



MAP 94 - 216
GEOLOGY OF THE PLUTONIC ROCKS OF THE EASTERN CENTRAL MINERAL BELT
(MAKKOVIK STRUCTURAL PROVINCE), PARTS OF NTS 13I, 13J, 13K, & 13O

PROTEROZOIC II

PLUTONIC ROCKS

37 Michael Gabbro: Grey to black, medium- to coarse-grained, olivine gabbro and diabase associated with minor leucogabbro and diorite. Note that only the larger bodies of the Michael Gabbro are illustrated on this map.

PROTEROZOIC I

PLUTONIC ROCKS (Unclassified; no stratigraphic order implied)

36 Undivided gneissic granitoid rocks: Strongly foliated and/or layered granitoid gneisses, commonly with relict K-feldspar porphyritic to augen texture. Locally cataclastic and mylonitic, notably adjacent to the Benedict fault zone.

35 Thunder Mountain syenite: Pink to brown, coarse-grained, K-feldspar porphyritic, hornblende (± pyroxene) syenite and quartz syenite.

34 Jeanette Bay quartz syenite: Grey to pink, medium- to coarse-grained, K-feldspar porphyritic, biotite-hornblende quartz syenite.

33 Stag Bay granodiorite: Grey to buff, coarse-grained, seriate to porphyritic, biotite-hornblende granodiorite to granite. Commonly contains phenocrysts of both feldspars. The Stag Bay granodiorite has yielded a U-Pb age of ca. 1800 Ma, implying that it is part of the Makkovikian Assemblage.

32 Freshsteak granitoid and Noarse Lake granitoid: Grey to brown, medium-grained, variably plagioclase-porphyritic biotite-hornblende quartz monzonite to monzogranite; 32a, Freshsteak granitoid; 32b, Noarse Lake granitoid. These bodies are interpreted as disrupted halves of an originally continuous pluton. The Freshsteak granitoid has yielded a Rb-Sr age of 1798 ± 48 Ma, implying that it is part of the Makkovikian Assemblage.

PLUTONIC ROCKS (Labradorian Assemblage; no stratigraphic order implied)

31 Otter Lake-Walker Lake granite (1647 ± 2 Ma): Grey to pink, medium- to coarse-grained, seriate to porphyritic, biotite-hornblende quartz monzonite to monzogranite. Generally, fresh, massive and undeformed, but locally affected by Grenvillian deformation.

30 Witchdoctor granite and Burnt Lake granite (1632 ± 9 Ma): 30a, white to pink, coarse-grained, leucocratic biotite-muscovite granite, locally with accessory garnet (Witchdoctor granite); 30b, grey to white or pink, fine-grained, leucocratic, biotite-muscovite granite (Burnt Lake granite). Both units are affected by Grenvillian deformation.

MONKEY HILL INTRUSIVE SUITE (ca. 1640 Ma)

29 Grey to pink, fine- to medium-grained, leucocratic, biotite-chlorite monzogranite and granite, commonly slightly plagioclase-porphyritic; 29a, Monkey Hill Granite (type area); 29b, small 'cupola' south of Round Pond; 29c, small 'cupola' at Duck Island; 29d, Little Monkey Hill granite; 29e, other units of similar composition.

MOUNT BENEDICT INTRUSIVE SUITE (1647 ± 2 Ma)

28 Pink to buff, fine- to medium-grained, equigranular to K-feldspar (± relict plagioclase) porphyritic biotite syenite to alkali-feldspar granite.

27 Grey to buff or pink, medium- to coarse-grained, biotite-hornblende (± pyroxene) monzonite, quartz monzonite and syenite. Relict (mantled) plagioclase phenocrysts impart a distinctive 'speckled eggshell' texture.

ADLAVIK INTRUSIVE SUITE (1649 ± 1 Ma)

25 Grey to yellowish-brown, coarse-grained, pyroxene-hornblende diorite and monzodiorite, locally displaying cumulate textures and/or layering; 25a, main intrusion at Adlavik Bay (type area); 25b, Big River Valley area; 25c, east Micmac Lake area unit of similar composition; 25d, similar rocks in the eastern Makkovik Province, some of which may be associated with the Mount Benedict Intrusive Suite.

24 Grey to green or brown, coarse grained, gabbro, gabbro-norite and leucogabbro, including ultramafic and mafic cumulate, massive and composite diabase, plagioclase cumulates, and hornblende-plagioclase 'pegmatite' (type area); 24a, Big River Valley area; 24b, east Micmac Lake area unit of similar composition; 24c, similar rocks in the eastern Makkovik Province, some of which may be associated with the Mount Benedict Intrusive Suite.

