

Mr. K. B. Blakey,

DEPUTY MINISTER.

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July 15th

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ATLIN

The assessment of this large area is preliminary; much more information would be needed for a critical appraisal. However the geology is mapped at 4 mile to inch by the Geological Survey so that the framework is known. Also the writer spent 3 weeks in the general area in 1969 and 2 days on a helicopter reconnaissance of the proposed park at the request of the former Chief, Dr. Hedley.

GEOLOGY:

The proposed Atlin recreational area embraces a varied geological terrain straddling the contact of the Coast plutonic complex. The area is divided by two regional fault zones into 3 separate blocks of differing geology and mineral potential. In the park area the western block is the largest and consists of Mesozoic granitic rocks and schists and gneisses formed from Paleozoic sedimentary rocks that together form the Coast plutonic complex. In the park gneisses are dominant. The central block consists mainly of Jurassic sedimentary rocks of volcanic derivation (LaBerge Group) overlain by Late Cretaceous and Early Tertiary volcanic rocks (Sloko Group). The eastern block forms only a small part of the park area. Along the great fault that divides this block from the central one ultramafic intrusions, commonly serpentinite, have been introduced. These are called the Atlin and Nahlin intrusions and are Permian or Triassic. Small granitic plutons of several ages occur in all fault blocks. (See Map No. 1, Geological Compilation).

MINING CLAIMS AND PETROLEUM PERMITS:

Map No. 2 shows the large number of mining claims south of Willison Bay. There are no petroleum permits.

MINERAL AND PETROLEUM POTENTIAL:

There is virtually no petroleum potential in the park area. The mineral potential of such a large area of diverse geology should not be expected to be uniform and the three fault

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bounded blocks have very different potentials. Also access and the possibilities of economic utilization are very different. Much of the western block is glacier covered except for isolated peaks and access is very difficult, hence prospecting has not been intensive. In contrast access to the other blocks is relatively easy and prospecting by traditional methods fairly intense. Modern prospecting, however, has not been intense.

GENERAL ASSESSMENT:

The highest potential of the area is in the western block but, in contrast to the eastern fringe of the Coast plutonic complex further south, it is not of the greatest potential (see Map No. 4 - Probabilistic Forecast of Mineral Potential). It may be rated as moderately high. The central and eastern blocks have lower potentials, rated as moderately low and moderate respectively by me. A comparison with the ratings of Barry & Freyman (1970) is instructive. Their methods are not sensitive to changes in potential less than a square degree (approximately 60 x 30 miles at this latitude). The result is that the whole of the park area has a probabilistic forecast of mineral potential for copper, lead, zinc, nickel, molybdenum and asbestos of \$200,000 to \$400,000 per square mile, which is equivalent to a moderate or moderately high potential.

DETAILED ASSESSMENT:

Eastern Block: A relatively small part of the park is formed of this block and much of it is in the drift covered valley of the Pike and O'Donnell Rivers. Claims located on an asbestos property cover Mt. O'Keefe immediately south of the park, and nickel and asbestos showings are common further southeast along the Nahlin intrusions. Hence this part of the park is judged to have a moderate potential similar to the area outside the park.

Central Block: A larger part of the park consists of this block. It is similar to the eastern block in that few claims or showings exist within the park but these exist adjacent to it. On Taku Arm, just northwest of the central block in the park, are numerous gold and silver veins including the Engineer mine. Although not a successful mine, veins of this property had a very high value per ton. In addition, several native copper showings occur in Late Paleozoic basalts along the western boundary of the block both within and outside the park.

These in themselves are not likely to be economic but their host rocks might provide source beds that could be concentrated in some of the small plutons within the block such as the plugs associated with the Sloko volcanic rocks. These would be regarded as good targets for modern prospecting. On the basis of present information, however, the block as a whole must be assessed to have a moderately low potential.

