TIMBER *in* BRITISH COLUMBIA

CONFEDERATION OF
TIMBERMEN'S ASSOCIATION,
VANCOUVER, B. C.

OFFICIAL BULLETIN No 21

PUBLISHED BY AUTHORITY OF THE
LEGISLATIVE ASSEMBLY

BUREAU OF PROVINCIAL INFORMATION.

BULLETIN No. 21.

THE TIMBER AND PULP WOOD INDUSTRIES

—OF—

BRITISH COLUMBIA.

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

*PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.*

VICTORIA, B. C. :

Printed by RICHARD WOLFENDEN, I.S.O., V.D., Printer to the King's Most Excellent Majesty.

1905.

BULLETIN No. 21.

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*To the Hon. Fred. J. Fulton,
Provincial Secretary,
Victoria, B. C.:*

SIR,—I have the honour to lay before you Bulletin No. 21, on Timber and Paper Pulp, which is designed to take the places of Bulletins Nos. 14 and 15, the editions of which are exhausted.

In this Bulletin an effort has been made to cover the whole field of timber, wood pulp and paper making as fully as the present development of those industries in British Columbia would permit.

I have the honour to be,
Sir,
Your obedient servant,

R. M. PALMER,
Secretary Bureau of Provincial Information.

Victoria, May, 1905.

FOREST OF DOUGLAS FIR.

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THE FORESTS OF BRITISH COLUMBIA.

THE acreage of the leading timber countries of the world is estimated, in round numbers, as follows :—

	Acres.
*Canada	1,657,600,000
United States	450,000,000
European Russia	527,000,000
Norway and Sweden	58,000,000
All Europe.....	720,000,000
India	140,000,000
Australia and New Zealand.....	40,000,000
Japan	28,000,000

* British Columbia, 182,750,000 acres.

Next to her great treasury of minerals, the most readily available, if not the most important, of British Columbia's natural resources is her immense timber reserve. British Columbia may now be said to possess the greatest compact area of merchantable timber on the North American continent, and if it had not been for the great forest fires that have raged in the interior in the years gone by, during which a very large portion of the surface has been denuded of its forest, the available supply would have been much greater than it is. This was an exigency which, in the unsettled state of the country, could hardly have been provided against, if at all. However, as the coast districts possess the major portion of the choice timber and that which is most accessible, the ravages of fire have not had, by reason of the dense growth and the humidity of the climate, any appreciable effect on that source of supply.

As far north as Alaska the coast is heavily timbered, the forest line following the indents and river valleys and fringing the mountain sides. Logging operations so far have extended to Knight's Inlet, a point on the coast of the Mainland opposite the north end of Vancouver Island. Here the Douglas fir, the most important and widely dispersed of the valuable trees, disappears altogether, and the cypress, or yellow cedar, takes its place. North of this, cedar, hemlock and spruce are the principal timber trees. It will be of interest to know that Douglas fir (*Pseudotsuga Douglasii*) was named after David Douglas, a noted botanist who explored New Caledonia in the early twenties of this century. It is a very widely distributed tree, being found from the coast to the summit of the Rocky Mountains, and as far east as Calgary and as far north as Fort McLeod. On the coast it attains immense proportions, is very high and clear of imperfections, sometimes towering three hundred feet in the air and having a base circumference of from thirty to fifty feet. The best averages, however, are one hundred and fifty feet clear of limbs and five to six feet in diameter. This is the staple timber of commerce, often classed by the trade as Oregon pine. It has about the same specific

gravity as oak, with great strength, and has a wide range of usefulness, being especially adapted for construction work. It is scientifically described as standing midway between the spruce and the balsam, and in the opinion of Prof. Macoun, the Dominion Naturalist, is a valuable pulp-making tree.

Mr. James M. Macoun, in his little work, "The Forests of Canada," from which a good deal of what follows is taken, says in regard to the Douglas fir :—

"This is the most abundant, as it is the most valuable, tree in British Columbia. Its range on the Mainland is from the International Boundary north to the Skeena River, in latitude 54 degrees, on the coast, and in the Rocky Mountains from the International Boundary north to latitude 55 degrees, though its northern and north-eastern limits are not well defined. It is not found in the Queen Charlotte Islands. It attains its greatest size on Vancouver Island, or along the shores and in river valleys near the coast on the Mainland. There trees 300 feet in height are not rare, the average height of those felled for lumber being over 150 feet. Trees of a greater diameter than seven feet are rarely cut, though those of eight, ten or even eleven feet in diameter are not rare.

"The fact that the largest trees are found near the coast greatly facilitates the transport of the logs from the woods to the mill, and as the majority of the mills are so situated that the largest ships may load within a few yards of the saws, the cost per 1,000 feet of handling Douglas fir and other west coast lumber is small.

"Douglas fir is chiefly valuable for structural purposes, being largely employed in ship-building, bridge-work and the construction of wharves. It is exported as dimension timber, lumber, spars, masts and piles. Locally it is used for construction work of all kinds, fencing and railway ties, and in the manufacture of furniture. Its durability, when excluded from the air, adds greatly to its value for pile-work in the construction of bridges and wharves. The bark of the Douglas fir is largely employed in tanning."

GIANT ARBOR VITAE, RED CEDAR.

(*Thuja gigantea*—Nutt.)

The Giant Arbor Vitae is next to the Douglas fir in importance in British Columbia, where it attains its greatest size on Vancouver Island, along the coast and in the lower parts of the rivers of the Coast Range. It is rarely found in the dry interior of British Columbia, but is abundant in the river valleys on the slopes of the Selkirk and Coast Ranges. Though seldom found more than 150 feet in height, in circumference it rivals the Douglas fir, trees of from 8 to 10 feet in diameter not being rare, and they are occasionally found much larger.

It is chiefly used in the manufacture of shingles, for which purpose it is unequalled by any other wood. Formerly the shingles were made by hand, the wood splitting easily, but improved machinery has so lowered the cost of production that comparatively few hand-made shingles are now used, though they are still in demand when a shingle of superior quality is desired. The wood of the tree takes a very brilliant polish, and is well adapted for interior finishing of all kinds. So great is the variety of shading in the colour of the wood that a large house may be finished in it without two rooms being alike. It is not only largely exported, but is now being shipped in increasing quantities to Eastern Canada. In British Columbia it enters largely into the manufacture of doors and cabinet-work of all kinds. Like all the cedars, it lasts well underground, and on

his account is much used in the form of telegraph poles and fence posts. The immense canoes made by West Coast Indians are, with very few exceptions, made of this wood.

In addition to its value commercially for shingles and interior finishings, it is the friend of the settler, inasmuch as out of its straight-grained logs he can build his house, make his furniture and fence his farm, and that solely with the use of the most primitive of tools—an axe, a saw and a froe. Owing to increasing demand for shingles in Eastern Canada and the rapid filling up of the Western Territories, cedar limits are now becoming very valuable, and the shingle industry especially is assuming large proportions.

YELLOW CEDAR, YELLOW CYPRESS.

(*Thuya excelsa*—Bong.)

The Yellow Cypress is not nearly so abundant in British Columbia as the *Arb Vitae*, nor is its circumference so great. Its height is about the same as the *Arbor Vitae*—150 feet—and its average diameter is about four feet, though occasional trees attain five feet. The yellow cypress is confined to the coast and the adjacent islands. In the southern parts of British Columbia it is not found at sea-level, the finest trees growing at altitudes of from 1,000 to 2,500 feet. Though valuable for many purposes, the wood of the yellow cypress is not extensively used at present, the cost of transportation to the seaboard being too great. On the Queen Charlotte Islands it descends to the coast. When lower levels have been cleared of other trees the yellow cypress will be utilised. This wood is very durable, and on account of its pungent odour it is credited with resisting the teredo. Its grain is very close, and as the wood takes a very high polish, it is greatly valued for interior finishing and for the manufacture of furniture. It commands a higher price than either Douglas fir or *arbor vitae*. The natives along the northern coast of British Columbia make many articles for domestic use from this wood. It is especially valuable for its lasting qualities, and has been known to last as sills for over sixty years without being impaired. In a wet climate, such as is prevalent at Port Simpson, where it was found in old Hudson's Bay Company foundations, this is remarkable. Mr. J. R. Anderson, in his paper for the Forestry Association, says that on account of its liability to shrink, lengthwise as well as laterally, it requires to be well seasoned before use. The long and slender pendulous fruits which hang from the branches give the tree a very graceful appearance; and the strong, pungent odour which it emits when freshly cut, and which it never loses, renders it very easy of identification.

WESTERN WHITE PINE.

(*Pinus monticola*—Dougl.)

None of the Western pines are found in quantity near the coast, and so far they have been used for Western purposes only. The best of these is *pinus monticola*, which is little inferior to the white pine of the East. It is found in the interior of Vancouver Island and is abundant in the southern parts of the Coast Range, where there is heavy rainfall. In the Selkirk Mountains it is not very common, but attains a considerable size on the mountain slopes. The wood is used for the same purpose as the Eastern white pine. Mr. Anderson says: "It is the most useful wood for window-sashes, doors, powder barrels and similar work. Being a white and very light wood, it is unsuitable for outside uses, and has a tendency to absorb moisture when in contact with the ground, and is, therefore, liable to decay." It has not heretofore been used to a very great extent. It is a splendid looking tree, having bluish-green fronds and cones from 8 to 12 inches long.

BLACK PINE.

(Pinus Murrayana—Balfour.)

The Black Pine replaces the *Pinus banksiana*, or jack pine, on the eastern slopes of the Rocky Mountains. It is abundant in the northern part of the interior plateau of British Columbia, where it covers great areas. In the southern part of the Province it is most abundant at altitudes ranging between 3,000 and 4,000 feet. Though esteemed of little value where other conifers grow, except for railway ties and firewood, it is much used for mine props and other construction work in the mining districts of British Columbia. It is admirably suited for this purpose, as the wood is very tough, and when not exposed to the weather does not easily decay. It is said to make excellent charcoal.

ENGELMANN SPRUCE.

(Picea Engelmanni—Engel.)

This characteristic spruce of the Rocky and Selkirk mountains is the most useful tree growing in the interior of British Columbia, and is there largely used in bridge and trestle work and for heavy construction work generally. In the valley of the Columbia it is often more than 150 feet in height and 4 feet in diameter. The wood is very like that of the black and white spruces, and may be used for the same purposes. This was the chief wood used in the construction of the Canadian Pacific Railway from the Rocky Mountains westward.

MENZIES SPRUCE—SITKA SPRUCE.

(Picea Sitchensis—Carr.)

This spruce grows chiefly in the immediate vicinity of the Coast, ranging in British Columbia from the International Boundary north to Alaska. In the southern part of the Province it grows scattered among other trees, but in the north it is relatively much more abundant, growing sometimes in large clumps. Though averaging less in diameter than the Douglas fir, occasional trees of great size are found. Those cut for lumber are, however, seldom more than five or six feet in diameter. No other tree on the West Coast is used for such varied purposes, and as it is easily worked up by machinery there is a great demand for it in the manufacture of doors, window-sashes, boxes, shelving and interior finishing. The wood is very white, is elastic, and bends with the grain without splitting, so that it is much used in boat-building, the making of light oars, staves, woodenware, etc. The adaptability of British Columbia spruce has given this wood a reputation in Eastern Canada and the United States which has created a demand for it for use in the better class of buildings. It resists decay for a long time, and, like the Douglas fir, is not attacked by insects. The chief value of the Sitka spruce will, in the near future, be in the manufacture of pulp, for which purpose it is not excelled by any other tree. As soon as pulp mills are established in the vicinity of the large saw-mills, the immense waste entailed by the present method of sawing dimension lumber in British Columbia will be obviated. As the shrinkage is usually very great, it is generally kiln-dried before using, or kept stored away until it is thoroughly seasoned. On account of the sharp-pointed, short fronds, it is quite impossible to grasp them with the naked hand, and this renders this tree easily distinguished from the other British Columbia coniferæ.

