RECONNAISSANCE

of

N. THOMPSON & BARRIERE RIVERS

1913

H. B. Murray.

South Portion now in R85 Barriere Forest 1931

Reconnaissance File 503.

1 inch = 1 mile
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The Chief Forester,
Forest Branch,
Victoria, B.C.

Dear Sir:—

I beg to submit herewith the following report on
the forest reconnaissance work carried on during the past
season up the North Thompson River, from the Dominion Railway
Belt north to the junction of the Albasca and Thompson Rivers.

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Instructions for Season's Work

The reconnaissance party was to be made up at
Kamloops, and from there was to proceed north to the Dominion
Railway Belt. Work was to be carried on from this point, along
the line of the Canadian Northern Pacific Railway to the North
Fork of the Thompson, at which point we would be able to connect
the survey with that of D.E. Clark, who was to work from Tele
James Cache south to this point.

Reconnaissance was to take in as much of the country
tributary to the Railway as was found possible, and particularly
an exploration of the Barriere River and Lakes and the surround-
ing country was to be made.
Brief Summary of the Work.

Left Victoria on the ninth of June and arrived in Kamloops the following day. Several days were spent here in organizing the party, horses and outfit having to be obtained and provisions purchased. A man to serve in the capacity of cook-packer was engaged here. The field assistant was to have reported in Kamloops but did not show up, so another man was detailed from Victoria. A short delay was thus caused in our starting out.

We proceeded at once to the Barriere country and about six weeks were spent in this locality, during which time an exploratory reconnaissance of 600 square miles more or less was made. This exploration was carried as far south as Louis Creek, thus tying in with Itwin's reconnaissance in 1912. Adams Lake and Adams River were used as a eastern boundary, thus enabling the survey to be tied in with Beard's work during 1912.

From the Barriere Country we moved up the Thompson River by easy stages to the upper end of Stillwater Flats, Mile 183 on the C.N.R. grade from Kamloops. The country south of this point along the main Thompson Valley is largely worked out, settled or burned over and it was not deemed necessary to spend much time over this section of the work.

The country lying between Mile 183 and the North Fork of the Thompson was very carefully examined. Side trips were made up the larger tributary rivers, as the Salmon, Blue, Mud and North Fork. Large tracts of country on both sides of the main valley
were taken in by the reconnaissance and an area of over 625 sq. miles was covered.

Methods employed in reconnaissance.

The plane table was used throughout the work. Mapping stations were located on prominent points, from which good views of the surrounding country could be obtained. In the Barriere Country a system of triangles was projected over the area starting from an established base line near the North and East Forks of the Barriere River. Rough traverses were made of the smaller timbered creeks.

A system of connected surveys runs from one end of the Thompson Valley to the other, and during the latter part of the work this served as a permanent base line.

From Mile 123 north the main valley and larger tributary valleys were very carefully examined as they contain considerable statutory timber.

Lines were run East and West from the river and extending as far back as the rough country, every two miles as a general rule. Mapping stations were located by triangulating from the survey corners or by traversing.

The aneroid barometer was used for obtaining elevations, being checked regularly by bench marks along the C.M.R. grade. A contour interval of 250 feet was used for the most part. All mappings and notes taken in the field were immediately transferred to an index map, which was made in camp, on the scale of 1 inch equals 1 mile.
Area covered.

An area of about 2000 square miles can be roughly reported on, of which some 1525 square miles was carefully examined and is included in the detailed report.

This area is made up as follows:

1. Exploration of the Barrier Country which included some 600 square miles. This area is bounded on the south by Louis Creek and Irwin's reconnaissance; on the east by Adams Lake and Board's reconnaissance and on the north and west by the Thompson River.

2. From the Railway Belt north to the upper end of Stillwater Flats an area of a little over 500 square miles was covered and is reported on.

3. Very careful work was done in the section between Stillwater Flats and Thompson Crossing, which is about 40 miles long. An area of approximately 525 square miles was covered in this section, which includes a considerable area of country on both sides of the main valley.

The total area is made up as follows:

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<td>Other timber lands, 3-5 M per acre</td>
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<td>Area second growth</td>
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Topography.

The North Thompson country is, in general, a very rough, mountainous section. The main valley, which runs for the most part in a due southerly direction, is a deep pass, on either side of which mountainous country varying in elevation from 3000 to 8000 feet is found. The valley bottom varies in width from $\frac{1}{2}$ to 3 miles in the southern parts, while in the northern parts it narrows up considerably assuming in some places the nature of a ravine.

From an elevation of a little over 1100 at the Railway Belt the river rises, in the 150 odd miles to Thompson Crossing, to an elevation of 3500 feet. From this point the river takes a sharp turn to the west, and elevations increase much faster.

Numerous large tributary valleys join the Thompson, forming passes back into the surrounding country on both sides of the main valley. The largest of these tributary valleys, the Clearwater, through which flows the Clearwater River, joins the main valley at Mile 59. The watershed of this Clearwater River alone is estimated at nearly 4000 square miles. Other large tributary valleys include those of the Louie Creek, Barriere, Salmon, Blue, Lemieux and Mus Rivers.

On the western side of the Thompson valley for about 40 miles north of the Railway Belt and extending west into the Lillooet country is found some rough rolling country varying in elevations from 2000 to 4000 feet. On the east side of the
valley opposite this the country is of somewhat the same nature, especially the portion lying between Louis Creek and the Railway Belt. The country around the northern extremity of the Sullivan Valley is very hilly and covered with an open forest of Fir, Spruce and Yellow Pine. North from Louis Creek and the Barriere the country gets very rough and mountainous as one proceeds east from the Thompson. The Chu Chu Mts. about ten miles east of Chu Chu rising to an elevation of about 8000 feet.

From the mouth of the Clearwater, Mile 69, the river takes a sharp turn to the east, and from this point the valley seems to narrow and the side slopes to become steeper as one proceeds up the valley, until, above the Stillwater Plate, there is little or no bottom land, and the valley becomes somewhat of a ravine. Snow-capped mountains rising to an elevation of 7500 and 8000 feet appear on the east side of the Thompson just above Salmon River. Above Blue River a continuous range of snow-capped mountains is seen on both sides of the valley. In some places in this section the distance across the valley from timber line to timber line is less than four miles. The timber line in this locality generally being in the vicinity of 6000 feet.

The Barriere country which we explored during the summer is included in the Thompson watershed. The Barriere River with its many branches drains an area of between 600 and 700 square miles.

This country is a series of high ridges with large lakes and rivers in the intervening valleys. Elevations run from 2000
feet in the valleys to 5000 feet and 6000 feet on top of the ridges. A plateau of considerable extent is located between the South Fork of the Barriere and Pass Creek. This plateau has an average elevation of about 3000 feet and serves as a divide between the Barriere and Adams Lake.

The lower slopes in the southern sections, especially in the vicinity of the lakes are generally less than 7 degrees.

In the western parts of the section north from North Barriere Lake the country gets extremely rough. High steep ridges with narrow intervening valleys extend from the western end of the lake in a north easterly direction for about 10 miles, terminating in a large valley caused by another set of ridges running to the north west. In the apex of these two series of ridges is located the Groundhog Mountains with an elevation of 6800 feet. This country has all been fire-swept and reproduction has not taken place above 5000 feet, leaving the top of the ridges barren, thus giving the whole country, from an observer's view point, a very desolate appearance.

**Climate.**

Climatic conditions very considerably throughout the North Thompson watershed. The southern parts, including the main lower Thompson and the western portion of the Barriere Country is included in what is known as the "Dry Belt". The annual precipitation over this region is less than 20 inches. The eastern sections of the Barriere Country and the northern parts of the main valley above
Mosquito Flats receive a much heavier precipitation, and that portion of the Thompson Valley lying between Blue River and the Albroda Crossing might suitably be termed the "Wet Belt", receiving an annual precipitation of 50 - 60 inches.

