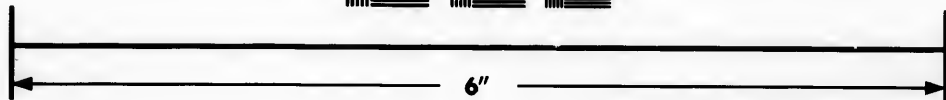
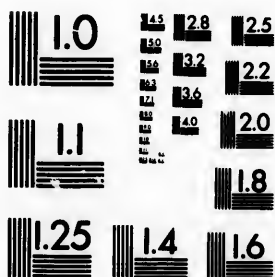


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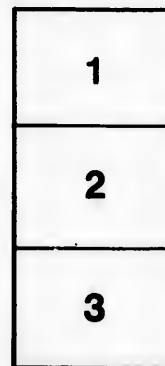
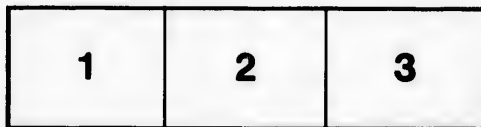
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CATALOGUE OF SOME OF THE MORE IM-  
PORTANT TREES IN THE SEVERAL  
REGIONS.

The species arranged approximately in  
order of importance.

A.

- Tsuga Mertensiana.
- Thuja gigantea.
- Picea Menziesii.
- Chamaecyparis Nutkanus.
- Pinus contorta.
- Alnus rubra.
- Pyrus rivularis.
- Acer macrophyllum (?)

B.

- Pseudotsuga Douglasii.
- Tsuga Mertensiana.
- Thuja gigantea.
- Picea Menziesii.
- Abies grandis.
- Chamaecyparis Nutkanus.
- Pinus contorta.
- Pinus monticola.
- Taxus laevisfolia.
- Juniperus Virginiana.
- Acer macrophyllum.
- Alnus rubra.
- Quercus Garryana.
- Acer circinnatum.
- Pyrus rivularis.
- Arbutus Menziesii.
- Cornus Nuttallii.
- Amalanchier alnifolia.

C.

Coast Flora like A and B, but some  
species confined to the southern portion  
of this area.

D.

- Pinus contorta.
- Populus tremuloides.
- Picea Engelmannii.
- Pseudotsuga Douglasii.
- Abies subalpina.
- Populus trichocarpa.
- Betula occidentalis.
- Juniperus Virginiana.
- Amalanchier alnifolia.
- Pyrus sambucifolia.

E.

- Pinus ponderosa.
- Pseudotsuga Douglasii.
- Pinus contorta.
- Populus tremuloides.
- Juniperus Virginiana.
- Populus trichocarpa.
- Amalanchier alnifolia.

F.

- Thuja gigantea.
- Picea Engelmannii.
- Pinus contorta.
- Abies subalpina.
- Pinus monticola.
- Picea Menziesii.
- Larix occidentalis.
- Pinus flexilis (?)

G.

- Populus tremuloides.
- Picea Engelmannii.
- Picea alba.
- Populus trichocarpa.
- Betula occidentalis.
- Pinus contorta.
- Larix Americana.
- Abies subalpina.
- Amalanchier alnifolia.