Western Block: About half of the park area is formed of the western block. This has the highest potential of the three, with many showings and gossans known even though it is largely glacier covered, difficult of access, and poorly prospect except along the lake margins. Map No. 2 shows the large number of valid claims south of Willison Bay, and map No. 3 shows known showings and properties. These are of diverse types but the most important are porphyry molybdenum stockworks, massive sulphides (Cu, Zn, Pb) deposits most of which are along shear zones, skarn deposits (Cu, Fe (Au, Ag)), and veins (Cu; and Pb Zn Ag Sb).

Only a minor amount of drilling or development has been done of any prospects. Two have received preliminary drilling (Molly Atlin and Laverdier) and several copper veins near the lakes have adits driven on them. Molly Atlin (Cominco) has only had preliminary testing but is an active prospect. It is a large low grade molybdenum porphyry deposit that has a "high" grade ore, a breccia zone containing 2½ million tons of 0.35% MoS₂. Its full potential is unknown. Access to it is easy for it is just a few thousand feet from Willison Bay. The Laverdier property (Centex) is a copper bearing magnetite skarn deposit in complexly folded Paleozoic limestone. It is high grade, but probably relatively small. It is on Hobo Creek with relatively easy access and is currently being prospected. The Glacier Group (Falconbridge) on Upper Willison Creek is potentially interesting. It consists of a sheeted zone of pods and veins of replacement in limestone by galena and sphalerite with some silver and also galena, stibnite veins (Sb, Ag, Pb). It is surrounded by a broad halo of pyrite with pyrite and chalcopyrite veinlets. In all likelihood the main mineralization has not been found as much of the vicinity is glacier covered. Many other showings, gossans and float occurrences of lesser immediate merit are known. In summary the potential of this block must be regarded as moderate to moderately high.

RECOMMENDATION:

The area should be held open for prospecting and consideration should be given to a full mineral potential assessment. This would be costly as it would have to be fully helicopter supported.

MAPS:

1. Geological Compilation
2. Claim Groups
3. Prospects and Showings
4. Probabilistic Forecast of Potential

REFERENCES:**Geology:**

- Aitken, J. D. (1959): Atlin, G.S.C. Mem. 307
 Christie, R. L. (1957): Bennett, G.S.C., Map. 19-1957
 Souther, J. G. (1970): Tulsequah and Juneau, G.S.C., Map 1262A.

Potential:

- Barry, G.S. (1970): Mineral Endowment of the Canadian Northwest - A Subjective Probability Assessment, C.I.M. Bull. pp. 1031-1042
 Pedley, S.J. (1969): Molly Atlin: Cominco Confidential Report.
 McDougall, J. J. (1966): Atlin Area Prospects, Falconbridge Confidential Report.

A. SUTHERLAND BROWN

ASB/ef

Deputy Chief, Mineralogical Branch

Encl: Map^s and legal description

Mr. K. B. Blakey,

DEPUTY MINISTER

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May 14th

69

Re: PROPOSED LLEWELLYN GLACIER PARK
ATLIN LAKE

Our present studies of mineral occurrence, both known and inferred, show the proposed park to be in a zone of high to relatively high potential. Little is known regarding mineral deposits because the entire Atlin area has not received much attention for a good many years. However, there is a property on Willison Creek at the head of Willison Bay owned by Cominco. Work has been done on this ground in recent years and Cominco informs me that although no work is proposed for 1969 there will definitely be a programme in 1970. At Hobo Creek, ground is held by Bethlehem which has been farmed out to others for drilling and investigations in 1969. Both these properties include Crown-granted as well as located claims.

We have not had a geologist in the Atlin region for many years but this year Sutherland Brown will go in at least to look at some current activity north and east of Atlin and there is a possibility that he can visit Willison Bay also, within the proposed park. As usual, I cannot be more specific at the present juncture. We simply have not the staff at our disposal to look into this matter properly this year or even over a period of several years. The fact is that all the remarks that I and others have made relative to the nature conservancy area in Tweedsmuir Park apply equally here because this area is on the eastern flank of the Coast Mountains and consequently it is one of the more likely parts of the Province to contain mineral.

I think there is too great a conflict with mining interests for a park of the proposed dimension, and that to put mining out of bounds in that area would be a major disservice to this Province.