WESTERN HEMLOCK.

(Tsuga mertensiana—Carr.)

The hemlock is abundant along the whole coast of British Columbia and in the interior of the Province, wherever there is sufficient rainfall. Along the line of the Canadian Pacific Railway, in the Selkirk Mountains, it is very abundant, but seldom over 150 feet in height and three in diameter. The abundance of other wood of better

A SAMPLE CEDAR.

quality has prevented the hemlock from coming into general use, and the same prejudice exists in British Columbia against the Western tree that prevailed until very recently against hemlock in Eastern Canada. Though its grain is coarse, Western hemlock is for many purposes just as serviceable as other woods which cost more. Its bark is rich in tannin, but it is too thin to be extensively used while there is such an abundance of Douglas fir in the same region. As its habitat is generally at no great distance from the sea, it is a wood which could be transported to shipping points without great expense. When young or growing singly, the tree is decidedly pretty, and the yew-like fronds which enshroud the trunk form a most welcome and soft bed for the weary prospector or trapper.

WESTERN WHITE OAK.

(*Quercus Garryana*—Douglas.)

Though a few trees of this species (according to Macoun) grow on the Mainland of British Columbia, it is practically confined to the southern part of Vancouver Island, the finest trees growing in the vicinity of Victoria, where trees 3 or 4 feet in diameter, from which logs 10 to 20 feet long can be obtained, are not uncommon. The wood resembles that of English oak, and is very beautiful when made up into furniture and cabinet work. It is not largely used, for two reasons—first, because the supply is limited; and second, because there are other woods more easily and cheaply obtainable. It is principally useful, and will always remain so, as an ornamental tree. It is very picturesque, and gives to the landscape an appearance which we usually associate with English pastoral scenes. In texture the wood is short-grained and hard, though brittle.

ASPEN POPLAR.

(*Populus tremuloides*—Mich.)

This widely distributed tree occurs in nearly all parts of the Province, and particularly throughout the northern interior. It is a very useful wood, although in British Columbia not largely used. It is used in many parts of Canada for fence rails, firewood, and making log houses. Commercially, where in sufficient quantities and easily available, it is valuable for the manufacture of pulp. The wood of the aspen is light and easily worked, and in the East is used for woodenware, light barrels such as those used for sugar and flour, and for crates and light boxes. It is also employed in the manufacture of furniture, and no doubt in the future it will be available for such uses in some parts of the Province.

BROAD-LEAVED MAPLE.

(*Acer macrophyllum*—Pursh.)

The broad-leaved maple is common on Vancouver Island and along the coast in the southern part of British Columbia. It is the most valuable of the deciduous trees of the West Coast. Though not as hard or as strong as the hard maple of the East, the wood is much better than that of the Eastern soft maple. Much of it is "curly," which adds greatly to its value as cabinet-making material. It is used in the manufacture of furniture, mantels and handles, and for interior finishing. It grows to a large size, sometimes attaining a diameter of from 3 to 4 feet. It takes a fine polish. Some specimens of it may be seen in the interior of the Government Buildings at Victoria, the beauty of which as wood would be difficult to excel. It will consequently grow more valuable each year. When grown in the open, the broad-leaved maple makes the most effective shade tree we have. A characteristic feature is, of course, its broad leaves, which invariably attract attention and are greatly admired by strangers.

OTHER CONIFERAE.

The Western Larch (*larix occidentalis*) and the Mountain Larch (*larix lyallii*) replace *L. Americana* in the Rockies and British Columbia, where they are used for lumber, telegraph poles, railway ties and mine props. They are quite plentiful in some parts of the southern interior.

Mr. J. R. Anderson, in his paper written for the Forestry Association, describes the other trees of the Province as follows :—

The Western White Fir or Balsam Fir (*Abies grandis*, Lindl., and its synonyms of *Pinus grandis*, Dougl., *Picea grandis*, Loudon, *Abies Gordoniana*, Carr, *Abies amabilis*, Murray), is quite common in the vicinity of the Coast and grows to a large size, but the wood is held in small esteem, being perishable and brittle; it is, however, white and light, and may in course of time be put to use for boxes, etc. The bark, when young, is thickly covered with large bladders or cells filled with a liquid, resinous gum, which has great healing properties. The tree, with its thick, flat fronds and rigid growth, although grand in appearance is rather too stiff and formal, and of the Noah's Ark type, to be quite pleasing. [It may in time be utilised for the manufacture of pulp.—Ed.]

Western Yellow Pine, or Bull Pine (*Pinus ponderosa*, Dougl.; synonym, *Pinus resinosa*, Hook.) Its habitat is the dry plateau of the interior Mainland, between the Coast and Gold ranges. A remarkably handsome tree, with smooth, red bark, very large fronds and large cones bearing a large quantity of seed, which the natives formerly used as an article of food. [In the southern interior the bull pine is a characteristic tree, and is very largely used for lumber.—Ed.]

Scrub Pine (*Pinus Contorta*, Dougl.; synonyms, *Pinus inops*, Hook, *Pinus banksiana*, Lindl. and Gordon). Its habitat is everywhere in the Province, on sandy points and exposed rocky points, seldom growing larger than 15 inches, quite useless for timber, and not at all ornamental. [There is also the yew (*Taxus brevifolia*) and the juniper. These are limited in quantity. The former is a useful wood, and often takes the place of Eastern hardwoods for axe-handles, whippetrees, and the like.—Ed.]

OTHER DECIDUOUS TREES.

There are two native maples in addition to the broad-leaved already described, viz., the Vine Maple (*Acer circinatum*) and another resembling it, called *Acer glabrum*. The former is common on the low lands of the Mainland to the westward of the Coast Range, but does not occur to the eastward of the Coast Range nor on Vancouver or Gulf islands. As its name implies, it only grows small and crooked, much in the shape of a vine. The latter occurs all over the Province, principally in the dry belt to the eastward of the Coast Range, where it never gets beyond a bush, and on the islands, where it frequently attains to the dignity of a small tree.

Alder (*Alnus Rubra*; synonym, *A. Glutinosa*, Pursh.) This is another common tree on Vancouver and Gulf islands, and on the Mainland to the westward of the Coast Range. It attains in many places a diameter of 2 to 3 feet, but much of it is under 2 feet. Growing as it does in close forests, it runs up to a considerable height and is very straight. The wood, which is of a light, brownish colour, nearly white, resembles black walnut in the grain, and is used, stained to the proper shade, to a limited degree in imitation of that wood, for furniture, inside finishing, bannisters, etc.

The only other representative of this genus is the Mountain Alder (*A. rhombifolia*), a worthless variety and more of a shrub than a tree. Its range is general throughout the Province, generally on mountain sides.

Poplar or Cottonwood (*Populus Trichocarpa*, sometimes called *P. Balsamifera*) is a common tree throughout the Province on low-lying lands in the vicinity of water. It attains a large size in favourable localities, three or four feet in diameter being common, and attaining a great height in dense forests along low river banks and on low islands. The wood is very little used, being white and soft, without any great quality to recommend it. The principal use it has been put to is for the manufacture of excelsior, for which purpose it is well adapted. It has also been used for boxes, being very light, but the objection to its use for this purpose, I am informed, is that it turns dark after being sawed. Possibly this difficulty could be overcome by allowing the wood to season in the log, or other methods.

Canoe Birch (*Betula Papyrifera*) is common on the Mainland and very scarce on Vancouver Island. The wood is a good, fine-grained, durable one when not exposed to the weather, but it has never been used, to my knowledge, for any purpose but fire-wood. It attains a size of from one foot to eighteen inches in diameter, but is often smaller.

Arbutus, or Madrona (*Arbutus Menziesii*.) This is quite a common tree on Vancouver Island and the Gulf islands, and on some parts of the coast line on the Mainland. It is a striking-looking tree, with its red bark and bright, evergreen leaves. As a rule, it does not attain to a great size, especially when growing on exposed rocks and headlands, but trees a foot in diameter are common, although, as a rule, twisted and crooked; when growing in forests, however, it grows fairly straight, and sometimes attains a large size. On the Alberni road, in the vicinity of Nanoose Bay, many fine specimens are to be seen. When travelling in company with Dr. Fletcher and Rev. Mr. Taylor, two months ago, I took the measurement of one tree, which was 10 feet 5 inches in circumference. I am not aware that the wood of this tree has been put to any particular use; it is hard, fine and close-grained and takes a good polish, but is apt to warp and crack if cut before it is well seasoned.

Dog Wood (*Cornus Nuttallii*.) A highly ornamental tree with immense white flowers, fairly abundant throughout the islands and the coast of the Mainland. It often attains a size of 12 inches in diameter and a height of 30 feet or thereabouts, and has a fine-grained, hard, pinkish wood, which takes a good polish. Not used, to my knowledge, except in isolated cases for ornamental work.

Buckthorn (sometimes called Bearberry, and from that often wrongly called Barberry) (*Rhamnus Purshiana*) is not an uncommon tree on the Islands of Vancouver and the Gulf and on the coast of the Mainland. It attains a size of about a foot in diameter, but more frequently smaller. The wood is of a light yellow colour, close-grained and hard. Not used except for ornamental purposes.

Crab (*Pirus Rivularis*) grows commonly in swamps of the Mainland to the westward of the Coast Range, on Vancouver Island and the Gulf islands. It seldom attains a larger size than 9 inches; the wood is hard and close-grained, and is principally used for rollers in mills and similar purposes.

The hard woods are usually found in bottom lands, and indicate fruitfulness of the soil. There is no part of British Columbia where the timber supply is not sufficient for local demands.

A GREAT INDUSTRY.

There are over 100 sawmills in the Province, big and small, with a combined daily capacity of over 2,000,000 feet, but this limit has never been reached, the annual cut running between 300,000,000 and 350,000,000 feet. The acreage of timber under lease is about 2,000 square miles, and the total area of forest and woodland is estimated by the Dominion statistician at 285,554 square miles, or 182,754,560 acres, but this must not be taken as all of present commercial value as much of it is covered with small trees, only fit for fuel and local lumber, which would not be considered as "timber" by the loggers, whose present methods of selection are very destructive, as they choose only the largest and best of the trees. In a few years from now when timber, by reason of its scarcity elsewhere becomes more valuable, much that is now discarded by the timbermen will be gladly utilised and in all probability old limits will be cut over several times.

WASTEFUL METHODS.

At a recent Forestry Congress, held at Washington, D. C., Col. Emerson, a prominent lumberman of Washington State, read a paper on the "Pacific Coast Forests," which applies with equal force to the forests of British Columbia, in which he bewailed the wasteful and destructive methods employed by loggers.

