CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

SHEET 104 N

LEGEND

CENOZOIC

QUATERNARY
PLEISTOCENE AND RECENT

13 Glacial drift; beach and stream gravels

TERTIARY AND QUATERNARY

12 Olivine basalt and related pyroclastic rocks; in part younger than some of 13

TERTIARY (?)

11a, 11b 11a, granophyre; 11b, gabbro

MESOZOIC

CRETACEOUS OR TERTIARY
SLOKO GROUP

10 Andesite, basalt, albite trachyte, albite rhyolite, and related pyroclastic rocks; conglomerate, sandstone. Group characterized by well defined bedding

JURASSIC OR LATER
POST-LOWER JURASSIC
COAST INTRUSIONS

9 Undifferentiated granitic rocks; 9a, rusty-weathering, smoky-quartz granite (alaskite); 9b, porphyritic alkali granite; 9c, white-weathering, hornblende-biotite quartz diorite; 9d, diorite; 9e, biotite granodiorite; 9f, porphyritic and granophyric granite; may be Tertiary

JURASSIC
LOWER JURASSIC
LABERGE GROUP

8 Tuffaceous greywacke, siltstone, mudstone, conglomerate; minor limestone. Group characterized by fresh, well-bedded rocks

TRIASSIC AND/OR LATER

7 Undifferentiated volcanic rocks; may be in part younger than 8

PALÆOZOIC

PERMIAN
ATLIN INTRUSIONS

6 Peridotite and serpentinized and carbonatized equivalents; meta-diorite and meta-gabbro

CACHE CREEK GROUP

5a 5b 5c 5a, chert, argillite, and derived quartzite and schist; minor amounts of 5b and 5c; 5b, greenstone and amphibolite; tuffaceous greywacke, minor amounts of 5a and 5c; 5c, limestone

PERMIAN OR PENNSYLVANIAN

4a 4b 4a, andesite, basalt, and related pyroclastic rocks; conglomerate, sandstone and shale; volcanic rocks are massive and mauve or green in colour; 4b, limestone. The group may be in part or wholly equivalent to 5

MISSISSIPPIAN AND/OR OLDER

3a 3b 3a, greenstone, chlorite schist, greywacke, quartzite, quartz-biotite schist; 3b, impure crystalline limestone

