

DESCRIPTIVE NOTES

The map-area occupies part of Yukon Plateau. Pelly and Macmillan Rivers provide the easiest means of access; both streams are navigable for small craft at all stages of water. Pack-horses may be used throughout the area in summer.

Rocks of the Yukon group (1,2) comprise a large but unknown thickness of metamorphosed sedimentary rocks that are characteristically quartzose and biotitic and include lenses of massive, light grey to buff, crystalline limestone (2), some of which are too small to map but which contain lime-silicate zones (1a) in Glenlyon Range. The Yukon group in Glenlyon Range, Tummel Hills, and around Tadrü Lake may be metamorphosed Palaeozoic rocks, but no proof of this has yet been found.

The gneissose granitic rocks (3) have been assigned to the Precambrian because of their similarity to rocks considered that age in adjoining districts.

The Harvey group (4,5) of metamorphosed sedimentary rocks overlies the Yukon group. The lower part of the group (4) comprises about 500 feet of dominantly calcareous rocks, which are thinly bedded, a feature that is retained in the gneiss and skarn. The upper division (5) is characterized by argillaceous (slaty) rocks, which, near granitic contacts, are altered to slaty biotite-andalusite hornfels and locally to dense orthoclase hornfels. This division is more than 4,500 feet thick, but the upper part is everywhere in contact with granitic rocks or is concealed.

The rocks of map-units 6 to 9 inclusive are difficult to correlate across Tintina Valley. No counterpart of map-unit 6 has been recognized southwest of the valley but part of unit 9B may correspond to it. The rocks of map-unit 6, poorly exposed in Harvey map-area, occur to the north in Mayo map-area, where the varicoloured slates are mapped as a separate unit.

Excellent sections of chert-conglomerate (7A), 4,500 feet thick, are exposed in Kalzas Range, Crystal Peak, and Earn Mountain. Fragments in the conglomerate are rounded to subangular and are rarely more than 1/2 inch in diameter, the larger being the more rounded. Chert comprises from 30 to 90 per cent of the fragments, but the matrix is quartzose or argillaceous rather than cherty. The chert-conglomerate (7A) underlies, apparently conformably, the early Mississippian limestone (8A). A few poor exposures of chert-conglomerate (7B) occur along Tummel River but the section there is thinner and includes more argillaceous rocks than northeast of Tintina Valley. Slightly sheared strata, which may have been chert-conglomerate, outcrop on Pelly River about 14 miles above the mouth of Macmillan River, and are associated with black, bedded chert, slate, and quartzite. It is possible that map-units 7A and 7B are not equivalent.

The early Mississippian limestone (8A) contains fossils that relate it to the Banff formation of the Rocky Mountains. The limestone (8B) southwest of Tintina Valley contains poorly preserved fossils that have been tentatively correlated with those of map-unit 8A, but it probably represents more than one limestone horizon and at best can be only partly equivalent.

Bedded, varicoloured chert comprises most of map-unit 9A near Earn Lake, whereas on Dromedary Mountain quartzite is generally more abundant and on Kalzas Mountain argillite and quartzite predominate. The contact with the underlying limestone is thought to be conformable but the relationship is obscure. The top is unknown and the strata are contorted but the unit may be over 10,000 feet thick. Map-unit 9B represents a group of undivided Palaeozoic rocks that are poorly exposed and that have an uncertain stratigraphic sequence. White and grey quartzite is associated with the limestone (8B) in the north and of Glenlyon Range, Pelmac Ridge, and Macmillan Range. On the northeast side of Tummel Hills chloritic quartzite, chlorite schist, and varicoloured slates lie to the west of, and probably beneath, the limestone (8B), and may be equivalent to part of map-unit 6. In the western parts of Pelmac Ridge and Macmillan Range rocks of map-unit 9B have been altered by high-grade metamorphism.

Rocks of map-unit 10 unconformably overlie the older strata. The lower part of the group between Tay and Macmillan Rivers consists dominantly of volcanic rocks. Most of the andesite is to the west of Tintina Valley. The centres of some thick flows are, however, fine to medium grained. In the upper part of the group, near Tintina Valley, the rocks are dominantly sedimentary, with some intercalated flows. Northwest and southeast from the creek, near Harvey Creek, conglomerates, with sandstone and carbonaceous shale, forms the highest exposed strata of this group, and may be altogether younger rocks. Carbonaceous shales, with green slaty tuff, andesite, and bedded chert, also occur at Big Fish Hook Rapids. The fragments in the conglomerate are pebbles and cobbles of rocks similar to those of map-unit 9B found in the extreme northwestern end of Glenlyon Range. No granitic or andesitic fragments were observed. The age of map-unit 10 is assumed to range from Carboniferous (?) to Cretaceous (?) to agree with the age designation of similar rocks in other parts of Yukon. It may be continuous with rocks considered Triassic or older in MacArthur Range in Mayo map-area. The conglomerate and carbonaceous shales can, perhaps, be correlated with the Tanatulus formation of Upper Jurassic or Lower Cretaceous age. Small plants and similar rocks farther up Pelly River Valley suggest an Upper Cretaceous age.