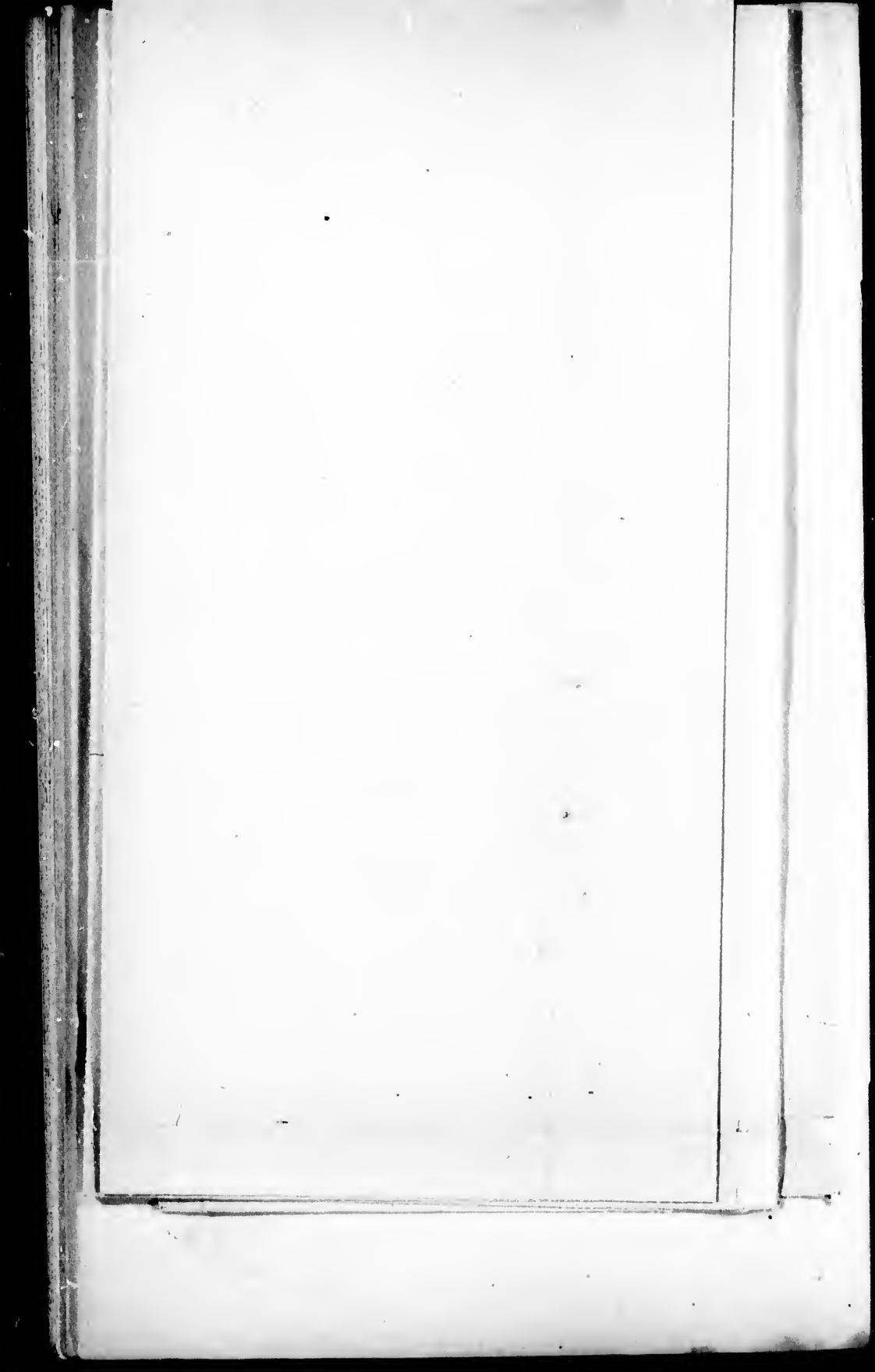
MAP illustrating the Distribution of some of the m



Distribution of some of the more important Trees in British Columbia, by George M. Dawson.

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NOTE ON THE DISTRIBUTION OF SOME OF THE  
MORE IMPORTANT TREES OF BRITISH  
COLUMBIA.

(Printed in advance of the Report of Progress of the Geological Survey  
of Canada for 1879-80.)

BY GEORGE M. DAWSON, D.S., A.R.S.M., F.G.S.

British Columbia forming a portion of the Cordillera region of the west coast of America, with diversified and bold physical features, the lines indicating the geographical range of the various species of plants do not assume in it the broad rounded forms found in less mountainous districts. The peculiarities in distribution while adding interest to the study, renders an intimate knowledge of the topography of the country an essential prerequisite to its prosecution. As large tracts of the province are as yet geographically unknown owing to their remoteness and singular impenetrability, we are far from possessing complete information on the distribution of many of even the more important species. The following notes and map are presented as a contribution towards our knowledge of the range of some of the trees of British Columbia, based on notes and observations made by myself while engaged in the work of the Geological Survey from 1875 to 1879. I am indebted to Mr. H. J. Cambie of the Canadian Pacific Railway for valuable notes on the extension of certain trees from the coast up the valleys of the Homathco and Dean or Salmon Rivers, and in a few cases have availed myself of facts published in Prof. Macoun's reports. I have also to thank Dr. Engelmann for notes furnished in regard to specimens collected in various parts of the province.