Snowfall in the southern sections averages from 2-4 feet, the first snow generally taking place about the middle of November. The northern sections receive more snow. Above Stillwater Flats an average of 4-6 feet is common and in the vicinity of Thunder Creek an average of 5-8 feet is annually received. In the northern wooded sections the snow generally stays till about the middle or latter part of May.

Temperatures vary in the "Dry Belt" from 20°F to 25°F below zero in the winter to 102°F above in the summer months. The climate throughout the area is quite healthful, especially so in the southern parts where the atmosphere is very dry the year round.

The county in the immediate vicinity of East Barriere Lake enjoys particularly nice weather, the winters being very mild, and invigorating, and with no extremely hot weather in the summer.

Conditions of Settlement.

The best land along the Lower Thompson Valley has been practically all taken up by preemptors and purchasers. Settlers are steadily coming in to the Louis Creek and Barriere country and the Clearwater Country is being opened up.
With the completion of the C.W. Ely through the valley next fall an influx of settlers is looked for.

Up to the present about 500 settlers have taken up homes along the main Thompson and larger tributary valleys. Between 90 and 100 of these are located in the Barrier country. There are a very small number of settlers located above mile 123, or the head of Stillwater Flats, about 30 preempts having taken up homes in that section. Between mile 143, just north of Blue River and mile 172, Thompson Crossing, there is only one settler, this one being located at Highbanks. There still remains, along the main valley and in the larger tributary valleys, enough good agricultural land to provide homes for over 1000 settlers. From present indications a great deal of this land will be taken up inside the next two or three years, and residents of that section are very optimistic as to the future of the valley.

Rocks and Formations.

The very rough nature of the Thompson Country is the result of both volcanic action and glacial action. Volcanic action has taken place in recent geological times in the northern sections of the valley and a layer of volcanic residue, often of considerable thickness can be found on many of the mountain slopes.

The underlying rocky formation throughout seems to be largely granite, but these granites give way to sedimentary formations in the extreme southern sections of the area.
The mountain sides are covered in places with small rock slides. These rocks are generally much broken up and consist of quartz and mica schist. Mica in its pure form is quite common in this section of the country, there being large deposits located up the Blue River and along the main Thompson Valley north of this point. The mucky color of the water in the Thompson River is largely due to its containing immense quantities of sedimentary mica, together with a considerable amount of glacial mud which enters the main river from Mud Lake.

Small deposits of limestone are found in the Limestone Bluffs located at the north east end of Mud Lake. Traces of limestone are also found around the Marble Mountains located one mile to the south of Johnson Lake.

The beds of most of the mountain streams are filled with large boulders, mostly quartzites. Serpentine in various forms is also very common along the creek bottoms.

Traces of a white brick clay were seen on the east side of the river near Pyramid Creek, Mile 168.

Soil.

Soil conditions vary considerably in different sections of the area examined. Along the lower Thompson Valley the bottom lands consist of a deep rich soil, which is largely the result of deposits made from time to time by the river. This soil is of a loamy nature and varies in depth from several inches to five and six feet. Underlying this can be found a subsoil of clay, which
in places contains considerable sand and gravel. The side slopes, above the first contour, especially in exposed or partially exposed sections are generally quite sandy, containing little if any top soil. The more sheltered slopes generally contain a shallow covering of humus and clay loam.

In the northern sections of the valley where the bottom lands carry considerable timber, the soil is quite light, generally consisting of a few inches of humus and loam, underlyng which is a sandy clay subsoil. A large proportion of the Blue River Flats consists of Jack Pine areas where the soil is of a very sandy nature.

The wet meadow lands of the Kui Valley and around Highbanks and Aparao contain several feet of a rich black loam.

Throughout the Barriere country the soil in the valley bottoms is mostly a glacial wash. This, in some localities, is several feet in depth and makes splendid agricultural land. A subsoil of clay which in places becomes quite sandy is general throughout the lower bottom lands of the Barriere District. The higher bench lands scattered over the area contain a soil made up of several inches of humus overlying a sandy clay-loam soil. The subsoil throughout these higher benches is mostly clay of a more or less sandy nature and containing a considerable number of small stones.
Forest Species.

The following species were encountered during the season's work:

- Douglas Fir
- Pseudotsuga taxifolia
- Western Red Cedar
- Thuja plicata
- Englemann Spruce
- Picea engelmannii
- Western Hemlock
- Tsuga heterophylla
- White Pine
- Pinus monticola
- Balsam Fir
- Abies pectinata
- Yellow Pine
- Pinus ponderosa
- Lodgepole or Jackpine
- Pinus contorta
- Poplar or Aspen
- Populus tremuloides
- Cottonwood
- Populus trichocarpa
- White Birch
- Betula occidentalis
- Juniper
- Juniperus communis

**Douglas Fir.**

*Pseudotsuga taxifolia*, the Douglas fir, was encountered throughout the lower Thompson region and the Barriere country. It is a very common species along the main valley as far north as Stillwater Flats. Above this, however, the Douglas is seldom encountered, and at Thunder Creek, Mile 150, it practically disappears.

The tree in general is of a very sound character, being tall, straight and clear of limbs for a considerable height. The species is found most commonly along the river bottoms, and on the lower slopes and bench lands, favoring a well-drained, sandy soil.
It is generally found in mixture with yellow and jack pine. Some splendid specimens of this tree were found in the Barriere country through the timber limits south-east of East Lake. Fir was here found at an elevation of 4500 feet and reached a maximum diameter of 26-40 inches. The average diameter of the species throughout the region runs much lower, about 15 inches as a general rule, with an average height of 80-90 feet.

Some of the older Douglas seem to be afflicted with a dry heart rot, but the younger trees seem to be quite free from insect and fungous diseases.

**Western Red Cedar.**

The Western Red Cedar, *thuya plicata*, was the most common species met with throughout the work. It is mostly a bottom land tree, but on sheltered slopes where the moisture conditions are good the cedar will occasionally run up to 4500 feet. Trees vary considerably in size. Specimens were found in the Barriere country having a D.B.H. of 7-8 feet. Diameters of 4-5 feet are quite common and the average tree in this section would have a diameter of 23-24 inches. Maximum heights run to 130 and 140 feet and average heights to about 90 feet.

This species has numerous defects, a large number of the trees being small or hollow butted and having a dead top. The trunk is often twist grained and has considerable taper, and the tree is invariably afflicted with heart rot. In certain sections of the valley the deduction for defects would run as high as 40% to 50%.
A big per cent of the merchantable cedar in this region is overmature. Instead of a yearly increment in stand in this matured timber there is a steady deterioration.

Englemann Spruce.

Piessa englemannii, White or Englemann's Spruce was met with throughout the work. It occurs on bottom lands and on protected moist slopes up to elevations of 3000 and 6000 feet. The spruce in this section is very sound and under good local conditions is a fairly fast growing species. Trees with a diameter of 36 inches and height of 120 feet were found but the average diameter of the species is about 16-18 inches with a height of 65-95 feet. This species makes up about 30% of the total merchantable stand. The older trees are afflicted to some extent with heart rot, but the younger, thrifty trees are apparently quite free from any bad tree diseases.

Western Hemlock.

The Western Hemlock, Tsuga heterophylla, is a species very common in the interior and was encountered from one end of the Thompson Valley to the other. The species is lumbered only to a very small extent in this section. The trees are generally short and have a heavy taper. Thebole has little or no clear length, the large branches coming down to within a few feet of the ground. The largest tree would have a diameter of 20 inches with a height of 90 feet. An average size is 16-18 inches with a height of 75-80 ft.
The species occurs under varying conditions of soil and moisture, being found on bottom lands at an elevation of 1200 and also on mountain slopes up to timber line at 6000 feet. Softwood reproduction on burns is coming in largely of this species.

White Pine.

