CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

SHEET 24C (West Half)

LEGEND

PROTEROZOIC

KANIAPISKAU GROUP (2-7)

- **7** — *Rusty-weathering grey-green argillite, maroon argillite and sandstone;* **7a**, *maroon argillite and sandstone*
- **6** — *Iron-formation;* **6a**, *jasper-hematite, black argillite-jasper;* **6b**, *chert-carbonate*
- **5** — *Dark grey argillite, white and grey quartzite, red argillite and sandstone*
- **4a–4c** — **4a**, *buff and pink dolomite;* **4b**, *maroon argillite, grey argillite;* **4c**, *grey and buff dolomite*
- **3** — *Buff weathering grey-green argillite with lenses and layers of dolomite*
- **2** — *Buff, pink, maroon, and white arkose, feldspathic grit, quartzite, quartz-pebble conglomerate; limy beds, jasper-hematite, jasper conglomerate*

ARCHÆAN

PRE-KANIAPISKAU GROUP

- **1** — *Porphyritic (microcline) biotite-hornblende, granite and granitoid gneisses, basic inclusions. May include minor areas of Kaniapiskau group*

Heavily drift-covered area
Geological boundary (defined, approximate, assumed)
Bedding (inclined, vertical, dip unknown, direction of dip known, upper side of bed unknown)
Schistosity, gneissosity, cleavage (inclined, vertical, dip unknown)
Fault (defined, approximate, assumed)
Anticlinal axis (defined, approximate)
Synclinal axis (defined, approximate)
Structural trend lines from aerial photographs