"* * * * On these lands our large timber grows, fir and spruce from 40 to 80 inches in diameter and from 150 to 250 feet in height," remarks Col. Emerson. "These dimensions are common and 10 feet for fir or spruce and 20 feet for cedars are not extreme diameters. The hemlock is of less size; 18 or 24 inches on the stump is most common, 40-inch not exceptional.

"Beneath these trees often lie the fathers of the forest, still sound, pinned to the ground by the roots of trees themselves a hundred years old, and over and among all is a growth of salmonberry, salalberry and other shrubs and tall ferns, making an almost impenetrable mass, so dense that two miles is a good day's travel, on courses, for a woodsman.

"These tracts where the timber is large have few young trees and the old giants are over-ripe. It is doubtful if they produce seed and doubtful if their growth equals their decay on many townships. They cannot be thinned; all must be cut; any left, as are the hemlock and until recently the cedar, are broken by the falling of their neighbours or blown down when their neighbours are gone.

"The mountain sides have deep canyons and the foothills are steep. Methods of forestry adapted to eastern timber areas are useless here, as are eastern methods of logging.

"The first efforts to handle this timber were those of building 'skid roads' up the gulches, cutting the timber into eastern lengths, twelve to twenty-four feet, and then with six yokes of oxen the logs were hauled, one at a time, to the water. In those days there was no demand for cedar or hemlock, and both were left in the woods. Neither offered the percentage of clear the fir and spruce offered; therefore why waste time on the low grades? The supply looked inexhaustible; standing timber had little value; butt cuts of the hemlock sometimes sank; customers wanted only fir and spruce; red-wood furnished shingles. Why, then, use low grades or hemlock?

"On these old chopplings all hemlock, cedar, low grade fir and low grade spruce trees, all broken cuts, all butts with centre decay, all trees with 'conchs'—indicating rot—all stubs or dead trees with loose bark, all tops from the clear trunk up, 50 to 150 feet in length, 20 to 60 inches in diameter—all these were left in the woods.

"As if fearful of taking too much of the forest to the mill the timber fellers vie with each other to place their chopping boards higher and many a stump, sixteen to twenty feet in height, marks the success of their efforts.

"The aggregate of this waste reached over 60 per cent. of the forest and left the ground covered with tops, broken timber and brush, many feet in thickness. To this, when dry, fire was set. The fire killed all timber left standing, burned the young trees and the hemlock seeded the ground. Later the dead hemlock fell, and a few years after the first fire a second, or even a third, went over the ground and the hemlocks were no more; only tops and trunks and a desolate waste were left; then the ferns and blackberry vines, as if to hide the shame, spread over all their mantle of verdure.

"In this way and by fire in green timber townships of land, valuable only for the timber crop, have become worthless wastes; where young forests should be growing to keep good our timber areas charred trunks were piled on trunks, under a tangle of vines.

"Times have changed somewhat. Steam skidders for yarding and steam road engines for hauling have replaced the bull team. The railroad is fast replacing the river.

"Cedar has become the most valuable of our woods and hemlock is found to be our most beautiful interior finish. Standing timber has a greater value and is cut closer, but enormous tops and most of the hemlock are still left in the woods. Logs with no clear cannot be handled at the present price of lumber without loss; the percentage of the crop now saved is increased, but 40 per cent. is still wasted, nor is this the worst. These chippings, with their continuous piles of tinder, are ready to flash into flame from a spark or a match, and when conditions are right they burn with a heat so intense it reaches to adjoining green trees and they, burning like torches, create a whirlwind that, with the roar of an avalanche, twists the tops from the trunks.

"As before stated the application of any method of forest perpetuation adapted to eastern woods is impossible, yet most of the country where these forests grow is valuable only for a timber crop and could it be reached with fir and spruce when cut, and fire kept out, at the end of 50 years could be harvested a second crop of from 50,000 to 100,000 feet an acre. The things necessary to accomplish that end appear at present almost impossible. They are, first, that all timber growing on the land be cut; second, that all timber be removed; third, that all left be burned; fourth, that the seed of the timber wanted be sowed in the ashes. After this shall be done the danger of fire is so small it need not be considered."

If the suggestions offered by Col. Emerson for the perpetuation of the forests could be carried out in British Columbia the lumber industry would be made permanent, but up to the present little attention has been given to the subject of forestry, although a branch of the Canadian Forestry Association has been formed, under the presidency of Sir Henri Joly de Lotbinière, Lieutenant-Governor of British Columbia, who has devoted much study to this important branch of economic science.

MARKETS.

For many years the principal outlet for British Columbia lumber was the foreign market, and for a long time, owing to competition and our distance from the market, high freights and other causes, the lumber industry remained depressed. In most instances the lumber mills were selling at a low margin of profit, and their operations were productive of the single result of "turning over capital," thus keeping labour employed and preventing undue depreciation of plant. Local demand, owing to the rapid and substantial development of the Province, has always been large, but on account of the number of mills in operation, competition was keen and prices were low. Manufacturing establishments, such as planing and sash and door factories and shingle mills, did better usually than sawmills.

The future of the lumber industry in British Columbia, however, is very promising. Several causes have recently operated favourably, and the industry as a whole has greatly revived. As the result of the return of general prosperity, both local and foreign demand has materially increased. The most important factor, however, is the filling up of Manitoba and the Territories with settlers. That and the prosperity enjoyed in the prairie country through a series of successful wheat crops, have created a great market for lumber and the manufactures of lumber there, and to supply that demand our lumbermen are in the most favourable position. Recently the price of rough lumber increased \$5 per thousand, while a good market for shingles, heavy timbers and all classes of lumber has been found in Eastern Canada. In fact, the shingle industry during the past two or three years has been experiencing a "boom." Facilities for

shipment will be increased by the building of the proposed one or two new transcontinental lines to the Coast, and by the completion of a canal across the Isthmus of Panama.

As it stands at present, the Province will be the last resort of the lumberman on this continent, and those who own timber limits will reap rich harvests. Perhaps not the least remunerative will be the by-products, and particularly that of pulp, dealt with elsewhere.

Another possible opening for the timber industry is afforded by the greatly increased demand in Great Britain and elsewhere for wood blocks for pavements.

A bulletin by the Bureau of Provincial Information was issued last year as the result of investigations made through the office of the Agent-General in London, Eng., as to the extent of this market in Great Britain. One extract from the bulletin in question synopsis the results as follows :

As nearly as can be determined, there were used last year in the 55 cities in Great Britain and Ireland from which returns were received 30,350,000 wood blocks, valued at about \$1,500,000. It would, therefore, be safe to compute that the annual value of the market in wood blocks in the United Kingdom is \$2,000,000.

PROSPECTS.

The lumbermen of British Columbia are very hopeful of a prosperous season (1905), and would consider it assured if the Dominion Government would accede to their request to put a duty of \$2 per thousand on rough lumber imported from the United States. The imposition of this duty, the lumbermen claim, would do no more than place them on an equal footing with their rivals of the United States, and would insure a great increase in production and consumption of British Columbia lumber. Meantime several of the big lumber companies are enlarging their plants, and logging is being actively carried on to provide for the increased cut. One Vancouver mill is doubling its capacity, at a cost of \$150,000. Capitalists from Eastern Canada and the United States are reported to be investing largely in timber limits on the coast and in the interior. The cut of the Kootenay mills for 1905 is estimated at 80,000,000, and it is understood that mills in all parts of the Province will turn out at least an average cut.

Exact figures as to the amount of capital invested in lumbering in British Columbia are hard to obtain, but a conservative estimate places the aggregate at \$4,250,000, represented by mills, logging plants, logging railways, tug boats, &c., and exclusive of the value of lands purchased and leased as timber limits, which would total at least \$1,500,000 more.

FOREIGN COMPETITION.

During the eleven months ending November 30th, 1904, there was shipped *via* the Canadian Pacific Railway from points in the State of Washington 1,818 cars of lumber and 603 cars of shingles, the bulk of which was billed to points in Manitoba and the Territories, where it was sold in competition with British Columbia lumber. A large quantity of lumber, shingles and lathes was also exported to Manitoba and the Territories *via* the Great Northern and the Northern Pacific Railways. It is impossible to obtain even approximate figures of these shipments, but they may be safely estimated in each case as equal to those made *via* the Canadian Pacific Railway. The total shipments

from Washington *via* the Northern Pacific in 1904 aggregated 30,551 cars of lumber and 22,689 cars of shingles; *via* the Great Northern, 11,474 cars of lumber and 12,866 cars of shingles.

THE LUMBER CUT.

TIMBER STATEMENT.

Statistics of the timber and lumber industry are not available prior to the year 1888, when the reports of the Inspector of Forestry began to be published. Since that time a very complete annual statement has been included in the report of the Chief Commissioner of Lands and Works. However, a careful estimate of the cut of timber in the Province since the commencement of the industry, made from available data in various years, gives the following results: To 1871, 250,000,000 feet; from 1871 to 1888, 595,000,000 feet; from 1888 to 1904, inclusive, 2,569,759,262 feet, or in the aggregate 3,414,759,262 feet. If we add to the above the amount of lumber manufactured on Dominion Government lands, and that cut from private lands concerning which there is no official record, the total will be very materially increased.

In reference to the following table, it will be observed that the number of mills varies greatly from year to year. This arises from the fact that there is a number of small mills, many of them portable, which shift from place to place, some years being included in the statistics and some years being omitted.

Year.	No. Mills.	Daily Capacity. Feet.	Acreage Under Lease.	Lumber Cut. Feet	Total Net Revenue.
1888.....	25	769,000	135,063	31,868,884	
1889.....	30	1,089,000	179,224	43,852,138	
1890.....	41	1,343,000	225,526	78,177,055	
1891.....	57	1,786,000	273,428	88,108,335	
1892.....	57	1,752,000	376,122	64,186,820	
1893.....	60	1,785,000	496,956	60,587,360	
1894.....	66	1,786,000	524,573	64,498,227	
1895.....	77	1,815,000	495,346	112,884,640	
1896.....	85	1,903,000	496,746	112,947,160	
1897.....	90	1,805,000	502,617	105,939,397	\$ 97,294 94
1898.....	45	1,576,000	493,172	124,546,658	106,104 29
1899.....	45	1,506,000	491,649	217,085,656	116,559 56
1900.....	35	1,742,000	476,297	276,236,470	145,766 78
1901.....	32	1,412,000	430,697	241,311,709	148,980 49
1902*.....	105	1,904,000	453,251	281,945,866	215,275 25
1903.....	107	1,682,000	587,845	317,551,151	347,004 59
1904.....	108	1,873,000	703,433	325,271,568	416,276 40
1904.....	17	755,000	.....	22,760,222	
Total for 1904				348,031,790	
Grand total				2,569,759,262	

* Includes 62 small mills. Statistics cannot be obtained showing daily capacity of all these.

The lumber cut of 1904, according to the report of the Department of Lands and Works, aggregated 325,271,568 feet, cut off 703,433 acres under lease from the Provincial Government; but in addition to this there was cut on Dominion lands within the Canadian Pacific Railway Belt 22,760,222 feet, the product of 17 mills out of 27 which manufactured timber cut on these limits. Ten of these mills did not operate during the season of 1904, owing to the flooding of the Territorial and Manitoba markets with free lumber from the United States. Despite this drawback, however, it will be seen that the cut of 1904 considerably exceeds that of any former year, the figures standing thus: Cut on Provincial lands, 325,271,568 feet; cut on Dominion lands, 22,760,222 feet. Total, 348,031,790 feet.