Pine monticola, Western White Pine, was one of the best species of timber encountered during the work. It was found only in widely scattered localities and made up only a very small part of the stand. It occurs mostly in bottom lands and lower benches where fairly good moisture conditions prevail. The species was found in the Barriere country in virgin stands, at an elevation of 3400 feet, and in this locality trees 26-28 inches in diameter and 125 feet in height were found. As a general rule it seldom exceeds 34 inches in diameter with a maximum height of 90 feet. The bole is long and cylindrical, having little taper. The species prunes well and the trunk is free from branches to within 15 or 20 feet of the top. The wood is of a first class quality and the species is free from any apparent wood diseases. This species is very noticeable among the second growth coming in over certain sections of the North Barriere country.

Balsam Fir.

Balsam or Alpine Fir, abies lasiocarpa, is a very common species, especially at the higher elevations, where in places it makes up over 50% of the stand. Maximum diameters of 20 inches, with
a height of 85 feet can be found, but an average diameter of 10-12 inches with a height of 60-70 feet is common. The size decreases as elevations increase until at timber line the Balsam is a mere shrub 10-15 feet high.

**Yellow Pine.**

*Pinus ponderosa*, Yellow or Bull pine, was a very common species throughout the southern parts of the area examined. The northern limit of the species seems to be around the lower end of Stillwater Plate. Yellow Pine forms a large per cent of the forest growth along the main valley south of this point, and it is also quite common in the western sections of the Barriere country. It occurs mostly in the drier bottom lands and on partially exposed lower slopes, seldom being found above an elevation of 5000 feet. Stands of this species are sometimes quite pure, but it is generally found in mixture with Douglas Fir and Jack pine. Trees of this type were found with a diameter of 40-42 inches, but the average tree is about 12-15 inches in diameter with a height of 70-80 feet.

**Jack Pine.**

Lodgepole or Jack pine, *Pinus contorta*, is found scattered throughout the area. It occurs largely as second growth coming in on old burns. The stands of the species are common on dry sandy knolls and ridges. The species does not reach any great size, about 14 inches being a maximum diameter. In the average Jackpine stands, however, it is generally 4-6 inches in diameter and 20-30 feet in height.
Poplar.

The poplar or aspen, *Populus tremuloides*, was found throughout the area. It occurs mostly along the bottom lands where the best soil and moisture conditions prevail. Its maximum diameter seldom exceeds 16-20 inches, and its average size is about 10-15 inches with a height of 50-60 feet. Pure stands of this species seldom occur and it is found mixed with Cottonwood and Birch.

Cottonwood.

*Populus trichocarpa*, the Black Cottonwood, is very common in this region, being found scattered throughout the entire area. It occurs entirely on good bottom and low bench lands, seldom being found above an elevation of 3000 feet. This species reaches an enormous size under good conditions, specimens 6-7 feet in diameter being found around the upper shores of East Barriere Lake. Average size of the species is about 16-20 inches in diameter with a height of about 70 feet.

Reproduction on recent burns is coming in largely of this species, in some places as high as 90% of the total growth being cottonwood.

White Birch.

The White Birch, *Betula occidentalis*, was found only in scattered localities, and occurs mostly along the bottom lands. The species does not reach any great size, seldom exceeding 10 inches in diameter and generally being less than 12 inches, with a height of 60 feet. The Birch is invariably diseased, the older trees being
polluted with fungus and having a dead top.

Juniper.

Juniperus Communis, the dwarf Juniper, was encountered along the Upper Thompson Valley, from Blue River North. It seems to occur on moist mountain slopes between elevations of 2500 and 4000 feet. This species does not reach tree size and seldom exceeds 1 inch in diameter and 8 feet in height.

Other Species.

Several other species were encountered which are of minor importance i.e. Alders, Willows and Hazel. Some of these species reached tree size although specimens of Alder 8-10 inches in diameter were encountered in the Barriere country.

Undergrowth.

A heavy undergrowth of willow, hazel, elder and Balsam was very prevalent throughout the Barriere country and in certain localities this growth was almost impenetrable. Heavy dense growths of Devils Club were encountered in the northern sections of the main Thompson Valley. This was sometimes 6 feet in height and several inches in diameter.

From elevations of 2500 feet a heavy growth of buck brush extends up the mountain sides to the timber line. This brush was seldom over 6 feet in height, but made a dense undergrowth, more or less matted together.
FOREST TYPES.

Forest conditions vary considerably in the northern and southern sections of the Thompson Valley, on account of the great change in climatic conditions.

A distinct and altogether different set of forest types prevail over these areas and they will be dealt with separately.

a. Lower Thompson Valley.

This section includes the valley north to the Stillwater Flats and the following forest types exist over the area:—

1. Hardwood Type.

Occurring on the low bottom lands on rich moist soil.

This type consists of Poplar and Cottonwood in mixed proportions. A heavy undergrowth of Alder and Willow is prevalent in the type of forest, and a lone Spruce or Cedar is generally located here and there among the hardwoods.

2. Yellow Pine and Douglas Fir Type.

This type is very common and forms the greater part of the forest on the southern sections of the area. It occurs mostly on the lower slopes and benches under varying soil conditions, but seems to favor a well drained soil, consisting of a fine sandy loam. Very open stands are generally formed which consist of 70% Yellow Pine and 20% Douglas Fir. A more or less heavy scattering of Jack pine is generally mixed in with this type.
3. Spruce and Douglas Fir type.

This type is quite common on the upper slopes along the main river, between elevations of 2000 and 4500 feet, and generally occurs in the proportion of 60% Spruce and 40% Douglas. Alpine Fir breaks into this type at the higher elevations and this species takes the place of the Douglas Fir, forming a large percent of the stand above elevations of 4500 feet.

E. Upper Thompson Valley.

North from the lower end of Stillwater Plate we get the following forest types:

1. Cedar and Spruce type.

This is the principal forest type in the northern parts of the area examined and covers a large part of the statutory timber lands. It occurs along the valley bottoms and on lower slopes up to an elevation of 3500 feet. The species are found in the proportion of 60% Cedar and 30% Spruce. Western Hemlock is often found mixed with this type and as elevations approach 3500 the Hemlock begins to form quite a large per cent of the forest stand.

2. Cedar, Spruce and Hemlock type.

Above elevations of 3500 we find this type of forest. Cedar, which makes up a large per cent of the forest at the lower elevations gradually disappears and the upper boundary of the type, which is about 4500 feet is marked by the total absence of the Cedar. The percentage of Hemlock increases as the Cedar drops out. Spruce which makes up 30 - 40% of this type of forest,
slightly diminishes its per cent of proportion as elevations approach 4500 feet.

This type in general is a transition stage between the Cedar and Spruce type of the lower elevations and the Hemlock and Spruce type of the high elevations.

C. Spruce and Hemlock Type

This forest type occurs from elevations of 4500 feet up to timber line, 6000 feet. When first noticed, the spruce and hemlock occur in about equal proportions, but as elevations increase the proportion of spruce seems to decrease. A fairly heavy scattering of Alpine Fir is generally found through this type of forest, being especially prominent near the timber line.

C. The Barriere Country

A small portion of which is in the "Dry Belt", and the rest in a "Semi Dry Belt", has several characteristic types.

1. Bottomland Type

This type is common on low bottoms, where good moisture conditions prevail, as along the valley bottoms of the different rivers and around the shores of the lakes. It consists of Cedar 60%, Spruce 20% and Douglas Fir 20%.

Cottonwood and Birch are often found scattered through this type of forest especially in the immediate vicinity of the lakes.

2. Fir and Jackpine Type

Occurs on southern slopes more or less exposed, where
moisture conditions are not of the best, and where the soil is of a very siliceous nature. This type is very common on burned-over areas, where the Jackpine has come in as a second growth and the Douglas Fir is of virgin character, having survived the fire.