It is not intended to give a description of the orography of the province, though as above indicated this is closely connected with the extension of the various species of plants. The following general statement made by me in a note on agriculture and stock raising and extent of cultivable land in the province,\* may, with little alteration, be repeated here, as outlining the conditions to be found within its area:—The flora of British Columbia as a whole may be broadly divided into four great groups, indicating as many varieties of climate, which may be named as follows:—the *West Coast*, the *Western Interior*, the *Canadian*, and the *Arctic*. The first, with an equable climate and heavy rainfall, is characterized by a correspondent luxuriance of vegetation, and especially of forest growth. This region is that west of the Coast Range, and is well marked by the peculiarity of its plants. In a few spots only—and these depending on the dryness of several of the summer months owing to local circumstances—does a scanty representation of the drought-loving flora of the Californian coast occur. The second is that of the southern part of the interior table-land of the province, and presents as its most striking feature a tendency to resemble in its flora the interior basin of Utah and Nevada to the south and the drier plains east of the Rocky Mountains. It may be said to extend northward to about the 51st parallel, while isolated patches of a somewhat similar flora occur on warm hill-sides and the northern banks of rivers to beyond the Blackwater. In the northern part of the interior of the province, just such an assemblage of plants is found as may be seen in many parts of eastern Canada, though mingled with unfamiliar stragglers. This flora appears to run completely across the continent north of the great plains, and characterizes a region with moderately abundant rainfall, summers not excessively warm, and cold winters. The arctic or alpine flora is that of the higher summits of the Coast, Selkirk, Rocky and other mountain ranges, where snow lies late in the summer. Here plants lurk which deploy on the low grounds only on the shores of Hudson Bay, the Icy Sea and Behring's Strait.

In the following notes the Coniferæ are placed first as having the greatest importance both from an economic point of view, and from the vast extent of country which they cover almost to the exclusion of other trees.

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\* Report Can. Pacific Railway, 1877. Appendix S.

*Pseudotsuga Douglasii*, Lindl. Douglas spruce, Douglas fir, sometimes commercially named Oregon pine. This is the most important timber tree of British Columbia, and the only one of which the wood has yet become an article of export on a large scale. It is found in all parts of Vancouver Island with the exception of the exposed western coast, but does not occur in the Queen Charlotte Islands or coast archipelago to the north of Vancouver. On the mainland, near the forty-ninth parallel, it extends from the sea to the Rocky Mountains, growing at a height of 6000 feet in a stunted form, and occurring even on the eastern slopes of the Rocky Mountains. In the dry southern portion of the interior of British Columbia it is confined to the higher uplands between the various river valleys. Northward it comes down to the general level of the country. It does not extend into the mountainous and comparatively humid region of Cariboo, and is probably absent from the higher portions of the Selkirk and Gold Ranges generally. Its northern line is singularly irregular. It is found about Fort George, and north-eastward as far as McLeod's Lake, but does not occur on the Parsnip. It extends about half-way up Tacla Lake, and on Babine Lake to the bend or knee. A few specimens occur on the Skeena River. It is common about Fraser and François Lakes. It is found from the Fraser to the coast mountains on the line of the Chilcotin and its tributaries, and occurs on the Nazco and up the Blackwater to the mouth of the Iscultaesli, but is absent from an extensive tract of country bounded by the last-named localities to the south and east and extending northward to François Lake. It occurs abundantly on the coast of the mainland as far north as the north end of Vancouver Island, but beyond that point is found only on the shores of the inlets at some distance from the sea. It is found on the upper part of Dean Inlet and on the Salmon River which runs into it, but about forty-five miles from the salt water becomes small and stunted, and as above stated, is not seen in that part of the interior lying to the eastward.

The extent of its range to the north-eastward in the Rocky Mountain range, though broadly indicated on the map, is still uncertain.

