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NATIONAL CONFERENCE OF EMPLOYER AND EMPLOYEE

Convention to be held in Ottawa on postponed date of September 15 will be of great importance---Proposed Agenda.

The National Conference of Employers and Employees, which will be opened on Monday, September 15 at Ottawa will be the most important convention of its kind ever held in Canada, and will, it is expected, go far toward finding a solution for the present industrial unrest. The deliberations will last one week.

The memorandum issued by the Government authorizing the conference provides that the employers and the Trades and Labour Congress will each be represented by 60 delegates. The representatives of the Congress will not represent the railway operating trades and telegraphers, who will be represented by the labour members of the Canada Railway Board of Adjustment No. 1.

Others who will attend are members of the labour sub-committee of the Reconstruction and Development Committee of the Cabinet, members of the Royal Commission on Industrial Relations and representatives of the various technical and engineering organizations.

The official agenda is as follows:—

1. Consideration of the labour features of the Treaty of Peace.
2. Consideration of the question of the desirability of unifying and co-ordinating the existing labour laws of the Dominion Parliament and of the Provincial Legislatures; (see page 107 of the R. C. Report), and the consideration of any new labour laws which are deemed necessary.
3. Consideration of the recommendation of the Royal Commission on Industrial Relations respecting hours of labour (see paragraph 52 and recommendations on page 19 of R. C. Report).
4. Consideration of minimum wage laws (see paragraph 52 and recommendations on page 19 of R. C. Report).
5. Consideration of:
 - (a) employees right to organize (see paragraph 59, also recommendation on page 19 of R. C. Report);
 - (b) recognition of labour unions (see paragraph 59, also recommendations on page 19 of R. C. Report);
 - (c) the right of employees to collective bargaining (see paragraph 65, also recommendation on page 19 of R. C. Report).
6. Consideration of:
 - (a) the recommendations of the Royal Commission on Industrial Relations in favour of the establishment of a bureau to promote the establishment and development of joint industrial councils (see paragraph 99 also recommendations on page 19 of R. C. Report).
 - (b) the further recommendations of the Royal Commission on Industrial Relations regarding the establishment of joint plant and industrial councils (see paragraphs 85 and 98 and recommendations on page 19 of R. C. Report).
 7. Consideration of the recommendations of the Royal Commission on Industrial Relations that the findings of the Commission be put into effect in all work controlled by the Government where the principles of democratic management can be applied.
 8. Consideration of resolutions relating to any other features of the Report of the Royal Commission on Industrial Relations referred to on page 19 of the report.
 9. Consideration of any other proposals which may be introduced bearing on the relations of employers and employees.

CONTRACTS AWARDED BY ORDER IN COUNCIL

Ottawa, Edmonton and Port Elgin contracts under Public Works

The Department of Public Works, Ottawa, announces the following contracts awarded under Order in Council:—

Ottawa, installation of heating pipes in Wellington Street Heating Tunnel. Contractors, W. G. Edge, Ltd., of Ottawa, at \$18,121.24. Order in Council dated August 9, 1919.

Edmonton, Alta., alterations and additions to service building at Strathcona Military Hospital. Contractors, Brown & Hargrave, of Edmonton, at \$5,246. Order in Council dated August 9, 1919.

Port Elgin, Ont., repairs to wharf and reconstruction of portion of breakwater. Contractor, Max Clairmont, of Goderich, Ont., at \$4,505.70 (unit prices). Order in Council dated August 9, 1919.

HOW B. C. LUMBER OUTPUT HAS INCREASED

The Winnipeg office of the Department of Immigration and Colonization reports the following timber figures under date of August 8th:

During the week 854 cars of lumber were shipped from various British Columbia mills, as against last year 678 cars.

The value of lumber production in British Columbia during 1918 was over \$54,000,000 as against \$48,000,000 in 1917, and \$29,000,000 in 1916.

COST OF FAMILY BUDGET SLIGHTLY HIGHER IN JULY.

The average cost of the weekly family budget of staple goods rose slightly, being \$13.77 at the middle of July as compared with \$13.72 in June, \$13.00 in July, 1918, and \$7.42 in July, 1914, says the summary of the Department of Labour. The index number of wholesale prices for July was 294.0 as compared with 284.1 for June, 284.0 for July, 1918, and 134.6 for July, 1914.

SCHEDULE OF CASH PAYMENT FOR WHEAT

Provided for under Recent Order in Council on advice of Canadian Wheat Board

VARIATIONS IN PRICE

The Deputy Governor General in Council, on the recommendation of the Minister of Trade and Commerce and pursuant to the advice of the Canadian Wheat Board is pleased to approve the following schedule of cash payments as provided for under Section 4 of the Order in Council of 31st July, 1919 (P.C. 1589), and the same is hereby approved and established accordingly, viz.:—

Manitoba, Alberta and Saskatchewan, No. 1 Hard, two dollars fifteen cents (\$2.15); No. 1 Manitoba Northern, two dollars fifteen cents (\$2.15); No. 2 Manitoba Northern, two dollars twelve cents (\$2.12); No. 3 Manitoba Northern, two dollars eight cents (\$2.08); No. 1 Alberta Red Winter, two dollars fifteen cents (\$2.15); No. 2 Alberta Red Winter, two dollars twelve cents (\$2.12); No. 3 Alberta Red Winter, two dollars eight cents (\$2.08); above cash payments are basis in store Public Terminal Elevators at Fort William and Port Arthur. British Columbia No. 1 wheat, two dollars ten and one-half cents (\$2.10½); No. 2 wheat, two dollars seven and one-half cents (\$2.07½); No. 3 wheat, two dollars three and one-half cents (\$2.03½); basis in store Canadian Government Elevator, Vancouver. Ontario and Quebec wheat, No. 1 grade, two dollars eighteen cents (\$2.18); No. 2 grade, two dollars fifteen cents (\$2.15); No. 3 grade, two dollars eleven cents (\$2.11), basis in store Montreal.

REPORT GIVES MOVEMENTS OF GRAIN IN WEST

Increase shown in Quantities stored in Interior Elevators compared with same period last year.

SHIPMENTS TO DATE

The Department of Immigration and Colonization has received the following regarding the inspection, storage and shipment of grain from their Winnipeg office under date of August 8th:—

Grain in store at C. P. interior elevators, 1,971,427 bushels; 1918, 939,328 bushels.

In store at Government interior elevators, Moosejaw, 310,483 bushels; Saskatoon, 294,767 bushels; Calgary, 199,562 bushels.

In store at all elevators at the lake front, 5,109,500 bushels.

Inspected since September 1, 1918:

	Wheat.	Other Grains.	Total.
1918..	124,338,000	50,651,400	174,987,400
1917..	152,828,000	78,630,700	231,458,700

Grain shipped by rail since September 1, 1918: C. P. tracks, 7,638,555 bushels; Lake Front, 9,324,735 bushels.

Grain shipped by boat and rail since September 1, 1918: C. P. tracks, 72,227,357 bushels; Lake Front, 110,901,209 bushels.

Grain shipped by boat since the opening of navigation, April 1, 1918: C. P. tracks, 27,588,124 bushels; Lake Front, 51,370,572 bushels.

Cars of grain unloaded at Fort William since September 1, 1918, 59,026; 1917, 74,046; 1916, 100,400.

During the week 593 cars of flour were shipped from various mills in the Prairie Provinces; last year 204 cars.

The Edmonton Board of Trade has made a request to the Board of Grain Supervisors that Edmonton be made a grain inspection point.

Sumas (B.C.) Reclamation.

The first contract will shortly be let in connection with the work of reclaiming 32,000 acres of land at Sumas, B.C., says a report to the Winnipeg office of the Department of Immigration and Colonization. The entire scheme will cost between \$1,250,000 and \$1,500,000, but the work will be undertaken in sections.

ABREAST OF ORTHOPÆDIC DEVELOPMENT

Research Branch of Soldiers' Civil Re-Establishment always watching for Improvements in Artificial Limbs

WORK OF THE BRANCH

To obtain the best and most practical orthopaedic appliances and artificial limbs, and to keep abreast of every improvement in their manufacture, is the chief concern of the Orthopaedic and Surgical Appliances Branch of Soldiers' Civil Re-Establishment, says a statement issued by the Department.

To this end the Research Branch of the Department was organized to keep constantly in touch with the progress of other countries, and also to experiment from time to time with a view to the improvement and the securing of the best appliances upon the market for the Canadian disabled.

An important conference was recently held in New York City to discuss the best means and methods of overcoming the handicap of war as represented by our maimed and wounded heroes.

Representatives from the United States, France, Belgium, Italy, Great Britain and Canada attended this conference, and the consensus of opinion was that appliances in the form of hooks had, up to this time, proved the most beneficial and practicable substitutes for the human hand.

The most practical of these, the "Canada Arm," has been used by a great number of returned soldiers, and has been pronounced by orthopaedic experts as the most useful of any so far invented. This arm has been specially designed for amputation cases above the elbow, and the main feature is a special elbow joint which can be positively locked in various positions controlled by a shrug of the shoulders. It combines in one appliance the working arm and the dress arm which removes from the wearer the old trouble of changing the limb to meet various needs. The metal parts of the working arm have been made especially strong. It is provided with a snap hook having several positions and with its various adjustments a man can perform many duties. Turned to one angle it is possible for the wearer to wield a heavy hammer, the grasp of the tool being such that the heaviest swinging blow will not dislodge the hold. Men wearing this type of hand hook have been able to saw wood, drive in nails and turn machinery, as well as manage all kinds of lifting. An excellent feature of the grip is that, although it is so vice-like for the purpose of handling tools, when necessary, in the case of an accident it is equally easy for the wearer to loosen the tension.

WITH MOVABLE FINGERS.

At the New York conference, types of artificial arms which embodied movable fingers, mechanically operated, were given thorough consideration by the orthopaedists present, who finally came to the conclusion that, owing to the complicated mechanism necessary, such types of hands would not have a lasting practical use.

From the commencement of this work for the wounded, the Canadian orthopaedic consultants have been wide awake to every development in their line of work that has taken place in the various allied countries; always keeping in view first and foremost the most practical devices, the cost being a secondary consideration, and always bearing in mind that the returned soldier is entitled to the best that is obtainable.

The Canadian Government has arranged to keep in repair and to renew all artificial limbs and other orthopaedic appliances furnished to a disabled soldier for the remainder of his natural life. In order to do this with a maxi-

PENSION ACT BECOMES EFFECTIVE SEPTEMBER 1

One Clause provides for Granting of Bonus for One Year to Lower Ranks--Intended to offset High Cost of Living.

The announcement that Bill 158 of the "Pension Act" as it will be known, has finally become law, should be received with satisfaction everywhere, says a statement issued from the Board of Pension Commissioners.

The Special Committee, appointed early in the last Parliamentary Session to prepare a Bill dealing with war pensions, obtained from every quarter, expert evidence dealing with the various aspects of present day pension requirements. The evidence submitted, after careful sifting, was embodied in various recommendations to Parliament, many of which are now reflected in the new Act.

Canadian Pensions have, since early in the war, been considerably higher than those paid in any other country, and the new Act contains convincing proof of Canada's intention to maintain this aspect.

It should be noted that the Act does not become effective until the "first day of the second month following its sanction," and will therefore come into operation on September 1, 1919.

The clause which probably will be most widely welcomed is that which provides for the granting of a bonus for one year, to lower ranks. A 20 per cent increase--intended to offset the present high cost of living--is allowed for ex-privates, and approxi-

mately a thirteen per cent increase for those who held the rank of sergeant, or a corresponding rank in the Naval Forces. Thus to the total disability pension of \$600 per annum for an ex-private there will be added a bonus of \$120 payable for one year only, making a total of \$720. The totally disabled ex-sergeant's pension of \$637.50 is similarly increased to \$720 by the addition of the thirteen per cent bonus, previously referred to.

A substantial increase in the pension for the first orphan child of a deceased soldier is also provided for. Under the new schedule such a child will be entitled to an award of \$360 per annum instead of \$288 as at present. Where there is more than one orphan child in a family, pension for the second child will be at the rate of \$240 per annum, and at the rate of \$192 per annum for the third and each subsequent child. Pensions for orphans are usually paid to a guardian for administration, the Board of Pension Commissioners being responsible that fit and proper persons are appointed to act in this capacity.

It is hoped that this Act, based on actual experience with pension problems both in this and in other countries, will be broad enough in its scope to effectively provide for all matters connected with pensions for several years to come.

PENSIONS STILL WAITING

There are many additional names of soldiers by whom pensions might be claimed. The numbers given with each name should be quoted in replying to the Board of Pensions Commissioners at Ottawa. The Board has issued the following list of last known addresses of claimants who cannot be traced and in communicating with them the figures in parenthesis should be given:

Pte. Elmo J. Andrus, No. 1 D.D., formerly 111th Battalion (50176).
Pte. Geo. A. Anderson, M.R.D. and 12th Battalion (127153).
Spr. J. E. Anderson, 1st B Railway Construction (130031).
Pte. J. Adams, 56th Battalion (104938).
Gnr. Wilbert Abbey, 2nd Battery, (123457G).
Sgt. Wm. Armsworthy, 1st D.B.S.N.R., formerly 193rd Battalion (122301G).
Pte. J. Anderson, 107th Battalion (127154).
Pte. Henri U. Arsenaault, 1st Can. Reserve Battalion (124959).
Pte. Neil Akerstream, 8th Battalion (26667).
Pte. Jos. Burns, P.P.C.L.L., (50818).
Pte. Cyrus W. Bersen, 13th Battalion (125893).
Pte. F. Baker, No. 4 D.D., formerly 243rd Battalion (55496).
Pte. Hugh Burns, "A" Unit, M.H.C.C., formerly 45th Battalion (22999).
Mde. Albertine Levesque, pension on account of Pte. Louis Bourassa, 22nd Battalion, formerly Q.R. & 2nd D.B. (53437).