I wonder whether the Parks Branch realizes that the matter of damming the Yukon is under investigation and that a diversion of Atlin Lake water to the Taku River via Sloko River is a distinct future possibility?

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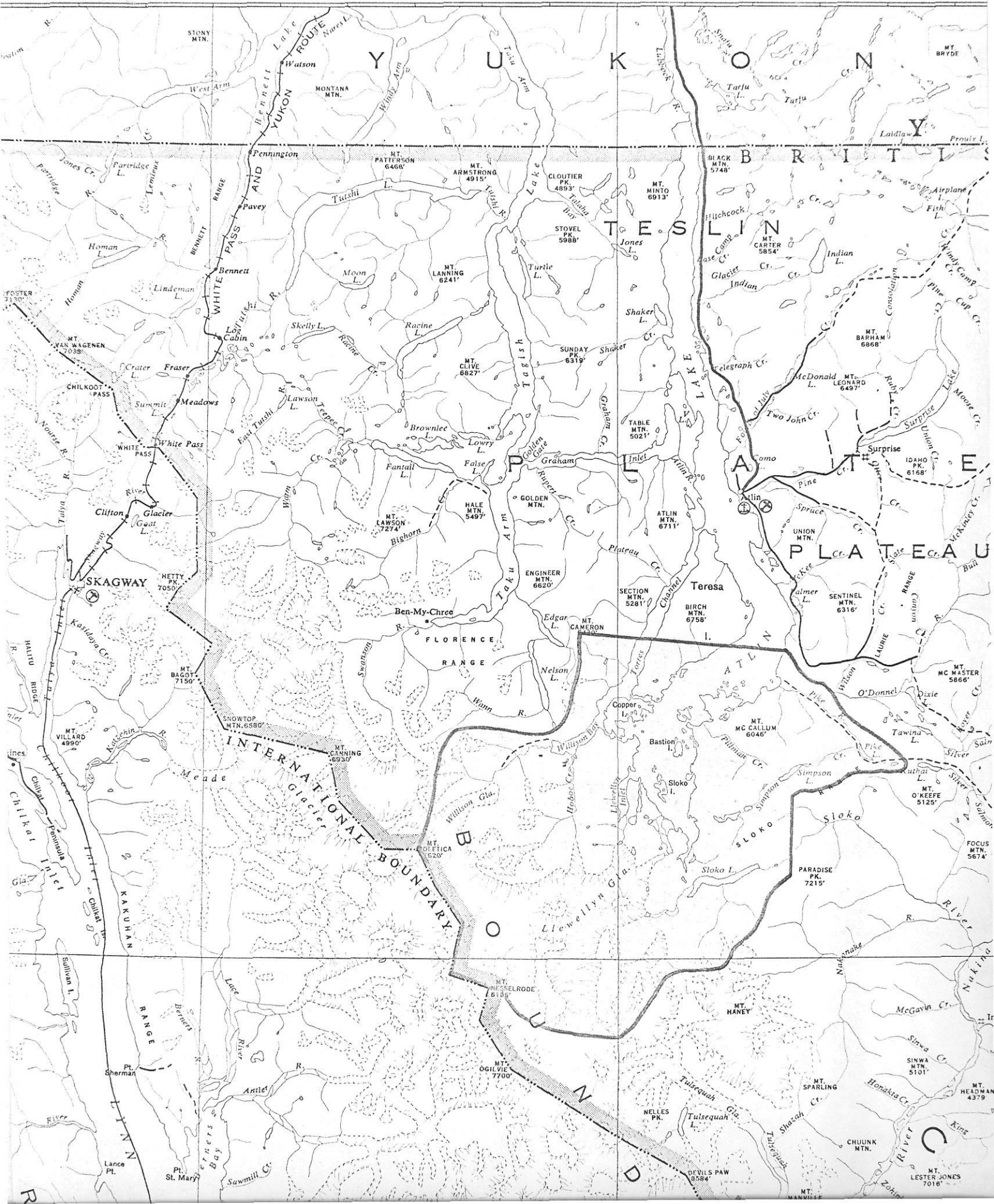
Mr. K. B. Blakey

May 14th 1969

Mr. Ahrens does not state in his letter what sort of park is contemplated. Certainly a Class A park of the proposed size should not be considered. It is hard to see how any mining operations in that area could be large enough or destructive enough to spoil the head of Atlin Lake or to ruin the views of the Llewellyn Glacier.