The best grown specimens are found near the coast in proximity to the waters of the many bays and inlets which indent it. Here the tree frequently surpasses eight feet in diameter, at a considerable height above the ground, and reaches a height of

from 200 to over 300 feet, forming prodigious and dark forests. The wood varies considerably in appearance and strength according to its locality of growth and other circumstances. It is admirably adapted for all ordinary purposes of construction, and of late has obtained favourable notice in ship-building, remaining sound in water for a long time. For spars and masts it is unsurpassed both as to strength, straightness and length. Masts for export are usually hewn to octagonal shape from 20 to 32 inches in diameter and 60 to 120 feet in length. On special orders they have been shipped as large as 42 inches in diameter by 120 feet long. Yards are generally hewn out from 12 to 24 inches in diameter and 50 to 102 feet long.

Masts and spars are generally sent to Great Britain; other forms of lumber to South America, Australia, India, China and the Sandwich Islands.

*Tsuga Mertensiana*, Lindl. Western hemlock. The hemlock occurs everywhere in the vicinity of the coast, and extends up the Fraser and other rivers to the boundary of the region of abundant rainfall. It reappears in the Selkirk and Gold Ranges, where sufficient moisture for its growth is again found. The tree attains a large size on the coast, reaching a height of 200 feet, and yields a good wood, but has not yet been much used. The bark is employed successfully in tanning. *Tsuga Mertensiana* closely resembles the eastern hemlock (*T. Canadensis*) but attains a larger size than that tree ever does.

In the Queen Charlotte Islands it is particularly abundant and large. On the Salmon River, running into Dean Inlet, it is not found in abundance beyond eighteen miles from the sea at an elevation of 600 feet. It occurs again, however, sparingly on the lower part of the Iltasyouco River, a tributary to the last, and within the Coast Range. On the Homatheo River, flowing into Bute Inlet, it ceases at fifty-three miles from the sea at an elevation of 2320 feet. On the Uz-tli-hoos it extends to a point six or ten miles east of the Fraser, on the Coquihalla to the summit between that river and the Coldwater.

*Thuja gigantea*, Nutt. Western arbor vitæ, giant cedar, red cedar. This tree in its distribution nearly follows that of the hemlock, abounding along the coast and lower parts of the rivers of the Coast Range, being unknown in the dry central plateau, but reappearing abundantly on the slopes of the Selkirk and Gold

Ranges. On the Salmon River the cedar ceases at forty-five miles from the head of Dean Inlet at an elevation of 2400 feet, though like the hemlock it is again found sparingly and in a stunted form in the lower part of the Itasyouco Valley. On the Homatheo it ceases at a distance of sixty-three miles from the coast at an elevation of 2720 feet. On the Uz-tli-hoos it ends with the hemlock at about six miles east of Boston Bar, on the Coquihalla, just south of the summit between that river and the Coldwater. Cedars are also found sparingly on the Skaist River or east branch of the Skagit, and a few were observed on the banks of the Similkameen, about thirteen miles below Vermilion Forks. It extends westward from the flanks of the Gold Range in the Coldstream Valley sparingly to within eight miles of the head of Okanagan Lake. It abounds round the shores of the north-eastern part of Shuswap Lake, and on the North Thompson Valley to about twenty miles below the mouth of the Clearwater. It is said that there is also a small grove of these trees on the Fraser below Fort George.

On the coast it not unfrequently surpasses fifteen feet in diameter with a height of 100 to 150 feet, but such large trees are invariably hollow. The wood is good, pale yellowish or reddish, and very durable, but it is not yet extensively used except for the manufacture of shingles. From this tree the Indians split out the planks which they use in the construction of their lodges along the coast, and in the north make the carved posts which ornament their villages. They also hollow their large and elegant canoes in it, and use the fibre of the inner bark for rope making and other purposes.

*Picea Engelmanni*, Parry. Engelmann's spruce. This tree resembles the black spruce of the east, but reaches a larger size, frequently surpassing three feet in diameter, and running up tall and straight. It appears to characterise the interior plateau and eastern part of the province, with the exception of the dry southern portion of the former, and forms dense forests in the mountains. Varieties occur, which, according to Dr. Engelmann, who has examined my specimens, are almost indistinguishable from *Picea alba*, and to the north-eastward these varieties preponderate. Specimens collected on the Peace River plateau (lat. 55° 46' 54", long. 120° 20', altitude 2600 feet) are still referable to *P. Engelmanni*, but trees on the Athabasca (lat. 54° 7' 34",

long. 118° 48') belong to *P. alba*. The northern and north-eastern range of Engelmann's spruce is therefore undeterminate.

