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GEOLOGICAL SURVEY BRANCH
DEPARTMENT OF MINES AND ENERGY
GOVERNMENT OF NEWFOUNDLAND AND LABRADOR

GEOLOGY OF THE ARCHEAN ASHUANIPI COMPLEX IN WESTERN LABRADOR: MAP 2

LEGEND

MIDDLE PROTEROZOIC

15 *Shabogamo Gabbro*

LOWER PROTEROZOIC

KNOB LAKE GROUP (LABRADOR TROUGH)

14 *Menihek Formation*

13 *Sokoman Formation*

12 *Wishart Formation*

11 *Denault Formation*

10 *Attikamagen Formation*

ARCHEAN

ASHUANIPI COMPLEX (SUPERIOR PROVINCE)

9 (a, b) Unsubdivided Ashuanipi Complex: **9a,** *unsubdivided Ashuanipi Complex;* **9b,** *variably strained, reworked and retrogressed (to greenschist facies) rocks from units 1 to 8 that occur within Grenvillian thrust sheets bound by, and containing, Lower Proterozoic Knob Lake Group rocks*

8 Walsh River granite: **8a,** *white to locally pink granite containing biotite, and commonly, mauve-blue quartz;* **8b,** *pink, biotite granite;* **8c,** *granite containing abundant gneissic inclusions. The Walsh River granite is variably foliated, recrystallized and sheared. The most highly strained granite contains muscovite which grows along the high-strain fabrics*

7 Granite: *variably foliated to isotropic, pink monzogranite and syenogranite containing biotite and accessory magnetite*

6 Diatexite: *white- to brown-weathering, medium- to coarse-grained and variably foliated granodiorite and monzogranite containing orthopyroxene and biotite. The unit contains inclusions of units 1 to 5. Homogeneous diatexite contains less than 25 percent inclusions, whereas inhomogeneous diatexite contains between 25 and 50 percent inclusions.* **6a,** *homogeneous diatexite containing orthopyroxene + garnet;* **6b,** *inhomogeneous diatexite containing orthopyroxene + garnet;* **6c,** *homogeneous diatexite containing orthopyroxene;* **6d,** *inhomogeneous diatexite containing orthopyroxene*

5 Metapyroxenite: *black and dark-green metapyroxenite dykes consisting of clinopyroxene, orthopyroxene and minor amounts of olivine*

4 Granitoid gneiss: *pink and grey granitoid gneiss and migmatite. The unit contains common occurrences of variably recrystallized and deformed sheets and dykes of white and pink leucogranite.* **4a,** *granitoid gneiss and migmatite;* **4b,** *granitoid gneiss and migmatite containing abundant enclaves of metasedimentary migmatite (Unit 1)*

3 Metatonalite: *foliated metatonalite commonly containing coarse-grained orthopyroxene, metatonalite migmatite, and minor amounts of metadiorite and gabbro*

2 Mafic supracrustal gneiss: *a typically well-layered, black-weathering mafic gneiss and migmatite that is interlayered with metasedimentary migmatite (Unit 1). Rocks consist of variable amounts of hornblende, pyroxene, biotite, plagioclase and minor amounts of quartz*

1 Metasedimentary migmatite: *Biotite metasedimentary migmatite that contains variable amounts of white, K-feldspar-bearing leucosome. The unit contains minor amounts of interlayered mafic supracrustal gneiss (Unit 2), amphibolite dykes, and metatonalite and granite dykes.* **1a,** *biotite ± garnet migmatite;* **1b,** *orthopyroxene-bearing migmatite;* **1c,** *unsubdivided metasedimentary migmatite and metatonalite (unit 3)*

Note: The legend for the Lower Proterozoic Knob Lake Group is incomplete and includes only the formations that occur in the areas shown in maps 1 and 2. A complete legend for the Knob Lake Group is shown on maps by Rivers (1985a, b, c).

SYMBOLS

Geological contact (defined, approximate, inferred)

Archean – Proterozoic unconformity

Outcrop

Igneous layering

Main penetrative foliation

Gneissosity

Protomylonite, mylonite and ultramylonite

Mineral elongation lineation

Mineral elongation lineation in shear zone

Minor fold axis

Minor fold axis and sense of asymmetry (S-fold, Z-fold)

Fold axis in high-grade shear zone

Grenvillian high-strain zone (reverse fault)

Overturned back thrust (tick on down-dip side)

Shear zone or fault

Archean structures are decorated with one dip or plunge indicator. The inferred Grenvillian structures are decorated with two dip or plunge indicators. e.g.,

Archean foliation

Grenvillian foliation

Geology of the Ashuanipi Complex by D.T. James and D.M. Stephenson in 1991 (James and Stephenson, 1992), and by D.T. James in 1992 (James and Mahoney, 1993). Geology of the Knob Lake Group is taken from a compilation by van Gool (1992) and based on geology by Rivers (1985a, b, c) and van Gool (1992), and from interpretation of magnetic anomaly maps by D.T. James.

Figure 1. Index map of Labrador. The study area is located in NTS map areas 23G and 23B (shaded area).

Figure 2. Index and reliability map for NTS 23G. The Ashuanipi Complex study area (patterned area) was covered by ground traverses and a minor number of helicopter traverses (shaded area), and helicopter traverses (diagonal lines).