Spr. Michael Berezowsky, C.R.T., 41st Battalion (120727).
Pte. Frank Brilliant, 2nd Depot Battalion (114971).
Pte. Henry C. Bowman, 151st, formerly 16th M.G.Co. (50002).
A. Sgt. Ernest H. Barker, C.A.M.C. (125533).
Pte. E. W. Barrows, 6th Forestry Draft (19383).
Pte. Robt. Blenkinsopp, 14th, formerly 35th Battalion (30357).
Bugler G. F. Claringbull, 29th Battalion (41926).
Pte. A. R. Coats, 10th Battalion (2975).
Pte. A. A. Carlton, S.S.C., formerly 13th and 20th Battalions (34430).
Pte. Elmer R. Cass, 222nd Battalion (114150).
Lt. Henry Campbell, 14th Battalion (124993).
Pte. Andrew Cowie, 31st Battalion (60382).
Hon. Capt. and Chaplain Edmond Chambers, C.E.F., (102211).
Pte. Alex Coburn, Gen. Depot, C.E.F., (124855).
Pte. John R. Cameron, 62nd Battalion, C.E.F. (100531).
Pte. Frank A. Eves, (1st C.O.R.), (21333).
Pte. Thos. Logan, 50th Battalion (102439).
Pte. J. Lavigne, 1st D. B., formerly 257th Battalion (31280).
Pte. David Leslie, "H" Unit, M.H.C.C., formerly 68th Battalion (30970).
Pte. Albert E. Mathieson, 238th Battalion (49135).
Robert L. McAdam, C.M.D.G., (118574.7461G.).
Pte. Harry Marchell, 121st Battalion (110749).
Pte. John Murphy, No. 4 D.D., formerly 213th Battalion (54442).
Pte. Norman Minor, S.S.Co., formerly 28th Battalion (18806).
Pte. S. W. Miller, 1st Western Ont. Regt. (62329).
Pte. Stanley McIntosh, 207th Battalion (129864).
Pte. William Morrison, 199th Battalion (116649).
Cpl. Peter S. McDermott, 9th C.M.R., (9370).
Pte. J. D. McSwenn, 192nd Battalion (123772).
Cpl. Frank A. MacLean, 55th Battalion (113578).
Pte. C. C. MacDonald, 67th and 102nd Battalions (43497).
Pte. Robt. Martin, 12th D.D. (123742).
Pte. Ernest W. McLelland, 56th Battalion (120856).
Pte. Thos. Neeshwarbun, 227th Battalion (104267).
Pte. Waldmer B. Neilsen, 128th Battalion (116101).
Pte. D. Occhiuzzi, 137th Battalion, (86696).
Pte. Samuel H. Orpen, 7th Brigada, M.G.Co. (35410).
Pte. Wm. N. Pendlebury, 28th Battalion (110122).
Pte. Dan Paquin, 71st Battalion (122087).
Pte. Fred Thos. Parris, 48th Battalion (12398G1).
Pte. Wm. Rutledge, C.M.G.D., (123305).
Pte. Albert Purser, 7th Battalion (123536).
Pte. John Riy, 3rd Dist. Dep., (129291).
Lieut.-Col. Geo. S. Robinson, O.M.F. of C. (117859).
Pte. John A. Russell, 12th D.D. (124104).
Pte. J. W. Stewart, 2nd Depot Battalion (116077).
Pte. Sven Svenson, 223rd Battalion (115479).
Spr. W. Oswald Stratford, 3rd Reserve (117670).
Pte. Henry Smith, 52nd O's. Battalion (31527).
Bdr. Cyril Alfred Everett, 5th Battery, C.F.A. (132748).
Spr. John Elligott, 12th Field Co., C.E. (122292G).
L.-Cpl. Carl Erickson, 197th Battalion (42820).
Pte. Arthur J. Fassett, 256th Battalion (50622).
Pte. Peter Faillon, 87th, formerly 60th Battalion (31866).
Spr. Dmitry Filipowitch, 41st Battalion (122050).

TO KEEP FUR TRADE CONTROL IN LONDON

With the primary objects of maintaining the position of London as the center of the raw fur industry, and of making it increasingly important as a center of dressed, dyed and manufactured furs, there has just been formed a London Fur Trade Association, with a most influential initial membership of fur brokers, dealers and manufacturers, including the Hudson's Bay Co., says a report in the Trade and Commerce Bulletin.

During the war New York and St. Louis have both sought to deprive London of its position as the world's mart for furs, but their hopes of success were completely dispelled at the May auction sales in the metropolis, when buyers from all parts of the globe attended and record prices were realized.

The combine of members of the trade, however, has more in mind the efforts that will be made by the Germans to revive the important sales of furs that were held at Leipzig, and it is no secret that the French and Italian furriers have urged the need for British firms to co-operate with them to counteract the German intention to make Leipzig the principal fur market.

MAGNIFICENT NATIONAL RECREATION GROUNDS

Dominion Parks unsurpassed in Natural Beauty and offer Wonderful Facilities for Outdoor Pastime—
Extracts from Annual Report.

The following are the extracts from a report of the Dominion Parks Commissioner, Parks Branch, Department of the Interior, and refer to the Dominion National Parks:

National Parks are in reality national recreation grounds. They are set aside because it is being recognized more and more that recreation where fresh air, sunshine, beautiful natural scenery are combined, means an uplifting of spirit, a renewal of strength of body, a stimulation of mind. National Parks provide the means of recreation in the great out-of-doors for all who wish to take advantage of them; they stand out as a national recognition that recreation in the out-of-doors is essential for the physical, mental, moral health of the people, and consequently emphasize to the public the suggestion of such recreation, even if it has to be sought elsewhere than in the National Parks. The spirit of the National Park idea cannot be more effectively crystallized than by the following extract from John Muir, the American writer, known throughout the continent as the lover of the mountain, the wilderness and all nature:—

The tendency nowadays to wander in wildernesses is delightful to see. Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity and that mountain parks and reservations are useful, not only as fountains of timber and irrigating rivers, but as fountains of life. Awakening from the stupefying effects of the vice of over-industry and the deadly apathy of luxury, they are trying as best they can to mix and enrich their own little outgoings with those of nature, and to get rid of rust and disease.

WORTH-WHILE PARKS.

In its parks and, for that matter, outside its parks, Canada has the impressive scenery and the other natural attractions to justify and compel pride of country. Most of the Dominion Parks so far established are in the Rocky mountains. To show that their outstanding charm and attractiveness are recognized by those whom the world recognizes as having the right to speak with authority upon the subject of mountains and scenic attractions, the following extracts are given:—

The Reverend James Outram, a well-known English climber, and author of "The Heart of the Canadian Rockies":

"But the wondrous glacial fields, the massing of majestic ranges, the striking individuality of each great peak, the forest areas, green pasture lands, clear lake and peaceful valley are nowhere found harmoniously blended on the western continent until the traveller visits that section of the Rocky mountains which lies within the wide domain of Canada."

Extract from "Climbs and Explorations in the Canadian Rockies," by Prof. J. Norman Collie and H. E. M. Stutfield, of London, England, pioneer climbers and explorers:—

"On the other hand, they have a very remarkable individuality and character in addition to special beauties of their own which Switzerland cannot rival. The picturesque landscapes in the valleys; the magnificence of the vast forests, with their inextricable tangle of luxuriant undergrowth, and the wreck and ruin of the fallen tree trunks; the size, number and exquisite colouring of the mountain lakes; in these things the new Switzerland stands pre-eminent. In the Alps we can recall only one lake of any size surrounded by high glacier-clad mountains, namely, the Oeschinen See; in the Rockies, they may be counted by the score—gems of purest turquoise blue, in matchless

settings of crag and forest scenery, glacier and snow, storm-riven peak, and gloomy, mysterious canyon."

T. G. Longstaff, the distinguished English alpinist, in an article in the London *Field* recently, said:—

"In the Canadian Rockies and the Selkirks there is a country waiting for recognition which I believe is destined to become the playgrounds of the world, just as the Alps have been for one short century the playground of Europe. In no other mountain region of the globe do peak and cliff, snowfield and glacier, alpland and forest, lake, cataract, and stream form such a perfect combination as is to be found, not in one, but in hundreds of places in these glorious ranges. Mere questions of altitude are beside the mark. Though I hold that no one can fully appreciate mountain scenery who has not actually come to grips with the peaks themselves, yet the fascination of the Canadian mountains is such that merely to travel through them and camp amongst them is sufficient reward for any one who is not blind. On the whole it must be admitted that the average difficulty of the climbing does not attain the European standard, but there are many peaks whose ascent has only been accomplished with great difficulty, and there are certainly a far larger number of such peaks which have never been seen by any mountaineer."

Prof. Coleman, of Toronto University, author of "The Canadian Rockies," and ex-president of the Canadian Alpine Club, says:—

"None of the mountains of North America can be measured against the Himalayas or the higher Andes in altitude, and to climbers familiar with these giant peaks the Canadian Rockies may seem quite insignificant; and yet some of the most famous workers among the Himalayas, the Andes, the Caucasus, the Alps, have later become so enamoured of the

Canadian Rockies as to come back season after season. To draw experienced British climbers from the French or Swiss Alps, only a few hours' journey from home, to Banff or Laggan or Glacier, five thousand miles away, implies rather potent charm.

"Much the same is true of the skilful American climbers, who flock to British Columbia instead of spending their summers a few hundred miles to the south among the mountains of Colorado, which are thousands of feet higher. Why should the Canadian Rockies prove more fascinating than Pike's Peak or Mount Whitney? It is evident that the cause is not to be found in altitude alone.

"The beauty and attractiveness of mountains depend, of course, on various factors, of which absolute height is only one. Relative height above the surrounding plains or valleys counts for more, and permanent snowfields and glaciers are needed to give the true Alpine charm and these may be found on peaks of only nine thousand feet among the Selkirks. . . . On the other hand, the much higher mountains of Colorado rise from a plain seven thousand feet above the sea and have so feeble a snowfall that they are bare before the end of the summer.

"Except in the short extension of the Canadian Rockies into Washington and Montana, there are scarcely any glaciers to be found south of the international boundary. The dryness of the air and the strong and more nearly vertical sun of summer prevent the formation of glaciers on most of the high American mountains and on all those of Mexico, robbing them of the most thrilling and seductive features of the Alpine peaks, the gleam of snow, the blue of crevassed glacier tongues, the wildly heaped moraines, and the white glacial torrents in flood on a sunny afternoon.

"The famous canyon of the Colorado three hundred miles long and five thousand feet in depth, with a breadth of ten or fifteen miles, is out of the running as compared with the valley of the Upper Columbia at Surprise rapids, which is more than eight thousand feet below the nearer Rockies and Selkirks, the opposite summits standing fifteen or twenty miles apart. Probably five times as many cubic miles of rock have been carved from this valley and disposed of as in the Colorado canyon."

MORE OAK IMPORTED THAN OTHER TIMBER

Home Supply Negligible and 60 percent of Consumption purchased in U.S.

More oak is imported into Ontario in a year than any other hardwood or softwood. About sixty per cent of the annual consumption, or a total of about 36,000,000 feet was reported as having been purchased in the United States, as stated in the bulletin entitled "Wood-Using Industries of Ontario," issued by the Forestry Branch, Department of the Interior (1913), and which contains an account of the quantity, value and source of supply of the different kinds of woods used in the industry. This leaves an apparent amount of 24,000,000 feet purchased in the province. The cut of oak lumber in Ontario in 1911 was only a trifle over 6,000,000 feet, and the difference is probably made up of material purchased in the log or in billet, or forms other than lumber, and also of material purchased from dealers in Ontario who themselves imported their stock from the United States.

The cut of oak is steadily decreasing and the price increasing in the province, the supply being restricted to small groups and isolated trees in farmers' woodlots. There are so many cases where oak is used because it is the best and often the only material suitable for a particular purpose, that it is a wonder manufacturers have not realized the fact that the species in Ontario is now commercially extinct. The importations from the United States now come chiefly from Tennessee, but the centre of production is constantly shifting and the supply there is being also rapidly exhausted.

The most valuable species of the genus is undoubtedly white oak (*Quercus alba*) and this forms the greater part of the oak used. Next in importance comes red oak (*Quercus rubra*), and small quantities of scrub white oak or "blue" oak (*Quercus macrocarpa*). In addition to these three, there are a number of other species occasionally used for lumber, but of no commercial importance.

The general qualities of white oak are well known and its value as a wood has long been recognized. It is strong, hard, heavy, tough, dense and durable, and possesses a fine even grain and texture. It is, however, rather difficult to season. Red oak is neither as strong nor as durable as white oak, but it is more easily worked. Its density is much less than that of white oak, and its porous nature prevents its use for the better classes of tight cooperage. Scrub white oak, or blue oak, is the hardest and toughest of the three species, but is scarce and has only a limited use in the industries. Oak is one of the most expensive native hardwoods in Ontario used in quantities of over a million feet, board measure. Wood distillation uses oak in greater quantities than any industry, but does not use much of the timber-sized material. The bulk of the lumber is used by the manufacturers of house-trim and household furniture.

POPLAR USED FOR PULP AND FOR BOXMAKING

The different species of poplar other than the cottonwoods are usually mixed indiscriminately on the market. The most important species in Ontario are balm poplar or balm of Gilead (*Populus balsamifera*) and aspen (*Populus tremuloides*). These woods are used chiefly for pulp, but balm poplar is cut into lumber in Ontario and used for rough box-work and slack cooperage. The wood is soft, light, weak and very perishable, but is fairly tough, easily worked and is both tasteless and odourless. If properly seasoned it could be substituted in many cases for the rapidly disappearing basswood and the expensive imported tulip or whitewood, which is often called "yellow poplar." The supply of poplar in Canada and in Ontario is enormous, although some of the standing timber is defective. It is highly probable that new uses will be found for this wood when the prejudices against it are overcome, as stated in a bulletin issued by the Forestry Branch, Department of the Interior.

IMPORTS AND EXPORTS OF CLAY PRODUCTS

EXPORTS.

Calendar Year.	Building Brick.		Manu- factures.	Earthen- ware.	Total.
	M.	Value.			
1910.....	390	\$ 2,762	\$ 9,061	\$ 9,240	\$ 21,063
1911.....	394	3,977	2,071	6,101	12,149
1912.....	694	8,493	256	10,001	18,750
1913.....	977	8,579	27,201	16,553	52,333
1914.....	1,486	11,871	26,866	9,336	48,073
1915.....	1,155	9,089	25,202	11,281	45,572
1916.....	1,746	13,942	58,550	7,620	80,112
1917.....	4,464	40,039	83,600	14,504	138,143

IMPORTS.

Calendar Year.	Brick and Tile.	Earthen- ware and Chinaware.	Clays.	Totals.
1910.....	1,755,773	2,283,116	292,568	4,331,397
1911.....	2,369,761	2,516,536	270,247	5,156,544
1912.....	3,209,190	3,094,956	288,394	6,592,540
1913.....	3,121,592	3,314,870	324,290	6,760,752
1914.....	1,986,790	2,192,222	288,128	4,467,140
1915.....	1,301,359	1,460,010	237,096	2,998,465
1916.....	2,048,259	2,180,414	325,497	4,554,167
1917.....	3,599,046	2,595,582	416,209	6,610,837

LOSSES DUE TO RATS MILLIONS ANNUALLY

Of all Animals Rat is worst
Pest, says Writer

From the Ninth Annual Report of the Commission of Conservation, the following extract showing the pernicious habits of rats and mice is taken:—

The destructive powers of rats and mice are well known, but the manner in which their presence is tolerated in city and country would indicate that the immense losses they cause are not fully appreciated. Of all animals, the rat is the worst pest. As a carrier of bubonic plague, it is a serious menace to public health; as a destroyer of grain, stored foods of all kinds, eggs, chickens, and other food products, it is unequalled. And yet no serious efforts are made to cope with this powerful enemy in our midst.

Bubonic plague is transmitted from rats to human beings by fleas. The destruction of rats is an essential step in the protection of communities from this disease. In the fourteenth century, it is estimated that about 25,000,000 people died in Europe from the "black death," as this disease was called, and 2,000,000 deaths are stated to have occurred during the epidemic of plague in India in 1907. Modern methods of preventing the spread of plague involve the most vigorous eradication of rats.

