

Clearwater Valley, Kamloops District
By
W.S. Drewery

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Surveyor-General, Victoria, BC

Sir, - Under your instructions to make surveys in the Clearwater Valley with the purpose of obtaining general information and connecting scattered surveys, thus permitting the construction of a framework upon which a proper map of the important and little-known region could be constructed, the following report is submitted.

Clearwater River is the principal tributary of the North Thompson, which it joins some 60 miles north of Kamloops. Some years ago surveys were made on the east side of Clearwater northerly to Murtle River, east of Mahood Lake. In 1921 a survey was carried from the Kamloops and Lillooet boundary-line by way of Mahood Lake, connecting with the above-mentioned surveys. A triangulation survey of Quesnel Lake had also been made, fixing points of references along its shores. It was intended to connect these three groups by traverses through the valley, triangulation of Clearwater and Hobson lakes, and a short traverse of about 6 miles across a low divide to Quesnel Lake, incidentally tying in the various land and timber limit surveys which had been made at various times.

After careful study of information obtained as to various routes into this out-of-the-way part of the country, it was decided to go by way of 150-Mile House, Canim Lake, and an old Indian hunting trail leading from its foot northerly and easterly to Clearwater Lake near its outlet; the route being chosen because it appeared to offer the shortest and most secure line of communication over which men and supplies could be moved. Another factor influencing the choice was the desirability of reaching the lake as quickly as possible, so that triangulation of the lakes might be performed in the summer season during fine weather.

On reaching Canim Lake it was found that fires were running on all sides, in one place sweeping across trail opened by us. The trail followed from Canim Lake goes northerly to Hot Fish Lake; thence easterly across Deception Creek to its tributary, Spanish Creek; and then northerly and easterly to Clearwater Lake; in all a distance by trail of about 45 miles, much of it over high mountains, the summit being crossed in old snow 6,080 feet above sea. It had been intended to make a track survey of the route, but dense smoke made this impossible.

On reaching Clearwater Lake a small raft was constructed, with the aid of which preliminary examination was made to find a place where the base could be measured from which to expand the triangulation. Considerable search was

necessary before suitable timber was found with which to build a larger raft to carry camp and supplies, and construct a framework to fit the canvas boat-skin which had been brought in to expedite triangulation work. Signal-setting was soon commenced and was carried on during raft and boat building operations, but was hampered by smoke settling in the valley and finally becoming so dense that triangulation work was precluded about the end of July. During this period some 17 miles of trail passable for horses was constructed from the foot of Clearwater Lake to its head, so that camp and supplies could be moved with horses from that point to Hobson Lake, some 6 miles distant.

On August 4th we moved camp and supplies to the head of Clearwater Lake by raft and commenced traverse and trail work to Hobson Lake. In about three days a heavy downpour of rain came and cleared away the smoke, so parties were at once dispatched by boat and raft and the lake triangulation completed expeditiously before smoke again filled the valley.

A trail having been constructed to the foot of Hobson Lake, camp was moved to that point. The boat was taken apart, carried through, reassembled in a few hours, and rafts constructed in three days with which to undertake the triangulation of Hobson Lake. The weather had been quite broken for several days and the air clear, but as soon as it ceased raining smoke filled the valley quickly, apparently coming from two large fires, one on the East Arm of Quesnel Lake and the other on the northerly end of Hobson Lake.

The season was now so far advanced that it became apparent the full scheme of work contemplated could not be carried out if there were any interruptions, and smoke conditions indicated that such would occur.

Groups of timber-limit surveys extend from the foot of Hobson Lake on one side or other to Quesnel Lake; so it was decided to connect these groups, determine by astronomical observation the magnetic declination used in these surveys, and thus permit their proper orientation, confining errors to those incidental to such surveys. The traverse between Hobson and Clearwater Lakes was completed.

Having done this, the party moved to the foot of Clearwater Lake and commenced a traverse which eventually connected with the Mahood survey of 1921, thus completing the contemplated program except in its northerly part, where timber-limit surveys are used instead of more accurate traverse and triangulation work.

The mountain trail by which the party went in was impassable owing to deep snow on October 1st, so we went out by way of Mahood Lake, having transported our canvas boat from Clearwater to Mahood Lake, some 15 miles.

As there is no trail along Mahood Lake, the horses were taken over a mountain about 5 miles to Candle Creek; then in the water along the lake shore about 9

miles to the head of Mahood Lake, from which place there is a good trail and road to 100-Mile House on the Cariboo Road.

Method of Survey

All triangulation stations were marked by cedar posts planted generally in cairns and referenced by bearing trees where available. Traverse stations about a mile apart were similarly marked, intervening stations being indicated by hubs only without bearing trees. Linear measurements were made with a 5-chain tape read to the nearest tenth of a link. In base measurements the tape was read to hundredths of a link. Angular measurements were made with a 5-inch Berger transit reading to 30 seconds, readily estimated to half that amount. Each angle was read four times and the mean taken. Angles of the traverse were invariably read clockwise, so that no error as to the manner of deflection could arise.

The triangulation net consists mostly of quadrilaterals with diagonals observed to permit easy angular adjustment, no side equation being used. On the whole the work is thought to be of considerable accuracy.