TIMBER CUT IN RAILWAY BELT.

The following is a statement showing the total quantity of lumber manufactured from timber cut within the railway belt in the Province of British Columbia from the year 1886 to the present time :—

Year.	Feet.	Year.	Feet.
1886—Lumber	18,266,433	1898—Figures not published.	
1887—Lumber	11,205,478	1899—Lumber	27,076,624
1887—Shingles	137,000	1899—Shingles	783,000
1888—Lumber	24,436,895	1899—Laths	364,900
1889—Lumber	23,759,942	1900—Lumber	29,684,003
1890—Lumber	13,546,943	1900—Shingles	4,404,250
1891—Lumber	30,507,439	1900—Laths	344,700
1892—Lumber	20,062,680	1901—Lumber	32,877,216
1893—Lumber	16,089,067	1901—Shingles	*5,233
1894—Lumber	14,475,717	1901—Laths	323,500
1895—Lumber	10,042,087	1902—Lumber	33,363,844
1896—Lumber	13,712,594	1902—Shingles	*5,568
1897—Lumber	15,254,503	1902—Laths	1,371,100
1897—Shingles	217,616	1902—Railway ties	214,588
1897—Laths	62,000	1904—Lumber	22,760,222
		*Cords.	

LUMBER SHIPMENTS.

CARGO SHIPMENTS.

The following is a comparison of the cargo shipments made from British Columbia during the years 1904 and 1903, all of which went foreign :—

	Lumber.		Lath.	
	1904.	1903.	1904.	1903.
January	5,362,536	4,651,833	359,460	10,080
February	2,689,436	4,469,820	124,740	.....
March	5,010,225	4,251,794	300,060	.....
April	2,935,809	6,530,485	360,000	.....
May	1,957,871	7,832,418	.....	361,620
June	4,414,759	3,487,184	.....	150,120
July	1,944,424	3,844,523	.....	453,420
August	4,349,434	5,580,942	.....	615,690
September	2,779,373	2,946,516	.....	.....
October	4,587,419	5,482,489	50,300	375,030
November	2,222,531	4,242,591	62,000	306,000
December	4,315,765	4,513,449	50,000	.....
Total	38,220,148	52,263,105	1,306,569	1,676,270

For the five months ending May, 1905, the foreign shipments were :—

	Lumber.	Lath.
January	3,435,874	50,000
February	4,675,179	50,000
March	3,023,935	.....
April	5,840,267	50,000
May	1,705,968	.....
Total	18,681,223	150,000

FELLING BIG TREE.

FELLING BIG TREE.

Cargo shipments January, February, March, April and May, 1905 :—

		Lumber, Ft.	Lath.
Sh. Poltalloch,	Chemainus Melbourne	1,791,309	.....
Bk. Guerveur,	" London	1,473,321	.....
SS. Aorangi,	Vancouver Suva, Fiji	35,013	.....
"	" Sydney	21,250	.....
"	" Dunedin . . . . .	.....	50,000
SS. Keemun,	" Hong Kong	50,039	.....
"	" Hamburg	164,690	.....
Bk. Osterbek,	" Callao, Peru	1,373,573	.....
SS. Miowera,	" Sydney	20,000	.....
"	" Dunedin . . . . .	.....	50,000
"	" Suva	39,294	.....
SS. Peleus,	" Yokohama	24,345	.....
Schr. Wilbert L. Smith,	" Osaka	922,934	.....
Bk. Connby of Dumfries,	" London	1,304,632	.....
Bk. Nelson,	" River Tyne, England	890,653	.....
Br. Bk. Inveramsay,	Chemainus Melbourne	1,262,008	.....
Br. Sh. Bedford,	Hastings Algoa Bay	1,665,325	.....
Br. Bk. Haddon Hall,	Vancouver Iquique	1,168,002	.....
Am. Bk. Autofogasta,	Chemainus W. Coast S. America	768,828	.....
Am. Sch. Winslow,	Vancouver Nagasaki	706,962	.....
Br. SS. Miowera,	" Dunedin, N. Z. . . . .	.....	.....
Br. SS. Oanfa,	" Yokohama	34,873	.....
"	" Devonport, Eng.	135,725	.....
Br. SS. Empress of China,	" Yokohama	19,233	.....
German Sh. Neck,	Hastings Cork	1,744,609	.....
Br. SS. Manuka,	Vancouver Sydney	173,621	.....
" Telemachus,	" Orient	71,324	.....
" Tartar,	" Kobe	26,255	.....
" Moana,	" Sydney	40,000	.....
" Tydeus,	" Hong Kong	31,575	.....
Br. Sh. Nordsbjernen,	" Queensboro, Eng.	1,263,035	.....
" Belford,	" E. London, S. Africa	501,933	.....
" "	" Algoa Bay	1,163,392	.....
Br. SS. Aorangi,	" Sydney	25,000	.....

SHIPMENTS BY RAIL.

Following are the shipments of lumber on the Pacific Division of the Canadian Pacific Railway during 1904 (exclusive of the Crow's Nest Pass branches and points south of Arrowhead) :—

To Coast points	832 tons.
" United States	654 "
" Local points	9,530 "
" Territories	102,618 "
" Eastern points	6,127 "
	<hr/> 119,761 tons.

Statement of lumber shipped from the under-mentioned stations on the Crow's Nest and Kootenay sections of the Canadian Pacific Railway during the year 1904 :—

Crow's Nest	1,674 tons.
Fernie	6,321 "
Morrissey	735 "
Jaffray	2,729 "
Wardner	18,002 "

Carried forward 29,461 " 119,761 tons.

<i>Brought forward</i>	29,461 tons.	119,761 tons.
Fort Steele	4,200 "	
Cranbrook	27,872 "	
Marysville	4,779 "	
Moyie	8,168 "	
Ryan	2,643 "	
Nelson	8,395 "	
Castlegar Junction	4,848 "	
Cascade	2,376 "	
Grand Forks	5,311 "	
Winlaw	3,228 "	
Slocan City	466 "	
Rossland	1,186 "	
Sandon	1 "	
Rosebery	1,236 "	
Nakusp	4,956 "	
Kaslo	2 "	
Lardo	30 "	
Enterprise	1,943 "	
		111,101 tons.
Total	230,862 "	

Fixing the average tonnage per car-load at 20 tons, the above total would be equivalent to 11,543 car-loads.

PULP AND PAPER.

ONE of the most promising hopes which the future holds out to British Columbia is the creation of a great paper pulp and paper-making industry. Possessing as she does her full share of the immense timber reserve of Canada, her geographical position gives her a prominent position over her sister Provinces; for vast as are their forest areas, these are all more or less distant from tide-water, while her pulp-wood forests border the ocean or the numerous navigable streams, which furnish easy and cheap communication with deep water harbours. With transportation charges at a minimum and an unlimited supply of raw material, of the very finest quality, British Columbia should be in a position to supply the greater half of the world with wood pulp, or, better still, with paper of every grade and quality and in every form in which paper is used in the industrial arts. While the pulp and paper mills of the Eastern Provinces may find markets in the Eastern States and Europe, British Columbia should stand without a rival in the rapidly developing marts of Asia and Australasia. In his admirable little work, "Pulp Wood of Canada," George Johnson, F. S. S., says:—

"EGYPT AND CANADA.—The first was the land of the early paper plant; the second is the country of the latest paper tree.

"Egypt was the land of the papyrus, from which the ancient dwellers on the banks of the Nile obtained the material on which to write those well nigh imperishable records which, three thousand years after they were stored away, have been produced from their hiding places looking as fresh with their cuttle-fish ink as though indited but yesterday.

"In modern times we have reverted to the ways of our ancestors and have gone back to the arboreal growth for the supply of paper to meet the world's marvellous demands.

"The banks of the Nile were the early store-house of the paper supply. The beech groves of Germany and of England succeeded Egypt. Then towards the close of the 19th century came the opening up of the Canadian spruce forests.

"The slopes of the St. Lawrence, the St. Maurice, the Ottawa, the St. John, the Ste. Marie, the Fraser and the Qu'Appelle rivers are substituted for the Nile and the rivers of Europe. The eyes of commerce turn to the New World with confidence that there need not be a famine of paper while the spruce flourishes in Canada.

"The centuries of the Pyramid-builders and the 20th century—the latest born—salute each other within the shades of Canadian forests.

"Through the experiments of a student, working in the quiet of a German laboratory, untold millions have been added to the wealth of Canada.

"At what time in the world's history paper began to be used is a question surrounded with obscurity.

"The Chinese appear to have employed the wood of the cotton plant reduced to a pulp in the manufacture of their paper. The first rude efforts in other parts of Asia to secure a material suitable for the purposes of man, as a record of his thoughts and transactions, can be traced beyond the Christian era back to the second century, B. C.

"When the Arabs captured Samarcand, 704 A. D., they found the people skilled in the manufacture of paper from cotton and, learning the art, rapidly disseminated the knowledge throughout their empire.

"By the 14th century paper-making had become a recognised European industry

"At first Italy became the centre of the paper-making industry. Then Germany began to build factories after 1320 A. D. France secured her knowledge of paper-making from Spain late in the 12th century, the early paper being made of cotton.

"By the 14th century paper was not uncommon in England.

"At first paper was made entirely by hand. Then, as in the history of most manufactures, machinery was invented for the more rapid preparation; then came the division into writing paper, printing paper and wrapping paper, cotton rags being still the chief source of the material from which paper was made.

"The demand becoming greater than the supply, the wit of man became actively engaged in finding material from other plants possessed of the necessary fibre. The cotton plant, the papyrus and the palm, flax and some other members of the vegetable kingdom had been employed. But still the demands for paper were inexorable and constantly enlarging.

"Every zone was searched for suitable material. It was thought that in Esparto grass the requisite material had been discovered, and for years Esparto, treated after a somewhat similar fashion as rags, was extensively used.

"Straw, de gras from Northern Africa, the leaves of the dwarf palm, sugar cane refuse, the stalks of the hop plant, nettles, the American thistle, peat and other articles have been successively or simultaneously experimented with in the hope of securing an ideal paper.

"Bamboo cane has also been made the subject of experimentation.

"Naturally those who were in search of a good material for the manufacture of fibre, reverting to the early employment of the palm tree for the purpose, began to experiment on other wood fibres.

"In the year 1845, Keller took out a patent in Saxony for a process of manufacturing paper from ground wood. Before that date its pre-industrial history is known only to the chemist. After that date many improvements were made in the machinery and methods used in grinding, the main object being to produce a longer and finer fibre.

"Business men soon began to realise that the students were on the right track. The chemists thus encouraged, made a series of experiments to ascertain the best commercial way of reducing wood to a fibre capable of being made into paper. As a result of their investigations two methods have been selected, (1) mechanical treatment and (2) chemical treatment.

"Practically by the mechanical treatment, which consists of grinding up the wood under water, a pulp has been obtained which answers for the inferior kind of paper.

"But something more was wanted. Mechanical pulp is used chiefly as an adjunct in the manufacture of news and wall papers and printings, but there are several distinct classes of paper made from mechanical pulp without any other ingredient. Wood-pulp boards are also made from mechanical pulp chiefly for the purpose of making paper boxes.