But we are concerned now with the destruction of food by rats, which, as I have stated, is not sufficiently appreciated. In Europe, it was estimated in 1907, after a full inquiry, that the average annual loss caused by each rat in Great Britain equalled \$1.80, in France \$1, and in Denmark \$1.20. The losses in the rural districts in Great Britain and Ireland due to rats in the same year were computed at \$73,000,000; and a capital of about \$10,000,000 was employed in the industry supplying means to destroy rats. At the present time, the English Board of Agriculture is making special efforts to combat the rat pest in England. Mr. E. W. Nelson, Chief of the Biological Survey of the United States Department of Agriculture, in a recent valuable article on the rat pest, estimates the annual losses in the United States due to rats to equal at least \$200,000,000. He further makes the interesting statement that in order to feed and otherwise provide for this enormous destructive army of rats the labour of 200,000 men is required.

When the prolific habits of rats are taken into account the extent of the menace they constitute will be made still clearer. The brown rat begins to breed when about three or four months old; they breed from six to ten times a year and produce, on the average, ten young in a litter. If we imagine a pair of rats breeding at this rate for three years without any deaths among their progeny, at the end of that short period the number would be increased to over 350,000 rats.

The main reasons for the abundance and destructiveness of rats and mice is that we provide food and shelter for them. To combat them successfully, we must refuse them both these vital essentials. Shelter should be denied by making buildings and other haunts rat- and mice-proof by various constructional methods. Seed grain, provisions, etc., should be stored in rat-proof containers. The adoption of sanitary conditions in towns and cities, cleanliness about stores, warehouses and other buildings will help to eradicate them. The maintenance of garbage dumps is one of the greatest causes of rat abundance; incineration is the only sanitary method of treating garbage. Systematic campaigns should be organized and such methods of destruction as trapping, poisoning, and hunting with ferrets and dogs should be adopted wherever rats occur.

Soldiers' Settlement.

Soldiers' Land Settlement in Canyon City District (B.C.), is progressing satisfactorily and 100 settlers will be working on clearing operations by September 1, says a report to the Winnipeg office of the Department of Immigration and Colonization.

NATURAL REPRODUCTION OF PULP SPECIES SLOW

Report states that it takes about 40 years for Young
Spruce to acquire diameter of one inch and 100
years to make a six-inch tree.

The following is an extract from a report on an investigation of the reproduction and growth of the pulpwood species after logging in Quebec, carried out by Dr. C. D. Howe, of the Forestry staff of the Commission of Conservation. The object of the investigation, according to the report, was to determine the condition of cut-over lands with respect to the regeneration and rate of growth of the present pulpwood-producing species, namely, spruce and balsam, with a view to estimating the future crop:—

"The result of the investigation," it is stated in the report, "show that the optimistic attitude of lumbermen and limit holders in regard to the reproducing power of this type of forest is not justified. The good yields of pulpwood material at the end of each of the several cuttings in the past thirty years do not represent the amount of growth accrued during the intervals between cutting periods, but are obtained by cutting successively smaller trees, and, in general lower grade material and also by including a larger proportion of balsam in each cut. For example, the spruce stumps were measured and classified according to the age of the cutting on sample plots, totalling 50 acres, and the results are here stated: In cuttings from 15 to 20 years old, the average diameter of the stumps was 15 inches; cuttings 10 to 15 years old, 12 inches; while in cuttings less than 10 years old, the average diameter was 11 inches. This shows a reduction of 4 inches in the average diameter of the trees taken within the past 15 to 20 years. The actual reduction, however, is doubtless greater, since the measurements record the present diameters of the stumps without making allowance for reduction in size by decay in the past two or three decades.

The tallying of the stumps on the sample plots showed the following increase in the proportion of balsam cut for pulpwood: On areas lumbered earlier than 15 years ago, no balsam was cut. In cuttings from 10 to 15 years old, 65 per cent and 35 per cent, respectively, were spruce and balsam. In cuttings 5 to 10 years old, 45 per cent of the stumps were spruce and 55 per cent balsam, while in cuttings less than five years old, the proportion is 22 per cent spruce to 78 per cent balsam.

The casual observer is in danger of being misled if he bases his prediction of an abundant future crop of pulpwood upon the number of young spruce and balsam trees beneath the forest. The amount of future pulpwood material, and the time of harvesting the crop, depend as well upon the rate of growth exhibited by the young trees now present.

RATE OF GROWTH.

Over 2,000 trees were analyzed to determine their rate of growth in diameter, height and volume. While the results of this study have not yet been tabulated, they have gone far enough to justify the statement that within the forest type under consideration, it takes about 40 years for the little spruce trees to acquire a diameter of one inch; 100 years to make a six-inch tree, and 150 years to reach the minimum diameter limit of 12 inches, established by the cutting regulations in Quebec, for white and black spruce. Balsam grows somewhat faster. A one-inch tree is made in about 16 years, and it takes in the neighbourhood of 70 years to reach the Quebec diameter limit of seven inches at two feet from the ground.

These statements refer to the time required, under the given conditions, to make a merchantable forest from the seedling stage onward. It will be seen from the foregoing table that there are

30 spruce and 59 balsam trees from 4 inches to 8 inches in diameter already present on the average acre. They will furnish another crop of pulpwood material in time, but here again the time is long. The growth tables show that it will require about 70 years for the 4-inch trees and about 50 years for the 8-inch trees to reach the 12-inch diameter limit. The larger balsam, however, will be merchantable in 10 years or less.

CUTTINGS MUST BE DELAYED.

There are only six spruce and six balsam trees over eight inches in diameter, on the average acre in this culled forest. This number is too small to justify exploitation alone, so that the next cutting must be delayed until a sufficient number of the smaller trees reach merchantable size. Just how long this will be can not be determined until our figures are more completely digested, but we have certainly gone far enough to disprove absolutely the frequent assumption that such lands can be cut over every 20 years and the same amount of material secured as before. On these heavily-culled lands, it will probably be found that, henceforward, a period of from 30 to 60 years must elapse between cuttings, if only spruce and balsam are to be removed.

It is, of course, obvious from the foregoing that one of the fundamental problems most urgently demanding solution is some method of utilizing the very large quantities of hardwoods, principally, yellow birch. If these could be removed, the rate of growth of the spruce and balsam would be accelerated, since the heavy overhead shade would thus be greatly diminished, making more light available for the pulpwood species. As long, however, as the tendency of every cutting operation is to convert the area more and more into a hardwood forest, as is now the case, the problem is exceedingly difficult, if not wholly impossible, of practical solution. Much further investigation will, of course, be necessary before final conclusions can be drawn as to what modifications are necessary in the silvicultural treatment of these forests, which have now become so valuable.

WILD LIFE AIDS IN PROTECTION OF CROPS

The greatest enemies to our food crops are insect pests, which attack the plants both below and above ground. Of all natural agencies tending to keep in check such pests and to suppress outbreaks, the many species of insectivorous birds play a very important role. Without the aid of these most valuable allies in destroying the enemies of our crops, our food production would be most seriously affected by the unrestrained ravages of the ever-increasing number of pests to which crops of all kinds are subject. The protection of insectivorous birds is at all times a necessary measure in crop production.

In addition to the assistance rendered by insectivorous birds, other members of our wild life render valuable help in the protection of our food crops by destroying insect pests and such other enemies of crops as field mice and gophers. Skunks destroy large numbers of insects; moles and shrews perform a similar service. Hawks and owls kill countless numbers of gophers and mice. The value of the lower forms of animal life, such as snakes, frogs, and toads in destroying crop pests is not generally realized, but, at the present time, it is very desirable that their usefulness in this direction should not be overlooked, as stated in an article in the Ninth Annual Report of the Commission of Conservation.

Women should save through W.
S.S.

MILLION ACRES OF FREE LANDS TAKEN UP BY SOLDIERS

That total has practically been
reached in Four Western
Provinces during past year
says Report.

PORCUPINE RESERVE

Approximately one million acres of free lands in the four Western Provinces have been taken up by returned soldiers in the past year. The Soldier Settlement Board reports that up to the 1st of August, 3,768 soldier grant entries have been made in the four Western Provinces, as follows: Manitoba, 858; Saskatchewan, 1,124; Alberta, 1,702; British Columbia, 84. At 160 acres each this means 602,880 acres. About two-thirds of these soldiers have also exercised their right to take up homestead land. This means that 2,512 veterans have taken an additional 160 acres, amounting in all to 401,920 acres; the total being 1,004,800 acres.

The British Columbia free grant lands are those situated along the line of the C.P.R., which were turned over by the province to the Federal Government at the time of the construction of the C.P.R. Transcontinental railway.

The number of soldier grant entries in July was 941, and in June 813. The Porcupine Forest Reserve in Saskatchewan was opened in July and about 150 soldiers have already settled there. Reports as to the agricultural possibilities of this district are very satisfactory. The Reserve is 50 miles east of Tisdale, Sask., and only twelve miles from the railway. Within six weeks engineers will have completed a motor road to the townsite of Prairie River. A steel bridge to be placed over the Red Deer river is on the way, and timber for a bridge over the Copeau river has been purchased. The Forest Reserve is really park land and consists of open spaces and bluffs of poplar and willow. The crops in the surrounding district are good. The soil is a rich black loam from 18 inches to 3 feet deep and absolutely free from stone. It is so rich that wheat cannot be grown successfully for the first three years, as the wheat keeps on growing until the frost gets it; but if heavy crops of oats are taken off the first three years, wheat matures early enough. There are many valuable hay meadows and pea-vine is very thick and over 7 feet high. This grows about three tons to the acre and is worth \$15 a ton at the railroad.

Commercial Uses of Birch.

The bulk of the birch lumber sold is sweet birch (*Betula lenta*), and this is the material that is largely used for hardwood flooring and furniture. Yellow birch (*Betula lutea*) has a wider range of distribution, is used for wood distillation and often substituted for sweet birch. White birch (*Betula alba*, var. *papyrifera*) is the commonest species of the three, but does not usually grow to timber size and is of little commercial value, being used for turnery, spools and small woodenware. Birch is Canada's most abundant hardwood and is rapidly gaining in favour as the supply of the more expensive hardwoods is exhausted. It is fairly hard and strong with a fine grain; it is easily worked, takes a high polish and can be stained to imitate more expensive woods like mahogany, cherry or walnut. "Wavy" birch is an accidental form due to cross-grain, somewhat similar to "curly" maple, and is highly prized for ornamental work. Birch is difficult to season, being apt to shrink and check, and is very perishable. This material is also largely purchased in the province, about nine-tenths of the supply being bought in Ontario. Two-thirds of the remainder is brought from the United States, and consists mainly of sweet birch from Tennessee. Some sweet and some yellow birch are bought in the eastern provinces, as stated in a bulletin issued by the Forestry Branch, Department of the Interior.

TENDERS ASKED FOR BY THE DOMINION GOVERNMENT

Firms desirous of tendering for any Government Supplies should apply to the War Purchasing Commission, Booth Building, Ottawa, giving particulars of the business in which they are engaged and a list of the articles which they wish to supply.

Tenders are constantly being invited by the different departments of the Government, tender forms and specifications being distributed by mail to all individuals or firms concerned, known to the Commission.

The War Purchasing Commission keeps a register of the different firms and lines of business which they are interested in, and it is, therefore, advisable that those wishing to have tender forms sent them should register their names, addresses, catalogues, etc., with the War Purchasing Commission, which co-operates with all other departments.

Tenders have been invited by the different departments of the Dominion Government between August 2 and August 9, as follows:—

SOLDIERS' CIVIL RE-ESTABLISHMENT—

Drawing tables	Montreal	August 15
Stools, high	"	" 15
Tool steel	"	" 15
Lead burning outfit	"	" 15
Universal woodworker	Kingston	" 18
Hardware	Montreal	" 15
Screw cutting engine lathe	Ste. Anne de Bellevue	" 19
Motor	Kingston	" 18
Lumber	Fredericton	" 19
Glass bases	"	" 22
Coal	Wiltshire	" 23
Coal	Charlottetown	" 23
Single Spindle Frizzer	Montreal	" 23
Single Spindle Frizzer	"	" 23
Coal	"	" 23
Coal	Halifax	" 23
Coal	Sydney	" 23
Coal	Lake Edward	" 23
Coal	Ste. Agathe des Monts	" 23
Oil colours and wood dyes	Fredericton	" 22

JUSTICE (PENITENTIARIES BRANCH)—

Electric motor	Kingston	August 18
Cement	"	" 18
Galvanized and B.I. pipe	"	" 18

PUBLIC PRINTING AND STATIONERY (STATIONERY BRANCH)—

Kraft envelopes 5 x 9 1/2, o.s.	Ottawa	August 18
Window envelopes	"	" 21
Shannon files	"	" 21

PUBLIC WORKS—

Stools	Ottawa	August 22
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MILITIA AND DEFENCE—

Drugs	Ottawa	August 19
Surgical instruments	"	" 19
Surgical supplies	"	" 19
Photographic supplies	"	" 19
Vaccine	"	" 22
Tablets	"	" 20
X-Ray supplies	Montreal	" 22
Laboratory supplies	Ottawa	" 27
Boiler	"	" 25
Motor car tires and tubes	"	" 16
Flags, Union, 6 ft. x 3 ft.	"	" 22
Dishes	"	" 21
Bowls, chopping	"	" 21
Porcelain ware	"	" 25
Rubber tubing	"	" 28
Gold	"	" 25
Dental supplies	"	" 28
Bread	Ste. Anne de Bellevue	" 18
Coal	Halifax	" 21
Coal	Charlottetown	" 21
Wood	Aldershot	" 21
Wood	Canning	" 21
Wood	Lévis	" 21
Sweeping chimneys	St. John	" 21
Bread	Regina	" 25
Fish	"	" 25
Rice	Calgary	" 23
Bread	Victoria	" 27
Rolled oats	"	" 27
Milk, etc.	"	" 27
Coffee	Toronto	" 20
Cheese	"	" 20
Coal	Ste. Anne de Bellevue	" 18
Coal	Pt. Aux Trembles	" 19
Bread	London	" 19
Rice	"	" 19
Milk, etc.	"	" 19
Bread	Kingston	" 20
Currants	"	" 20
Bread	Ottawa	" 19
Special meats	Cobourg	" 19
Bread	Quebec	" 20
Bacon	"	" 20

MILITIA AND DEFENCE—Concluded.