3. Spruce and Cedar Type.

This type occurs on lower northern slopes where the soil contains a maximum amount of moisture, and is more or less sheltered. The forest is made up of Spruce and Cedar in about equal proportions with a heavy scattering of Balsam Fir throughout. Snowbreak is very common in this Balsam Fir and the northern slopes are very often covered with this down stuff.

4. Spruce and Hemlock Type.

This type is quite common above elevations of 4000 feet, the two species occurring in about equal proportions, but at the higher elevations the proportion of Hemlock increases. Balsam Fir is found in considerable quantities around the higher elevations mixed in with the Spruce and Hemlock.
Rate of Growth in Different Species.

**Douglas Fir.**

Measurements taken of 40 trees.

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Englemann Spruce

Measurements taken of 75 trees.

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<td>120</td>
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Quantity of Timber.

The North Thompson Country has at one time been a well timbered region, but during the last 50 years forest fires have swept over large areas utterly destroying the forest growth. In the Barriere country especially the fires have done tremendous damage, about 80% of the entire watershed being burned over. The only virgin timber left is located along the valley bottoms, or on naturally protected slopes.

The statutory timber lands, of which there are some 122,470 acres, are located on the Barriere watershed, and along the main Thompson Valley, north from Canoe Landing, Mile 134. The timber along the Thompson valley from the Railway Belt north to the landing is in general very scattered. Small areas which will run 5 - 6% to the acre are located around Mosquito Flats, Raft River and Lost Creek. Other areas containing fairly good timber are covered by C.N.R. tie reserves. There are some 88,500 acres containing timber running 3 - 5% to the acre containing approximately 225,000,000 board feet of timber.

Second growth running under 1000 to the acre covers over 532,000 acres containing approximately 490,000,000 board feet.

A general estimate in tabulated form will be given below.
### Statutory Timber

<table>
<thead>
<tr>
<th>Barriere Country</th>
<th>Acres</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lands containing 5-10M per acre</td>
<td>7560</td>
<td>50,000,000</td>
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<tr>
<td>&quot;    &quot; 10-20M &quot;</td>
<td>23440</td>
<td>226,000,000</td>
</tr>
<tr>
<td>&quot;    &quot; 20 &quot;</td>
<td>9060</td>
<td>180,000,000</td>
</tr>
<tr>
<td></td>
<td>40080</td>
<td>485,000,000</td>
</tr>
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</table>

This is made up of Cedar 50%, Douglas Fir 25%, Spruce and White Pine 25%.

### North Thompson River

<table>
<thead>
<tr>
<th>Lands containing 5-10M per acre</th>
<th>Acres</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
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<td>34180</td>
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<tr>
<td></td>
<td>62,440</td>
<td>485,000,000</td>
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</tbody>
</table>

Made up of Cedar 50%, Spruce 30%, and Hemlock 20%.

### Other Timber Lands

<table>
<thead>
<tr>
<th>Lands containing 2-5M per acre</th>
<th>Acres</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;    &quot; 2-5M &quot;</td>
<td>36500</td>
<td>325,000,000</td>
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</tbody>
</table>

Made up of Yellow Pine, Fir, Spruce and Cedar Second Growth.

Under 1M per acre - $12,000 - 490,000,000.

### Total Stand

<table>
<thead>
<tr>
<th>Total Stand</th>
<th>Acres</th>
<th>Estimate 3.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>701,000</td>
<td>1,765,000,000</td>
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</table>
Location of Timber with reference to Ownership.

A large percentage of the merchantable timber located along the main Thompson Valley is under private ownership. The statutory timber lands north of Canoe Landing are about 75% alienated and held under licences and leases. The other 25% which remain under Government control is located around the boundaries of the timber limits all along the valley.

All timber along the main river is easily accessible. The completion of the C.H.P. Hy. through the valley will furnish an easy system of transportation.

The statutory timber lands located in the Barriere country are about 50% alienated. The other 50% which remain under Government ownership is located farther back along the headwaters of the different rivers. An extensive area of unalienated timber land containing in the vicinity of 4000 acres is located on the Adams Lake plateau.

The timber in the Barriere region is all accessible and the greater part of it can be taken out over the waterways.

Burnt-over Lands.

Forest fires have done considerable damage throughout the Thompson drainage area. Approximately 544,000 acres or about 60% of the total area examined has been burned over during the last half century. The greater part of this damage was wrought by the tremendous fire of 45 years ago, which swept across the Lower Thompson
valley and Barriere country into the Adams Lake district. Practically all of this burned over area was under heavy forest before this fire, and evidence of this is seen in the large charred stumps and other remnants which can still be seen here and there over the burned area.

A bad fire occurring about 22 years ago swept down the main Thompson Valley starting at Trout Creek on the west side of the river and crossing about five miles further south, devastating both sides of the valley to a point near the souther end of Stillwater Flats.

Numerous small burns have occurred during the last decade, most of which were less than one square mile in area. Several, however, swept over areas containing between 2000 and 3000 acres.

The 544,000 acres burned over would have contained before the fire at the very least an average of 5000 board feet per acre. This means that the fire loss over the area examined would be in the vicinity of 2,700,000,000 feet board measure. Taking a general stumpage value of one dollar per thousand, this means that the total fire loss has been about $2,500,000 to the province.

Reproduction.

Reproduction has taken place over most of the burned over areas. In several localities, however, the fire burned up the light covering of soil, and it will be many years before a new forest growth comes in.

In the Barriere country the reproduction is largely Cedar, Spruce and Fir. Jackpine also is quite common, it having come in
in fairly pure stands in places. A sprinkling of hardwoods, in the
shape of cottonwood and birch is found in the second growth. Around
the North Barriere Lake and valley east of there, the reproduction
contains a heavy scattering of white pine.

In the Lower Thompson Valley the reproduction is coming in
heavily of Jackpine with a scattering of Yellow Pine, Douglas Fir,
Cedar and Spruce.

Around Stillwater Flats and country north along the valley,
the reproduction is largely hardwoods. In certain localities or in the
vicinity of Colegate the hardwoods, mostly in the form of Cotton-
wood and Poplar, make up 90% of the young growth. Wherever the soft
woods make up any considerable per cent of the stand, they generally
consist of Hemlock 75%, and Cedar and Spruce 25%.

Jack pine and hardwoods are coming in heavily over the
burned areas up the North Fork of the Thompson.

Fire Protection.

Fire has in the past and will in the future, unless care is
taken to control it, do much damage in this valley. During the past
summer fireguards were placed at intervals along the Thompson Valley
but as every one of these guards had a large section of country
to cover they had to confine themselves mostly to the main valley,
thus affording very little protection to the tributary valleys.

A line of patrollers were placed along the C.P. right
of way during the summer, as the railway people were continually
burning slash along their line, and this work had to be looked after
by the guards.

Many settlers have taken up homes along the Thompson and tributary valleys, and these settlers do a large amount of slash burning and other cleaning up every year. Only by the closest supervision can the fire danger be kept under control.

As has been mentioned before, no extensive fires have occurred during the last decade. Numerous small fires have occurred during that time however, and some of them did considerable damage to the forest growth. Several of these small fires, if occurring under more favourable conditions might have swept over large areas.

Before an organized and complete system of fire protection can be worked up, a great deal of trail cutting will have to be done. The District Forester of the Kamloops District has done a great deal of improvement work in this line during the past fall. The Barriere country, especially during the early part of the summer when we were conducting our reconnaissance in that section, was practically devoid of trails. A bad accumulation of debris and heavy undergrowth made travelling even on foot a tedious process. If a fire had broken out three miles back from the main roads at that period it would have been practically impossible to get men to the scene of the fire in order to check it before it gained tremendous headway. Trails have since been constructed from East Barriere lake south across the Barriere plateau and joining with the Louis Creek trail. Another has been constructed from the
lower end of North Lake to the headwaters of the Beaver River. This trail, if continued north to Vavenby, would serve as a short cut into the Barriere Country and as this trail would necessarily have to follow the higher ridges a good lookout of the surrounding country would be established.

