote, naphthalene, and pitch.

"The benzol, toluol, naphtha, etc., can be added to that recovered directly from the gas, for motor fuel. The crude carbolic finds a market with manufacturers of antiseptics, colours, explosives, and a great deal is used in recent years on the manufactures of phonographic records, imitation amber for pipes, etc.

"So far as the value to the country is concerned, the creosote recovered is one of the most valuable by-products of the coal. Railway ties have doubled in price in the past ten years, and there is every prospect of a *pro rata* increase in further years. The forestry branch reports 19,100,000 ties used on Canadian roads in one year. A fairly safe assumption would be a complete renewal of all ties every five years, while fifteen years might be taken as a reasonable average life for creosoted ties. The cost of creosoting is less than the cost of a new tie, so that the creosoting of the ties becomes not only a commercially attractive proposition, but will save many millions of feet of lumber annually.

"The same process of reasoning may be applied to mine ties and timbers, and also to bridge timbers.

"The general adoption of the creosoting process would materially reduce this number in a few years. If we assume a consumption of only 10,000,000 ties per annum there would be required about 25,000,000 gallons of creosote oil per year, or the distillation of 85,000,000 gallons of tar, which would in turn require the carbonizing of 8,000,000 tons of coal.

"The naphthalene finds a market as a colour base. For the manufacture of deodorizers, disinfectants, moth balls, etc., and also in the manufacture of a chlorinated wax for use in electrical work.

BENZOL.

"Under this name is often included the toluol, xylol and naphtha, which are recovered at the same time. Each of these products, together with naphthalene, can be recovered separately and refined to their chemically pure state, and there will undoubtedly be a market for a small quantity of each for solvents, dry cleaning, dyes, explosives, etc. During the war the toluol and a considerable portion of all benzol recovered was used in the manufacture of explosives.

"The great market now the war is over is undoubtedly to combine the four products, benzol, toluol, xylol and solvent naphtha, as a motor fuel, giving a product which distills between 78 and 165° C. This fuel has been carefully tested and found to give from 20 to 30 per cent greater mileage than the best gasoline, with about 15 per cent greater power, easier starting, no knock with advanced spark and actually less tendency for the formation of carbon in engine cylinders. Benzol itself comprises approximately 70 per cent of the fuel and this freezes at 44° F. The addition of the toluol and other products named, in the proportion in which they are recovered, brings the total fuel mixture down to a freezing point of approximately zero F., so that to make an all-year fuel for our climate we have to mix with sufficient gasoline to lower the freezing point still further. The addition of 25 to 30 per cent of gasoline gives a freezing point low enough for most places, except in the north, where it might be necessary to add as high as 50 per cent.

"According to Government statistics, Canada's consumption of gasoline in 1916 was 74,000,000 gallons, of which 18,000,000 gallons was imported as distilled product, and most of the remainder was made from imported crude oils. So that it is evident that with a total Canadian production of say 20,000,000 tons of coal, if it was all carbonized and the motor fuel recovered, the market would still be far short of being satisfied. This does not take into consideration the fact of the continued yearly increase in consumption which is bound to occur.

"The pitch remaining can be made of almost any consistency desired. It can be made so hard that it can be pulverized and used as boiler fuel or in the same state it can be used as a binder for briquettes. In its softer state it is also used as a binder for briquettes, for roofing and road making. It is also mixed with the lighter portion of the distillate for the manufacture of paint for special purposes.

AMMONIA.

"While this has been shown in the balance sheet as sulphate of ammonia which is used almost entirely as a fertilizer, yet it can be recovered in the form of concentrated liquor containing from 16 to 25 per cent ammonia for the manufacture of explosives, or in the form of dry ammonia gas for refrigerator purposes, or as the aqua ammonia of commerce and chemistry. However, these are only small markets when compared with the market as a fertilizer. Its only competitor, as a nitrogenous fertilizer is nitrate of soda from Chili, and as the population of the country increases and virgin lands become exhausted, we must, if we are to be fed, keep up the productivity of the land in a great measure by the use of artificial fertilizers.

"An investigation into the yield per acre of Great Britain and the amount of nitrogenous fertilizer used when compared with America will readily substantiate these statements and set at rest any doubt regarding future markets. Considering the agricultural acreage of Canada and the fact that except for such parts as are growing leguminous crops the dressing for some crops should be even as high as 250 pounds of sulphate of ammonia per acre per year, we have further proof of the continuity of the market."

Traffic on Canals.

The total traffic through the several canals of the Dominion for the season of 1917 amounted to 22,238,935 tons, a decrease of 1,344,556 tons compared with the previous year; 244,819 passengers were carried, a decrease of 18,829, according to the report of the Department of Railways and Canals.

APPROPRIATIONS UNDER FARMING INSTRUCTION ACT

The following table taken from the report of the Agricultural Instruction Act, issued by the Department of Agriculture, shows the appropriations under the Act for the last five fiscal years:—

	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Prince Edward Island	26,529 85	27,832 81	29,138 28	30,443 75	31,749 22
Nova Scotia	44,288 45	61,144 45	68,001 87	74,859 28	81,716 69
New Brunswick	44,509 93	49,407 20	54,308 40	59,209 60	64,110 80
Quebec	159,482 40	187,409 16	215,310 70	243,212 23	271,113 76
Ontario	195,733 32	230,868 83	266,013 64	301,158 45	336,303 26
Manitoba	51,730 05	58,075 45	64,421 31	70,767 21	77,113 11
Saskatchewan	54,296 29	61,152 31	68,011 04	74,869 76	81,728 48
Alberta	46,094 95	51,310 41	56,528 82	61,747 22	66,965 62
British Columbia	47,334 76	52,799 38	58,265 94	63,732 50	69,199 06
Veterinary Colleges	20,000 00	20,000 00	20,000 00	20,000 00	20,000 00
Totals	700,000 00	800,000 00	900,000 00	1,000,000 00	1,100,000 00