Bread	Fredericton	" 22
Bread	Winnipeg	" 23
Rice	"	" 23
Sugar	"	" 23
Cheese	"	" 23
Bread	Vancouver	" 27
Rolled oats	"	" 27
Bread	Hamilton	" 19
Milk, etc.	"	" 19
Tea	Toronto	" 20
Ice	"	" 20
Coal	Old Forts	" 19
Coal	Chambly	" 19
Bread	Toronto	" 20
Rice	"	" 20
Sugar	"	" 20
Bread	St. John	" 22
Beef	"	" 22
Bacon	"	" 22
Flour	"	" 22
Coffee	"	" 22
Horseshoeing	"	" 22
Dry cleaning	Halifax	" 23
Rolled oats	Kingston	" 26
Head cheese	Cobourg	" 26
Corned beef	"	" 26
Beef hearts	"	" 26
Bread	Port Arthur	" 20
Bread	Edmonton	" 26
Coal	Halifax	" 26

SURPLUS STORES—

Surplus Barrack Stores at	Kingston, Ont.	Due Aug. 23
	Pembroke, Ont.	" " 23
	Brockville, Ont.	" " 23
	Renfrew, Ont.	" " 23
	Napanee, Ont.	" " 23
Surplus Barrack Stores at	St. John, N.B.	Due Sept. 4
	Sussex, N. B.	" " 4
	New Castle, N.B.	" " 4
	Woodstock, N.B.	" " 4
	Charlottetown, P.E.I.	" " 4
Caps, Balaclava		Due Sept. 1
Sweater jackets		" " 1
Bugles		" " 3
Drums		" " 3
Drum aprons		" " 3
Trumpets		" " 3
Signalling flags		" " 3
Whistles		" " 3

PRESENCE OF POTASH IN PRAIRIE SLOUGHS

Report on Alkaline Lakes in Saskatchewan shows slight traces

The following report on the subject of "Potash in the Saline Waters of Saskatchewan" by Mr. D. B. Dowling, of the Geological Survey, is taken from a bulletin "Summary Report, 1917, Part C," published by the Department of Mines:—

The presence of alkaline lakes in many districts, especially in the dry belt, has drawn attention to the possibility of there being potash salts in the rocks underlying the plains. Many analyses have been made of these waters and slight traces of potash have been found. The most hopeful indications are from samples of the waters from the north-eastern part of Saskatchewan which is underlain by beds similar to the Odanah shales of the Riding Mountains section of Manitoba. Analyses of the shales of Pembina Mountain section and of the gumbo derived from the washing down of the shales into the Red River valley indicate that both contain a small amount of potash salts. The boulder clay of the Regina district, also, which is derived from the shales of the north, has appreciable amounts of potash minerals, so that although commercial deposits may be hard to find, yet, owing to the natural potash content of the soil, the agricultural necessity for this alkali is very remote in the Red River valley and throughout a large part of the plains.

The water of Quill lake at Wynward contains an appreciable amount of potassium chloride, and it is possible that some contributing springs may be found that may be of value. The following analysis of this water has been furnished by the Canadian Pacific railway (parts per 100,000):
Cal. carb. 20.55; cal. sulph. 0.40; mag. carb. 1.86; mag. sulph. 562.46;

soda carb. 22.55; soda sulph. 680.27; soda chl. 178.43; pot. chl. 16.33; Fe and Al 0.85; silica 2.2.

Boring for potash is in progress near Weyburn. Surface indications in this district are derived possibly from the leaching of the boulder clay, but the boring will probably penetrate to the Odanah shale beneath and the question of whether the salt is disseminated through the shale as in the outcrops in Manitoba, or is found in commercial deposits, will be decided.

An analysis of the water found at Talmage on the Grand Trunk Pacific railway near Weyburn shows a high alkaline content, but the soda and potassium salts are not separated. The following analysis was made for the railway company by the Dearborn Chemical Company of Canada, Toronto.

Analysis of Water from Talmage, Sask.

Parts per gallon.	
Silica	4.847
Oxides, iron and alumina	0.175
Carbonate of lime	trace.
Sulphate of lime	62.665
Carbonate of magnesia	21.669
Sulphate of magnesia	86.243
Soda and potassium sulphates	117.992
Soda and potassium chlorides	6.970

The brine springs of the Lake Winnipegosis district in Manitoba have been found to contain a larger per cent of the potassium salts than is found in the brines of western Ontario, but this percentage is apparently not sufficient to indicate that the water could be used as a source of potash.

Uses of Red Cedar.

Red cedar, aromatic cedar, or more properly juniper (*Juniperus virginiana*) grows in Ontario, but is not used to any extent on account of the scarcity of commercial sizes. It is imported from the United States for moth-proof chests on account of its aromatic odour. It should not be confused with Western red cedar (*Thuja plicata*), or with jack pine (*Pinus Banksiana*), which is sometimes called "juniper," as stated in a bulletin issued by the Forestry Branch, Department of the Interior.

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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."

CONSIDERABLE OUTPUT OF TALC IN CANADA

The total shipments of crude and ground talc by mine operators during 1917 was 15,803 tons, valued at \$76,539 as compared with shipments in 1916 of 13,104 tons, valued at \$9,423, and shipments in 1915 of 11,885 tons, valued at \$40,554. A considerable portion of the shipments of crude mineral included above is ground at Madoc, and the total shipments of ground talc during 1917 were 13,678 tons of varying grades, but an average value of about \$13 per ton. Crude talc sold at from \$4 to \$8 per ton.

Exports of talc for the nine months ending December 31, 1917, were valued at \$131,673, the quantity not being recorded. Imports of talc for 1915 were 154 tons valued at \$1,866 as against imports 534 tons valued at \$8,983 in 1914, and 402 tons valued at \$10,706 in 1913. Imports have not been separately recorded since 1915, as shown in the annual report of the mineral production of Canada for 1917, issued recently by the Department of Mines.

War Savings Stamps not only save money but earn it.

LAND GRANTS MADE TO RAILWAYS OF CANADA

The following have been the land grants made by Federal and Provincial Governments in Canada to railways, as shown in the report on Railway Statistics, issued by the Department of Railways and Canals:—

	Acres.
By the Dominion	31,864,074
By the province of Quebec*	1,681,690
By the province of British Columbia	8,119,221
By the province of New Brunswick	1,647,772
By the province of Nova Scotia	160,000
By the province of Ontario	624,232
Total	44,096,989

*In the case of the province of Quebec the land grants have been on a special basis, and it is therefore necessary to have in mind the following facts:—

Acres granted—convertible	13,324,950
Converted, at 52½ cents per acre	\$ 6,995,599
Amount of conversion	\$ 4,557,728
Acres granted—not convertible	10,360,934
Acres earned—not convertible	1,681,690

COUNTRIES TO WHICH BUTTER IS EXPORTED

The following table shows exports of Canadian butter, by principal countries, 1912 to 1918. The table is from the report on Dairy Factories, issued as a unit in the Census of Industry series, by the Dominion Bureau of Statistics:—

BUTTER.							
United Kingdom lb.	7,458,936	681	138,349	585,605	1,950,137	7,121,568	3,311,591
..... \$	1,769,510	173	31,950	150,612	597,223	2,220,197	1,410,616
Bermuda lb.	150,166	115,731	90,927	84,112	58,332	13,803	106,678
..... \$	41,209	33,677	25,606	24,568	18,086	4,648	43,148
British South Africa lb.	11,200	—	—	—	393,634	47,700	—
..... \$	2,596	—	—	—	108,169	13,107	—

OFFICIAL CROP ESTIMATE UP TO THE END OF JULY

Preliminary Figures Estimate Average Yield Per Acre of Fall Wheat at Over 28 Bushels—Total Estimate of 248,000,000 Bushels of Wheat

The Dominion Bureau of Statistics has issued the following report as correspondents at the end of July compiled from the returns of crop

The preliminary estimate of the yield per acre of fall wheat for Canada is 28½ bushels, as compared with 19 bushels last year and with 22½ bushels, the decennial average for the years 1909-1918. The yield per acre for 1919 is therefore the highest average on record, the previous record being 28½ bushels in 1915. Upon the harvested area of 797,750 acres, the total yield is 22,875,800 bushels, as compared with 7,942,800 bushels last year and with 29,320,600 bushels, the record fall wheat yield of 1915. In Ontario, where the bulk of the fall wheat crop is produced, the total yield for 1919 is 21,762,000 bushels from 744,000 acres, an average yield per acre of 29½ bushels. Last year the Ontario yield was only 7,054,800 bushels from 362,616 acres, an average per acre of 19½ bushels. The total yield of hay and clover in Canada is estimated at 17,403,800 tons from 10,662,870 acres, an average per acre of 1'63 ton. The total yield is the highest on record and compares with last year's record yield of 14,772,300 tons. Of alfalfa, the total yield is 290,300 tons as against 446,400 tons last year.

OTHER FIELD CROPS.

In consequence of continued drought the condition of grain crops in Saskatchewan and Alberta at the end of July was worse by from 8 to 10 points than at the end of June. Thus the condition of wheat in Saskatchewan on July 31 was 73 per cent of the decennial aver-

age as against 91 per cent on June 30.

In Alberta the July percentage for wheat was 70 as compared with 80 in June. In Manitoba spring wheat, owing to a general outbreak of rust, has deteriorated by 8 points; so that the condition is expressed by 92 per cent or 8 below average as compared with 100, or the promise of an average yield, a month ago.

In the Maritime Provinces conditions continue favourable, the percentage for wheat being 003 in Prince Edward Island, 101 in Nova Scotia and 96 in New Brunswick.

In Quebec the condition of a month ago has been maintained or even improved, wheat being 98 for both months and oats being 102 for July as against 99 for June.

In Ontario spring wheat is 85 in July as against 87 in June and oats are 80 as against 85.

For the whole of Canada the condition of the principal field crops on July 31 in percentage of the decennial average is as follows, the corresponding percentage for July 31, 1918, being given within brackets: Spring wheat (77); oats 81 (85); barley 85 (86); rye 88 (83); peas 92 (101); beans 95 (95); buckwheat 94 (93); mixed grains 89 (101); flax 74 (71); corn for husking 89 (86); potatoes 88 (95); turnips, etc., 88 (96); fodder corn 93 (85); sugar beets 84 (92); pasture 93 (92).

The figures, including the preliminary estimate of fall wheat, expressing condition, indicate a total yield for Canada of 248½ million bushels of wheat, 405,819,000 bushels of oats, 67,656,000 bushels of barley and 8,172,000 bushels of flax. For the three Prairie Provinces the yield indicated by condition is for wheat 213,260,700 bushels, for oats 258,354,500 bushels, for barley 47,815,500 bushels and for flax 7,882,100 bushels.

LATEST FROM WEST.

A communication received from the Manitoba Department of Agriculture dated August 7, states that the harvest began this year almost unprecedentedly early. There has been no frost, and the damage from hail is slight; but rust is very prevalent in all grains and this together with the heat has reduced the yield very greatly. The rough estimates of correspondents as to the wheat yield average about 15½ bushels per acre. Almost everywhere there is enough straw with a very generous supply on the average.

The Saskatchewan Department of Agriculture telegraphs (August 11): "Seventy-five per cent of wheat and 25 per cent early sown oats cut. Threshing will start next week. Good rains reported in some parts of the province which will benefit the late sown oats and flax and also relieve the feed situation." The report of the Alberta De-

WEEKLY REPORT ON EMPLOYMENT FOR TWO PROVINCES

Considerable Increase was Registered for week ending August 2—Building and Construction among plus Industries

SOME MINUS GROUPS

The Employment Service of Canada branch of the Department of Labour reports from employers in Ontario and Quebec for weeks ending July 26 and August 2, indicate that there was no change in the volume of employment in Ontario and Quebec during the week ending July 26; for the week ending August 2, however, a considerable increase was registered and a further increase was anticipated for the week ending August 9th.

Final returns for the week ending July 26 showed that 2,442 Ontario and Quebec firms with a pay-roll of 349,478 had increased their staffs by 3 persons but anticipated making a net addition of 1,553 persons or 4 per cent during the week ending August 2.

Final returns for week ending August 2 show that this increase was more than realized. The 2530 firms whose reports have been compiled had a pay-roll on August 2 of 348,253 persons, an actual increase during the week of 3,410 persons or 1 per cent. These identical establishments, moreover, during the week ending August 9 expected to make a further net addition of 1,492 persons or 4 per cent.

SOME PLUS INDUSTRIES.

During the week ending August 2, the plus industries (those that registered net increases in the number of persons employed), were building and construction; commercial and mercantile trades; chemicals, food, drink and tobacco products, leather and leather goods, metals, pulp, paper and printing, textiles, vehicles, quarrying and mining, railway construction, and miscellaneous occupations, substantial increases during the week ending August 2, were registered in all cases, particularly in metals and textiles. All groups, with the exception of food, drink and tobacco products, expected to make nominal increases in their staffs during the week ending August 9.

The minus industries (those that registered net decreases in the number of persons employed), were lumbering, clay, glass and stone products; wood-working and furnishing, railroad operation. The largest anticipated increase during the week ending August 9 among these industries was in lumbering. All other groups with the exception of railroad operation expected making nominal gains during the week ending August 9.

Strikes are not taken account of in above figures.

Apple Wood for Tool Handles.

Apple wood is used for special purposes like the handles of tools, and is purchased locally in Ontario. The wood may be of any species of the subgenus *Malus*, according to a bulletin issued by the Forestry Branch, Department of the Interior.

War Savings Stamps pay 4½% compounded half-yearly.

partment of Agriculture at the end of July indicated satisfactory conditions in the Peace River district, a failure of the grain crop over a considerable portion of southern Alberta and a marked improvement in Central Alberta due to a general rain which broke the drought immediately after the middle of July.

SUMMARY OF CONDITIONS IN LABOUR MART

Disregarding Strikes there was Fair Increase in Employment during month of July — Many Groups favourable.

PRICE INDEX HIGH

Disregarding the temporary unemployment caused by strikes, there was a fair increase in employment throughout the country during July, according to a resumé prepared by the Department of Labour for the Labour Gazette. At the beginning of the month there was a very slight drop in the total value of employment (due mainly to a considerable drop in the metal and conveyances group and in mining), which, however, was soon followed by a greater rise which was well maintained to the end of the month. Considering the country by sections there was a very considerable drop in employment in the Maritime Provinces, due to the depression in coal mining, in the steel plants and in car construction. In Ontario and Quebec there was a slight drop followed by a greater rise (mainly in the food group) which was maintained. In the western provinces there was a pronounced increase during the first two weeks (due partly to seasonal activity in the food group) which was well maintained to the end of the month.

IN METAL GROUPS.

In the metal groups there was a very pronounced drop in employment during the early part of the month, due partly to stock-taking and to the general depression in this group in the Maritime Provinces. This drop, however, was partially recovered later. In vehicles there was a decline which was particularly noticeable in the car industry in the Maritime Provinces and in Quebec. At the end of the month there was a slight recovery. In foods and drinks there was a pronounced seasonal increase in employment, particularly in the West. In textiles there was a seasonal decline, but there continued to be a good demand for female help in the clothing group. In pulp and paper there was a slight decline in employment at the end of the month. In the wood-working and furniture group there was a slight increase in employment. In the leather group there was a steady upward trend during the whole month. In clay, glass and stone there was a slight increase followed by a rather pronounced decline. In railway operation there was a steady increase. In mining and quarrying the depression of the previous month was continued and there was a further increase in the amount of unemployment. There was a slight upward trend in the building trades and also in railway construction. In the lumber industry there was a rise in employment followed by a very considerable decrease, which was due partly to seasonal decline and partly to serious fires in the Western areas.

STRIKES DURING JULY.

The time loss on account of industrial disputes during July was less than during June, and greater than during July, 1918. There were in existence at some time or other during the month 73 strikes, involving 35,696 workpeople and resulting in a loss of about 561,010 working days, as compared with 80 strikes, 87,917 workpeople and 1,445,021 working days in June, 1919; and 42

LOSS ON ACCOUNT OF INDUSTRIAL DISPUTES IN JULY.