PLUTONIC ROCKS (posttectonic Makkovikian Assemblage; no stratigraphic order implied)

23 Big River Granite (1802 ± 2 Ma): 23a, pink to red, coarse-grained, K-feldspar porphyritic, biotite-hornblende granite with mantled feldspar (pseudoparkivi) texture; 23b, equigranular to locally quartz-porphyritic granite of similar composition, probably gradational with subunit 23a.

LANCEGROUND INTRUSIVE SUITE

22 Tarun granite: Variably foliated, buff to pink, medium- to coarse-grained, biotite-hornblende quartz syenite, granite and alkali-feldspar granite. Foliation interpreted to be a Grenvillian effect.

21 Pistol Lake granite: Pink to buff, medium- to coarse-grained, biotite-hornblende quartz syenite to alkali-feldspar granite, locally of hypersolvus character.

20 Lanceground Hills granite: Pink to buff, medium- to coarse-grained, biotite-hornblende quartz syenite to alkali-feldspar granite, locally of hypersolvus character.

STRAWBERRY INTRUSIVE SUITE (1719 ± 3 Ma)

19 Tukialik granite: Pink to red, coarse-grained, K-feldspar porphyritic biotite granite and alkali-feldspar granite, commonly with accessory fluorite.

18 Dog Islands granite: Pink, coarse-grained, K-feldspar (± quartz) porphyritic biotite granite, alkali-feldspar granite and quartz-feldspar porphyry, commonly with accessory fluorite.

17 Cape Strawberry granite and associated plutons (1719 ± 3 Ma): White, pink or red, generally coarse grained, texturally variable, K-feldspar porphyritic biotite granite and alkali-feldspar granite, commonly with abundant accessory fluorite; 17a, Cape Strawberry and October Harbour granites; 17b, fine-grained, sill-like bodies of the Poodle Pond area, interpreted as a high-level equivalent.

16 Bayhead granite: White to pink, medium- to coarse-grained, K-feldspar porphyritic biotite granite, monzogranite and alkali-feldspar granite, commonly with accessory fluorite.

NUMOK INTRUSIVE SUITE (1801 ± 2 Ma)

15 Grey to dark-brown, coarse-grained, plagioclase-porphyritic pyroxene-hornblende monzodiorite and monzonite.

14 Pink to brown, coarse-grained, K-feldspar porphyritic, pyroxene (± fayalite) syenite to quartz syenite, locally of hypersolvus character; 14a, Adlavik Islands area (type area); 14b, correlative units in inland areas.

13 White to pink, medium- to coarse-grained, variably plagioclase and/or K-feldspar porphyritic, hornblende-biotite monzonite, quartz monzonite and lesser syenite; 13a, Adlavik Islands area (type area); 13b, correlative units in inland areas.

LEGEND

PLUTONIC ROCKS (syntectonic Makkovikian Assemblage; no stratigraphic order implied)

12 Island Harbour Bay intrusive suite (1805 ± 5 Ma, but some parts may be older): Compositionally and texturally variable, polyphase, plutonic suite including diorite, tonalite, quartz monzonite, granodiorite and granite. Although an 1805 ± 5 Ma age has been obtained from homogeneous granite, parts of this suite may be significantly older.

11 Deus Cape granodiorite (1837 ± 1 Ma): Pink to grey, coarse-grained, seriate to K-feldspar megacrystic, foliated biotite-hornblende granodiorite to granite.

10 Manak Island granodiorite: White to pale grey, medium- to coarse-grained, leucocratic, foliated biotite-hornblende granodiorite to monzogranite.

9 Pitre Lake granite: White to pale-pink, medium-grained, equigranular, leucocratic, foliated biotite-muscovite granite. Contains metasedimentary enclaves, and locally displays nebulitic 'ghost-layering'.

8 Brumwater granite: Grey to pink, medium-grained, equigranular, leucocratic, foliated biotite granite and monzogranite. Contains gneissic enclaves, and is locally nebulitic.

7 Melody Granite: Pink to brick-red, coarse-grained, leucocratic, variably K-feldspar porphyritic biotite granite, strongly foliated to locally mylonitic; 7a, type area from Melody Lake toward Junior Lake; 7b, locally gneissic granitoid rocks of the Anna Lake area, possibly an older enclave within the granite.

KENNEDY MOUNTAIN INTRUSIVE SUITE

6 Pink to white or buff, medium- to coarse-grained, leucocratic, variably K-feldspar porphyritic, foliated biotite-monzogranite to granite, commonly containing accessory fluorite; 6a, Kennedy Mountain granite (type area); 6b, Narrows granite; 6c, Cross Lake granite; 6d, other minor units correlated with this suite.