A trail cut from the head of East Barriere Lake east across the Adams Lake Divide and joining with the Adams River waggon road would serve as a northern connection between the Thompson and Adams Lake country.

In the northern sections of the valley there has been very little work done, and very few trails exist outside of the main pack trail up the valley. A trail has been cut during the past fall up the Salmon Valley and across to Tum-tum Lake. Old Indian trails ran for short distances up the Blue River and North Fork of the Thompson. The Blue River trail could be continued across the divide and into the Myrtle Lake country, thus making the northern parts of the Clearwater country easy of access.

Lookout Stations.

A system of lookout stations connected by telephone or other means, could very easily be established in this district. This would be a splendid system for use in the Barriere country, as there are several high and easily accessible mountain tops in that section from which practically the whole country can be overlooked. Two of these points would be Barriere M't. (Elevation 4500') located about three miles north east of the Barriere Forks, and Groundhog
Mt. (elevation 6800'), located about four miles north from the upper end of North Barriere Lake. Lookouts on these two points would together have a range of over 500 square miles.

Copper Mountain with an elevation of 5800' is located on the Adams Lake divide at the upper end of the North Barriere Valley. A lookout on this point would control a large section of the Adams Lake as well as a large part of the Barriere.

A line of lookouts, connected with each other and with headquarters by telephone, could be established up the main Thompson Valley along which are located many good controlling points.

From Pinkie Mt. elevation 4900', located on the east side of the river just above Stillwater Flats, a long stretch of valley and much of the surrounding country can be looked over. This point also gives a good control of the Salmon Valley.

Warrigan Mt. located on the east side of the river about four miles from the head of Trout Creek, would make a splendid lookout station, as an area of about 400 square miles can be looked over. This point is at a disadvantage, owing to its high elevation of 7500' and to the difficulties encountered in its ascent.

A lookout established on Cooks Peak, elevation 7000', would give a good control of the valley for about 10 miles north and 15 miles south of Blue River. The advantages of this point lie in its being easily accessible. A horse trail could be constructed up to Cook Lake, elevation 5500', which is located at the base of the high peak.

Rangers quarters could be established here at small expense
and good summer grazing could be obtained around the lake.

Range-ers quarters have not been located throughout the valley up to the present, although District Forester Coverhill has several locations in view. The better sites in the main valley have been taken up by preceptors, but splendid sites can still be secured in the tributary valleys.

Agricultural Lands.

A small per cent of the area which is available for agricultural purposes or otherwise has up to the present been pre-empted or otherwise settled. This is largely due to the fact that large areas of the best land are held under timber limits. This condition prevails in the Barrier country where large areas of land in the Johnson Lake section and in the Upper Barrier country are held up from settlement until the few timber limits scattered are surveyed.

The greater proportion of the arable land along the Lower Thompson Valley has been settled. Large areas still unalienated exist around the upper end of Stillwater Flats in the Lion Creek Valley. Considerable areas exist in the vicinity of Blue River and the Upper Mud Valley. This Mud Valley contains some 3700 acres of wet meadow-land which can be utilized for agricultural purposes. The area is mostly flooded, the water being held up by beaver-dams. These can very easily be cut out, however, and the area drained.

A narrow strip of bottomland exists along the main Thompson Valley north from Blue River and extends up the North
York for several miles. Small areas of meadow-land exist at Highbanks and Aparso. There is only one preemption taken up between Mile 143, the northern end of Blue River Flats, and Mile 172 Thompson Crossing and all the remaining agricultural land is held under timber limits.

Off the 375,000 odd acres examined some 234,000 acres can be designated as agricultural land. Of this total the Berriere country contains 89,000 and the main Thompson Valley 145,000 acres.

This agricultural land contains as a general rule splendid soil. Garden truck of all kinds appears to thrive. Cereals are grown to some extent in the southern portions of the valley, and some crops have been harvested. The Berriere country is as yet very new, but some splendid cereal and root crops have been grown. The land in the immediate vicinity of Berriere Lake seems to be particularly productive.

Fruit farming is claiming the attention of a large number of settlers in the "Dry Belt" and in the "Semi-Dry Belt", to the east of the valley. Fairly good success has been obtained in this line, although water for irrigating is a serious question to many of the farmers.

The greater percent of the farming land in the main valley south of Mosquito Flats has to be irrigated to a more or less extent.
Grazing Lands.

The Thompson country is primarily a timber region and good grazing areas are very scarce. The forest is, in places, very open and bunch grass has come in. The country on the west side of the river for 40 miles north from the Railway Belt is somewhat of this nature, and grazing is carried on to a very small extent. Grazing of this nature can also be obtained in east side of the river, throughout the northern parts of Sullivan Valley and in sections of the Barrier's country.

An area of about 35 square miles, located on the west side of the river in the vicinity of Vavenby Mile 86, is fairly good grazing land, on which stock range throughout the year without extra feed during the winter months.

A large section of country located between Lion Creek and Blue River, and extending from the Thompson west into the Clearwater country may be classified as timber range. The area is timbered with open stands of Spruce and Hemlock and contains numerous small meadows.

The Thompson country north of Blue River contains no large grazing areas. Meadows do exist at Highbanks and Aparac, but they are very limited in extent.

Abundance of grass can be found on the mountainsides in the vicinity of the timber line. This might possibly be utilized for grazing sheep during the summer months.
Other Resources.

A. Water Power.

The City of Kamloops has during the past year constructed a large dam on the Barriere River about 8 miles from the mouth. It is the intention to install a large power house near here and develop enough electricity to supply the city. This electricity will be carried into the city over a high tension line about 48 miles in length. A hydrographic survey has been made of the surrounding rivers and lakes and it has been found that if occasion requires a dam could be built across the North Barriere River, a few hundred feet below where it leaves the lake. By means of this dam the flow of water could be regulated to the power plant below.

Several other good water power chances exist over the area, all of which are in the northern section of the valley.

At Pyramid Creek, about Mile 150, the C.N.R. have plans for an extensive dam to conserve water for railway purposes. This creek drains an area of high glacier covered country and has a large lake at its source.

Other Creeks which might be utilised include the Thunder, Bone and Bellroaring. These creeks have a fairly steady flow of water, being mostly glacier fed. As a general rule they have high steep banks and have numerous large falls.

B. Mining.

There is very little mining being carried on in this locality as yet. Several coal areas are being investigated, one
of these being located east of Chu Chu and others at Neat River and Mosquito Flats.

Extensive placer mining operations are being carried on along Louis Creek, and considerable prospecting is being done on the smaller streams tributary to the Thompson.

Heavy mica deposits are located up the Blue River, but these are not yet being mined.

Condition of Waterways.

The lower portion of the Thompson River is navigable during high water, and during the spring and early summer, river boats run regularly between Kamloops and points up to Mile 90. Between this point and Mile 109 is found some very rough water. The stillwater Flats which extend from Mile 109 to Mile 123 are navigable during high water and during the past season a small power boat went over this route continually. From Mile 123 to Canoe Landing the river is very dangerous, being narrow and full of large boulders. Hellgate at Mile 127, presents a complete barrier to navigation or driving. The river north of Canoe Landing, Mile 134, is full of log-jams and sand bars, and is navigable only to canoes or other very light craft. The river can be rafted or digrated during high water over all sections but that existing between the head of Stillwater Flats and Hellgate.

The greater number of the smaller tributaries are too rough to be driven. The Blue River, along which considerable timber exists, is a mountain torrent after the first 5 miles and
would be incapable of being driven above that point.

The Clearwater River may be utilized at high water for a considerable distance.

The Lomeaux Creek which enters the Thompson at about Mile 56, has been cleared and used for log driving in the past.