"Chemical pulp is used as an adjunct with Esparto, rags or mechanical pulp in the manufacture of news, printing, colours and some kinds of wrapping paper.

"By combining chemical pulp and mechanical pulp in the proportion of about 50 or 40 per cent. of the former a good paper results such as can be used with success for most of the purposes for which paper is needed.

"But complete success had not even yet been reached. The practical operations connected with the manufacture of pulp from wood by the caustic soda process—such as barking, sawing, chopping, crushing, boiling or digesting, washing and bleaching and soda recovery—had not, even in combination with pulp partly made of wood by mechanical means and partly made of rags, etc., produced the ideal paper.

"The world was ransacked for the proper wood. All the earlier efforts at wood-pulp making had been confined to pine wood and to poplar wood. Experiments were also made with the wood of the willow, bass, cedar, hemlock, maple and birch. Experiments were further made with trees of various ages, and in this respect it was found that for chemical pulp trees on an average of twenty years old were the best, the younger growth producing fibre of inferior quality.

"The different kinds of wood suitable for the manufacture of pulp are white and black spruce, Canada balsam, poplar, aspen and pine; spruce and balsam being the most valuable on account of the special quality of their fibre, and also on account of their colour. These comparatively soft woods are easily ground. Poplar and aspen have the same quality but they are faulty on account of knots and black veins, which spoil the colour of the paper. Pine which, in the earlier stages of the development of the wood-pulp, was used in far the greatest proportion, is now used only in the manufacture of chemical pulp. It gives a good pulp but the process required to bleach is somewhat expensive. Besides the wood is too highly priced to be used profitably in the manufacture of paper. With the low rates that have ruled for paper for some years pulp manufacturers require wood of small value if it can be obtained without the sacrifice of length of fibre.

LOGGING RAILWAY.

"When, therefore, the chemist hit upon spruce and balsam and found them suitable in every respect for the production of the ideal cheap paper, and commercial men realised that these woods were comparatively cheap, quick of growth and well located for the needs of commerce—the world knew that at length, after all the centuries of seeking, the right paper, meeting all requirements, had been invented.

"It was soon learned that the material could be utilised for the manufacture of many other articles besides paper of various kinds, such as news, printing, writing, wrapping, millboard, etc. Among these are pails, dishes and other hollow ware, paper parchment, cotton wool for hospital dressings, cotton yarn and cloth, silk yarn and fabrics, cigar boxes, medals, cornices, panels and other architectural details, picture frames, car wheels, steam pipes, water pipes, telegraph poles, electric conduits, roofing material, coffins, boats, cigar-holders, carpets, mattresses, lead pencils, artificial straw, shoe heels, vases and ornaments, furniture, horse-shoes, spools and bobbins, tool handles, buttons, cycle bar handles, fruit cans, hats, pinions for machinery, pulleys, letters for signs, substitutes for building stones and for boards, piano cases, tiles, paving bricks, fibre chamois, etc. It has also been used for encasing broken arms and legs."

THE RAW MATERIAL.

Along the coast-line of the Mainland of British Columbia and Vancouver Island practically inexhaustible areas of pulp woods can be found. South of Knight's Inlet the most abundant wood is the Douglas fir, which is successfully used for the manufacture of chemical pulp. Its suitability for mechanical pulp is not so certain. North of Knight's Inlet is the spruce and hemlock belt, affording enormous supplies of excellent pulp-wood—the Sitka spruce especially being unexcelled by any other wood for pulp purposes. These woods cover large tracts immediately contiguous to the sea-coast, so that logs can be landed at the mills at very low cost.

An important point in favour of the industries on the sea-coast of British Columbia is the mildness of the winters, which admits of operations being carried on throughout the whole year. The forests of this Province are much more densely wooded than those of Eastern Canada, 500 cords per acre being not uncommon, while from 100 to 150 cords may be taken as a fair average of good timber lands. With proper husbanding the forests are practically inexhaustible for pulp-wood purposes. This is essentially a timber country. Atmospheric conditions are especially favourable to tree growth, which is very rapid, and the extent of otherwise valueless country along the coast that can be devoted to forestry is enormous. Owing to its wealth of raw material, excellent water-powers and geographical position, British Columbia occupies a position of eminent advantage in competing for the pulp and paper trade of the Pacific. A practically unlimited market is afforded by Australia, Japan, China and the western coast of America—both North and South.

An important factor bearing upon the future of British Columbia as the centre of the pulp and paper trade of the Pacific is the rapid depletion of the forests of the United States, and it is confidently anticipated that the importation of Canadian pulp and pulp-wood to that country, already large, will continue to rapidly increase. In conclusion, there is no industry, not even mining itself, which gives greater promise of commercial value and general importance than that of the manufacture of wood pulp and paper in this Province.

A special feature of British Columbia timber areas is their density, the yield being greatly in excess of that obtainable from equal areas in Eastern Canada. The average cut in Ontario is about 10 cords per acre, while upon the lands secured by British Columbia pulp companies the estimated cut is over 100 cords per acre. This density enables logging to be carried on to great advantage, and it is estimated that the cost

of wood at the mills for many years will be at least one-third the average cost to Eastern United States mills. Cheap coal, of excellent quality, can be obtained from Nanaimo or Union, and shipments can be made directly by water to the mills.

PULP COMPANIES.

For many years the possibilities of British Columbia as a field for the manufacture of pulp and paper have been discussed in interested circles, and all available information as to natural conditions favourable to the industry and possible markets for the finished products has been collected and published by the Bureau of Provincial Information. As a result, the interest of prominent paper manufacturers has been enlisted, and with the hearsay knowledge of the extent of British Columbia's immense forests of pulp wood, intersected by numerous streams from which unlimited power can be generated, several companies have been organised, with the primary object of verifying the reports. The results of these investigations are so satisfactory that the companies are now proceeding to active work, and the establishment of a new and important industry seems certain. The Provincial Government gave encouragement to this industrial movement by granting the companies the right to prospect for and locate pulp wood areas and water powers, for which, after selection, leases were granted on special terms. The important preliminary work of surveying their limits, locating their water powers, devising means of transportation and locating their mill-sites, has kept the companies busy for many months, and it is only now (the spring of 1905) that some of them have advanced to the stage of beginning actual building operations.

The companies which have been granted concessions are: The Industrial Power Company, The Pacific Coast Power Company, The Cassiar Power and Industrial Company, The Oriental Power and Pulp Co., and the Quatsino Power and Pulp Company.

The Western Canada Pulp and Paper Company, which is a consolidation of some of the above-mentioned interests, has selected its lands and is prepared to begin active work. This company has also secured a site for its works near the mouth of Powell River, 80 miles north of the City of Vancouver, where there is an immense water power. A contract has been made by the company for the supply of 10,400 tons per annum of "news" paper to an English firm. The estimated output of the plant will include 18,000 tons of "news" paper and 7,500 tons of sulphite pulp per annum, besides 80,000 feet of lumber daily. The stock of the company is held in British Columbia and England, there being many prominent English paper-makers on the directorate, of which Mr. W. C. Ward, of London, is chairman.

Mr. J. M. Mackinnon, manager of the Oriental Power and Pulp Co., furnishes the Bureau of Provincial Information with the following report of progress:—

The company has completed all its surveys and leases have been granted by the Provincial Government for 83,200 acres of selected spruce, hemlock and balsam (or white fir) for pulp purposes. The company has also secured 640 acres at Swanson Bay, for a mill-site and other purposes. A water power sufficient to develop 15,000 h.-p. has also been acquired. Wharves, storehouses and all other necessary buildings have been constructed and are ready for the installation of machinery. This company proposes to build and equip a sulphite pulp mill, with a capacity of 40 tons daily of sulphite pulp, bleached and unbleached, and later on to instal a ground wood pulp mill and paper mill with a daily capacity of 100 tons of news print. The company's operations to date represent a cash outlay of \$100,000.

OUR CUSTOMERS.

The markets that can, with special facility, be supplied from British Columbia are: British Columbia, Japan, Australia, China, New Zealand, Hawaii, the Philippines, Western Coast of South America, Western Coast of Mexico, and Asiatic Russia.

The home market is a rapidly-growing one, and with the steady growth of population a correspondingly rapid increase of the requirements in the way of paper may reasonably be anticipated. The long distance from the Eastern mills and the freight rates makes competition from the East impossible.

Japan probably furnishes the greatest possibilities for the future, the yearly imports of paper averaging over \$2,000,000, and that of pulp to about \$600,000. Both the demand for pulp and paper in Japan is increasing very rapidly, and the pulp mills of this Province will be in the best possible position to supply it.

The Australian market is perhaps the most important at the present time. There are no suitable pulping woods on that continent, and no water-powers, so that Australia is almost wholly dependent upon outside sources for its supply of paper.

If preferential trade duties were arranged between Canada and Australia, as may be possible in the future, Canada (and British Columbia in particular) will occupy a position of great advantage as compared with other countries competing for this trade. It is to be noted that a considerable portion of the paper imported into Australia from Great Britain and the United States was manufactured from pulp shipped from Eastern Canada. The freight charges (and custom duties, in the case of the United States) on this must materially increase the cost, and can be entirely avoided by manufacturing the paper in British Columbia.

The advantage of geographical position possessed by British Columbia in competing for the Oriental and Australian trade is shown by the following table of distances:—

	From Vancouver. (Miles.)	From London. (Miles.)
Yokohama	4,283	12,186
Hong Kong	6,271	10,185
Shanghai	5,461	10,995
Brisbane	6,755	12,465
Sydney	7,265	12,558
Auckland	8,058	13,500

The local or British Columbia market amounts to about \$150,000 per annum in news and wrapping paper; while the North-West, as far as Winnipeg, would be practically reserved for British Columbia paper mills.

EXPORTS AND IMPORTS.

It will be observed from the following figures that Canada, with all her wealth of raw material and facilities for manufacture, is still dependent upon Great Britain and the United States for the bulk of her supply of paper, and that the greater proportion comes from the United States, which, in turn, draws a large percentage of its raw material from Canada, as will be seen in the tables of Exports of Pulp and Pulp Wood. With all her great natural advantages Canada should at least supply her home market with paper and paper products—it is only a question of the investment of capital and the employment of modern machinery, backed by adequate protection of the paper-making industry.

VALUE OF CANADIAN EXPORTS OF PAPER, 1903 AND 1904.

	1903.	1904.
To Great Britain	\$832,328	\$447,672
" United States	47,400	165,251
" Argentine	5,818	8,428
" Belgium	26,126	132
" British Africa	19,115	8,704
" Australia	345,655	383,443
" New Zealand	40,493	43,354
" British East Indies	60	277
" " Guiana	2,003	553
" " West Indies	10,952	13,392
" Brazil	7,701	5,440
" Chile	1,141	762
" Ecuador	1,241	1,029
" Newfoundland	42,452	50,403
" Peru	3,130	4,642
" Philippines	1,602	497
" St. Pierre	395	29
" Venezuela	1,209	2,130
" Cuban West Indies	3,288	550
" Other countries	1,053	10,386
Total	\$893,607	\$1,147,074

IMPORTS OF PAPER AND MANUFACTURES OF.