M. S. HEDLEY
Chief, Mineralogical Branch

MSH:bg



RECOMMENDATIONS

"Commencing at a point on the International Boundary of British Columbia and Alaska, defined as the summit of Mt. Nesselrode and being also a point on the southerly boundary of the watershed of the Llewellyn Glacier; thence northerly along the said International Boundary to the summit of Mt. Poletica, being a point on the west boundary of the watershed of the Willison Glacier; thence northerly along the said watershed boundary to its intersection with the northwesterly boundary of the watershed of Willison Creek; thence northeasterly along the said boundary to the northwesterly boundary of the watershed of Willison Bay and Torres Channel; thence northeasterly along the northwesterly boundaries of the said Bay and Channel to the summit of Mt. Cameron; thence easterly in a straight line to the mouth of O'Donnell Creek; thence due east to the right bank of the said Creek; thence easterly along the said right bank to its intersection with the right bank of Slate Creek; thence due south to the northerly boundary of the watershed of Pike River; thence easterly along the said boundary to its intersection with the north boundary of the watershed of Pike Lake; thence easterly southerly and westerly along the northerly, easterly and southerly boundary of the watershed of the said Lake to its intersection

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with the southerly boundary of the watershed of Simpson Creek; thence westerly along the southerly boundary of the said watershed to a point due north of Paradise Peak; thence due south to the said Peak, being a point on the southerly boundary of the watershed of the Sloko River; thence westerly along the south boundary of the Sloko River and lake watershed to its intersection with the southerly boundary of the watershed of the Llewellyn Glacier; thence westerly along the southerly boundary of the said watershed to the summit of Mt. Nesselrode, being the point of commencement and containing approximately 657,000 acres.

BETHLEHEM COPPER CORPORATION LTD.

MINE OFFICE:
TELEPHONE 453-2217
P. O. BOX 520
ASHCROFT, B. C.

HEAD OFFICE:
Telephone 682-5211
Suite 1818 Marine Building
355 Burrard Street
VANCOUVER 1. B. C.

May 7, 1969.

Mr. Matt Hedley,
Chief Mineralogical Branch,
Department of Mines,
VICTORIA, B.C.

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1832

Dear Mr. Hedley:

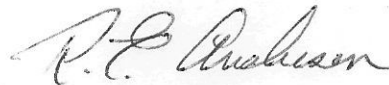
Further to our recent discussion, regarding the establishment of a provincial park covering the southern end of Atlin Lake, we wish to advise that our company has held mineral claims in this area for the past 13 years. Our block is comprised of 7 full sized and 1 fractional mineral claims, 3 of which are held as crown grants and remainder by location. The block is situated on the western edge of the valley of Hoboe Creek, $1\frac{1}{2}$ to 2 miles from the mouth of the stream. Mineralization consisting primarily of magnetite, hematite, chalcopyrite and tetrahedrite, has been partially investigated by surface and underground programs and additional work is planned for the coming summer.

At this stage of exploration, we are of course, unable to accurately forecast the economic potential of the property. We are planning to continue exploratory investigations and would therefore oppose the suggestion that a park be established in this area until such time as our property has been thoroughly evaluated.

I would appreciate your keeping me advised as to any new developments which may affect our interest.

Yours very truly,

BETHLEHEM COPPER CORPORATION LTD.,



Per: R. E. Anderson,
Exploration Manager.

DEPT. OF MINES AND PETROLEUM RESOURCES		
Rec'd MAY 8 1969		

REA/vjr

104M031 GLACIER
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May 8th 1969

Mr. R. E. Anderson,
Exploration Manager,
Bethlehem Copper Corporation Ltd.,
1818 - 355 Burrard Street,
VANCOUVER 1, B. C.