The Barriere River can be made drivable by the construction of a few splash dams. The Barriere lakes themselves are very deep and could easily be rafted.

Forest Reserves.

There are certain areas which should be set aside as reserves. Some of these areas are timber lands which cannot be utilized for agricultural purposes, but on which a crop of merchantable timber can be grown. These lands will in time become a source of revenue to the province if fire can be kept out. Other areas protect the headwaters of important streams and as a forest covering is necessary to regulate the flow of the water, this covering must be conserved by all means. This is particularly the case in the southern sections where irrigating is carried on, and the water supply is an important factor.

The following areas are recommended to be placed under forest reserves.

Area I

A block of country located between Louis Creek and the Barriere River, and lying between the Thompson Valley and the Barriere Plateau. This area comprises the headwaters of Dickson Creek, and large tributaries of the Barriere River and Louis Creek. The area
is timbered throughout and has a maximum elevation of about 6000'. The total area would contain in the vicinity of 35 square miles of country, which is much broken up by high ridges with narrow intervening gulches. The minimum elevation would be about 2250' and there would be practically no agricultural land in the area.

Area II

A large block containing about 280 square miles located to the north and north-west of North Barries Lake. This area would include the high rough country in the vicinity of Cha Cha Mt. and the boundaries of the area would be the Thompson Valley on the north and west, Second Barries River on the east, and the North Lake on the south. About 20% of this section would be barren area above timber line. Elevations throughout the area range between 2500 and 8000 feet.

The valleys are for the most part too high and too rough to be utilized for agricultural purposes.

The headwaters of many small streams are included in this area. Several of these are the Coal, Timber, Boulder, Cedar and Skookumchuck flow into the North Thompson, while the Burke, Porcupine and Second Barries drain into the North Barries River.

A good game reserve could be established within the same boundaries, as wild game seems to be fairly plentiful in this locality.
Area III

The large tract of country lying between the Thompson and Clearwater Valleys, with north and south boundaries of Blue River and Lion Creek, should be placed under reserve.

There is very little merchantable timber on this area at the present time, it being mostly second growth, Hemlock and Spruce.

This country might be called timber range and summer grazing could be obtained throughout the area. Elevations would vary from 3000 to 5500 feet. Practically the whole area is forest land, and is below timber line.

There are no settlers in this section, the high elevation of the land causing it to be useless for agricultural purposes, as heavy frosts occur during the summer months.

Reserves North of Blue River.

The Thompson valley north of Blue River is hemmed in on both sides by very high snow-capped mountains. These mountains extend for many miles east and west and are for the most part above timber line, elevations of 7000 and 8000 feet being common.

This rough country is practically useless, but by placing it under a game reserve and protecting the caribou, goat, grizzly bear, etc., which roam in the hills, a possible revenue may be derived.

The C.N.R. Rly, which runs through the main valley would make this country very easy of access. There is a narrow strip of good bottomland along the Thompson from Blue River north and this will in time be taken up by settlers. A few low bench lands
Detailed Description of Areas.

A. Barriere Country.

1. South Fork and Johnson Lake drainage area.

This area would comprise about 90 square miles, about 28% of which is arable. The northern portion of the plateau which marks the Barriere - Louis Creek Divide is contained in this area.

Approximately 80% of the area was burned over about 40 years ago, and since that time no fires of any extent have occurred. Reproduction is general over the burned area and consists of Cedar 30%, Spruce 30%, Fir 20%, Jackpine 10%; hardwoods in the shape of Cottonwood, Poplar and Birch 10%.

There are approximately 16,000 acres of good agricultural land in this watershed. No settlers have come in as yet, they being held out until timber limits contained in the area are surveyed. Several large Alder and Willow swamps are located in the Valley. These can easily be drained and utilized for agricultural purposes.

Approximately 6540 acres of statutory timber can be found in this section, of which some 2560 acres are alienated and held under timber limits. This timber is located along the valley bottom, near the junction of the LeRoy and South Fork Creeks, and along the north shore of Johnson Lake. Timber is all easily accessible, and the South Fork could be easily cleared and driven during high water periods.
The statutory timber lands are practically the only areas of virgin timber in the section, the rest being second growth.

The following is a general estimate of the timber in this section:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Acres</th>
<th>Feet B.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory Timber - Over 6 M. per acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alienated</td>
<td>2560</td>
<td>26,000,000</td>
</tr>
<tr>
<td>Unalienated</td>
<td>2660</td>
<td>27,000,000</td>
</tr>
<tr>
<td>Other Timber - 0-5 M. per acre</td>
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<td>45,000,000</td>
</tr>
<tr>
<td>Total</td>
<td>53240</td>
<td>126,000,000</td>
</tr>
</tbody>
</table>

2. East Barriere Prairie Area.

This area lies in the large valley running east from the Thompson River to the Adams Lake divide. The large tributary valleys of the North and South Forks which join the main valley near Barriere Forks are the only heavy breaks in the high ridges on either side.

This section suffered considerably from the large fire of 48 years ago, about 75-80% of the area being burned over. Natural reproduction has taken place over this burned area and consists of Cedar 25%, Spruce 25%, Douglas Fir 25%, with a scattering of Jackpine, Cottonwood and Balsam 25%. Several recent burns have taken place, the largest of which burned over an area of a little over 1000 acres just south of the lower end of East Lake. This burn is not reproducing as yet, having occurred
only two years ago. Another burn occurred about two years ago about two miles south of the Barriere Forks and swept over an area of nearly 1000 acres. Several smaller burns have occurred but generally less than 100 acres in extent.

There are about 40,000 acres of agricultural land in this watershed, only one third of which is taken up. Some fine land still remains in the vicinity of East Lake and further east along the upper valley.

There are approximately 15,100 acres of statutory timber in this watershed, of which 7530 acres is alienated. The largest block of timber, containing about 9050 acres is located to the south-east of East Lake. This tract will average about 90,000 to the acre, there being spots throughout the area which run from 150,000 - 2400,000 to the acre. Timber consists of Cedar 40%, Douglas Fir 30%, Spruce and White Pine 30%. The Cedar is fairly sound here, being only about 15% call.

Another large block containing some 2770 acres is located on the Adams Lake divide and a smaller tract of a little over 900 acres is located at the head of East Lake.

Two other small tracts containing respectively 1005 and 352 acres are located in the vicinity of the Barriere Forks.

A few small patches of timber averaging about 3 m to the acre are located around East Barriere Lake.

The following is a general estimate of the timber:
# Classification

<table>
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<tr>
<th>Class</th>
<th>Acres</th>
<th>Feet B.K.</th>
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<td>Unalienated</td>
<td>7340</td>
<td>102,000,000</td>
</tr>
<tr>
<td>Other Timber, 0-5 M per acre</td>
<td>82000</td>
<td>93,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>97120</td>
<td>317,000,000</td>
</tr>
</tbody>
</table>

## Z. North Barrier Drainage Area

This watershed includes an area of approximately 320 square miles, the greater portion of which is very high, rough, mountainous country. Elevations vary from 2000 feet in the valley bottoms to 6000 and occasionally 7000 and 9000 feet on the highest peaks.

The tremendous forest fire of half a century ago, which swept down from the north rim through this section, cleaning up everything with the exception of a narrow strip of timber along several of the valley bottoms. Another burn, about 30 years ago cleaned up a considerable area around the headwaters of McDonald Creek.

Regeneration has taken place over this burned area and now a second growth of Cedar, Douglas Fir and Spruce, fairly evenly distributed covers the bottoms, while on the side hills and at higher elevations Jackpine 80%, Spruce 85%, Balsam and White Pine 25% forms the new stand. Only one recent burn was noted, this one being located about one mile to the north east of North Lake, and
covering an area of about 400 acres. This burn occurred three years ago, and regeneration has not yet taken place.