PRE-PERMIAN

2 Quartz monzonite

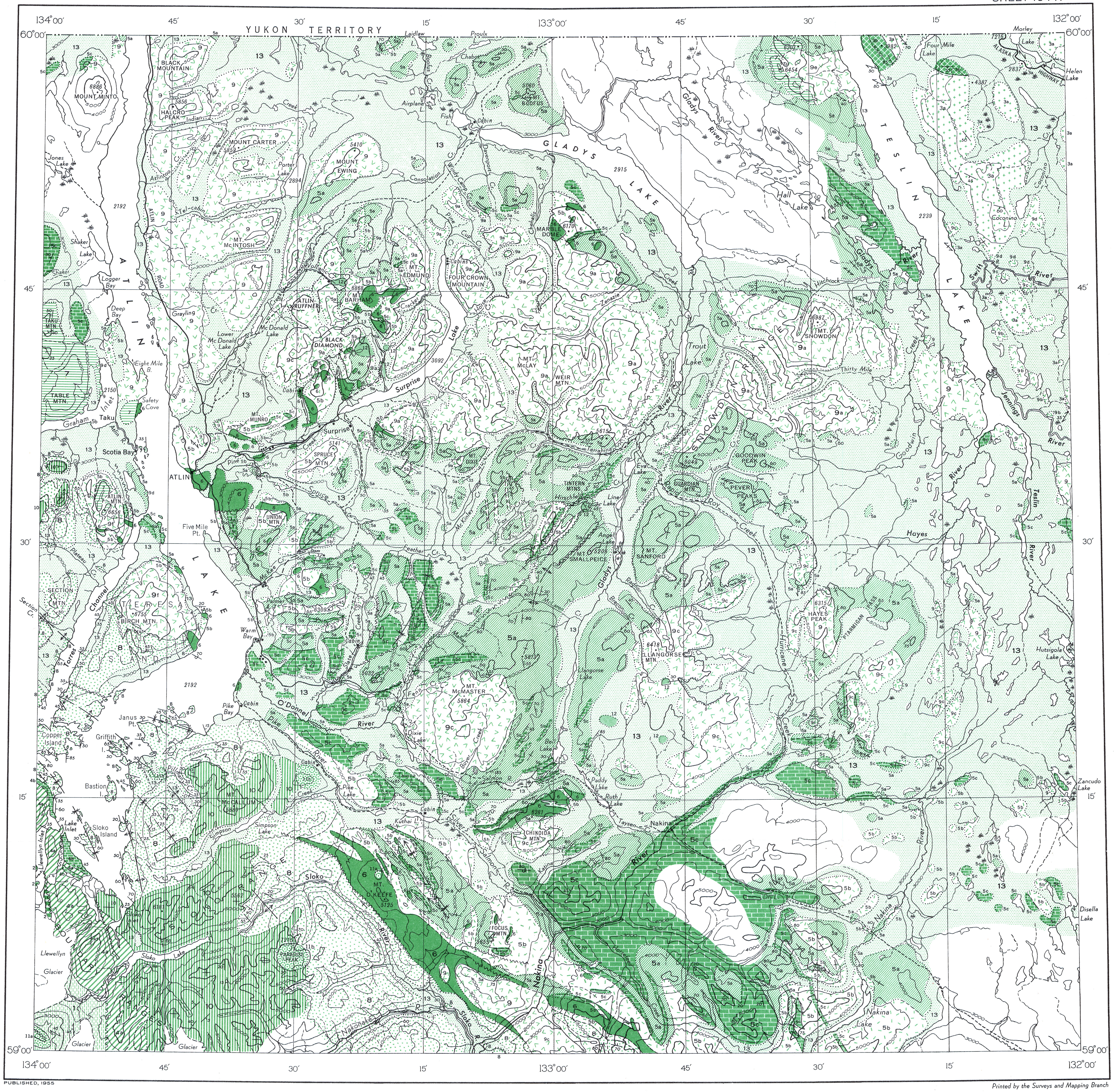
YUKON GROUP

1 Hornblende schist and gneiss; quartzite, limestone; may be in part or wholly equivalent to 3

Bedding (horizontal, inclined, vertical, overturned)
Bedding (direction of dip known, upper side of bed unknown)
Schistosity or slaty cleavage (inclined, vertical)
Fault (observed, inferred)
Anticline (arrow indicates direction of plunge)
Syncline (arrow indicates direction of plunge)

Geology by J. D. Aitken, 1951, 1952, 1953, 1954

Cartography by the Geological Cartography Division, 1954



NOTES FOR PROSPECTORS

Copper mineralization occurs at several places in the vicinity of Llewellyn Inlet, within volcanic rocks of map-unit 4a. Specks of "copper stain" within normal volcanic rocks are not regarded as significant, but veins and pyritized zones may be important.

Mineable mineral deposits have not been found in the Cache Creek group (5) in the area, although several small, low-grade gold-quartz veins cut greenstones of the Cache Creek group (5b) in the vicinity of Pine Creek. Radioactive hornfels near Deep Bay, which carries from 0.01 to 0.07 per cent uranium oxide, is probably Cache Creek greenstone (5b) metamorphosed by the fine-grained pink granite (9) outcropping near by.

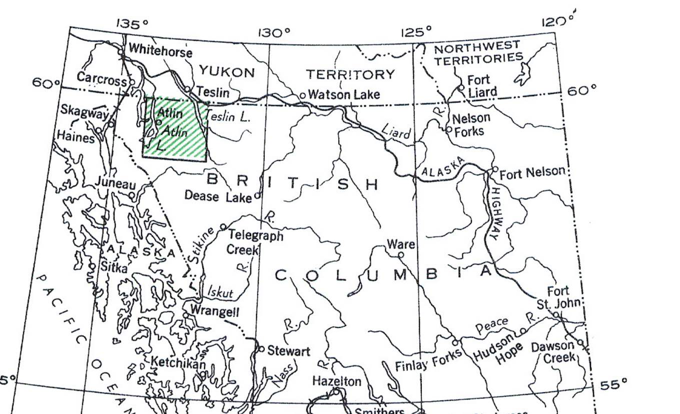
Thin veins of cross-fibre chrysotile asbestos are common within ultramafic members of the Atlin intrusions (6), but no deposit of commercial fibre has yet been found. Concentrations of chromite or sulphides may occur in peridotite or serpentinite of these intrusions (6), and zones in them altered to quartz-carbonate rock commonly yield low assays in gold, and may carry commercial concentrations of that metal. The large dyke-like body of peridotite (6) crossing Nakina River, in the south-central part of the area, in particular is worth attention.

No mineral deposits are known to occur within the Laberge group (8) in Atlin map-area, although in Whitehorse map-area silver-lead veins occur in arkose of the Laberge group, and in Bennett map-area gold veins at the Engineer mine occur where Laberge sedimentary rocks are cut by a swarm of dykes.

The margins of the Coast intrusions (9) are not all equally promising as prospecting ground. The areas marginal to bodies of smoky-quartz granite (9a) are regarded as favourable, but those marginal to bodies of hornblende-biotite quartz diorite (9c) are less promising. Tungsten mineralization may be associated with the former, as at the Black Diamond property. Granitic areas riddled with basic dykes are worth close examination; silver-lead ore at the Atlin Ruffner property occurs within such dykes in granite.

No mineralization is known to occur within the Sloko group (10).

All creeks in Atlin map-area that have produced important amounts of placer gold were known to be gold bearing by 1900. They occupy a limited area in the vicinity of Atlin, although small amounts of placer gold can be found on most of the creeks in the map-area. The important placers occur in highly weathered Tertiary gravels in an area characteristically underlain by extensive areas of Cache Creek greenstone (5b) and Atlin intrusions (6) adjacent to a large body of smoky-quartz granite (9a). The reason for the lack of economic placer discoveries elsewhere in the area may be that the above geological conditions are nowhere repeated.



PRELIMINARY MAP 54-9

ATLIN

CASSIAR DISTRICT
BRITISH COLUMBIA

Scale: One Inch to Four Miles = $\frac{1}{253,440}$

Miles 4 2 0 4 8 12

Approximate Magnetic Declination, 31° 54′ East

Printed by the Surveys and Mapping Branch

LEGEND

Main highway
Other roads
Trail
Building
Provincial boundary
Marsh
Contours (interval 1000 feet)
Height in feet above mean sea-level 2192

Air photographs covering this map-area may be obtained through the National Air Photographic Library, Topographical Survey, Ottawa, Ontario

PRELIMINARY MAP 54-9
ATLIN
BRITISH COLUMBIA

SHEET 104N

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