Dear Mr. Anderson:

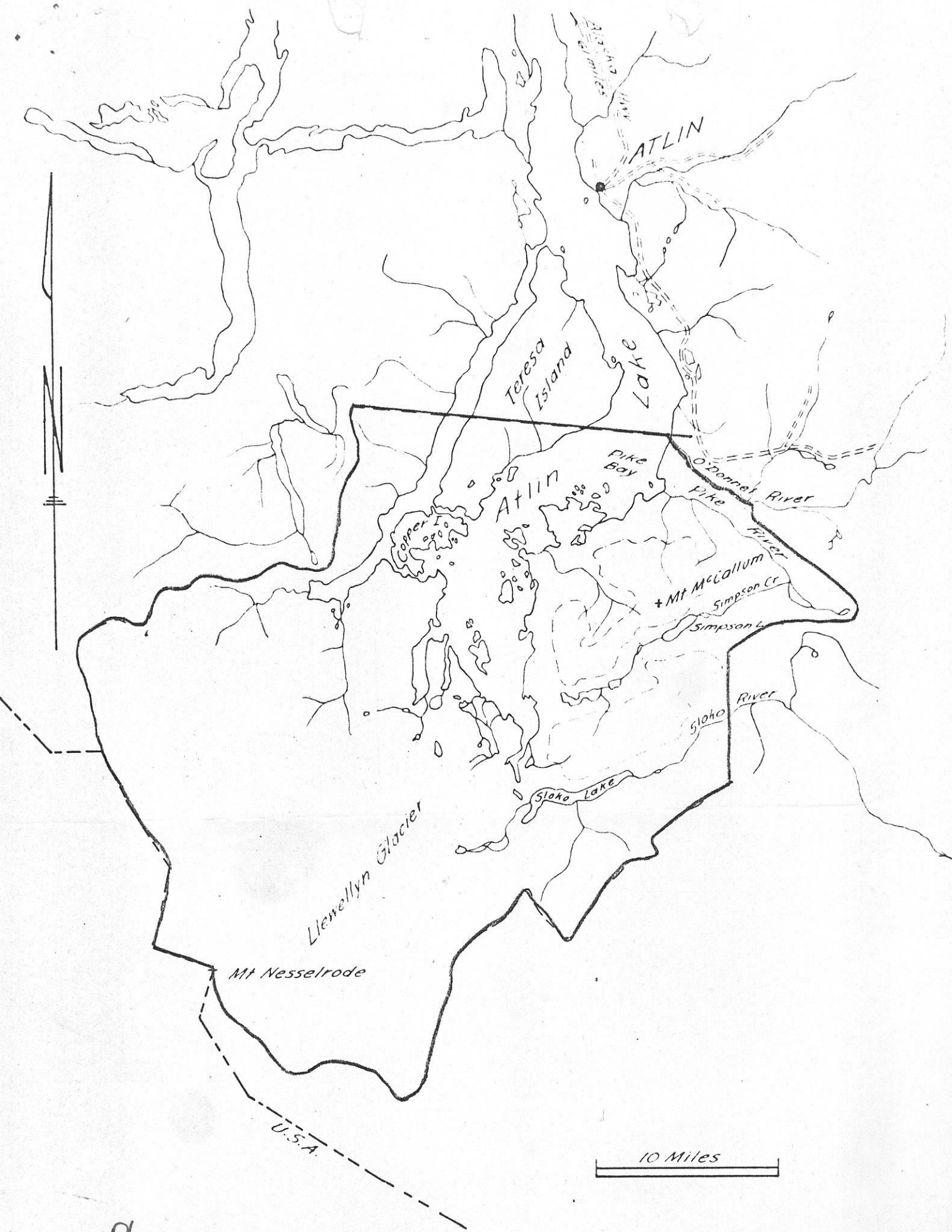
Thank you for your letter of May 7th with
information concerning your property on Hoboe Creek.

I do not know whether we shall be able to
get a man in there this year or not, we are short staffed and
relatively impotent for 1969.

Yours very truly,

M. S. HEDLEY
Chief, Mineralogical Branch

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