There are approximately 20,000 acres of agricultural land in this section, a very small part of which has been taken up. The settlers, of which there are some 20 or more, are located along the North Fork below the Lake. Several precautions have been staked along the north shore of North Lake during the past summer. The absence of good trails has been a great detriment to this section of the country. Up to last fall the only trail in the North Barriere district extended from the Forks up to the head of the lake, a distance of perhaps 7 miles. During the early fall, the Forest Branch continued this trail around the lake and extended it for some distance into the upper valley.

Some splendid agricultural land exists in the valleys east of North Lake, and this will all be settled in the very near future.

There are approximately 18,700 acres of statutory timberland in this section, of which some 7,150 acres are alienated. About 12,550 acres, or 65% of the total amount is located along the Beaver and Second Barriere valleys. Another large block containing 4,150 acres is located along the lower end of the Porcupine Valley. Two smaller tracts containing 1500 and 650 acres respectively are located at the headend on the north shore of North Lake. Another small tract of 380 acres is located along the river about one mile below the lake. This timber can all be taken out over the waterways with the exception of the strip on Porcupine Creek. This creek is very swift and filled with large boulders and cannot be driven.
The remainder of the merchantable timber in the section is located along the headwaters of the Porcupine, Beaver and Second Barriere Creeks, and on the eastern slope of the Thompson divide between Burks and McDonald Creek, where some very good Spruce and Balsam 0-5 M to the acres can be found.

The following is a general estimate of timber in this section:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Acres</th>
<th>Feet B.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory Timber - Over 5 M per acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alienated</td>
<td>7,150</td>
<td>88,000,000</td>
</tr>
<tr>
<td>Unalienated</td>
<td>11,660</td>
<td>136,000,000</td>
</tr>
<tr>
<td>Other timber, 0-5 M to the acre</td>
<td>132,000</td>
<td>158,000,000</td>
</tr>
<tr>
<td>Total</td>
<td>142,700</td>
<td>198,000,000</td>
</tr>
</tbody>
</table>

B. Lower Thompson Valley.

1. From railway belt north to the mouth of the Barriere, Mile 22-Mile 40.

This strip is about 16 miles long and lies entirely in the "Dry Belt". The main valley bottom varies in width along this section from ½ to 1½ miles.

A large proportion of the area has been burned over, and second growth on these areas consists of Balsam, Jackpine and Fir along the bottoms and lower benches, with a scattering of Spruce
and Balsam at the higher elevations.

The best lands throughout the section have been taken up and some splendid farms can be found along the valley. Farming throughout this section of the "Dry Belt" is entirely an irrigating proposition, as the growing season is very dry. Very little rain is received between the months of June and September during the average season. Dry farming has been practised to some extent and with fairly good success in the Nighting locality.

The merchantable timber consists of Bullpine 50%, Douglas Fir 40%, and Spruce 10%. This timber is widely scattered over the area. The forest is generally very open and timber is easily accessible. About 25% of the timber still remains under Government ownership.

The following is a rough estimate of the timber in this section.

<table>
<thead>
<tr>
<th></th>
<th>F.B.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alienated</td>
<td>18,000,000</td>
</tr>
<tr>
<td>Unalienated</td>
<td>7,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25,000,000</strong></td>
</tr>
</tbody>
</table>

Section 2.

From Barrier River to Clearwater Crossing.

This section is a little over 30 miles long and the main valley bottom varies in width from ½ miles to 3 miles. A large part of the area has been burned over inside the last 50 years, and on these burned over areas a second growth of Yellow Pine, Douglas Fir and Spruce is coming in, with Jackpine scattered
throughout.

An Indian reserve located on the east side of the river south of Chu Chu, containing some 3000 acres takes up the best piece of bottom land in the entire valley. Some good land is found north of Little Fort in the so-called Mosquito Flats. A large number of pre-emptions have been taken up along these Flats and in the country west of Assiniboine Bluffs, around Beaver Summit and Dana Lakes.

During the past few years the Lemicus Valley, which forms the Thompson a few miles above Little Fort, has been greatly developed and homes have been taken up for 15 and 20 miles up this tributary valley.

The agricultural lands along this section of the main valley have to be irrigated, but not to such an extent as is carried on further south.

The merchantable timber is scattered along the valley, the best timber in the section is located along the Mosquito Flats where some good clumps of Douglas Fir and Yellow Pine are located. Very little timber can be found above the lower beaches. The upper slopes are covered with a very open forest of scrub spruce and balsam.

About 40% of the total amount of timber is under Government control.

The following is a very rough estimate of the stand:-
Alienated Timber - 0.6 $ per acre. 70,000,000 F.B.M.
Unalienated " " " 45,000,000 "

Total 115,000,000 "

In the percentage of Yellow Pine 40%, Douglas Fir 40% and Spruce 20%.

Section 2.

From Clearwater Crossing to Stillwater Flats.

This portion of the valley which is about 40 miles long includes the best timber lands along the lower Thompson. This section also suffered considerably from the fire of 48 years ago. Evidence exists in the large Fir and Cedar stumps that this entire section was once under heavy forest. Some good second growth Fir and White Pine is coming in over this burned area, also considerable Spruce, Yellow Pine and Cedar with scattered Hemlock and Jackpine.

That portion of the area lying between Celena Creek, Mile 80, and Mad River, Mile 100, is known as the Provine Country. This section receives very mild weather and very little snow during the winter. Horses can range the year round without extra feed during the winter.

The greater part of the good agricultural land in this section has been taken up and in the vicinity of Reft River can be found some splendid homesteads. North from Vavenby the country gets rather rough and between Mad River and the lower end of
Stillwater Flats it is of a non-agricultural nature, the lower
beaches and bottoms being quite rocky and otherwise broken up.
Some good stands of Spruce, Hemlock and Fir occur over this area,
also considerable Cedar and White Pine. Heavy clumps of Jackpine
are scattered over the area.

A large percent of the merchantable timber is located
in the vicinity of Lost Creek. Some good timber is reported to
exist along the headwater of Raft River. A rough estimate of the
timber in this section is as follows:

| Alienated Timber land's 0-50 per acre | 75,000,000 |
| Unalienated " " | 125,000,000 |
| **Total** | **200,000,000** |

Section 4:

Stillwater Flats.

The section known as Stillwater Flats extends from
Wire Cache, Mile 109, to Lone Grave, Mile 123. The valley
bottom along this section varies in width from \(\frac{1}{2}\) to 1 mile, and
steep mountains rising to an elevation of 4000 and 5000 feet break
it in on both sides of the main valley was swept over by a large
fire about 22 years ago, and with the exception of a narrow strip
along the bottom, contains practically no merchantable timber.

Reproduction on the burned over area is coming in very
slowly, a large per cent of the upper slopes being barren even yet.
This regeneration is mostly hardwoods with a small per cent of
Hemlock, Spruce and Cedar.

Practically all of the available land suitable for agricultural purposes has been taken up by preempts.

The merchantable timber is about 70% alienated and held in small quantities by the different preempts. Timber consists of Cedar 50%, Hemlock 30%, Spruce and Douglas Fir 20%.

A general estimate of the timber in this section is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Volume (M. per acre)</th>
<th>Total Value (P.B.M.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alienated Timber</td>
<td>0-5 M</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Unalienated</td>
<td></td>
<td>5,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15,000,000</strong></td>
</tr>
</tbody>
</table>

C. Upper Thompson Valley.

Section 1.

From the Stillwater Flats north to Blue River.

This section is about 19 miles long and contains along its southern extremity especially some very rugged rough country. High mountains ranging in elevation from 6000 feet on the west side to 8000 feet on the east side run parallel with, and on either side of the valley. Numerous small creeks and streams originate in these mountains and flow into the Thompson River. The Salmon, Blue and Nail Rivers, the largest of the tributaries in this section have formed great valleys of their own and these extend back for many miles into the surrounding country. The Salmon Valley forms a natural pass from the Thompson into the Tan-tum country, while
the Blue River extends west for perhaps 20 miles, having its source somewhere in the vicinity of Myrtle Lake.