The time loss on account of industrial disputes during July was less than during June and greater than during July, 1918, says a summary by the Department of Labour. There were in existence during the month 73 strikes, involving 35,696 workpeople and resulting in a loss of about 561,010 working days. Thirty-two strikes were reported as having commenced during July. There remained unterminated at the end of the month 29 strikes affecting about 17,350 workpeople.

strikes, 16,975 workpeople and 161,702 working days in July, 1918. On July 1, there were on record 41 strikes affecting 23,089 workpeople. Thirty-two strikes were reported as having commenced during July, compared with the same number in June. Twenty-three of the strikes commencing prior to July and twenty-one of those commencing during July were reported terminated, leaving 29 strikes affecting approximately 17,350 workpeople on record at the end of July.

In prices there were increases in many commodities, so that the general level of wholesale prices as shown by the index number is higher. Hogs and hog products advanced. Fresh foreign fruits, fresh vegetables and cottons were lower, but silks, jutes, hides, leather, boots and shoes, some metals, building materials and house furnishings were higher.

PRICES WENT UP.

The index number of wholesale prices for July was 294.0 as compared with 284.1 for June, 284.0 for July, 1918, and 134.6 for July, 1914.

In retail food prices, seasonal changes caused some slight increases in pork, bacon and lard, and decreases in butter, cheese and potatoes. The average cost of a list of 29 staple foods in some 60 cities at the middle of the month was slightly higher, being \$13.77 as compared with \$13.72 in June, \$13.00 in July, 1918, and \$7.42 in July, 1914. There was comparatively little change in fuel and rents.

Hemlock's Part in Industry.

Eastern hemlock (*Tsuga canadensis*) is the only species of this genus growing in Ontario and probably the only one used by the industries. The western species (*Tsuga heterophylla*) has not been imported into the province as yet, although it is a much superior material and is cut in great quantities in British Columbia.

Hemlock, the third most important native conifer used in Ontario, forms 9.2 per cent of the total. It is in reality a very poor material, being coarse, brittle, and cross-grained; it is difficult to work, is liable to cup-shakes and other defects and has a tendency to warp and twist. It is, however, stiff and non-resinous, holds nails well, and comes between pine and spruce in durability. The greatest points in its favour are its cheapness and abundance. Ninety per cent of the hemlock is used in building construction for framework or rough sheathing. Ten other industries use small amounts of the material for rough purposes.

Hemlock is not found in Ontario north of a line from Michipicoten Harbour, to the head of Lake Timiskaming, but in its range it is very abundant, and the native supply is still quite adequate for the demand. The province still supplies 97.3 per cent of the material used, and the supply from outside comes half from Quebec and half from the United States, as stated in a bulletin issued by the Forestry Branch, Department of the Interior, on the subject of the wood-using industries of Ontario.

TO BUILD UP WILD LIFE RESERVES TO SAFETY MARK

Ornithologist points out need of foregoing Spring Shooting in order to conserve Game Birds

A circular prepared by Mr. J. H. Fleming on the subject of "Why Canada and the United States combined to stop Spring Shooting," is issued by the Dominion Parks Branch, Department of the Interior, with the object of helping to place more clearly before the public the aims and objects of the Migratory Birds Convention Act. It is, in part, as follows:—

So much has been written about bird protection from the extreme point of view of the reformer, that many men of moderate views have got the idea that protection means total prohibition of shooting, instead of what it really means, the prevention of extermination, and the building up of the reserves of wild life to a point when the sportsman may feel that his future as a sportsman is safe under the regulations of the Migratory Birds Convention Act; while the same law acts as a check on the decrease of the non-game population of our country as well.

CANADA'S EFFORTS.

The extermination of wild life is not by any means confined to North America, it has been world-wide, but possibly the results have been more clearly foreseen in Canada and the United States, and early enough to give hopes that with unity of legislation the word exterminated need only be written against a few of the birds and animals now in real danger of disappearing. And it is just in this lack of unity of laws (the question of enforcement is another matter), that Canada's efforts to restore the balance of nature by protective legislation is in danger. Animals are not subject to the impulse of migration to anything like the same extent as are birds. Provincial legislation is usually effective in their case, but local legislation for birds has repeatedly proved in the past to be effective as a protective measure. Birds pass from province to province and even from continent to continent in their journeys, and they suffer from local conditions as well as from international.

Canada is fortunate in that continental legislation is likely to prove a decisive factor in checking the downward movement of many desirable birds, but we must be unanimous, every province should legislate in conformity with the Migratory Birds Convention Act of the Federal Government of Canada if results adequate to the necessity of the case are to be obtained, and the case is urgent. We are not yet on the road to safety for our birds till every province conforms to the Federal Act. When that does happen we may then look to the United States to act with us, and we may then hope for the continental enforcement of an Act that means results, both to the birds and to the sportsman, results that are bound to be beneficial to both. The Convention is not the result of hasty legislation, but the carefully thought out effort of men who have seen the disheartening failure of laws that are purely local, and who know that nothing short of joint action by both the United States and Canada can be effective in building up the reserve of our bird life.

MIGRATORY GAME.

Migratory game birds such as ducks and geese may appear at times to be abundant in some one place, and the natural inference is that they are not decreasing, but the observer overlooks the fact that the old feeding grounds are not now as extensive, particularly in the West, as they used to be, and the birds are crowded into a smaller area. There have been many reasons given for the decrease of game birds. Spring shooting has harried them on migration and consequently they reach their breeding grounds with less vitality than they ought, and they are apt to select the safest breeding grounds and often not the best. Many birds become

barren and never reach the breeding grounds at all in consequence of the persecution they have experienced on their northern journey, and it is here that the direct benefits of the "Migratory Birds Convention Act" will be quickly felt. The birds will arrive in their full numbers and vigour and will select the most suitable breeding grounds, and in consequence the breeding range will be more extended and then, if granted sufficient local protection, there is no reason why there should not be a considerable increase in our migratory game within a few years but we must give ample protection during the breeding season and local legislation has not in the past done this. It is only by joint action of the United States and Canada that protection over the whole breeding range of many species can be effective. The decrease of migratory game is so apparent that it is a matter of general knowledge, and fortunately the means to check it has at last come to our hands if we will only sink our local differences and accept the guidance of a central and well informed body whose duty it is to administer the treaty on behalf of Canada.

Copies of the Migratory Birds Convention may be had from the Commissioner, Dominion Parks Branch, Ottawa.

SOLDIERS' ENTRIES ON LANDS IN WEST

Total under Act in Four Western Provinces is 3,768

Three thousand seven hundred and sixty-eight soldier grant entries have been made on lands in the Western Provinces under the Soldier Settlement legislation of the Federal Government. By provinces: Manitoba, 858; Saskatchewan, 1,124; Alberta, 1,702; British Columbia, 84.

There has been a considerable increase in the settlement on Dominion lands by soldiers in the past four months. In April there were 346 entries; in May, 463; in June, 813, and in July, 941.

The Porcupine Forest Reserve was opened in July and about 150 soldiers have already settled there. At the instigation of the Soldier Settlement Board the Provincial Government is building roads into the reserve and constructing steel bridges, and prospects are that by next season the area will be pretty well filled up.

A number of the 3,603 returned soldiers who have taken soldier land entries also have received financial assistance from the Government, but a great many were able to finance themselves and begin operations without the assistance of the Government loan.

The following official figures regarding land settlement up to July 26 are illuminating:—

Applications (Total)	25,722
Approved	4,151
	10,264
	5,143
	19,558
Training Recommended—	
Institutional	430
Farm	1,807
	2,244
Applications for Training—	
Institutional	4
Farm	1,114

War Savings Stamps not only save money but earn it.

CANADA'S WEALTH OF STRUCTURAL PRODUCTS

SHOW PRODUCTION OF STRUCTURAL MATERIALS

Revised Figures are Given in Annual Report of Department of Mines Which Has Just Been Published
---Detailed Values Given

Revised figures showing the production of structural materials and clay products in the Dominion, as given in the annual report on the Mineral Production of Canada, for 1917, just issued by the Department of Mines, are taken from the report, as follows:—

The subjects included under this heading comprise, in the order treated: cement, clay products of various kinds, such as brick, sewerpipe and tile, pottery, etc., lime, sand-lime brick, sand and gravel, slate, and stone for building and other purposes; including granite, marble, limestone, sandstone, etc. The statistics of stone production do not include the stone used in making cement or lime, but are as complete as possible for all other established stone quarries; nevertheless there is undoubtedly a large production of stone for foundation work, road-making, and railway construction, of which no record is available.

The total value of the production of these structural products in 1917 was \$19,837,311, as compared with \$17,467,186 in 1916, and \$17,920,759 in 1915, the increase in 1917 being \$2,370,125, or 13.6 per cent, as compared with the previous year.

The total value of imports of the same class of products in 1917 was \$7,901,398, as against \$5,562,220 in 1916, and \$3,912,946 in 1915.

The total exports were valued at \$647,369 in 1917, as against \$631,239 in 1916, and \$519,676 in 1915.

The apparent total consumption of these structural products based upon the record of production, imports and exports, was in 1917 valued at \$27,091,340, as compared with \$22,348,167 in 1916, and \$21,314,029 in 1915, the increase in value of consumption in 1917 being \$4,743,187.

The total quantity of cement made in 1917 according to returns received from manufacturers was 4,987,255 barrels of 350 pounds net each (872,769 tons), as compared with 4,753,033 barrels (831,781 tons) made in 1916, an increase of 134,222 barrels (23,489 tons) or nearly 3 per cent.

The total quantity of Canadian portland cement sold in 1917, was 4,768,488 barrels (834,485 tons) as compared with 5,369,560 barrels (939,671 tons) sold in 1916, a decrease of 601,072 barrels (105,107,290 tons), or 11.4 per cent.

The total consumption of cement in 1917 including Canadian and imported cement was 4,777,068 barrels of 350 pounds each (835,987 tons) as compared with 5,390,156 barrels (943,252 tons) in 1916, a decrease of 613,088 barrels (97,290 tons), or 11.4 per cent.

The production of cement in Canada since 1909 though all classed as portland, has included an output of puzzolan cement, made from blast furnace slag at Sydney, N.S., and a small production "natural portland," made at Babcock, Manitoba. The slag cement plant at Sydney has, however, been idle during the past three years.

The average number of men employed in Canadian cement plants during 1917 was 1,396, and total wages paid \$1,424,215. In 1916 the average num-

ber of men employed was 1,695 and wages paid \$1,307,224.

The production of cement in 1917 was derived from nine plants; seventeen other plants were idle throughout the year. The total capacity of the twenty-six completed plants is reported as 50,230 barrels the details of which are shown by provinces in the following table. As compared with 1916 the total number of plants shows a decrease of three, two plants having been reported as dismantled and a third abandoned.

CLAYS AND CLAY PRODUCTS.

For a number of years a small quantity of fireclay has been produced and sold as such, and during the past few years there has been a small, but increasing production of kaolin, or china-clay from a deposit in the Province of Quebec. With these exceptions, practically all of the clay production in Canada consists almost altogether of the manufactured product.

Special investigations of the clay and shale resources of Canada have been undertaken by the Department of Mines for a number of years, and several reports giving the results of these investigations have been published.

Information is now available regarding these materials on almost every portion of the settled part of the Dominion and may be obtained on application to the Director of the Mines Branch at Ottawa.

The clay products made in Canada comprise brick of various kinds, including common and pressed, ornamental and fancy building brick, paving brick, firebrick, porous fireproofing brick and blocks, sewerpipe and drain tile, pottery and sanitary ware, the last two products chiefly from imported clays.

The total value of the clay products sold or marketed in 1917 was \$4,779,038, as compared with a value of \$4,120,805 in 1916; \$3,914,488 in 1915; \$6,871,957 in 1914; \$9,504,314 in 1913, and \$10,575,869 in 1912.

The value of the production in 1917 was greater than that of 1916 by \$658,233, or an increase of about 16 per cent. The production in 1917, however, was only 45 per cent of the maximum production, which was reached in 1912.

For a few years previous to 1913 the annual production of clay products increased very rapidly, having more than doubled in that period. In 1913, however, the financial stringency affected building operations to such an extent as to greatly reduce the demand for building brick. There was actually a considerable increase in the quantity of common and pressed building brick manufactured during the year, but a large falling off in sales, so that large stocks of brick must have remained in manufacturers' hands at the close of the year. In 1914 there was a large falling off both in quantities of brick made and in quantities sold, and the stocks of common and pressed brick on hand at the end of the year were reported at 242,106,000 or about 44 per cent of the number sold during the year. In 1915, there was again a large decrease both in the quantity of brick made and in the quantities sold. Sales, however, exceeded actual output, stocks having been depleted to a considerable extent to supply demand. Stocks of common and pressed brick on hand at the end of the year were reported as 147,817,000, or about 61 per cent of the stocks reported at the end of 1914. All classes of clay products showed a falling off in production, with the exception of firebrick, pottery and kaolin.

During 1916 and 1917, however, the total quantity of brick sold was about the same as that manufactured, and at the end of 1917 stocks had fallen to about 75,000,000.

STRUCTURAL MATERIALS, CALENDAR YEAR, 1917.

	Production.	Imports.	Exports.	Consumption.
	\$	\$	\$	\$
Cement, Portland.....	7,724,246	28,356	16,857	7,735,745
Clay products.....	4,779,038	6,610,837	138,143	11,251,732
Lime.....	1,558,487	78,251	74,523	1,562,215
Sand-lime brick.....	201,355			201,355
Sand and gravel.....	2,326,249	312,403	290,964	2,347,688
Slate.....	7,789	106,893		114,682
Stone.....	3,240,147	764,658	126,882	3,877,923
	19,837,311	7,901,398	647,369	27,091,340

The average number of men employed in 1917 was 3,915, as compared with 4,164 in the previous year, and the total wages paid were \$2,174,167, as against \$1,740,900 in 1916.

Of the total value of the sales in 1917, building brick and fireproofing contributed \$3,101,585, or about 64.8 per cent. Sewerpipe and tile production in 1917 were valued at \$1,218,470, or 25.5 per cent of the total. The total value of the production of pottery was \$604,495, of which \$122,878 only is estimated as attributable to Canadian clays, the balance being credited to imported clays.

The value of the production of firebricks and firebricks from domestic clay, was \$326,511, and the production of kaolin was 533 tons valued at \$9,594.

The imports of clays and clay products reached a total value during the calendar year 1917 of \$6,610,837, which exceeded the domestic production by \$1,831,804. The total imports in 1916 were valued at \$4,554,167.

Clay imports are classified by the Department of Customs under three main divisions, including: brick and tile; earthenware and chinaware; and clays. The imports of clays in 1917 were valued at \$416,209, and included chiefly china-clay and fireclay, with a small quantity of pipe clay, and other clays not classified. The value of china-clay imported was \$97,856, and of fireclay, \$283,746.

The total value of the exports of clay products in 1917 was \$138,143, and included 4,464 M. building brick, valued at \$40,039; manufactures of clay, valued at \$33,600, and earthenware, valued at \$14,504.