Description of Country

From Mahood Lake north to the Clearwater Valley is rather narrow, with deep bas or high benches running back in places. Its surface is rough, being broken by lava-knolls in the southerly part, gradually giving place to ridges of mica-schist until Clearwater Lake is reached. Here the mountain slopes come down more or less sharply to the lake; those on the west side being mica-schist, as are also those on the east side until, towards the head of the lake, quartzite takes the place of schist, and rises in the great mass of Pilpil Mountain of the Indians, extending easterly along the south shore of Azure Lake.

Along Hobson Lake the mountain slopes generally come steeply to the water, although in some places high benches extend back from the lake before abrupt mountain slopes are reached. Time did not permit the examination of lands back from the shore, excepting those about the foot of the lake.

Apparently there are only a few hundred acres of agricultural land in Clearwater Valley, north of Murtle River, and this is in scattered parcels, so that no important agricultural development may be anticipated.

Timber Resources

Between Mahood Lake and Murtle River on the south and Clearwater Lake to the north are considerable areas carrying fine stands of cedar and some spruce. The larger part of this tract has been burned over, and a growth of fir, poplar, birch, and some jack-pine has replaced the cedar with which most of this country was clothed at one period.

About the foot of Clearwater Lake on the west side there is a tract some 6 miles long by 10 miles wide carrying a tremendous stand of cedar and considerable hemlock on the lower slopes with spruce and balsam above. Unfortunately a great deal of the cedar appears to be over-matured and is probably depreciating in value, at the same time injuring the younger growth. Midway up the lake on its east side there are a few square miles of fine cedar.

On both sides of the lake old fires have devastated some of the country, but reforestation is well under way on by far the greater part, while the process is only beginning on some of the more recently burned-over lands.

About the head of Clearwater Lake, northerly to Hobson Lake, there is a fine belt of timber from 2 to 3 miles wide, consisting of cedar, hemlock, and spruce, with some fir.

Along the west shore of Hobson Lake for distance of about 8 miles from its foot there is a good stand of cedar and hemlock extending back from the lake rather more than a mile. On the east the stand of timber appeared to be principally hemlock of fair size.

Higher up on the slopes surrounding all the above-mentioned tracts of timber fit for the saw is a dense growth of spruce and balsam, while intervening stretches on the lower levels contain large quantities of poplar, fir, birch, and occasionally some pine, a large proportion of all of which, except the latter, is suitable for pulp making.

This Clearwater basin is estimated at some 1,200 square miles in area, about a quarter of which is thought to contain timber fit for saw or pulp. The great Bridge Creek basin is not considered in the above, although tributary to it.

Water Resources

Hobson Lake, about 20 miles long and 1 mile wide, occupies the northerly portion of the great trough and discharges through about 6 miles of river into Clearwater Lake, the difference in elevation of the two lakes being about 700 feet, as indicated by aneroid barometer.

About 1-½ miles above Clearwater, Azure Lake, some 16 miles long, discharges through a short run of stream into Clearwater River. Although the current is rather swift, it is possible to take a boat from Clearwater to Azure Lake. Above this junction Clearwater River is a succession of very swift water, rapids, and falls for about 4 ½ miles, and on examination may be found to offer opportunity for a considerable power development.

Clearwater Lake is about 15 miles long, with an extreme breadth of about 1-½ miles. The water of the lake tumbles out with a fall of about 8 feet, below which is very swift water and heavy rapids.

Some 2 miles north-east of Mahood Lake, Murtle River joins the Clearwater from the east, coming from Murtle Lake, which is of considerable size and might be used as a great storage basin, from which the stream flow could be kept up in low water periods. There are three falls on Murtle River, the lower one having a sheer drop of over 400 feet, being about a mile from the junction with the Clearwater River. The fall of Bridge Creek from Mahood Lake, which is an ideal storage basin, to the Clearwater is rather more than 250 feet in 3 miles.

The difference in elevation of Canim and Mahood Lakes is about 500 feet, most of this fall on Bridge Creek connection them occurring within some 3 miles. Back of this is the large storage capacity of Canim, Horse, and Bridge Lakes. It will thus be seen that there are great opportunities for the generation of hydroelectric power within a short radius.

General

The juxtaposition of large quantities of both saw and pulp timber with great power possibilities would seem to indicate that the whole area should be carefully examined with development of these latent resources in view. Such industrial development would require large capital, because the building of about 40 miles of light railway to Murtle River, and its extension for logging purpose as required, would be necessary, as well as the construction of power plants, saw and pulp mills, etc. The great area from which timber supplies could be drawn would however seem to make the matter worthy of more detailed examination.

Fish and Game

Clearwater Lake affords excellent sport with the rod, the fish being rainbow trout of large size, a number of those taken weighing over 3 lbs. each. Mule deer are plentiful and may be shot whenever wanted, while black bear seem to be quite numerous. About Hobson and Azure Lakes there are many small bands of caribou, both along the lakes and in the mountains, where goats may also be found. No moose were seen, but tracks were observed at various points.

The country is difficult of access, but well worth going into, if for sport only.

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