	1903.	1904.
From Great Britain.....	{ Dutiable..... \$ 403,127	{ \$ 503,143
	{ Free.....	{ 89
" United States	{ Dutiable..... 1,564,808	{ 1,953,132
	{ Free.....	{ 2,906
Other countries.....	{ Dutiable..... 142,429	{ 159,758
	{ Free.....	{ 5
Total	\$2,110,364	\$2,619,033

EXPORTS OF WALL PAPER, 1904.

To United States.....	16,340 rolls, \$ 2,100
" Australia	185,210 " 16,178
" British Africa	8,692 " 1,037
" New Zealand	188,135 " 19,424

VALUE OF CANADIAN WOOD PULP EXPORTED.

	1903.	1904.
To Great Britain	\$1,129,173	\$ 548,720
" United States	1,796,768	1,807,442
" Belgium	217,470	21,531
" Australia	719	1,367
" France	200	375
" Germany.....	25	
" Japan.....	7,588	21,065
" Other countries .....	.....	8,574
	\$3,150,943	\$2,409,074

VALUE OF CANADIAN PULP WOOD EXPORTED.

	1903.	1904.
To United States	\$1,558,560	\$1,788,049

WOOD PULP AND PULP BOARD.

Quantity and value of wood pulp exported to Great Britain in 1902:—

	Tons.	Value.	Average price per ton.
Chemical dry	10,219	\$370,889	\$36 29
Mechanical dry	2,253	42,535	18 88
" wet	81,351	824,511	10 13

BRUNETTE LUMBER MILLS.

Quantity and value of wood pulp board exported to Great Britain in 1902 :—

.....	63,617 cwt.	.....	\$114,746
Strawboard or millboard	3,297 "	.....	6,784
Unprinted paper.....	8,803 tons	.....	402,259

During seven months ending January, 1905, the United States imported wood pulp as follows :—

	Tons.	Value.
Canada.....	83,614	\$1,661,770
Germany	3,881	180,000
Other European countries.....	15,061	710,806
	<u>102,556</u>	<u>\$2,553,215</u>

Compared with the same period of 1904 the importations from Canada show an increase of 22,910 tons and \$602,002, while the German and other European importations show a decrease of 2,011 tons and \$15,845.

MARKETS FOR PAPER.

The following figures, showing the value of paper imported by various countries, are the latest available :—

BRITISH EMPIRE.

Singapore :

Paper and paper wares, 1902 \$1,370,754

Ceylon :

Paper, printing and writing, 1902 Rupees.
309,358

Seychelles :

Paper and writing materials, 1902 8,368

AUSTRALASIA.

New South Wales :

Paper, printing, wrapping, writing and envelopes, 1902..... £415,202

Victoria :

Paper, printing and writing, 1902, 271,774 cwt 222,419

South Australia :

Paper, printing and wrapping, 1902..... 37,917

West Australia :

Paper, all kinds, 1902 68,069

Tasmania :

Paper, all kinds, 1902 23,582

Queensland :

Paper, all kinds, 1902 116,890

New Zealand :

Paper, writing, 11,572 cwt.; * printing, 117,128 cwt 128,490

Importations of paper into Australia and New Zealand from Great Britain in 1903 totalled \$430,200, and from Canada, \$386,593 in 1903, and \$426,897 in 1904.

Bermuda :

Paper and stationery, 1902..... £5,356

Jamaica :

Paper and stationery, 1903..... 26,374

* Of this Canada supplied 3,594 cwt., valued at £3,189.

Barbadoes :	
Paper and stationery, 1902.....	6,865
Leeward Islands :	
Paper and stationery, 1902.....	2,254
Trinidad and Tobago :	
Paper and stationery, 1903.	18,485
St. Vincent :	
Paper and stationery, 1902	587
Grenada :	
Paper and stationery, 1902.....	1,538
British Guiana :	
Paper and stationery, 1903.	\$ 66,460
Penang :	
Paper, all kinds, 1903	706,163
Mauritius :	
Stationery, 1902	Rupees. 109,134
Selangor :	
Stationery, 1902	\$ 46,283

FOREIGN COUNTRIES.

Japan :	
Paper, all kinds :	
From Great Britain, 1903	(\$269,462.70) £55,445
" United States, 1902	\$ 187,860
" Germany, 1903	431,188
" Belgium, 1903	500,055
" France, 1903.....	14,316
Total imports of paper, 1901.....	1,608,426
" " 1902.....	2,473,934
" " 1903.....	2,427,712
Paper pulp :	
From Austria-Hungary, 1903	841
" Belgium, 1901	2,562
" Canada, 1903	* 1,694
" Germany, 1903	217,302
" Great Britain, 1903	40,208
" Russia, 1902.....	2,488
" Sweden and Norway, 1903	23,603
" Switzerland, 1901	1,159
" United States, 1903	29,904
Total average importation for three years.....	598,893

The importation for 1903 shows an increase of \$262,082 over 1902 and \$421,549 over 1901.

* The Department of Trade and Commerce, Ottawa, gives the value of pulp exported to Japan in 1903 at \$7,588, but the great difference in the figures may be accounted for, as considerable Canadian freight for Japan is billed over United States railways and shipped *via* San Francisco. A still greater discrepancy appears in the figures for the United States-Japanese returns, giving the importations for 1903 at \$29,904, while the United States claims to have exported to Japan only \$14,759 worth in that year.

The war has given a stimulus to the paper trade of Japan, as all the newspapers publish many extras and special editions, thus creating an abnormal demand for printing paper. The Japanese are building up a considerable paper trade with China, especially with the northern provinces, as they have studied the requirements of the country and are meeting them by manufacturing just what is wanted. The Chinese paper mills of Southern China produce a good quality of paper, but it is made from bamboo and is so expensive to manufacture that it cannot compete with the cheaper products of the Japanese mills. Another advantage possessed by Japanese paper-makers over those of Southern China is the cheaper freight rates, as it takes less to ship from Kobe and Osaka to interior Chinese points than from Shanghai. It is expected that when the proposed plan of establishing primary and graded schools throughout the Chinese Empire is carried out, the demand for paper will be very great, as many millions of text-books will be required. Germany is already in the field competing with Japan for a share of this trade and preparing the way for operations in the enlarged field which is promised on the restoration of peace. The Germans have succeeded in producing excellent imitations of Japanese paper and are competing with the native mills in certain lines. Japan's exports of paper to China in 1903 aggregated in value \$460,725.

There are 82 paper factories in Japan, employing 5,026 persons; the value of paper produced in 1902 was \$10,654,847.

KOREA.

Paper.—Average imports for six years, \$31,448.

There are few countries in which paper is used so largely as Korea. The floors, walls and ceilings of the houses are paper, the windows are of semi-transparent paper, and hats, umbrellas, raincoats, trunks, fans, tobacco pouches, and hundreds of other articles of everyday use are made of paper. The Koreans make a paper, famed for its toughness and durability, from the inner bark of the mulberry, mixed—for the coarser qualities—with rags and old paper, and sized with a gum extracted from takpool, or starch grass. Whole communities engage in paper-making, which is carried on often by the most primitive methods. The paper produced is of excellent quality, but very much off colour, even in the finer grades.

HAWAII.

The annual importation of paper averages in value about \$10,000, all supplied by the United States.

CHINA.

Paper, all kinds—

From Great Britain, 1903.....	£45,126 =	\$219,313
" United States, 1902.....		59,130
" Japan, 1904.....		460,000
Total imports of paper, 1903.....	3,496,366 taels =	\$2,237,674

MEXICO.

Paper, all kinds—

From United States, 1902.....	\$450,778
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PERU.

Paper, all kinds—

From Great Britain, 1903.....	£2,534
" United States, 1902.....	\$34,339
" Canada, 1903.....	3,130
" " 1904.....	4,642

CHILE.

Paper, all kinds—

From Great Britain,	1903	£17,710
" United States,	1902	\$ 98,852
" Germany,	1901	1,787,677
" Canada,	1903.	1,141
" "	1904.	762

SENEGAL.

Paper, all kinds—

From France,	1903	£11,187
" Great Britain,	"	460
" Germany,	"	33
" Other countries,	"	154

TIMBER REGULATIONS.

[*Extracts from the Land Act.*]

LEASES.

41. (1.) Leases (containing such covenants and conditions as may be thought advisable) of Crown lands may be granted by the Chief Commissioner of Lands and Works for the following purposes :—

(a.) For the purposes of cutting hay thereon, for a term of not exceeding ten years :

(b.) For any purpose whatsoever, except cutting hay as aforesaid, for a term not exceeding twenty-one years. 1901, c. 30, s. 6.

(2.) Any person desirous of procuring a lease for any of the purposes referred to above shall, before entering into possession of the particular part of said lands he or they may wish to acquire, place at one angle or corner of the land to be applied for a stake or post at least four inches square, and standing not less than four feet above the surface of the ground, and upon such initial post he shall inscribe his name, and the angle represented thereby, thus: "A. B.'s N. E. corner" (meaning north-east corner), or as the case may be, and shall cause a written or printed notice of his intention to apply for such lease to be posted on some conspicuous part of the land applied for by him, and on the Government Office, if any, in the district, for thirty clear days. He shall also publish a notice of his intention to apply for such lease thirty days in the British Columbia Gazette, and in some newspaper published and circulating in the district where such land is situate, or, in the absence of such newspaper, in the one nearest thereto :

(3.) After the expiration of the thirty days notice, and within two months from the date of its first publication in the British Columbia Gazette, he shall make application in writing to the Chief Commissioner of Lands and Works for a lease over such land, Such application shall be in duplicate, and shall be illustrated by plans and diagrams showing approximately the position thereof and shall give the best practicable written description of the plot of land over which the privilege is sought. The Chief Commissioner of Lands and Works may, if there appears to be no valid objection, give notice to such applicant that a lease will issue as desired, provided the applicant has the land surveyed in a legal manner within six months from the date of such notification :

(4.) The Lieutenant-Governor in Council may grant leases of Crown lands which have been subdivided by survey into lots not exceeding twenty acres in extent to any of Her Majesty's subjects, for the purpose of bonâ fide personal occupation and cultivation, upon such terms and conditions as may be deemed advisable. No person shall be entitled to hold more than one lot under such lease. Leases granted under authority of this clause shall contain conditions binding the lessee to build a dwelling-house during the first year of tenancy, and to settle upon, occupy, and cultivate the land within the meaning of the "Land Act," and such other conditions as may be approved by the

Lieutenant-Governor in Council. Such lease shall also contain a covenant providing that the lessee shall, at the expiration of the term of the lease, be entitled to a Crown grant of land so leased, provided that all conditions and stipulations of the lease have been faithfully fulfilled. 1901, c. 30, s. 6; 1903, c. 15, s. 2; 1903-4, c. 30, s. 2.

41A. Notwithstanding anything contained in chapter 30 of the Statutes of 1903-4, the powers and discretion of the Crown and the just rights and privileges of those persons who in good faith have complied with the provisions of the sections of the "Land Act" relating to pulp leases shall be preserved. 1903-4, c. 30, s. 18.