The plutonic rocks (11,12) are considered to be the same age as similar rocks in other parts of Yukon. The quartz-poor rocks (11) are generally coarse grained and contain large phenocrysts of feldspar, and may contain locally as much as 80 per cent hornblende and augite. A narrow band of medium-to coarse-grained, equigranular syeno-monzonite outcrops along the northeast side of Glenlyon Range.

The granitic rocks (12) are dominantly medium grained and equigranular but include some porphyritic phases. Biotite is the most common mafic mineral. These rocks are extraordinarily uniform in composition and texture over large areas. Many granitic dykes and sills, too small to map occur in the Yukon group in Glenlyon Range.

The andesites of map-unit 13 are altered about as much as those of map-unit 10. They are cut by granite (felspar) porphyry dykes and in places dip up to 55 degrees. They resemble Tertiary volcanic rocks in other parts of Yukon, and their relation to conglomerate farther up Pelly River suggests that they may be of Tertiary age.

The intrusions of map-units 14 and 15 are associated with Palaeozoic strata only and cannot be closely dated. They are, however, similar to siliceous Tertiary intrusions that occur in many parts of central Yukon.

Glacial outwash and till (16) are as much as 500 feet thick in some localities. Till is commonly overlain and underlain by bedded deposits. In Macmillan River Valley, and Pelly River Valley for several miles above the mouth of Macmillan River, there is at least 100 feet of buff to grey clay that may be a lacustrine deposit.

Tintina Valley is thought to mark the locus of a major zone of faulting because neither the Palaeozoic section nor the belt of rocks of map-unit 10 are continuous across it. A fault also seems to be the best explanation of the repetition of the chert-conglomerate in the northern part of the area.

Folds in most of the area mapped trend north 60 to 70 degrees west and plunge gently to the west. In Tummel Hills, however, the trends are apparently more nearly north-west.

The part of Glenlyon Range mapped to date is favourable for prospecting. The rocks of the upper member of the Harvey group (5) close to the batholith along the northeast side of the range, contain much disseminated iron sulphide, and concentrations may occur. The limy rocks of map-unit 4 and the lime-silicate zones (1a) in the Yukon group should be favourable for mineral deposition.

Much of the andesite of map-unit 10 contains disseminated iron sulphide, but little other mineralization was seen. Some shale of this unit is carbonaceous and coal may possibly be found in it.

No extensive mineralization has yet been found in the Palaeozoic strata (6 to 9) but there is no apparent reason for them to be entirely barren.

Most of the valleys in Glenlyon map-area are floored by glacial deposits and many have been deepened and scoured by glaciation. No pre-glacial gravels of significant size have been found, and below the limit of glaciation important placer deposits are not to be expected.