It borders nearly all the streams and swamps in the northern portion of British Columbia between about 2500 and 3500 feet in elevation. It is probably this tree which forms dense groves in the upper alpine valleys of the Rocky Mountains in the vicinity of the forty-ninth parallel. The wood has not yet been extensively employed, but it is excellent, and in some cases very durable.

*Picea Menziesii*, Lindl. Menzie's spruce. This tree seems to be confined chiefly to the immediate vicinity of the coast, where it attains a large size, and is to some extent used for lumber. It was, however, observed on the summit between the Coldwater and Coquihalla Rivers (3280 feet); also on the Nicoluma a few miles beyond the summit between that stream and the Sumallow, and on the west side of the Spioos valley near the trail crossing. It was noted (doubtfully) on the summit between the Forks of Skeena and Babeen Lake, and may probably occur in the humid region of the Gold and Selkirk Ranges. The wood is white and free.

*Abies grandis*, Lindl. Confined to the vicinity of the coast, where its range is even more strictly limited than that of the cedar or hemlock. The wood is said to be white and soft, but too brittle for most purposes, and moreover liable to decay rapidly. Grows to a large size.

*Abies subalpina*, Engelm. (= *A. lasiocarpa* Hook.) Balsam spruce. Appears to take the place of *Abies grandis* in the region east of the Coast Ranges. It is not found in the southern dry portion of the interior plateau, but occurs abundantly in the Gold and Selkirk Ranges in the Rocky mountain region east of McLeod's Lake. Elsewhere it occurs in scattered groves, in the northern portion of the interior plateau, generally in localities nearly reaching or surpassing 4000 feet, but even in low valleys in the eastern portion of the Coast Ranges. It crosses the Rocky mountains in the Peace River district and occurs in cold damp situations in the county between Lesser Slave Lake and the Athabasca River. The tree often exceeds two feet in diameter, but the wood is said to be almost worthless.

*Pinus ponderosa*, Dougl. Yellow pine, red pine, pitch pine. A remarkably handsome tree, which grows only in the central

dry region of British Columbia, occurring between the Coast Ranges and Selkirk and Gold Ranges northward from the forty-ninth parallel to latitude  $51^{\circ} 30'$  and probably also to about latitude  $51^{\circ}$  in the valley of the upper portion of the Columbia. Found also I believe sparingly on the east side of the Rocky Mountains near Waterton Lake on the forty-ninth parallel. On the Similkameen this tree is seen furthest east three miles above Nine-mile Creek. On the Coldwater it reaches to eighteen or twenty miles from the Nicola; down the Fraser to thirty miles above Yale, and northward on the main waggon road to "the Chasm" beyond Clinton. It extends about forty miles up the North Thompson, is found on the northern slopes of the South-western Arm of Great Shuswap Lake, and also sparingly on the southern part of the Salmon Arm, west of Okanagan Lake towards Cherry Creek nearly to the Camel's Hump Mountain.

It is used pretty extensively in the region which it characterizes, yielding sawn lumber of good appearance, but rather brittle and not very durable when exposed to the weather. It grows in open groves in the valleys, where it often occurs almost to the exclusion of other trees; and stretches up the slopes of the mountains and plateaux to a height of over 3000 feet, where it is replaced by the Douglas fir and *Pinus contorta*. Its diameter in British Columbia does not seem to exceed four feet, though further south it is said to reach a diameter of twelve to fifteen feet.