42. (1.) Leases of unpre-empted Crown timber lands may be offered to public competition, and may be granted by the Lieutenant-Governor in Council to the person or corporation who has tendered the highest cash bonus for a period not to exceed twenty-one years, for the purpose of cutting spars, timber or lumber, subject to the payment of a royalty of fifty cents per thousand feet on the scale measurement of the logs cut on the leased premises, and to the payment in advance of an annual rental of twenty-five cents per acre: Provided, that when the lessee shall be the owner of a properly equipped saw-mill appurtenant to the leasehold and capable of cutting not less than one thousand feet of lumber in inch boards per day of twelve hours for each and every four hundred acres of land included in each lease, and shall keep such saw-mill running for at least six months in every year, cutting not less than the said capacity, the annual rental shall be reduced to fifteen cents per acre: Provided further, that if such saw-mill shall not be kept running for at least six months in every year, cutting not less than the said capacity, unless the Lieutenant-Governor in Council, on account of poor markets or other good reasons to be specified, excuse the said lessee from running the said mill for the whole or any part of the said period of six months in each year, it shall be lawful for the Lieutenant-Governor in Council to cancel such lease, but such cancellation shall not affect the right of the Crown to collect all royalties and rent payable up to the time of such cancellation. 1903-4, c. 30, s. 3.

(2.) *Repealed 1903-4, c. 30, s. 3.*

(3.) All leases of unsurveyed and unpre-empted Crown timber lands, which have been granted for a period of twenty-one years, may be renewed for consecutive and successive periods of twenty-one years, subject to such terms, conditions, royalties and ground rents as may be in force by Statute at the time of the expiration of such respective leases: Provided that such renewal is applied for within one year previous to the expiration of the then existing lease; and provided that all arrears of royalties, ground rents and other charges are first fully paid:

All existing leases of Crown timber limits which have been granted previous to the passage of this section of the "Land Act," and now in force, may be renewed for consecutive and successive periods of twenty-one years, provided that such existing leases shall be surrendered within one year from the date of the enactment of this section:

And it is further enacted that such leases may be renewed for the unexpired portion of the term mentioned in the leases to be surrendered, on the same terms, conditions, rents and royalties as so specified in the said leases to be surrendered; the remainder of the term of twenty-one years for which the said leases shall be renewed on surrender shall be subject to such terms, conditions, royalties and ground rents as may be in force by Statute at the time the existing leases, surrendered under the conditions of this section, would expire:

All timber cut from Provincial lands must be manufactured within the confines of the Province of British Columbia, otherwise the timber so cut may be seized and forfeited to the Crown and the lease cancelled. 1901, c. 30, s. 7.

TIMBER LANDS.

48. It shall be unlawful for any person, without a licence in that behalf, to be granted as hereinafter mentioned, to cut, fell, or carry away any trees or timber upon or from any of the Crown lands of this Province. C. A. 1888, c. 66, s. 63; 1903-4, c. 30, s. 4.

49. Every person who shall violate the provisions of the preceding section shall, for each offence, be liable, upon summary conviction before any two Justices of the Peace or any Stipendiary or Police Magistrate, to a penalty of not less than five dollars nor more than five hundred dollars. C. A. 1888, c. 66, s. 64.

50. The Chief Commissioner of Lands and Works may grant licences, to be called special licences, to cut timber on Crown Lands at the rates by this Act imposed, and subject to such conditions, regulations and restrictions as may from time to time be established by the Lieutenant-Governor in Council, and of which notice may be given in the British Columbia Gazette. C. A. 1888, c. 66, s. 65; 1903-04, c. 30, s. 5.

51. Any person desirous of obtaining such special licence shall comply with the following provisions :—

- (a.) He shall first place at one angle or corner of the limit he wishes to acquire a stake or post at least four inches square and standing not less than four feet above the ground, and upon such stake or post he shall inscribe his name and the angle represented thereby, and shall post a notice thereon giving a description, in detail, of the length and direction of the boundary lines of the claim and date of location :
- (b.) He shall then publish for a period of thirty days in the British Columbia Gazette, and in any newspaper circulating in the district in which the lands lie, notice of his intention to apply for such licence, and shall in such notice give the best description of the land to be applied for, specifying metes and bounds, and such further particulars, if any, as may be required by the Chief Commissioner :
- (c.) Within thirty days after the last publication of the advertisement in the British Columbia Gazette, he shall make application for the licence, and such application shall be accompanied by a copy of the advertisement and a sketch or plan of the limit sought to be acquired, and a certified cheque for the amount of the licence fee. 1903-4, c. 30, s. 6.

52. In the event of any adverse claims being filed in writing with the Chief Commissioner, he may hear and decide upon the same or may appoint any other person to hear and report upon the same to him. 1903-4, c. 30, s. 7.

53. A special timber licence for logging purposes shall not be granted for a larger area than 640 acres of land, which shall be in one block bounded by straight lines drawn to the cardinal points, none of which lines shall be less than forty (40) chains in length, except in cases where such a length cannot be obtained. Such special licences may be granted for any period not exceeding five years, and the fees payable therefor shall be as follows :—

	West of the Cascade Range.	East of the Cascade Range and in the Electoral District of Atlin.
For each licence for one year	\$140	\$115
For each licence for two years	280	230
For each licence for three years	420	345
For each licence for four years	560	460
For each licence for five years ..	700	575

Payment for the whole period applied for shall be made, or the licence shall not issue. Such licence may be granted or renewed at the discretion of the Chief Commissioner, and shall be subject to such tax and royalty as may be by this Act or from time to time by any Act of the Legislature of the Province of British Columbia imposed. 1903-4, c. 30, s. 8.

54. The special licence shall vest in the holder thereof all rights of property whatsoever in all trees, timber, and lumber cut within the limits of the licence during the term thereof, whether the trees, timber, and lumber are cut by authority of the licensee, or by any other person with or without his consent, and such licence shall entitle the holder thereof to seize, in re-vindication or otherwise, such trees, timber, or lumber, where the same are found in the possession of any unauthorised person, and also to institute any action against any wrongful possessor or trespasser, and to prosecute all trespassers and other offenders to punishment, and to recover damages, if any; and all proceedings pending at the expiration of any licence may be continued to final termination, as if the licence had not expired. C. A. 1888, c. 66, s. 69.

55. In addition to the special licence authorised by section 50 of this Act, the Chief Commissioner may, upon payment of the sum of ten dollars therefor, grant a general licence to any person to cut timber upon Crown lands, not being timber limits, without any reservation as to area; but such licence shall be personal, and shall only grant authority to the person named therein to cut timber as a hand logger, and such licence shall be in force for one year from the date thereof, and no longer. C. A. 1888, c. 66, s. 70.

56. No timber licence shall be granted in respect of lands forming the site of an Indian settlement or reserve, and the Chief Commissioner may refuse to grant a licence in respect of any particular land if, in the opinion of the Lieutenant-Governor in Council, it is deemed expedient in the public interest so to do. C. A. 1888, c. 66, s. 71.

57. In addition to the royalty hereinafter reserved on all timber cut on timber leaseholds, there shall be paid annually, as ground rent, the sum of five cents per acre for each acre included in any timber lease which has been granted since the 31st day of December, 1879, and prior to the 28th day of April, 1888. C. A. 1888, c. 66, s. 72.

58. There is reserved to and for the use of Her Majesty, Her heirs and successors, a royalty of fifty cents for every thousand feet, board measure, upon and in respect of all timber suitable for spars, piles, saw logs, or railroad ties, props for mining purposes, shingle or other bolts of cedar, fir or spruce, and a royalty of twenty-five cents for every cord of other wood, cut upon Crown lands, patented lands, timber leaseholds, or timber limits, and upon any lands hereafter granted. Piles shall be measured by the running foot, and railway ties and props shall be measured by the cord; and for the purposes of this Act two hundred running feet of piles, or one cord of ties or props, shall be taken respectively as equal to one thousand feet board measure. 1896, c. 28, s. 2.

FALLS, KANAKA CREEK, MAPLE RIDGE.

(2.) There shall be due and payable to His Majesty, His heirs and successors, a tax upon all timber cut within the Province of British Columbia, save and except that upon which a royalty is reserved by this section or that upon which any royalty or tax is payable to the Government of the Dominion of Canada, which tax shall be in accordance with the following Schedules:—

SCHEDULE No. 1.

TIMBER.	Lengths, not over.	Diameters, not over.	Rate per M. feet. Board measure, on grade.			Additional rate to be added for increased sizes.					The following rebate on Tax shall be allowed when the timber upon which it is due, or pay- able, is manufactured or used in the Pro- vince of B. C.:
						Diameters. Inches.		Grade.			
			No. 1	No. 2	No. 3	Not under	Not over	No. 1	No. 2	No. 3	
Spars and Saw-logs, and Saw-bolts, of all kinds.	feet.	inches	%	%	%			% cts.	% cts.	% cts.	All the tax over and above one cent per M. feet, board meas- ure.
	40	24	2 00	1 50	1 00	25	31	20	15	10	
	50	24	2 25	1 75	1 25	32	36	40	30	20	
	60	24	2 50	2 00	1 50	37	41	60	45	30	
	70	24	2 75	2 25	1 75	42	45	80	60	40	
	80	24	3 00	2 50	2 00	46	48	1 00	75	50	
	over 80	24	4 00	3 00	2 50	over 48	.....	1 50	1 00	75	

SCHEDULE No 2.

TIMBER.	Lengths, not over.	Diameters, not over.	Rate per lineal foot.	All Piles or Poles over 12 in. in diam- eter shall be scaled, graded No. 1, and Taxed at rates as under.		The following rebate on Tax shall be allowed when the timber upon which it is due, or payable, is manufactured or used in the Province of British Columbia:
Piles, Poles and Crib Timbers.	feet.	inches.	% cts.	length.	p. M. B.M.	All the tax over and above one two- hundredths of one cent per lineal foot.
	40	11	01	40	\$2 00	
	50	11	01½	50	2 25	
	60	11	01½	60	2 50	
	70	11	01¾	70	2 75	
	80	11	02	80	3 00	
	over 80	11	02½	over 80	4 00	

Provided always, that the Lieutenant-Governor in Council may allow such rebate on piles, telegraph poles and crib timber not manufactured or used in the Province as may be deemed advisable.

SCHEDULE No. 3.

Mining props and lagging (50c.) fifty cents per cord;
 Railway ties (50c.) fifty cents per cord;
 Cordwood (25c.) twenty-five cents per cord.

A rebate will be allowed of all the tax over and above one cent per cord on all railway ties and mine props and lagging and cordwood used in the Province.

SCHEDULE No. 4.

Shingle or other bolts of cedar, fir or spruce, one dollar per cord. The rebate to be allowed when manufactured or used in the Province of British Columbia shall be all over and above one cent per cord.

(3.) All timber upon which any royalty or tax is payable to the Crown shall be scaled and graded by an Official Scaler in accordance with the provisions of the "Timber Measurement Act, 1902."

(4.) Actual settlers who are pre-emptors of Crown lands, who have occupied their pre-emption claims for two years, who have had the said claim surveyed, and who have taken out certificates of improvement, shall be exempt from payment of royalty or tax upon cordwood cut upon their pre-emption claims for sale. 1903-4, c. 30, s. 9.