The annual value of clay products from 1899 to 1917 is shown in the following table:—

Calendar Year.	Value.
1899.....	\$ 2,988,099
1900.....	3,195,105
1901.....	3,382,706
1902.....	3,625,489
1903.....	4,034,289
1904.....	3,841,560
1905.....	4,709,842
1906.....	5,072,635
1907.....	5,772,117
1908.....	4,500,702
1909.....	6,450,840
1910.....	7,629,956
1911.....	8,359,933
1912.....	10,575,869
1913.....	9,504,314
1914.....	6,871,957
1915.....	3,914,488
1916.....	4,120,805
1917.....	4,779,038

The imports classified under brick and tile which apparently include products other than clay products, such as refractory silica brick, and magnesite brick, were valued in 1917 at \$3,599,046, as compared with a value in 1916 of \$2,048,259. A large portion of these imports is made up of firebrick, about 75 per cent of the total in 1917. The imports of magnesite brick during the last nine months of the year were valued at \$470,801.

The imports of earthenware and chinaware, of which the most important is tableware, were valued in 1917 at \$2,595,582, as compared with a value of \$2,180,414 in 1916. These imports are chiefly of a class of goods not manufactured in Canada and for which the raw materials are not as yet obtainable from Canadian sources.

CONSUMPTION OF CLAY PRODUCTS.

An approximate estimate of the annual value of the consumption of

clay products in Canada may be deduced from the available records of production—exports and imports. The total value of the consumption for the year 1917 estimated on this basis was \$11,251,732, of which 42.5 per cent was of domestic production. The approximate value of consumption in 1916 was \$8,594,860, of which 48 per cent was of domestic production. The following table shows the annual value of consumption of clay products since 1909 as well as the percentage of the total obtained from domestic sources. It will be observed that the maximum value of consumption was reached in 1912, but that in 1915 the consumption had fallen to but little more than one-third of this maximum. In 1916 and 1917, however, the value of consumption has again showed a substantial increase, though a much larger percentage of the total is now obtained outside of Canada than formerly. This increased consumption has been made up largely of refractory brick, including firebrick, silica brick, and magnesite brick, used as furnace linings.

KAOLIN PRODUCTION.

The shipments of kaolin in 1917 were 533 tons, valued at \$9,594, as compared with 1,750 tons, valued at \$17,500, in 1916.

The production was chiefly from the deposits in the township of Amherst, Ottawa County, Quebec, operated by the Canadian China Clay Company, of Montreal.

The plant for refining the clay is situated two miles from St. Remi d'Amherst, and 7 miles from Huberdeau, the terminus of the Canadian Northern Quebec Railway, 46 miles northwest of Montreal.

The imports of china-clay ground and unground, into Canada during the twelve months ending December, 1917, were 11,596 tons, valued at \$97,856, or \$8.44 per ton, as against imports 19,062 tons, valued at \$114,110, or \$5.99 per ton in 1916.

The annual production of pottery since 1888 is shown in the following table:—

Calendar Year.	Value.
1888.....	\$ 27,750
1889.....	.....
1890.....	195,242
1891.....	253,844
1892.....	265,811
1893.....	213,186
1894.....	162,144
1895.....	151,588
1896.....	163,427
1897.....	129,629
1898.....	214,675
1899.....	185,000
1900.....	200,000
1901.....	200,000
1902.....	200,000
1903.....	200,000
1904.....	140,000
1905.....	120,000
1906.....	150,000
1907.....	253,809
1908.....	200,541
1909.....	285,285
1910.....	250,924
1911.....	102,493
1912.....	43,955
1913.....	53,533
1914.....	35,371
1915.....	64,900
1916.....	61,069
1917.....	122,878

SEWER PIPE AND DRAIN TILE.

The total value of the sales of sewerpipe in 1917 was \$783,762, as compared

[Continued on page 9.]

CANADA'S WEALTH OF STRUCTURAL PRODUCTS

SHOW PRODUCTION OF STRUCTURAL MATERIALS

Revised Figures are Given in Annual Report of Department of Mines Which Has Just Been Published
--Detailed Values Given

[Continued from page 8.]

with a value of \$716,287 in 1916. About 50 per cent of the value of the production in 1917 is credited to Ontario.

The imports of drain pipes and sewer pipe during 1917 were valued at \$42,864, as compared with a value of imports in 1916 of \$40,233.

POTTERY AND EARTHENWARE.

Sanitary porcelain is made at St. Johns, Que., and electrical porcelain is made at Hamilton and Peterboro, Ont. These are the only firms in Canada at present making white wares. The raw materials, including clays, ground quartz and feldspar, are all imported.

Stoneware pottery such as crocks, jars, churns, and jardinières, is made at Medicine Hat, Alberta, from Saskatchewan clay; at Hamilton, Ont., from imported clays, and at St. John, N.B., partly from Nova Scotia clay.

Flower pots are made at a few localities from the red burning brick and tile clays of the vicinity.

Quite an appreciable amount of stoneware clay is imported into Canada for modelling purposes either by sculptors or for use in schools giving instruction in the manual arts. This clay is supplied in a finely ground state and shipped in paper-lined barrels. The price quoted in 1917 was \$15 per ton at point of shipment.

Stoneware clay for ordinary factory use was quoted at \$4 per ton, on boat or cars in New Jersey in 1917.

The total value of the production of pottery and clay sanitary ware in 1917, according to returns received, was \$604,495, of which it is estimated that a value of \$481,617 is attributable to imported clays. The total value of the production in 1916 was \$391,173, of which \$330,104 was credited to imported clays, hence brick made from all these materials comes under the general head of refractories.

Raw fireclays are classed according to their refractoriness as No. 1, 2 and 3. No. 1 fireclay is required to stand a temperature of cone 33 (3254 degrees F.) without softening and No. 3 fireclays are required to stand up at cone 26 (3,000 degrees F.). Clays which soften at temperatures between 2,600 and 3,000 degrees F. are called semi-refractory.

Fireclays occur at two points in Nova Scotia, at several localities in southern Saskatchewan, and at Clayburn in British Columbia. Fireclays are also known to occur on the Mattagami and Missinabi rivers in northern Ontario, and on the Athabaska river below Fort McMurray in northern Alberta, but the deposits in both these regions are beyond the reach of transportation facilities at present.

Semi-refractory clays occur in the coal measures at Westville, Nova Scotia, and at Flower cove and Minto in New Brunswick, and at several points in southern Saskatchewan.

Firebrick are manufactured at Sydney Mines, N.S. from fireclay brought from Shubenacadie, N.S., and at Claybank, Sask., and at Clayburn and Kilgard, B.C.

The manufacture of firebrick has recently begun at St. Remi d'Amherst, Que., by the Canadian China Clay Company who use the discoloured kaolin in their deposit for this purpose.

Some refractory brick are made at Westville, N.S., from a shale which occurs in the coal measures in that vicinity.

As there are no fireclays, or semi-refractory clays known to occur in Ontario or Quebec, except those alluded to above, it is necessary to import either the raw clay, or the finished refractories,

but most of the refractory material is imported in the finished state. A good deal of fireclay is imported, however, from the states of New Jersey and Pennsylvania and made into special shapes for furnace work and for stove linings, etc.

No. 1 fireclay was quoted at \$7 per ton and No. 2 fireclay at \$6 per ton on boat or cars at New Jersey points in 1917.

The total value of the sales of fireclay, firebrick, and fireclay bricks in 1917 was \$326,511, as compared with a valuation of \$234,562 in 1916. There was an addition in 1917, a production of fireclay products valued at \$61,317 reported as being made from imported clays. The production in 1917 included: fireclay, or refractory clay sold as such 10,534 tons, valued at \$49,455; firebrick 8,192,213 valued at \$199,171, or an average of 24.31 per thousand, and other fireclay products valued at \$77,885. The production in 1916 included: fireclay, or refractory clay sold as such, 9,206 tons, valued at \$30,767; firebrick 5,688,511, valued at \$147,757, or an average of 25.97 per thousand; and other fireclay products valued at \$56,038.

The imports of firebrick during the calendar year 1917, including magnesite brick, and probably other refractory brick such as silica brick, were valued at \$3,156,591. The imports of magnesite brick during the last nine months of the year have been separately stated having a value for that period included in the above table of \$470,801.

The imports of firebrick during the calendar year 1916 were valued at \$1,657,792, of which \$1,495,868 was from the United States, and \$161,924 from Great Britain.

Fireclay was imported during the calendar year 1917, to the value of \$233,746, as compared with a value of \$187,124 in 1916.

CLAY PAVING BRICK.

Paving brick has been made in Canada, chiefly at West Toronto, Ontario, from shale obtained from the banks of the Humber river, and more recently during the years 1914, 1915 and 1916, there has been a small production reported from Clayburn, B.C.

There was no production of paving brick reported for the year 1917. The annual production for a number of years has varied from 3,000,000 to over 5,000,000 per season.

The imports of paving brick during the past five years have considerably exceeded the domestic production. Dur-

ing the calendar year 1917, the imports were 2,190,000, valued at \$37,814, or an average value of \$17.27 a thousand, as against imports of 5,667,000 valued at \$70,268 in 1916.

FIRECLAY AND FIRECLAY PRODUCTS.

Fireclays, as the name implies are those clays which can be subjected to high temperatures without softening, or deformation. This property of resistance to heat is termed refractoriness. Other materials beside fireclays, such as silica, magnesia, buxite and chrome have the property of refractoriness.

EXPORTS OF BUILDING BRICK.

The exports of building brick have never been large, averaging for a considerable number of years prior to 1900 about \$6,000. The exports fell off somewhat from 1909 to 1911, but increased again to a value of \$11,871 in 1914 and \$40,039 in 1917.

The annual imports for a number of years previous to 1903 averaged only about \$20,000 in value. During the past ten years, however, the imports rapidly increased from \$100,000 to over \$760,000 in 1912, since which date there has been a fairly steady decrease, and the imports during the calendar year 1917 were less than those of any year since 1903 and amounted to 4,111,000 brick, valued at \$61,511.

LIME PRODUCTION.

The production of lime in 1917 is reported as 6,567,170 bushels, equivalent to about 229,851 tons, valued at \$1,558,487, or an average of 23.7 cents per bushel, or \$6.78 per ton, showing a considerable increase both in quantity and value over the production in 1916, which was 5,493,250 bushels, equivalent to about 182,264 tons, and valued at \$1,091,463, or an average of 20 cents per bushel, or \$5.75 per ton.

The average price per bushel of lime sold in 1917 varied from a minimum of 20 cents in Nova Scotia to a maximum of 34 cents in Alberta. About 88 per cent of the total production in 1917 was derived from Ontario, Quebec, and the Maritime Provinces.

The production of hydrated lime in 1917 was reported as 16,339 tons, the producing firms being as follows, viz.:

- The Standard Lime Co., Ltd., Joliette, Que.
- Laurentian Stone Co., Hull, Que.
- Standard White Lime Co., Ltd., Guelph, Ont.
- Christie, Henderson & Co., Ltd., Hespeler, Ont.
- Elora White Lime Co., Ltd., Elora, Ont.
- The Contractors Supply Co., Ltd., Orangeville, Ont.
- The Toronto Plaster Company, Teeswater, Ont.
- The Moose Horn Lime Company, Moose Horn, Man.
- The Pacific Lime Co., Ltd., Blubber Bay, B.C.

STONE PRODUCTION.

Statistics of stone production given herewith include the sales of all classes of stone used for building, monumental and ornamental purposes, stone for paving purposes, curbstone and flag-

stone, rubble, riprap and crushed stone, limestone for furnace flux, sugar factories, etc., but stone used for burning lime or manufacturing cement is not included.

The kinds of stone quarried have been classed as granite (including trap rock), syenite, and other igneous rocks), limestone, sandstone, and marble.

The records are practically confined to quarry operations, and to the production of sawn or polished stone when these operations are carried on by quarry operators. In addition to this production of stone by regular operators, there is no doubt a large stone production by individuals, such as farmers, and others, for house or barn foundations, concrete work, etc., of which it would be impracticable to obtain any satisfactory record. Muc' stone is also used in railway construction work and in road building, of which the record is probably very incomplete.

The total value of the production of stone during 1917, according to returns received, was \$3,240,147, as compared with a value of \$3,736,412 in 1916, showing a falling off of \$496,265, or about 13 per cent.

The number of active firms reported in 1917 was 165, the total number of men employed 3,002, and total wages paid \$1,610,598.

Of the total value of production in 1917, limestone contributed \$2,283,659; or 70.5 per cent; granite \$635,412, or 19.7 per cent; sandstone \$261,256, or 8.1 per cent, and marble \$55,820, or 1.7 per cent.

SAND-LIME BRICK.

The raw materials used in the manufacture of sand-lime brick are ordinary clean bank sand and hydrate lime, the proportion of the latter being about 6 per cent of the total weight of the mixture. The materials are thoroughly mixed by machinery and pressed into shape and submitted to steam under pressure in closed cylinders for about eight hours. The resulting bricks are light in colour and fairly hard and dense. They are much used for lining basement walls and the interior of factories. Their light colour and smoothness makes further finish on the walls unnecessary.

Sand-lime brick plants are generally located near cities so that the finished product can be conveyed by teams from the factory to the various jobs on which they are used as the less handling they receive before being laid the better the appearance in the wall.

The first record of the production of sand-lime brick in Canada was obtained for the year 1907 when there was a production by ten firms amounting to 16,492,971 brick, valued at \$167,795.

In 1917 the sales were reported at 18,001,990 valued at \$201,355, or an average of \$11.19 per thousand, as compared with sales in 1916 of 16,540,747 brick, valued at \$126,235.

SAND AND GRAVEL.

The total sales of sand and gravel produced in Canada during 1917, amounted to 9,182,417 tons valued at \$2,326,249, as against 8,156,207 tons valued at \$1,838,320 in 1916, an increase of \$487,929, or 26 per cent in total value.

The 1917 production included: building sand and sand for concrete and road-building, 1,505,907 tons valued at \$614,272; gravel, including sand and gravel and crushed gravel, 2,214,369 tons valued at \$904,584; railway ballast 5,312,218 tons valued at \$718,801; moulding sand, 46,790 tons valued at \$46,018, and other sands, core sand, engine sands, etc., 103,133 tons valued at \$42,574.

Previous to 1912 no attempt had been made by this department to obtain statistics for the production of building sand or gravel in Canada. In 1912, however, a beginning was made, the returns re-

PRODUCTION OF STONE BY PROVINCES, 1917.

Province.	Granite.	Lime-stone.	Marble.	Sand-stone.	Total.	%	Labour.	
							No. men employed.	Wages.
	\$	\$	\$	\$	\$			\$
Nova Scotia....	111,529	433,987	.....	24,005	569,521	17.6	532	300,204
New Brunswick..	61,170	22,875	.....	27,105	111,150	3.4	159	43,232
Quebec.....	281,242	625,711	55,820	28,820	991,593	30.6	1,172	499,515
Ontario.....	119,301	808,638	.....	64,516	992,455	30.6	721	470,674
Manitoba.....	.....	301,968	.....	.....	301,968	9.3	257	148,504
Alberta.....	.....	672	.....	6,810	7,482	0.3	6	2,100
British Columbia	66,170	89,808	.....	110,000	266,978	8.2	155	146,368
Total.....	639,412	2,283,659	55,820	261,256	3,240,147		3,002	1,610,598
Per cent.....	19.7	70.5	1.7	8.1		100.0		

[Continued on page 10.]