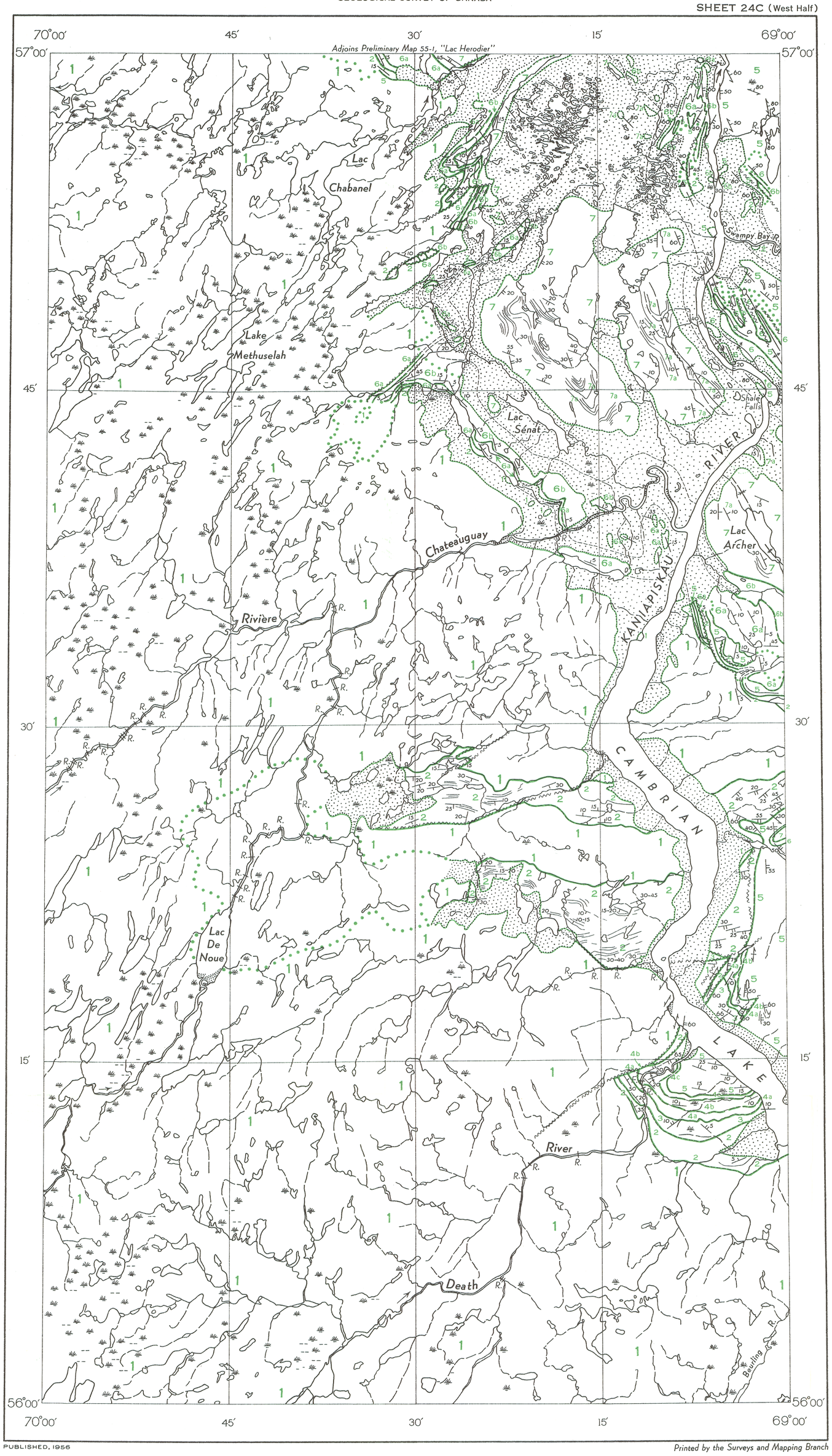
Geology by W. F. Fahrig, 1955

Horizontal control point
Fall and rapid
Marsh
Sand or gravel
Height in feet above mean sea-level 935

Approximate magnetic declination, 34° 54′ West

Cartography by the Geological Cartography Unit, 1956

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



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PRELIMINARY MAP 55-42

CAMBRIAN LAKE

(WEST HALF)

NEW QUEBEC

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

Miles 4 2 0 4 8 12

DESCRIPTIVE NOTES

The western two-thirds of the map-area is composed of granite and granitoid gneisses with inclusions of more basic gneiss (1). The most common granitic rock is a porphyritic (microcline) biotite-hornblende granite. This rock generally is coarse grained, not strongly gneissic and locally contains numerous strongly oriented basic inclusions. Medium- and fine-grained pink and white granite and biotite hornblende gneiss form a minor part of the observed pre-Kaniapiskau rocks. The western part of the map-area was covered mainly by air traverses. Rocks there may diverge locally from the above description and minor amounts of Kaniapiskau group strata may be present in the area shown as pre-Kaniapiskau (1).

South of Death River the lowest Kaniapiskau formation (2) consists of arkose and feldspathic grit below, and mainly of pink and red quartzite with minor limy layers above. The total thickness of the formation in this area probably exceeds 500 feet. To the north the formation is much thicker, forming an east-west trending belt about 10 miles wide composed of buff arkose, red and maroon arkose, grit, minor quartz-pebble conglomerate and red siltstone, exceeding 5,000 feet in thickness. Farther north the formation is again much thinner and along the west boundary of the Kaniapiskau rocks north of Cambrian Lake it is less than 200, and more commonly less than 100 feet in thickness. In this area the formation is generally composed of quartzite towards the base and maroon arkose and quartzite above. North of Swampy Bay River the formation includes a thick sequence of red to maroon arkose, grit, siltstone, and greenish granite-pebble conglomerate.

South of Death River the basal formation (2) is overlain by rusty-weathering grey argillite (3) containing a few yellow argillite partings and layers and lenses of buff-weathering cross-bedded sandy dolomite, the latter being common near the top of the formation. This formation probably exceeds 500 feet in thickness and is apparently missing in the northern part of the map-area. It is overlain by a predominantly dolomitic sequence (4) consisting of a lower horizon of buff-weathering dolomite (4a) about 100 feet thick, whose upper part is characteristically pink; a middle horizon (4b), about 200 feet thick, the lower part of which is maroon argillite with pale green layers and the upper part grey argillite; and an upper horizon (4c) consisting of about 100 feet of cherty grey dolomite. This sequence (4) is overlain by dark grey argillite and siltstone (5).