The main Thompson Valley in this section contains very little bottom land, the steep side-hills, which in places have a slope of 40° and over, running right down to the water's edge.

From Mile 134, Canoe Landing, the valley opens out considerably till at the Blue River Flats it is from 2 - 3 miles wide. Practically no bottom land can be located up the Salmon and Blue River valleys, they being both narrow and gorge-like, and increase rapidly in elevation as they leave the main valley. An area of about 3700 acres of wet meadow land is located at the head of Mud Lake. This upper Mud valley is about one mile in width and runs back for 4 or 5 miles from the lake, terminating in smaller valleys, which run into the very rough snow-clad country.

Several preemptions have been taken up in the southern sections of the area, in the lower valley and around the small lakes that drain into Lion Creek. Between here and Goose Slough, which is the southern limit of the Blue River Flats, there are no settlers, the very small amount of agricultural land being taken up by timber limits. A small number of settlers are established at Blue River, which is a proposed C.B.R. townsite. Only one settler is located on the east side of the river, north of Salmon River. A bad fire occurring about 22 years ago swept over an area of about 16,000 acres, extending from the head of Trout Creek south on the west side of the river to Brule Creek, where it crossed the Thompson and swept down both sides of the valley to the lower
end of Stillwater Flats. This burn especially in the northern parts or reproducing largely in hardwoods as Cottonwood and Birch in some cases as high as 90%, the other 10% being Hemlock, Spruce and Cedar. There is considerable timber in this section, especially in the northern portion north of Brule Creek. The bottom and lower benches are forested with Cedars 50%, Spruce 30%, Hemlock 20%, Fir 10%, while the upper slopes are covered with Spruce, Hemlock and Balsam.

The statutory timber, of which there are some 26,000 acres is located in a narrow strip along the main Thompson Valley and up the valley of the Blue River.

Small patches are located on the Porcupine and Brule Creeks.

Statutory timber is reported to exist along the Upper Salmon Valley and in the vicinity of Ton-tin Lake.

Timber on these statutory areas will average generally under 10,000 although in a few sections it will run close to 20,000 to the acre. The greater part of this good timber is alienated and held under timber limits.

A great deal of reckless timber staking has been done in this section, particularly up the Blue River Valley. Some timber limits if surveyed as plotted on the blue print of that section, would be placed above timber line. The statutory areas in this locality are confined to a narrow strip, generally less than a mile in width on both sides of the Blue River. The lower portions of the Cedar and White Creeks, tributaries of the Blue, contain fairly
good timber largely Cedar and Spruce averaging about 8000 to the
acre.

The cedar in these northern sections is very bad and a
deduction, often as high as 50% has to be made for call.

A general estimate of the timber in this section is as
follows:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Acres</th>
<th>Foot M.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory Timber, Over 50’ per acre.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - 100’</td>
<td>24,370</td>
<td>110,500,000</td>
</tr>
<tr>
<td>10 - 200’</td>
<td>1,720</td>
<td>17,500,000</td>
</tr>
<tr>
<td>Other timber, 0-5 M</td>
<td>50,000</td>
<td>40,000,000</td>
</tr>
<tr>
<td>Total</td>
<td>76,190</td>
<td>177,500,000</td>
</tr>
</tbody>
</table>

Section 2.

Thompson Valley from Blue River north to Thompson Crossing.

The roughest section of the North Thompson Valley is
encountered in this stretch of country, which is about 51 miles
long. Very steep mountains hem the valley in on both sides,
elevations of 7500 and 8000 being quite common. The timber line
can generally be reached within two or three miles of the main
river.

Very few fires of recent dates have occurred in this
section. Small tracts containing 300 and 500 acres respectively
were burned over in the vicinity of Whitewater Creek and Agness,
about 7 years ago. Smaller burns are continually taking place.
along the route of the main pack trail. Reproduction over the
small burns is largely hemlock and cedar with a scattering of
cottonwood.

There is a narrow strip of bottomland along this
section, which can be utilized for agricultural purposes. This
is at present practically all held under timber limits. Only
one settler has taken up land in this section, between the
northern limit of Blur River Flats and the Crossing. Consider-
able areas exist at Highbanks and Aparso which contain good
agricultural land.

The best timber areas along the North Thompson are
located in this section. The statutory timber is located
along the valley bottom and lower slopes, and lies in a strip
from the end of the section to the other, this strip being on
an average about 1½ miles wide. About 90% of this statutory
timber is alienated and held under timber limits. Timber
consists of Cedar 50%, Spruce 30%, Hemlock 20%. A small
scattering of Douglas Fir can be found over the southern parts
of the area, but north of Thunder Creek the Douglas practically
disappears.

This valley is forested from timber line to timber
line, and on both sides, above the statutory limit, the timber
consists of Hemlock, Spruce and Balsam c-52, which gets very
open and scrubby as the timber line is approached.

A general estimate of the timber in this section is
as follows:-
Classification

<table>
<thead>
<tr>
<th>Timber Lands</th>
<th>Acres</th>
<th>Feet B.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-10M per acre</td>
<td>9,600</td>
<td>60,500,000</td>
</tr>
<tr>
<td>10-20M &quot;</td>
<td>22,600</td>
<td>228,000,000</td>
</tr>
<tr>
<td>Other timber</td>
<td>65,000</td>
<td>125,000,000</td>
</tr>
<tr>
<td>Total</td>
<td>97,200</td>
<td>413,500,000</td>
</tr>
</tbody>
</table>

Section 3.

North Fork of the Thompson.

The North Thompson River turns due west from the Thompson Crossing at the junction of the Alberna River. From this point west the river is known as the North Fork. The valley of this North Fork is about two miles wide at the lower end but narrows up considerably as you travel west. Considerable bottom land exists along the lower end of this valley, which, with draining, might be utilized for agricultural purposes.

The northern slope of this valley was burned over 7 years ago, the fire running north and west for a considerable distance. This fire crossed the North Fork in several places and burned over some of the bottom lands. Very little loss was sustained on the south side of the river, however, as the bottom lands contain very little of the good timber, being mostly barren and wet. Reproduction over this burned area is coming in, and consists of Jackpine 75% and Cottonwood 25%.

There are no settlers in this valley up to the present
time, but hunters and trappers use the section extensively. A passable horse trail runs up the valley for about 12 miles.

The timber in this section is all located on the south side of the river, and covers the sidehills up to timber line. A strip of statutory timber land lies along the lower slopes, averaging less than a mile in width, and extends up the river for about 3 miles. This statutory timber is about 90% alienated. It consists of cedar 50%, hemlock 30% and spruce 20%.

The upper slopes contain hemlock 50%, spruce and balsam 50% and run 0 - 5 M. to the acre.

A general estimate of the timber is as follows:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Acres</th>
<th>Feet B.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory timber lands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - 20 M. per acre</td>
<td>3,960</td>
<td>40,000,000</td>
</tr>
<tr>
<td>Other timber 0 - 5 M.</td>
<td>30,000</td>
<td>35,000,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>75,000,000</td>
</tr>
</tbody>
</table>

Cost of Reconnaissance:

General expenses, including:

Provisions 618.39, Transportation 226.05
Meals & Lodgings 255.35, Material and Equipment
Horse feed, freight and Hauling etc. 264.19

Total 1565.90
Carried forward 1365.90

Salaries: Assist. 397.50
Cook packer 420.43. Own Salary 656.24
Other help 36.00

= 1510.17

$ 2376.15

An area of 1525 sq. miles or 976,000 acres was covered by the
reconnaissance, thus making the total cost per acre less than 3 mills.

Respectfully submitted,

"M. B. Murray."

Feb. 2nd. 1914.