HOUSING SCHEME IN SASKATCHEWAN

Town Planning Legislation in Prairie Province

Unfortunately, owing to the conditions under which municipalities in Saskatchewan may borrow, it has not been practicable to put the Federal Housing scheme in operation in this province, according to an article in the current number of Conservation of Life, issued by the Commission of Conservation. Commissioner C. J. Yorath states that the chief stumbling block in Western Canada for the carrying out of a housing scheme is the fact that the provincial Government intends to make any loans which may be advanced for this purpose part of the municipalities' debt. In the matter of town planning and control of municipal affairs Saskatchewan has perhaps the most advanced legislation in the Dominion. The Town Planning and Rural Development Act is administered by the Department of Municipal Affairs. The comprehensive nature of this Act may be gathered from the following list of regulations which have been issued under it:—

- (1) Town Planning and Rural Development (Scheme) Procedure Regulations;
- (2) Town Planning and Rural Development (By-law) Procedure Regulations;
- (3) Regulations applicable to new development within the jurisdiction of municipalities which have not made regulations as authorized by section 5 of the Town Planning and Rural Development Act, and to new development in unorganized territory;
- (4) Model regulations respecting new development for adoption by urban municipalities;
- (5) Model regulations respecting new development for adoption by rural municipalities.

The object of the Act is effectively to control the development of cities, town and rural municipalities. The importance of this being done is fully realized in Saskatchewan. Not only has the necessary legislation been obtained but Mr. M. B. Weekes, M.E.L.C., Director of Surveys, has been appointed Director of Town Planning, and W. A. Begg, A.M.E.L.C., formerly Townsite Engineer for the Department of Highways, has been appointed Town Planning Engineer. The services of both will be available to local authorities to assist and advise in the preparation of schemes and development by-laws.

BOG ORES NOW HAVE ONLY HISTORIC INTEREST

As sources of iron, deposits of bog ore in Quebec province are now of little but historic interest. From the early days of the colony up till a few years ago, they supplied a number of small charcoal furnaces, but the known deposits, though numerous, are many of them worked out, while those remaining are not of sufficient size to support a modern iron industry.

Among the better known were those of Vaudreuil, of Acton in Bagot county, of St. Wenceslas in Nicolet county, and of Wickham in Drummond County which supplied the Drummondville furnace, and, best known of all, that at Lac à la Tortue, on the railway from Three Rivers to Grand Mère, which for many years supplied the furnace at Radnor, as stated in a bulletin issued by the Department of Mines.

CIVIC IMPROVEMENT LEAGUE OF CANADA

It is desirable that another conference of the Civic Improvement League of Canada should be held during the present year, says the Commission of Conservation. The previous annual conferences took place at Ottawa, 1916; Winnipeg, 1917; and Victoria, B.C.,

speci- S. objects of the League, as a national body, are confined to the bringing together annually of the local civic organizations in the Dominion. It is not

SHOW PRODUCTION OF STRUCTURAL MATERIALS

Revised Figures are Given in Annual Report of Department of Mines Which Has Just Been Published ---Detailed Values Given

[Continued from page 9.]

ceived showing a production valued at \$1,512,099. The increasing production during the next two or three years is no doubt due in considerable part to the greater efficiency in the collection of the record.

SLATE PRODUCTION.

There is a small annual production of slate in Canada, obtained from the New Rockland quarries, Melbourne township, Richmond county, operated by The New Rockland Slate Co., Ltd.

The production in 1917 was 1,422 squares valued at \$7,789, as compared with the production in 1916 of 1,262 squares valued at \$6,223.

No exports of slate have been reported since 1886 with the exception of the years 1908 and 1909.

The imports of slate during the past twelve years have ranged in value from \$90,000 to over \$200,000 per annum.

The total value of the imports during the calendar year 1917 was \$106,893, and included: roofing slate, 3,909 squares valued at \$20,785; school writing slate, valued at \$40,603; slate pencils, \$8,717, and other slate manufactures of, \$36,788.

MARBLE.

From 1886 to 1896 there was a small production of marble, aggregating, however, only 45,837 in value for the eleven years. During the next eleven years—

possible, however, for such a League to continue as a permanent organization in the form in which it now exists. Now that the war is over some definite steps should be taken to create a permanent body to educate public opinion on matters connected with civic improvement and municipal government. It is hoped that it will be possible to arrange a conference in the autumn, at which one of the important questions to be considered will be the future organization of the League.

PROGRESS OF HOUSING MOVEMENT IN ONTARIO

The fact that Ontario was responsible for initiating the movement for Government housing in Canada and that the province has appropriated \$2,000,000 of its own money to be spent in housing has given it a start in advance of the other provinces in the matter of carrying out housing schemes. The Housing Act and scheme of the province was approved by the Federal Government on the 20th February last.

Mr. J. A. Ellis, an ex-Mayor of Ottawa and a member of the Ontario Railway and Municipal Board, has been appointed Director of Housing, and is giving able leadership to the movement in the province. The Director reports that 47 municipalities have already appointed housing commissions and applied for loans, and that the whole of the \$10,000,000 available is already spoken for. Actual building operations have begun in Toronto. Two sites of about 40 acres in area have been acquired in the city of Ottawa and are being planned with a view to building operations being started in the immediate future, as stated in a recent issue of Conservation of Life published by the Commission of Conservation.

Breakwater, Petit Rocher, N.B.

SECOND CALL FOR TENDERS. This work is being re-advertised for tenders owing to the fact that the bids received on the first call were considered too high.

Sealed tenders addressed to the undersigned, and endorsed "Tender for repairs to Breakwater at Petit Rocher,

1897 to 1907—there is no record of any production, but the opening of the quarries at Phillipsburg, and South Stukely, Que., together with the development of quarries in Ontario and British Columbia, has resulted in a considerable production of marble during the past nine years. The total value of the production in 1917 was returned as \$55,820, comprising ornamental marble, 1,210 tons, valued at \$55,000, and crushed marble, 280 tons, valued at \$820. The production in 1916 was valued at \$118,810, comprising ornamental marble, 1,034 tons, valued at \$103,400, and crushed marble, 27,464 tons, valued at \$15,410.

The imports of marble during the calendar year 1917 were valued at \$199,697, as compared with \$171,849 in 1916.

SANDSTONE.

The value of the production of sandstone during 1917 is reported as \$261,256, as compared with a value of \$146,244 in 1916. A large portion of the sandstone is quarried for building purposes, though considerable quantities are used for rubble and for paving.

GRANITE.

The production of granite including taprock, syenite, etc., during 1917, according to returns received from 47 active firms, was valued at \$639,412, as compared with a production in 1916 valued at \$1,247,267.

N.B., will be received at this office until 12 o'clock noon, Tuesday, September 16, 1919, for repairs to the breakwater at Petit Rocher, Gloucester County, N.B.

Plans and forms of contract can be seen and specification and forms of tender obtained at this department, at the office of the District Engineer at Chatham, N.B., and at the Post Office, Petit Rocher, N.B.

Tenders will not be considered unless made on printed forms supplied by the department and in accordance with conditions contained therein.

Each tender must be accompanied by an accepted cheque on a chartered bank payable to the order of the Minister of Public Works, equal to 10 p.c. of the amount of the tender. War Loan Bonds of the Dominion will also be accepted as security, or War Bonds and cheques

RICH ORE BODIES OF UNGAVA COAST

Inexhaustible Supplies of High Grade Iron Ore on Koksoak River

In the report on "Iron Ore Occurrences in Canada," Volume 2, compiled by B. Lindeman, M.E., and L. L. Bolton, M.A., B.Sc., with an introduction by A. H. A. Robinson, B.A.Sc., and published by the Mines Branch, Department of Mines, an account is given of the iron deposits of Ungava, and under the heading "Koksoak River," the enormous iron ore deposits of that river, which empties into Ungava Bay, are thus described:

For the next ten miles (going up the river) to the south of the Swampy Bay river, exposures of iron-bearing rocks are almost continuous, and the amount of ore in sight must be reckoned by hundreds of millions of tons. The ore is not everywhere high grade, and probably a large proportion of it would be unprofitable to work, but there is certainly an almost inexhaustible supply of high grade ore. Two miles below the last-mentioned exposure, the rocks were found to consist of a 25-foot bed of jaspery ore composed largely of magnetite, with a small admixture of hematite underlain by 10 feet of siliceous, ferruginous limestone, holding spathic ore in bands and nodular masses up to several hundred pounds in weight. A great part of the magnetite is nearly pure and contains little jasper. The beds are exposed along the right bank of the river for more than a quarter of a mile.

The rocks were again examined 3½ miles farther downstream, where only the cherty carbonates were found; but half a mile below, the river passes close to a high hill on the west side, where fifty feet of red garnetiferous, siliceous, ferruginous shale and jasper are overlain by 200 feet of jaspery ore, composed chiefly of magnetite and coloured by an admixture of hematite.

The bedded iron ores outcrop along the river for about three miles farther downstream.

if required to make up an odd amount. Note.—Blue prints can be obtained at this department by depositing an accepted bank cheque for the sum of \$10, payable to the order of the Minister of Public Works, which will be returned if the intending bidder submit a regular bid.

By order,

R. C. DESROCHERS,

Secretary.

Department of Public Works,
Ottawa, August 13, 1919.

EARNINGS AND RUNNING EXPENSES OF RAILWAYS

The following table taken from the 1918 report on Railway Statistics, issued by the Department of Railways and Canals, shows the totals of gross earnings and operating expenses of Canadian railways since the year 1875:—

Year.	Gross earnings.	Operating expenses.	Percentage of operating expenses to earnings.
	\$	\$	
1875	19,470,539	15,075,532	81.1
1881	27,987,508	20,121,418	71.9
1887	38,841,609	27,624,683	71.1
1893	52,042,396	36,616,033	70.3
1899	62,243,784	40,706,217	65.3
1905	106,467,198	79,977,573	75.2
1911	188,733,494	131,033,785	69.4
1916	263,527,157	180,542,259	68.9
1917	310,771,479	222,890,637	71.7
1918	330,220,150	273,955,436	82.9

DIRECTORY OF SHEEP RAISERS IS PUBLISHED

Live Stock Branch has issued List of Breeders of Pure-bred Sheep and Goats in Canada

MANY BREEDERS

In an introduction to "A Directory of Breeders of Pure Bred Sheep and Goats in the Dominion of Canada," recently published as Pamphlet No. 17, by the Sheep and Goats Division of the Live Stock Branch, Department of Agriculture, Mr. H. S. Arkell, Live Stock Commissioner, Live Stock Branch, makes the following statement:—

During recent years live stock raisers have realized, as never before, the great value of the pure-bred sire. The benefits to be derived from the use of such animals are apparent to the majority and this knowledge is becoming more widely spread each year. Enquiries, as to where pure-bred rams and billies can be purchased, are constantly being received in large numbers. At the same time many who still use grade or scrub sires state in explanation of this that they do not know where to purchase pure-bred rams. Therefore, in order to assist those desirous of obtaining pure-bred rams and billies, it has been considered expedient to revise and bring up to date this Directory of Breeders of pure-bred Sheep and Goats.

In preparing this edition all the names of breeders registering their animals in the Canadian National Live Stock Records were obtained and compiled by provinces in order that any intending purchaser may know those, near his home, who are breeding the class of sheep he requires. It was found impossible to ascertain the exact number of animals by sex which each and every breeder has for sale annually. Registration numbers are always made consecutively, and it will serve as a partial guide to know that the numbers which follow the breeder's name indicate the number of registrations made by the individual during the year 1918. One number, even though it may consist of four figures, as for instance 8437, indicates a single registration, but where two such numbers are entered, as for instance, 8439 to 8449, it indicates that eleven registrations have been made.

Copies of this Directory will be forwarded free of charge to stock breeders and those directly interested in stock-raising who apply to the Sheep and Goat Division, Live Stock Branch, Ottawa.

Can Sell Cheese Freely.

The Prime Minister has received a cablegram from London, dated August 12, stating that the British Ministry of Food is quite willing Canadian cheese should be sold elsewhere if higher price can be obtained. They state that they have sufficient for their requirements without Canadian. Canadian fancy cheese such as Ingersoll and MacLaren do not come under any control.

Uses of Sycamore.

Sycamore (*Platanus occidentalis*) is not a valuable wood, being cross-grained, coarse and perishable and difficult to season. It is largely used for furniture, having a peculiar silver grain, and for handles of tools. The tree is confined to a part of the western peninsula of Ontario which forms the northern limit. It is of more commercial value in the United States, according to a bulletin on the subject of the wood-using industries of Ontario, issued by the Forestry Branch, Department of the Interior.

REPORT GIVES ACCOUNT OF MINERAL SPRINGS

Well-known Waters of Carlsbad, Ontario, described in Bulletin issued by Department of Mines.

A group of seven saline springs are situated at Carlsbad Springs, a station on the Grand Trunk line from Ottawa to Montreal, and eight miles by road from Ottawa.

The springs lie together in a small area, bounded on one side by the road and a sanitarium of visitors who come to obtain hot sulphur baths and to drink the waters, and on the other by a creek. The principal sources are enclosed in small summer houses, and rise in earthenware wells about two feet in diameter and several feet deep, the overflow running into the creek nearby.

The six waters show considerable difference in concentration and in properties, as stated in the bulletin on the subject of the "Mineral Springs of Canada," prepared by R. T. Elworthy, and issued by the Mines Branch, Department of Mines. In this respect as well as in possessing similar constituents, they bear a resemblance to the group of waters at Caledonia Springs, the bulletin continues. The Soda Spring has a primary alkalinity of 40 per cent, that is, sodium bicarbonate forms a large proportion of the mineral matter present (40 per cent), and a primary salinity of 56 per cent. (Sodium chloride 44 per cent of total solids in solution). The Sulphur water has 16 per cent primary alkalinity and 78 per cent primary salinity; the Lithia spring 7 per cent and 84 per cent respectively, while the Magic water has no primary alkalinity but 74 per cent primary salinity, and 25 per cent secondary salinity. The explanation of this difference in properties is to be found in the fact that the waters are mixtures of waters from different strata, the most concentrated and saline water rising from the greatest depth, and mixing with less concentrated and alkaline waters at other levels in varying proportions. Thus the Magic water comes from a well 240 feet deep, the Lithia water is a mixture of this water and a less concentrated solution coming from a vein 60 feet deep. The Sulphur and Soda contain still larger proportions of the less concentrated water, having sodium bicarbonate as its principal constituent. The waters rise from the Trenton limestone; the same formation from which the Caledonia Springs issue.

MORE RADIUM IN DEEP WATER.

It is of interest to note that the water from the greatest depth contains the largest amount of radium. It is to be expected that the soda would be the most temporarily radioactive, but there is no evidence of this. Gas is evolved from the springs in considerable quantity, especially from the Soda and Lithia springs.

Analysis shows the Magic spring to be a strongly mineralized sodic muriated saline water. It was one of the most concentrated waters examined. The chief constituents may be considered to be sodium chloride (73 per cent of the total mineral matter in solution), magnesium chloride (7 per cent) and calcium chloride (16 per cent).

