

WHITE SPRUCE LEADS AS PULP; DOUGLAS FIR AS LUMBER SPECIES

*Commercial Trees Described
in Forestry Branch Report
which divides Species into
Economic Classes*

HARDWOOD VERY IMPORTANT

The following account of pulp-producing species in the forests of Canada, is of interest. It is taken from a bulletin issued by the Forestry Branch, Department of the Interior.

The woods most commonly used in pulp manufacture in Canada vary but slightly from year to year. The increased manufacture of sulphate, or kraft, pulp has enabled the manufacturers to use increasing proportions of jack pine. The use of balsam fir has increased steadily in past years. Hemlock is used to a greater extent than any other wood in British Columbia. In every other province but British Columbia, spruce heads the list of woods converted into pulp.

Spruce pulpwood in the Maritime Provinces is composed mostly of red spruce (*Picea rubra*), a tree the distribution of which is confined to this region in Canada. With this are mixed smaller quantities of white spruce (*Picea canadensis*) and black spruce (*Picea mariana*).

In Ontario and western Quebec the red spruce is almost unknown, and forms only a small part of the wood used in pulp manufacture. White spruce grows in Canada from the Atlantic to the Yukon, and is undoubtedly the most important pulp species in the forests of this country. It probably forms 90 per cent of the spruce pulpwood cut in Ontario and Quebec. Smaller quantities of black spruce and red spruce are also cut. In British Columbia, the place of these three eastern spruces is taken by typical British Columbia species. The spruce pulpwood produced in this province at the present time is cut in the coast region, and is the wood of the Sitka spruce (*Picea sitchensis*). The Engelmann spruce of the Selkirk and the Rocky mountains (*Picea Engelmanni*) is not utilized for this purpose at the present time, not because of its lack of satisfactory pulp-producing qualities, but simply because the pulp industry has not been developed in interior of British Columbia.

In eastern Canada only one species of balsam fir occurs, and this tree (*Abies balsamea*) forms the entire production of balsam fir pulpwood in Ontario, Quebec, New Brunswick, and Nova Scotia. In British Columbia the most commonly used balsam fir species are amabilis fir (*Abies amabilis*) and lowland fir (*Abies grandis*). In the interior of the province and on the Rocky Mountain slopes the common species is mountain fir (*Abies lasiocarpa*), which has a similar distribution to Engelmann spruce and, like it, is not used for pulp at the present time.

Eastern hemlock (*Tsuga canadensis*) is not used extensively in the east for pulp manufacture, although it is reported from Ontario, Quebec, and Nova Scotia. The western species (*Tsuga heterophylla*) is the most important pulpwood in British Columbia at the present time, and forms almost half of the wood used in that province. It is said to be superior to the eastern species for pulpwood as well as for lumber and other products.

Jack pine (*Pinus Banksiana*) is used only in Quebec and Ontario, and only in the manufacture of sulphate or kraft pulp. Poplar is also used only in Quebec and Ontario, but is made into ground-wood pulp, sulphite, and kraft fibre. Two species are utilized, aspen poplar (*Populus tremuloides*) forming the greater part of the pulpwood consumed, and balsam poplar (*Populus balsamea*) being used in smaller quantities. Common cottonwood (*Populus deltoides*) and large-toothed aspen (*Populus grandidentata*) are probably also used occasionally. Pulp manufac-

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 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 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 May 24 and 30, as follows:—

JUSTICE (PENITENTIARIES BRANCH)—

Article.	Point of delivery.	Date due.
Galvanized iron	St. Vincent de Paul	May 29
Paints, etc.	Prince Albert	June 6
Plumbing	St. Vincent de Paul	" 15

PUBLIC PRINTING AND STATIONERY (STATIONERY BRANCH)—

Article.	Point of delivery.	Date due.
Imperial tracing cloth	Ottawa	June 2
White wove envelopes, 15 in. by 9½ in., plain	"	" 2
White wove envelopes, 9½ in. by 4½ in., plain	"	" 2
Nos. 1 and 2 stamp pads	"	" 2
Light grey cover paper	"	" 2
White wove envelopes, No. 11, plain	"	" 5
Tag manilla folders	"	" 5
Linen tags, printed	"	" 5
Manilla envelopes, No. 7, printed	"	" 5
Manilla envelopes, No. 11, printed	"	" 5

PUBLIC WORKS—

Article.	Point of delivery.	Date due.
Lumber	Old Massett, B.C.	June 10
Lumber	Port Clements	" 10
Lumber	Queen Charlotte City	" 10
Lumber	Refuge Bay	" 10
Lumber	Skidgate	" 10
Hardware	Spiller River	" 10
Hardware	Alice Arm	" 10
Hardware	Old Massett	" 10
Hardware	Port Clements	" 10
Hardware	Prince Rupert	" 10
Hardware	Queen Charlotte City	" 10
Hardware	Refuge Bay	" 10
Hardware	Skidgate	" 10
Lumber	Spiller River	" 10
Lumber	Alice Arm	" 10
Lumber	Prince Rupert	" 10
Coal	Toronto	May 31