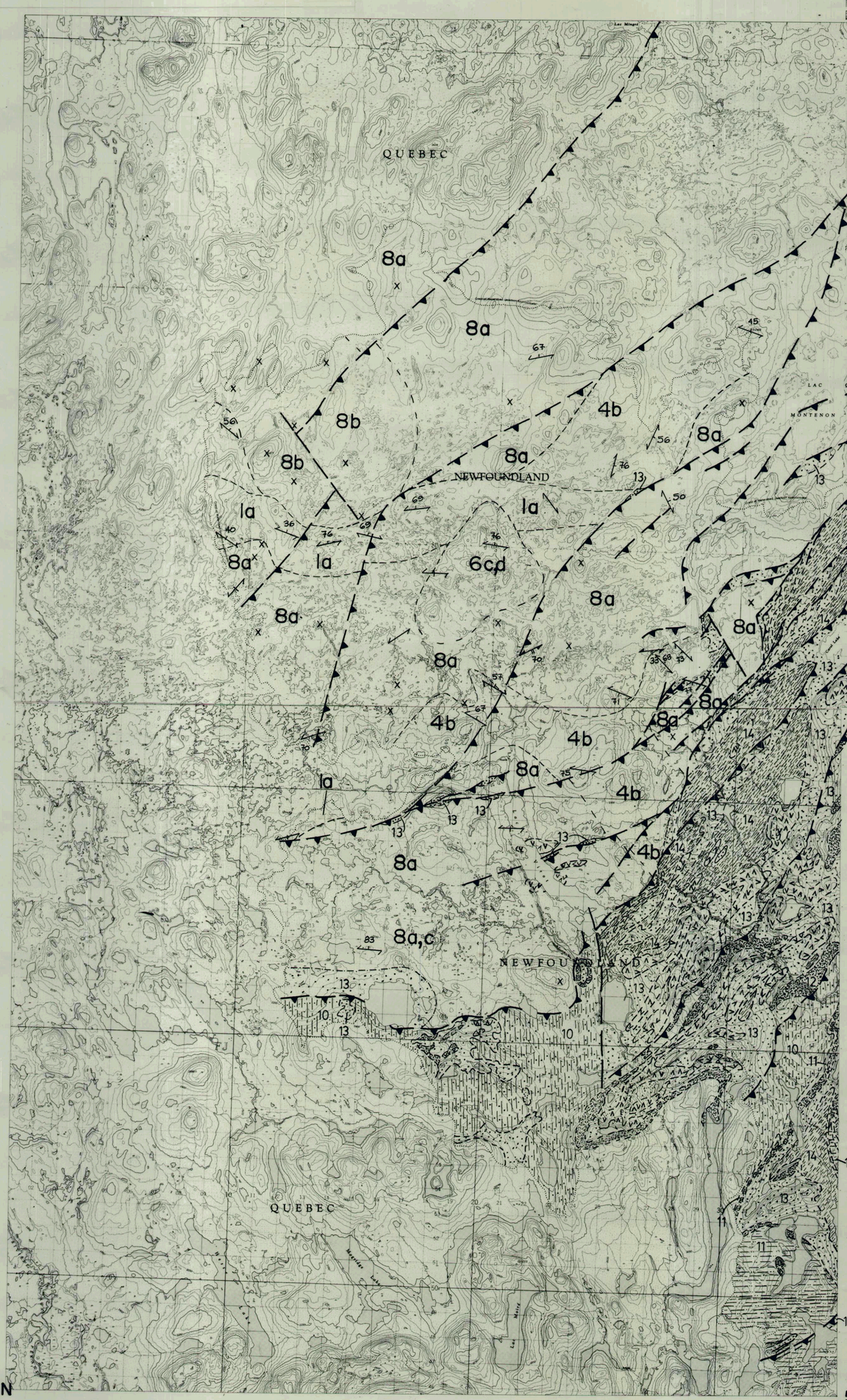
Figure 3. Generalized geological map of the Superior Province showing the principal tectonic elements (modified after Card and Ciesielski 1986). The study area is located in the southeastern part of the Ashuanipi Complex.

MAP 93-18

SCALE 1:100,000 ÉCHELLE

Miles 1 0 1 2 3 4 5 Milles

Kilometres 1 0 1 2 3 4 5 6 Kilomètres



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1985b: Geology of the Evening Lake area, Labrador (23G NE). Newfoundland Department of Mines and Energy, Mineral Development Division, Map 85-27.

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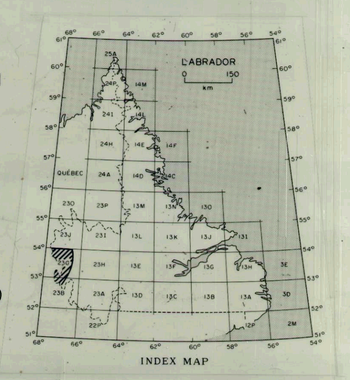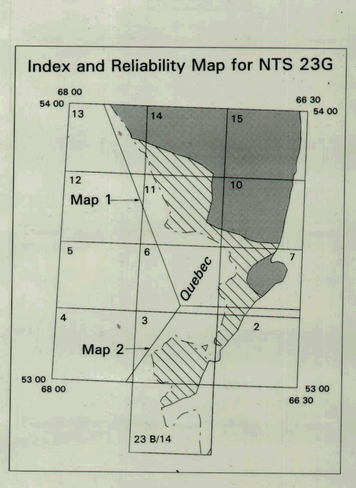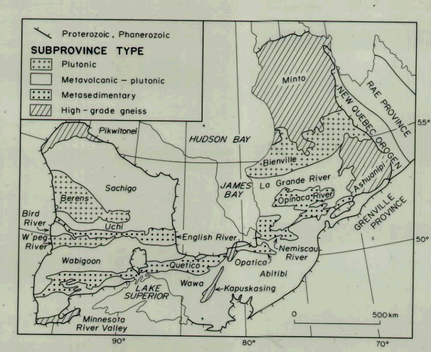
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