*Pinus contorta*, Dougl. Western scrub pine, also called the bull or black pine. Occurs throughout British Columbia from the sea-coast to the eastern slopes of the Rocky Mountains, and from the forty-ninth parallel northward. It is the characteristic tree over the northern part of the interior plateau, and densely covers great areas. In the southern part of the province it is found on those parts of the plateau and hills which rise above about 3500 feet, where the rainfall becomes too great for the healthy growth of *P. ponderosa*. It grows also abundantly on sandy benches and river flats at less elevations. On the coast it occurs rather sparingly on sandy dunes and the most exposed rocky points, becoming gnarled and stunted. In the Queen Charlotte Islands it is scarcely seen except on the western coast, and does not occur near the water level for a considerable distance up the Skeena. In the interior it often forms dense groves, the trees



being 60 to even 100 feet in height, but seldom exceeding a diameter of two feet. It does not extend upward to the timber limit in the higher mountains. The tree characteristic of the interior is *var. latifolia* of Engelmann, and differs considerably in appearance and character of wood from that of the coast to which the name *contorta* may appropriately be applied. Dall states the northern limit of this tree in Alaska to be on the Youkon at Fort Selkirk, latitude 63°. In the Peace River region it crosses the Rocky Mountain range, and occurs more or less abundantly over a great area generally on the higher parts of the plateau with poor soil. It is replaced by the Banksian pine at the watershed between the Athabasca and Saskatchewan.

The wood is seldom used as lumber on account of its small size, but is white and fairly durable. The cambium layer, containing much sugar, is eaten by the Indians in the spring, and in some instances large quantities of it are collected and dried for winter use.

*Pinus flexilis*, James *var. albicaulis*, Engelm. White pine, white-barked pine. Wood not employed as lumber; the trees being in general small and in inaccessible situations. Observed in the Coast or Cascade Ranges as far north as the Iltasyouco River (lat. 53°), occurs in the mountains south of the upper part of the Deau or Salmon River, in the vicinity of Lillooet and at Yale, and on the summit of Iron Mountain at the mouth of the Coldwater. The seeds are collected and used as food by the Indians.

*Pinus monticola*, Dougl. White pine. This tree is abundant in certain districts of the interior of Vancouver Island, and is also found in all parts of the southern portion of the Coast Range where there is an abundant rainfall. It is found on the Hope-Similkameen trail, some miles beyond the summit on the Summit, about the summit between the Coquihalla and Coldwater on the Hope-Nicola trail; and to the west bank of the Spioos at the trail crossing. On the Homatheo River it disappears at fifty-one miles from the sea at an elevation of 2235 feet. It reappears in the region of heavy rainfall of the Gold Range, being abundant about Cherry Creek and on the shores of Great Shuswap and Adam's Lakes. It has not been observed in the Queen Charlotte Islands, though it may exist there. It appears to flourish best in the higher mountain regions. The tree attains sixty to

eighty feet in height with a diameter of two to three feet, but is generally most abundant in situations inaccessible to the lumberer. The wood is coming into use for some purposes. It is not considered equal to that of the eastern white pine (*P. strobus*) which it resembles. The Indians collect and eat the seeds of this tree.

*Chamaecyparis Nutkaensis*, Lamb. Yellow cypress. Commonly known as the yellow cedar. This tree is confined to the vicinity of the coast and adjacent islands. It is found in the vicinity of Burrard Inlet on the slopes of the mountains, several hundred feet above the sea level. Further north it descends to the coast. It occurs in the interior of Vancouver Island, and is abundant in some parts on the Queen Charlotte Islands, particularly on the west coast. It often exceeds six feet in diameter. This wood is as yet comparatively unknown in commerce, but is strong, free and of fine grain, with a pale golden yellow tint and a slight peculiar resinous smell. It is very durable and has been used to a limited extent in boat-building and for various ornamental purposes.

*Larix occidentalis*, L. Western larch. Is found in the Rocky mountains and in the valleys of the Selkirk and Gold Ranges, its limit there being co-extensive with that of abundant rainfall. Stretches westward nearly to the head of Okanagan Lake. Not found on the coast. The timber is said to be strong and durable but coarse.

A species of larch, which from imperfect specimens submitted to him Dr. Engelmann supposes to be *L. America*, occurs abundantly in swampy spots on the Peace River plateau and on the Athabasca.