South of Lac Archer the upper few feet of the basal quartzites (2) contain thin lenses of jasper and the formation is topped by a 5- to 10-foot layer of jasper-hematite iron-formation. This is in sharp contact with about 150 feet of overlying dark grey-green argillite. In the east half of Cambrian Lake map-area, S. M. Roscoe[1] found evidence that suggests this argillite is the same formation as map-unit 5. Above this, but grouped with it, is about 100 feet of banded jaspery maroon argillite and reddish sandstone. This is gradational above into jasper-hematite iron-formation (6a).

In the belt of sedimentary rocks west of Lac Sénat units 3, 4 and 5 are either missing or very thin. The lower part of the iron-formation (6a) there consists of 50 to 100 feet of interlaminated jasper and black argillite overlain by 50 to 100 feet of jasper-hematite. The jasper-argillite may be unit 3. The jasper-hematite of 6a is overlain by 50 to 100 feet of chert-carbonate iron-formation (6b). Above these iron-formations (6) lies the uppermost observed strata of the sequence consisting of rusty-buff-weathering grey-green argillite (7), with minor maroon argillite and limy maroon sandstone (7a). The reddish beds occur towards the upper observed part of the formation.

The stratigraphic sequence north of Shale Falls appears to be similar to that described above except that a thick sequence of grey slate and quartzite (5) occurs below the iron-formation (6), and the interbedded black argillite and jasper at the base of the iron-formation is only a few feet thick. The argillite and slate in the northeast corner of the map-area may be partly or wholly composed of the upper argillite (7) rather than argillite (5) as shown on the map.

North of Cambrian Lake the rocks of the Kaniapiskau group form a northwest trending synclinorium. Along the western boundary of this structure the beds generally dip gently or moderately to the northeast. The strata exposed along the axial part of the structure form generally broad, open folds. On the eastern boundary of the synclinorium, north from Shale Falls, the folds are tight, commonly overturned to the southwest and thrust faulted.

South of Lac Archer the strata are intersected by gently northeast-dipping thrust faults. In the belt east of Lac Chabanel northeast and east-west trending faults intersect the Kaniapiskau and underlying pre-Kaniapiskau granitic rocks. The nature of these faults is not definitely known but they appear to be normal block faults.

The strata of the remarkable east-west trending belt of coarse clastic rocks (2) underlying part of Cambrian Lake, generally have a gentle to moderate south dip. Small flexures plunge down the dip of these beds, and the beds are terminated on the south by faults that extend into the basement granite (1). They are probably normal faults. The gentle synclinal structure south of Death River is also apparently terminated on the northwest by a normal fault. Along this fault the Kaniapiskau strata are in places closely folded and steeply dipping. The repetition of the stratigraphic sequence between Death River and the opposing shore of Cambrian Lake is probably due to a flexure, the axis of which passes through the lake.

The areas where iron-formation outcrops were examined systematically for iron ore several years ago, but only minor amounts of enrichment were discovered. Two important factors indicate the improbability of finding direct shipping ore. These are the relative thinness of the iron-formation strata and the heavy drift cover. Harrison[2] has pointed out that the thickness of the iron-formation in the Knob Lake section is about 550 feet whereas in this area it is probably less than 200 feet.

The quartz-pebble conglomerates west of Cambrian Lake should be investigated for radioactive minerals.

[1] Unpublished report.
[2] The Quebec-Labrador Iron Belt, Quebec and Newfoundland (Prelim. Report). Geol. Survey of Canada. Paper 52-20.

PRELIMINARY MAP 55-42
CAMBRIAN LAKE
(WEST HALF)
NEW QUEBEC
SHEET 24C (West Half)

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