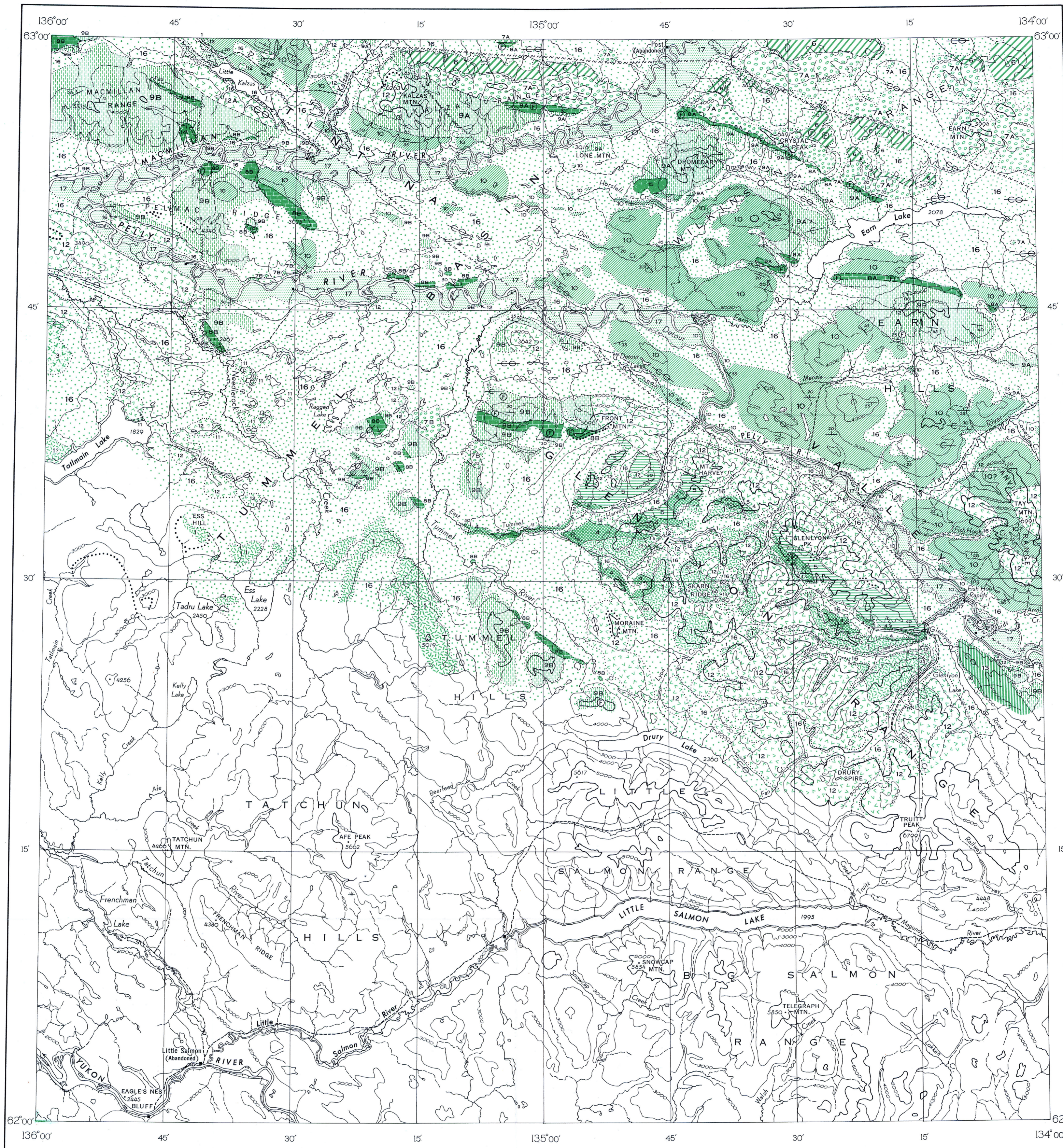
LEGEND

- QUATERNARY RECENT**
17 Alluvium, silt, sand, gravel; stream and flood plain deposits
- PLEISTOCENE AND RECENT**
16 Glacial gravel, sand, silt, and clay; bog deposits; volcanic ash
- TERTIARY (?)**
14, 15 Granite (quartz-feldspar) porphyry
15 Rhyolite (quartz) porphyry
- JURASSIC AND/OR CRETACEOUS**
11, 12, 13
11 Monzonite, syenite; minor diorite and mafic rocks
12 Quartz monzonite; granodiorite; minor granite and quartz diorite may be younger than 13
12A Highly altered, schistose, granitic rocks
- CARBONIFEROUS (?) TO CRETACEOUS (?)**
10 Andesite and some rhyolite and basalt lava; minor tuff and conglomerate
- CARBONIFEROUS MISSISSIPPIAN AND/OR LATER**
9A, 9B
9A Thin-bedded chert, quartzite, argillite, and limestone
9B White, grey, and dark coloured quartzite, slate, argillite, cherty tuff, sericitic and chloritic schist; in part older than 8B
- MISSISSIPPIAN**
8A, 8B
8A Dark grey and black, crystalline, crinoidal limestone
8B White and light grey to buff coloured, crystalline limestone, locally crinoidal
- CARBONIFEROUS AND/OR EARLIER MISSISSIPPIAN AND/OR EARLIER**
7A, 7B
7A Chert-conglomerate and breccia; minor quartzite, slate, and bedded chert
7B Chert-conglomerate, quartzite, slate, and bedded chert
- 6** Dark, bedded chert, varicoloured slate, sandstone, quartzite, limestone, and conglomerate
- PRE-CARBONIFEROUS HARVEY GROUP (4, 5)**
5 Slate, sericite-chlorite schist, hornfels
- 4** Crystalline limestone; sericite schist, lime-silicate gneiss, skarn, minor slate
- 3** Gneissose granitic rocks
- YUKON GROUP (1, 2)**
2 Massive, grey, crystalline limestone
- 1** Micaceous quartzite, quartzite, quartz-mica schist, limestone; minor amphibolite. 1a, lime-silicate zones in small limestone lenses in Glenlyon Range

- Bedding (inclined, vertical)
- Fault (defined, approximate, assumed)
- Lateral moraine or kame terrace at limit of last glaciation
- Glacial striae
- Direction of ice flow indicated by drumlins or large rock grooves
- Fossil locality

Geology by R. B. Campbell, 1949, 1950, 1951, 1952, 1953

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PRELIMINARY MAP 54-12
**GLENLYON
YUKON TERRITORY**

Scale: One Inch to Four Miles = $\frac{1}{253,440}$
Miles 4 2 0 4 8 12

LEGEND

- Trail
- Cabin
- Telephone line
- Intermittent stream
- Marsh
- Sand or gravel
- Contours (interval 1000 feet)
- Height in feet above mean sea-level 6780

PRELIMINARY MAP 54-12
**GLENLYON
YUKON TERRITORY**
SHEET 105 L

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

Approximate magnetic declination, 33° 24' East

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