59. All timber or wood upon which a royalty or tax is reserved, or which has been cut upon timber leaseholds, shall be liable for the payment of the royalty or tax (and in the case of leaseholds for the rent) by this Act imposed, so long and wheresoever the timber, or any part of it, may be found in British Columbia, whether in the original logs or manufactured into deal boards or other stuffs; and in case such timber or wood has been made up with other timber or wood into a crib, dam or raft, or in any other manner has been so mixed up as to render it impossible or difficult to distinguish the timber liable to the payment of royalty, tax, or rent from timber or wood not so liable, such other timber or wood shall also be liable for all royalty, tax and rent imposed by this Act; and all officers or agents entrusted with the collection of the royalty, tax or rent may follow all such timber or wood and seize and detain the same wherever it is found until such royalties, tax and rent, and the reasonable costs and expenses of seizure and detention, are paid or secured. 1903-4, c. 30, s. 10.

60. The Crown shall have a lien upon all saw-mills or other factories, steamships, railway and stationary engines, smelters, concentrators, and all furnaces or machinery in and for which any timber or wood upon which a royalty or tax is reserved or payable in any way or manner, or for any purpose, has been or is being manufactured, used or consumed, also upon all steamships, tow-boats, scows or other vessels, upon all engines, logging plant or material, and upon all railway trains, teams and waggons in any way engaged in taking out or in transporting such timber; such lien to confer the same rights, and to be enforceable in the same manner as the lien and rights of recovery of royalties conferred by the provisions in that behalf of this Act. 1903-4, c. 30, s. 11.

61. Every lessee or licensee of timber lands, and every person operating a mill or other industry which may cut or use timber or cordwood upon or in respect of which any royalty or tax is by this Act reserved or imposed, shall keep correct books of account of all timber or cordwood cut or received by or for them, and shall render monthly statements thereof, which shall contain all such particulars as the Chief Commissioner may require; and such books of account shall be open at all reasonable hours for the inspection of any person appointed for carrying out the provisions of this Act, and shall pay monthly all sums of money, as are so shown to be due, to the Chief Commissioner of Lands and Works. 1903-4, c. 30, s. 12.

62. It shall be lawful for any person owning or operating any mill to collect the royalties due to the Crown upon any logs which may be brought to his mill, and to give receipts therefor. All moneys so received shall be accounted for and paid over to the

FALLS ON BOULDER CREEK.

Crown. The Crown shall have a lien upon the mill and all timber thereat, or on any lands or waters appurtenant thereto, for all royalties collected under this section ; such lien to confer the same rights and to be enforceable in the same manner as the lien held under section 59 of this Act may from time to time be. 1903-4, c. 30, s. 13.

63. This Act shall not be construed to inflict penalties upon free miners (within the meaning of the term " free miner," as described in the " Mineral Act "), engaged in prospecting or in preliminary development work of any mineral or placer claim, who shall give satisfactory proof to the Gold Commissioner or Government Agent of the district in which such mineral or placer claim is situate that the said mineral or placer claim is not being operated so that any income or profit is derived therefrom, nor upon travellers, nor upon persons engaged in merely scientific pursuits or exploring, nor upon farmers cutting timber in connection with their farms, nor upon persons cutting cordwood for personal use for fuel for domestic purposes and not for sale, or cutting cordwood for school purposes, nor shall such person be required to pay any royalty or tax thereon. 1900, c. 17, s. 1 ; 1903-4, c. 30, s. 14.

64. If any person, without authority or otherwise than is permitted by this Act, cuts, or employs or induces any other person to cut, or assist in cutting, any timber of any kind on any of the Crown lands, patented lands, timber leaseholds, or timber limits, or removes or carries away any merchantable timber of any kind so cut, from any such Crown or patented lands, or timber leaseholds, or limits, he shall not acquire any right to the timber so cut, or any claim to any remuneration for cutting, preparing the same for market, or conveying the same to or towards market. Any such timber may be seized by the Chief Commissioner, or any Government Agent, or by any agent or person appointed under this Act, or any person acting under the authority or by direction of either of them, and shall be sold for the benefit of the Crown :

- (a.) When the timber or saw-logs made has or have been removed by any such person out of the reach of the Chief Commissioner or Assistant Commissioner, or any agent appointed for the purpose of carrying out the provisions of this Act, such first-mentioned person shall, in addition to the loss of his labour and disbursements, forfeit a sum of ten dollars for each tree (rafting stuff excepted) which he is proved to have cut, or caused to be cut or carried away :
- (b.) Such sum shall be recovered with costs in the name of the Chief Commissioner or any Government Agent, in any Court having jurisdiction in civil matters to the amount of the penalty :
- (c.) In such cases it shall be incumbent upon the party charged to prove his authority to cut, and the averment only of the party seizing or prosecuting that he is employed under the authority of this Act shall be sufficient proof thereof, unless the defendant proves the contrary. C. A. 1888, c. 66, s. 78 ; 1903-4, c. 30, s. 15.

65. Where timber has been cut without authority on Crown lands, patented lands, timber leaseholds, or timber limits, and has been made up with other timber into a crib, dam or raft, or in any other manner has been so mixed up as to render it impossible or difficult to distinguish the timber so unlawfully cut on Crown lands, patented lands, timber leaseholds or timber limits, from other timber with which it is mixed up, the whole of the timber so mixed up shall be held to have been cut without authority, and shall be liable to seizure and forfeiture until separated by the holder satisfactorily to the officer making the seizure. C. A. 1888, c. 66, s. 79.

66. The officer making any seizure under this Act may call in any assistance necessary for securing and protecting the timber seized. 1896, c. 28, s. 6.

67. All timber seized under this Act shall be deemed to be condemned unless the amounts due for rent, royalty or tax, and the costs and expenses of seizure and detention, be paid within ten days from the day of seizure, or unless the person from whom it was seized and the owner thereof, within ten days from the day of seizure, give notice to the seizing officer or nearest Government Agent that he disputes the seizure; failing such payment or notice, the Chief Commissioner may order the sale of said timber, or of so much thereof as may be sufficient to pay all rents or royalties due, and all the costs and expenses of seizure, detention and sale. 1903-4, c. 30, s. 16.

68. Any Judge of the Supreme or of a County Court may, upon petition in a summary way, try and determine such seizures, and may order the delivery of the timber to the alleged owner, upon his complying with the following requirements:—

- (a.) He shall first pay the full amount of the rent, royalty or tax claimed, together with a sum equal to the costs and expenses to that time incurred in respect of such seizure, and shall give sufficient and acceptable security for such amount to meet further costs and expenses as the Judge trying the case may consider requisite for that purpose:
- (b.) Such security shall be taken in the name of the Chief Commissioner to His Majesty's use, and shall be delivered up to and kept by the Chief Commissioner:
- (c.) If such seized timber is condemned, the value thereof, or the amount due for royalty, tax, rent and costs or expenses, shall be forthwith paid to the Chief Commissioner, otherwise the penalty shall be enforced and recovered. 1903-4, c. 30, s. 17.

69. Every person availing himself of any false statement or oath to evade the payment of any moneys payable under this Act in respect to timber, or endeavouring to convey out of British Columbia any timber in respect of which the royalties by this Act imposed are payable without first paying such royalties, shall forfeit the timber in respect of which payment of such moneys is attempted to be evaded, and shall, upon summary conviction before any two Justices of the Peace, or any Stipendiary or Police Magistrate, be liable to a penalty not exceeding five hundred dollars. C. A. 1888, c. 66, s. 83.

70. The Lieutenant-Governor in Council may allow, on the exportation beyond the limits of the Province of any piles and spars, or of any timber manufactured at any mill in British Columbia upon which the royalty by this Act imposed has been paid, a drawback or rebate equal to one-half of the royalty paid upon such timber. C. A. 1888, c. 66, s. 84.

71. The Chief Commissioner of Lands and Works may, with the approval of the Lieutenant-Governor in Council, appoint such persons and make all such rules and regulations as he may deem proper for carrying out the provisions of this Act. C. A. 1888, c. 66, s. 85.

AMENDMENTS TO TIMBER REGULATIONS.

—:O:—

Subsequent to the promulgation of the foregoing regulations, the following amendments were made to the "Land Act":—

Section 42 (1) repealed.

Section 53 repealed and the following substituted :—

"53. (1.) A special timber licence for logging purposes shall not be granted for a larger area than six hundred and forty acres of land, which shall be in one block bounded by straight lines drawn to the cardinal points, none of which lines shall be less than forty (40) chains in length, except in cases where such a length cannot be obtained ; nor shall the licence be granted for a longer period than one year, and the fees payable for such special licence shall be as follows :—

"For each licence : West of the Cascade Range, one hundred and forty dollars ; east of the Cascade Range and in the Electoral District of Atlin, one hundred and fifteen dollars.

"Such licence may be granted at the discretion of the Chief Commissioner, and shall be subject to such tax and royalty as may be by this Act, or from time to time by any Act of the Legislature of the Province of British Columbia, imposed or reserved : Provided that the Chief Commissioner of Lands and Works may, before granting any special licence, offer the limits to public competition, when he has reason to believe that the public interests will be served by so doing.

"(2) All special timber licences which are now in force or any which may have been applied for, or notice of which application has appeared in the British Columbia Gazette on or before the fiteenth day of April, 1905, shall be transferable and may be renewed each year for sixteen successive years, and the fees for each renewal of any such licence shall be paid in advance, and shall be of the same amount as is now paid for such licence : Provided that the right of such annual renewal shall not be acquired by the holder of any licence unless he shall, at the time of applying for the first renewal of his licence, have given notice in writing to the Chief Commissioner of Lands and Works of his intention to avail himself of the privileges of this clause. In addition to the royalty which is now reserved by section 58 of the "Land Act," there shall be paid to His Majesty ten cents per thousand feet, board measure, upon and in respect to all timber suitable for spars, piles, saw-logs, railroad ties and props for mining purposes, cut and removed from lands comprised within any special licence heretofore issued or coming within the scope of this sub-section.

"(3.) All special timber licences which may hereafter be issued shall be transferable and shall be renewable each year for twenty-one successive years.

"(4) No licensee who elects to renew his licence under the provisions of sub-section (2) of this section, and no person who takes out a licence after the fifteenth day of April, 1905, shall be allowed to cut or carry away any timber from off any such timber limit unless the said licensee has, at his own expense, had the land surveyed by a duly quali-

fied Provincial Land Surveyor. The Chief Commissioner of Lands and Works may, however, at any time notify the holder of any special timber licence to have the land covered by such licence surveyed by a duly qualified Provincial Land Surveyor within a time to be mentioned in such notice, and if such land shall not be surveyed within such time, or within such further time as may be granted by the Chief Commissioner of Lands and Works therefor, the holder of such licence shall forfeit all his rights to the timber on said land, and such licence shall become null and void. 1905, c. 33, s. 3.

“53A. Any holder of a timber leasehold, or of a special timber licence, who may desire to secure a right of way across any Crown lands which are held under licence or lease, for the purpose of constructing chutes, flumes, a road or roads or other works for use in getting out timber from the limit covered by his lease or licence, shall give thirty days' notice of intention to apply to the Chief Commissioner of Lands and Works for authority to construct and use such chutes, flumes, road or roads or other works, by an advertisement published for one month, at his own expense, in the British Columbia Gazette and in a newspaper published or circulating in the district, and the Chief Commissioner is hereby empowered to grant or refuse such application, upon such terms and conditions as circumstances may warrant. 1905, c. 33, s. 4.”

VICTORIA, B. C.:

Printed by RICHARD WOLFENDEN, I.S.O., V.D., Printer to the King's Most Excellent Majesty.

1905.