*Taxus brevifolia*, Nutt. Yew. Occurs on Vancouver Island, and on the shores of the mainland adjacent, attaining sometimes a diameter of two feet. Not found, or very sparingly in the Queen Charlotte Islands. A very tough hard wood of beautiful rose color, employed for various ornamental purposes. Formerly used by the Indians in making bows, spear handles, fish-hooks &c.

*Juniperus virginiana*, L. Juniper, red cedar, savin. Has been observed assuming an arboreal form along the shores of Kamloops, François and other lakes, and elsewhere, with a diameter of about a foot. Commonly known as penoel cedar.

*Acer macrophyllum*, Pursh. Maple. Found on Vancouver and adjacent Islands, and on the mainland in the immediate vicinity of the coast northward sparingly to latitude 55°, and in the Queen Charlotte Islands. Never found inland. Occasionally attains a diameter of four feet. A valuable hard wood, sometimes well adapted for cabinet-making, and also used as fuel.

*Acer circinatum*, Pursh. Vine maple. Like the last strictly confined to the vicinity of the coast, but does not appear to go far north. A small tree, seldom over a foot in diameter, but yielding a very tough and strong white wood, which is used, in the absence of ash, for the manufacture of helves, &c.

*Pyrus rivularis*, Dougl. Crab-apple. Occurs along the coast of Vancouver and the Queen Charlotte Islands and the whole coast of the mainland of British Columbia. On the Skeena abundant to the mouth of the Lakelse and a few trees seen at ninety miles from the sea. A small tree or shrub. Wood very hard, susceptible of a good polish, and especially valuable in those parts of mill machinery intended to withstand great wear. Fruit prized by the Indians as food.

*Pyrus sambucifolia*, Cham. and Schlect. Mountain ash. Sparingly in various parts of the interior of the Province. A small tree or bush.

*Amalanchier alnifolia*, Watson. Service-berry, 'la poire.' Occurs on Vancouver Island and very rarely and in a stunted form in the Queen Charlotte Islands. Abundant in some parts of the interior plateau and beyond the Rocky mountains to the north eastward in the Peace River country. Generally a shrub. Under favourable circumstances a small tree. The wood is very hard and is used for various purposes by the Indians. The berries are dried and stored away in large quantities for winter use.

*Quercus Garryana*, Dougl. Oak. Grows only in the south-eastern portion of Vancouver Island, though Mr. A. C. Anderson mentions the existence of a few trees near Yale, on the Fraser River, which have probably now disappeared. Reaches a diameter of three feet and a height of about seventy feet. Used for flooring and other purposes in building, and also in the manufacture of barrels and kegs. A hard wood but not very tough.

*Alnus rubra*, Bongard. Alder. Attains the dimensions of a small tree, on Vancouver and Queen Charlotte Islands and the coast of the mainland. Wood sometimes employed for making charcoal.

*Betula occidentalis*, Hook. Birch. Occurs sparingly over almost the entire area of the province. Well grown trees are found in the northern part of the Fraser basin and in the Peace River country.

*Populus tremuloides*, Michx. Aspen poplar. Abounds over the whole interior of the province, growing everywhere in the north and characterizing some of the most fertile lands. In the southern dry portions of the interior found usually along the borders of streams, and on the higher plateaux. First noticed in abundance on the Skeena at about 110 miles from the sea. It forms the usual second growth after fires in the Peace River country. Attains frequently a diameter of two feet.

*Populus trichocarpa*, T. & G. Cottonwood. Grows chiefly in the valleys of streams and on the banks of rivers, throughout the province, and north-eastward in the Peace River district. Frequently four to five feet in diameter. Used by the Indians of the interior for the manufacture of canoes. *Populus balsamifera* & *P. monilifera* may also occur in some parts of the region, all going under the general name of Cottonwood.

*Arbutus Menziesii*, Pursh. Arbutus, madrona. Occurs on Vancouver and the neighbouring islands, but never far from the sea. It is sparingly represented as far north as Seymour Narrows. A very handsome evergreen yielding a white close-grained heavy wood, resembling box. Attains a diameter of from eighteen inches to two feet, and a height of fifty feet.

*Cornus Nuttallii*, Aud. Dogwood. On Vancouver Island and the coast of the mainland adjacent, attaining the dimensions of a small tree. Wood close-grained and hard.

Montreal, June 1880.