The Carlsbad Sulphur water may be classified as a sodic, muriated, alkaline-saline, (sulphretted) water. The primary alkalinity is 16.4 per cent higher than any of the others, except the Soda water. Sodium bicarbonate may be considered to form 21 per cent of the total solids in solution, while the remainder is largely sodium chloride. The overflow from this spring runs into a storage tank and the water is used for hot sulphur baths.

The Lithia may be classified as a sodic, muriated alkaline-saline water. Lithium is present in small amount, but in no greater quantity than in the other waters. The chief salts in solution may be assumed to be sodium chloride (77 per cent), sodium bicar-

bonate (9.5 per cent), calcium and magnesium bicarbonates (each about 5 per cent).

Water from the Soda spring is the least mineralized of all the waters and probably is the alkaline water which in the other springs mingles with a more concentrated saline water, in varying proportions.

Its primary alkalinity is high—over 40 per cent—another way of stating that sodium bicarbonate is a predominant constituent (48 per cent of the solids in solution).

The water is not quite as pleasant to drink as the Sulphur or the Lithia water, on account of its slightly alkaline taste. Analysis shows it to be a sodic bicarbonated, muriated water of the alkaline-saline type.

MAPLE LEADS OTHER WOODS IN SERVICE

Maple is the most important hardwood used by Ontario's industries, over three-quarters of a billion (750,000,000) feet being used every year. This wood comes third in the list, with a consumption of eleven per cent of the total. The wood is divided into two classes by manufacturers: hard maple (*Acer saccharum*) and soft maple (*Acer rubrum* or *Acer saccharinum*).

Maple is a hard, stiff material, and its value depends chiefly on these two qualities. It is difficult to season and shrinks considerably and checks badly; it is also quite perishable, but it does not warp or twist after being properly seasoned. The soft maple is slightly tougher but softer and lighter than hard maple, and is not used in very large quantities.

Accidental forms with the grain curled and contorted, known as curly maple and bird's-eye maple, are common and are highly prized for decorative work.

Maple does not grow in any quantity north of the 49th parallel in Ontario, and is practically confined to the basin of the Great Lakes. It seldom grows in pure stands like pine or spruce, and the quantity still standing would be difficult even to estimate. The material is used by twenty-eight industries, heading the list in six of them. The greatest quantities are used for hardwood flooring, wood distillation and furniture. For these purposes and for all others where strength and stiffness are not of permanent importance, birch could be substituted in many cases, and is being substituted more and more each year, as the supply of maple decreases.

Fifteen per cent of the maple used is purchased outside of Ontario, mostly from the United States, with a small quantity from Quebec. This wood comes fourth in the list of woods brought in from outside Ontario, as stated in a bulletin issued by the Forestry Branch, Department of the Interior.

Uses of Ironwood.

Ironwood is not an important lumber as the trees seldom reach sawlog size. There are two species called ironwood in Ontario, namely, hop hornbeam (*Ostrya virginiana*) and blue beech (*Carpinus carolinia*). They are used mostly for charcoal making and wood distillation, some of the *Ostrya* (to which the name "ironwood" is more properly applied) being used locally for vehicle supplies and miscellaneous purposes. The wood is very strong, hard, heavy and tough, but difficult to season and liable to warp and check. All the ironwood used is grown in the province, according to a bulletin issued by the Forestry Branch, Department of the Interior.

War Savings Stamps not only save money but earn it.

SURVEY OF VIKING-ATHABASKA GAS FIELD

Geological Survey note on possible Future of Oil Fields

In the Summary Report of surveys made during 1917, published by the Dominion Geological Survey, is found the following on the subject of the Viking-Athabaska gas field, in the province of Alberta, which serves as introduction to an account of the work on the delineation of the possible oil-field, which was begun at that time by a party under the direction of Mr. D. B. Dowling:

The introduction of oil-burning tractors in farming operations has caused a great increase in importation of the light oils. As these imports are mostly from Wyoming, the fear of a possible embargo owing to home needs has made the subject of a home supply of oil one of national interest. The possibilities of the great plains as an oil-field has induced a renewal in prospecting, but most of this has been very conservative. The testing this year has been largely confined to the area near the Battle river and northwestward toward the Athabaska and Peace rivers. The delineation of the possible field, which depends on the underground structure, was begun this season with S. E. Slipper and Professor J. A. Allan as assistants. The area within which a possible oil-field and a probable gas field may be found can be outlined as a belt extending from Saskatchewan by way of the Viking river, northwest to the Athabaska river near Athabaska, and thence in a broad curve to the Peace river below Peace River Landing. A broadening of the belt northward from this line is evident in the Athabaska valley as the oil in the McMurray sands seems to be genetically connected with the possibilities of the whole area.

The beds underlying this triangular area slope to the southwest at a very low angle with probably many small local inflexions, and they are considerably flattened near their southwestern edge to form a terrace or level zone which in places may be considered an anticline in structure. The beds south of this flattened area dip at higher angle into the great Alberta syncline.

Along this terrace, which rises to the northwest, the sandy beds at the base of the Colorado shales have been found to contain considerable gas where they are elevated above the level of the line of salt water saturation, which is here slightly above sea-level. Heavy oil in varying amounts has been found in the lower sands in two of the Viking wells and in two wells at Peace River Landing. In the Athabaska valley on the northeastward extension of the structure plane the lower sands have also appreciable amounts of heavy oil and gas. At the outcrop these sands are represented by the McMurray tar sands. The prospecting so far done has shown the presence of natural gas in fair amount, but the production of oil is not yet well assured. Tests of the gas show the inclusion in it of gasoline vapour, and it is expected that the extraction of this vapour and the discovery of many uses for the methane gas, besides its use as fuel, will some day make this immense field a great manufacturing area.

TWENTY MILLIONS TO SOLDIER SETTLER

The number of applications for Qualification Certificates received by the Soldier Settlement Board of Canada up to the 26th of July was 25,722, of which 19,558 were approved by the Board.

Up to the 19th of July the Board had loaned \$19,578,822, for three purposes:

1. For the purchase of land. \$14,000,000
2. For the equipment of Dominion Lands. 2,800,000
3. For the discharge of mortgages on farms already owned by soldier settlers 2,778,822

**NEW PREFERENTIAL
TARIFF WITH U. K.**

Cable from High Commissioner's Office gives List effective Sept. 1.

The following cablegram, dated August 14, has been received from the Canadian High Commissioner's Office, London, and is published in the Trade and Commerce Weekly Bulletin:—

"Finance Act nineteen nineteen published to-day preferential rates on and after first September. Following is copy of schedules: Tea, cocoa, coffee, chicory, currants, dried or preserved fruit within the meaning of s. eight of the finance number two Act nineteen fifteen, sugar, glucose, molasses, saccharin, motor spirit, tobacco, five-sixths of full rate. Articles chargeable with new import duties imposed by s. twelve of finance number two Act nineteen fifteen, two-thirds of full rate. Wine—not exceeding thirty degrees proof spirit—sixty per cent of full rate; exceeding thirty degrees proof spirit, sixty-six and two-thirds per cent of full rate. Sparkling wine in bottle additional duty seventy per cent of full rate. Still wine in bottle, additional duty fifty per cent of full rate. Spirits rates equivalent to full rates as chargeable under this Act up to September first, nineteen nineteen. Goods must be consigned from and grown, produced or manufactured in British Empire, proportion value in British material and labour in accordance with Board Trade regulations. Other minor modifications."

**VALUE OF GRANITE
OUTPUT IN CANADA**

The following table showing the value of the annual production of granite in Canada since 1886 to 1917, is taken of from the report on mineral production, A. during 1917, issued by the Department of Mines:—

Year	Value.	Year	Value.
Calendar	\$	Calendar	\$
1886	63,309	1902	210,000
1887	142,506	1903	200,000
1888	147,305	1904	150,000
1889	79,624	1905	226,305
1890	65,985	1906	278,419
1891	70,056	1907	194,712
1892	89,326	1908	282,320
1893	94,393	1909	454,824
1894	109,936	1910	739,516
1895	84,838	1911	1,119,865
1896	106,709	1912	1,373,119
1897	61,934	1913	1,653,791
1898	81,073	1914	2,176,602
1899	90,542	1915	1,525,553
1900	80,000	1916	1,247,267
1901	155,000	1917	639,412

**BASSWOOD IS USEFUL
FOR FOOD CONTAINERS**

Only one species of basswood grows in Ontario, but the material bought in Eastern Canada and the United States may contain small amounts of less important species found in these regions. Basswood heads the list of what might be termed the soft hardwoods—broad-leaved trees with soft light wood, such as basswood, chestnut, poplar and tulip. This wood is soft, light, weak and non-durable, with a coarse grain, a fine even texture, and a lack of taste and odour. Its value lies in the fact that it is easily worked, does not warp or check, and is very tough, holding nails and taking paint well. It is used by thirty-one industries in Ontario and is the chief material in four of these. The greatest quantities were used by slack cooperage organizations and box factories, demonstrating the value of the wood for food-containers on account of lack of taste and

YEARLY BALANCE SHEET OF GRAIN FOR CANADA FOR 1918

From the Report on the Grain Trade of Canada, for the crop year ended August 31, and to the close of navigation, 1918, prepared by the Dominion Statistician, the following summary is taken:—

	Wheat.	Oats.	Barley.	Corn.	Flax.	Rye.
1. On hand Sept. 1, 1917—						
In farmers' hands	2,997,300	16,524,500	418,740			
Public elevators in the East	3,252,841	2,811,106	105,794	3,144	18,747	5,399,411
In country elevators, Western Division	1,462,422	964,021	164,834		124,398	
In interior Terminals Elevators	191,232	69,720	2,071		799	
Terminal Elevators	899,766	3,410,969	126,700		364,496	602
Total	8,803,561	22,780,316	818,139	3,144	508,440	5,400,013
2. Crop	233,742,850	403,009,800	55,057,750	7,762,700	5,934,900	3,857,200
3. Shipped in						
From U.S.A. and other countries	181,181	317,067	846	7,681,722	6,106	11,949
4. Total annual stock (=sum of 1, 2 and 3)	242,727,592	427,607,183	55,876,735	15,447,566	6,449,446	9,269,162
5. Shipped out—						
To U.S.A.	4,858,094	1,680,544	666,939	6,698	5,854,621	705,220
To United Kingdom and other countries	96,686,359	23,626,639	5,886,494	93,200		292,837
To other countries				3,242		13,749
Total	101,544,453	25,307,183	6,553,433	103,140	3,854,626	1,011,806
6. Milled	86,000,000	*14,730,674	*2,796,258	*1,527,074	1,276,122	*1,872,789
7. Total disposed of commercially (=sum of 5 and 6)	187,544,453	40,037,757	9,349,691	1,630,214	5,130,748	2,884,595
8. Used for seed	30,369,330	36,975,841	6,307,422		534,040	832,944
9. In store Aug. 31, 1918—						
In farmers' hands	431,340	8,577,800	354,210			
Public elevators in the East	2,472,788	2,895,664	438,898	27,910	20,538	
In country elevators, Western Division	522,845	766,350	148,436		58,823	
In interior Terminals Elevators	79,482	297,004	16,428		941	
In Terminal Elevators	(-) 62,604	2,765,663	144,132		113,349	
Total	3,443,851	15,303,481	1,102,104	27,910	193,651	
10. Total accounted for (=sum of 7, 8 and 9)	221,357,634	92,317,079	16,759,217		5,858,459	
11. Balance consumed in Canada, including loss in cleaning, etc. (=4-10)	21,369,958					
12. Amount inspected	156,813,116	60,204,670	10,305,674	522,469	4,923,600	907,365
13. Per cent of crop inspected	67.08	14.93	18.71	6.73	82.96	23.52
14. Per cent of commercial grain inspected	83.61					
15. Commercial grain from season's crop (=97-1-3)	182,003,592					
16. Per cent of crop for commerce (= % line 15 of line 2)	77.86					
17. Value of crop	453,038,600	277,065,300	59,654,400	14,307,200	15,737,000	6,267,200

*Calendar year only.

YEARLY BALANCE SHEET OF WHEAT AND FLOUR.
(1bbl. Flour = 4½ bush. Wheat.)

	W.I.D.	E.I.D.	Canada.
	Bush.	Bush.	Bush.
1. On hand Aug. 31, 1917	5,267,420	3,536,141	8,803,561
2. Wheat crop	212,612,430	21,130,420	233,742,850
3. Shipped in	52,394	62,185,574	82,237,968
4. Total stock for year	217,932,244	106,852,135	324,784,379
5. Shipped out, milled and seed	197,394,050	102,705,307	300,688,180
6. In store	588,823	2,855,028	3,443,851
7. Total accounted for	197,982,873	105,560,335	303,543,208
8. Balance consumed locally	19,949,371	1,420,587	21,369,958

odour. Nearly all the basswood used commercially in Ontario is bought in the province, according to the bulletin on the subject of wood-using industries of Ontario, issued by the Forestry Branch, Department of the Interior.

Ash in Commerce.

Ash is a native hardwood characterized by its wide range of use and universal value. Two species make up the bulk of the material and their qualities and uses are quite distinct. White ash (*Fraxinus americana*) is the most valuable species and one of the most valuable of Ontario's hardwoods. The wood is moderately hard, heavy and strong, with a coarse straight grain and fine texture. Its chief value lies in its toughness and elasticity, as it is not a durable wood. It is used chiefly for framework of all sorts in vehicles, cars and agricultural implements, and is also extensively used for long handles of agricultural tools. Black ash (*Fraxinus nigra*) is a much softer, weaker wood and is more valuable for decorative work. More ash is used for interior finish of houses than for any other pur-

pose, and this is mostly black ash. The wood has an attractive grain, is often stained to imitate plain oak and is easily seasoned and worked. It is more durable than white ash, and is used to a considerable extent for basket veneers. Altogether twenty-five of the industries use this material, refrigerator manufacturers buying more ash than any other wood. The lack of taste and odour makes this material specially valuable for food-containers, such as baskets, barrels and boxes.

About thirty per cent of the ash used was purchased outside the province, one-quarter of the importation coming from Quebec and three-quarters from the United States. The supply of ash in the province has dwindled down to a few restricted districts, although scattered groups of this tree are found all over its range. This lies south of Lake Nipissing for white ash, and almost as far north as James bay for black ash, but the trees north of the height of land are small and unfit for timber, according to a bulletin on the subject of "Wood-Using Industries of Ontario," issued by the Forestry Branch, Department of the Interior.

Percentage Reduced.

A cablegram from the Secretary of State for the Colonies to the Governor General, dated August 1, says—referring to his cablegram of June 4 announcing that the Board of Trade had decided, with respect to the removal of all restrictions on the importation into the United Kingdom of goods the produce or manufacture of the British Dominions which owe at least 75 per cent of their total value to Dominion or Colonial labour and material, that the required percentage has been reduced from 75 to 60—the percentage to be based on factory values, not free on board.

Butternut in Commerce.

Butternut (*Juglans cinerea*) is sometimes called "white walnut," and resembles the more valuable species in grain and texture, but is much lighter in colour and is both soft and weak. It is used by the boat-makers for planking and finishing, according to a bulletin issued by the Forestry Branch, Department of the Interior.