5 Long Island Quartz Monzonite (1802 ± 2 Ma): Grey to brown, fine- to medium-grained, melanocratic, plagioclase-porphyritic, foliated biotite-hornblende quartz monzonite to monzogranite; 5a, type area at Long Island and Mark's Bight; 5b, possibly correlative units.

SUPRACRUSTAL ROCKS

UPPER AILLIK GROUP (1861 to 1807 Ma)

4 Felsic volcanic and pyroclastic rocks, lesser volcanoclastic sedimentary rocks and mafic volcanic rocks; 4a, arkose, bedded tuff, sandstone, siltstone, conglomerate, and minor mafic to felsic volcanic rocks (early Upper Aillik Group); 4b, dacitic to rhyolitic tuffs and flows, minor volcanoclastic sedimentary rocks (late Upper Aillik Group); 4c, massive quartz porphyry and quartz-feldspar porphyry; 4d, supracrustal remnants in the eastern Makkovik Province correlated with the Upper Aillik Group.

LOWER AILLIK GROUP (undated, but pre-1860 Ma)

3 Amphibolites (locally recognizable as pillow lavas), psammitic to pelitic metasedimentary rocks, and minor silicic-oxide iron formation. Includes metabasaltic rocks interpreted as sill-like intrusive bodies.

GNISSIC ROCKS

CAPE HARRISON METAMORPHIC SUITE (undated, but 2100 to 1850 Ma)

2 Tonalitic to granodioritic orthogneisses, commonly foliated and/or compositionally layered. Includes lenses of amphibolite and possibly siliceous metavolcanic rocks.

ARCHEAN

REWORKED GNEISSIC ROCKS

1 Tonalitic to granodioritic orthogneisses, commonly strongly foliated and/or compositionally layered, intercalated with amphibolites, dyke remnants, and minor paragneiss units, and cut by more massive granitoid gneisses. Affected by a Proterozoic structural and metamorphic overprint of variable intensity.

SYMBOLS

Geological contact (defined, position approximate).....

Geological contact (inferred, position uncertain).....

Fault (inferred, position approximate).....

Foliation and/or gneissic layering (vertical, inclined).....

NOTES AND REFERENCES

This 1:250,000-scale map is intended as a summary only, and represents a compilation of previous mapping by the Department of Mines and Energy, and also other mapping carried out in conjunction with this project. Differences between this and previous maps lie in the distribution and grouping of plutonic rocks, particularly in inland areas. The distribution and classification of other units is largely unaltered. Some simplification of the geology was required to make the map legible and usable at 1:250,000 scale.

Sources used in compilation are:

Gower, C.F. 1981: Geology of the Benedict Mountains, Labrador. Newfoundland Department of Mines and Energy, Mineral Development Division, Report 81-3, 26 pages.

Gower, C.F., Flanagan, M.J., Kerr, A. and Bailey, D.G. 1982: Geology of the Kaipokok Bay-Big River area, Labrador. Newfoundland Department of Mines and Energy, Mineral Development Division, Report 82-7, 77 pages.

Ryan, A.B. 1984: Regional geology of the central part of the Central Mineral Belt, Labrador. Newfoundland Department of Mines and Energy, Mineral Development Division, Memoir 3, 186 pages.

For details of U-Pb and Rb-Sr geochronology, see:

Kerr, A. 1989: Early Proterozoic Granitoid Magmatism and Crustal Evolution in the Makkovik Province of Labrador: A Geochemical and Isotopic Study. Unpublished Ph. D. Thesis, Memorial University of Newfoundland, St. John's, Newfoundland, 528 pages.

Kerr, A., Krogh, T.E., Corfu, F., Schärer, U., Gandhi, U. and Kwok, Y.Y. 1992: Episodic Early Proterozoic granitoid plutonism in the Makkovik Province, Labrador: U-Pb geochronological data and geological implications. Canadian Journal of Earth Sciences, Volume 29, pages 1166-1179.

Compiled by A. Kerr.

Geology by A. Kerr, G. Squires and H. Sandeman, and compiled from sources noted above.

This map may be subject to revision and correction.

Geological cartography by T. Peltanavage and T. Sears; photomechanical by D. Leonard; cartographic supervisor K. Byrne.

Magnetic declination at longitude 58°00' was 33°09' westerly, in 1983, annual magnetic change 4.1'; easterly. Elevations in feet above mean sea level.

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Copies of this map may be obtained from the Publications and Information Section, Geological Survey Branch, Department of Mines and Energy, P.O. Box 8700, St. John's, Newfoundland, Canada, A1B 4J6.

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