MILITIA AND DEFENCE—

Article.	Point of delivery.	Date due.
Sugar	Victoria	May 31
Sugar	Vancouver	" 31
Beef	Regina	" 31
Potatoes	"	" 31
Beef	Saskatoon	" 31
Potatoes	"	" 31
Sweeping chimneys	Kingston	June 2
Removal ashes	Quebec	" 2
Milk etc.	"	" 2
Coal	Lindsay	" 2
Rope	Quebec	" 2
Drugs	Ottawa	" 9
Hospital supplies	Toronto	" 9
Drugs	Ottawa	" 2
Dental supplies	"	" 4
Vaccine	"	" 6
Surgical supplies	Montreal	" 6
Surgical supplies	Toronto	" 4
Rubber tubing	Ottawa	" 4
Olive oil, C.M.S.	"	" 4
Padlocks	"	May 30
Basins, enamel	"	" 30
Tables, glass top	"	June 9
Silver nucleinate	"	" 5
Shields, eye	"	" 5
Cabinets	Kingston	" 2
Badges, shoulder, G.M.	Ottawa	" 2

tured from the wood of the poplar species lacks the high tensile strength of that made from spruce, balsam fir, and other coniferous woods, and is used chiefly to give body to book and magazine paper. Mixed with a stronger, coarser pulp it fills in the interstices between the coarser fibres, and makes the paper smooth and opaque.

In the same Forestry Branch bulletin is given an outline of tree species generally utilized for the manufacture of lumber. In part it is as follows:—

twice as much as Quebec, which comes second on the list. The other provinces in order of their importance as producers of hardwood are as follows: Nova Scotia, New Brunswick, British Columbia, Prince Edward Island, Manitoba, Alberta, and Saskatchewan. In Quebec and the three Maritime Provinces birch is the most important hardwood. In Ontario maple heads the list and in the three Prairie Provinces aspen poplar. Cottonwood poplar is the most important deciduous-leaved tree in British Columbia.

"Hard" maple is cut from one tree only (*Acer saccharum*), "soft" maple lumber may be cut either from silver maple (*Acer saccharinum*) or red maple (*Acer rubrum*).

The ash is divided into two classes, the harder wood being that of the American ash (*Fraxinus americana*) and the softer material black ash (*Fraxinus nigra*). There are three elms in Quebec of commercial importance, white elm (*Ulmus americana*), rock elm (*Ulmus racemosa*), and red or slippery elm (*Ulmus fulva*).

Poplar in Quebec apart from aspen poplar may be either balm poplar (*Populus balsamifera*), large-toothed aspen (*Populus grandidentata*), or common cottonwood (*Populus deltoides*). In the reports received the aspen is usually the only one separated from the other poplars.

Red oak (*Quercus rubra*) is the most important oak species in Quebec in point of quantity of lumber produced, although the wood of the white oak (*Quercus alba*) is more valuable. There are other oak species of only minor importance.

There are four hickories that contribute to the supply of hickory lumber, but the wood of these is so closely related that they are seldom separated in the market.

WESTERN SOFTWOODS.

Douglas fir, the most important single species of lumber-producing tree in Canada, is known botanically as *Pseudotsuga mucronata*.

The cedar in this province is a different species from that of the eastern provinces. This is called western red cedar, or sometimes giant cedar (*Thuja plicata*).

The greater part of the spruce lumber sawn in British Columbia is cut from Engelmann spruce (*Picea Engelmanni*) and Sitka spruce (*Picea sitchensis*).

The black spruce of the East is fairly common in northern British Columbia and the eastern white spruce is also found in the province.

The tamarack of the province is usually called western larch (*Larix occidentalis*) and is a distinct Pacific coast species. Mountain larch (*Larix lyallii*), the Rocky Mountain species, is of little or no commercial importance. The British Columbia yellow pine is the wood of one species often called bull pine (*Pinus ponderosa*). The hemlock (*Tsuga heterophylla*), western white pine (*Pinus monticola*), black cottonwood (*Populus trichocarpa*), jack or lodgepole pine (*Pinus murrayana*), maple (*Acer macrophyllum*), birch (*Betula occidentalis*), yellow cypress (*Chamaecyparis nootkatensis*), and red alder (*Alnus oregona*) are all cut from single species, each a distinct western tree, differing from its eastern relatives. The balsam fir lumber is made up of wood from Alpine fir (*Abies lasiocarpa*) and amabilis fir (*Abies amabilis*) with perhaps a smaller quantity of lowland fir (*Abies grandis*).

Quebec Public Lands.

In Quebec the area of public lands subdivided and unsold on June 30, 1916, was 7,258,107 acres. During the year ended June 30, 1917, 708 acres were surveyed; 96,396 acres reverted to the Crown; 256,477 acres were sold, the receipts, including arrears, being \$103,730, and 263 acres were granted free for religious purposes and for colonization roads. Adding to the acreage available at June 30, 1916, the areas surveyed and the areas that reverted, and deducting sales and grants, there remained subdivided and unsold on June 30, 1917, 7,297,471 acres. The average price of the acres sold was about 40 cents per acre, according to the Dominion Statistician.

HARDWOOD SPECIES.

Ontario is the most important hardwood-producing province, cutting over