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GEOLOGICAL SURVEY OF CANADA — COMMISSION GÉOLOGIQUE DU CANADA

DESCRIPTIVE NOTES

This map shows the geology of the eastern half of the bend in the Abloviak shear zone and the southern limit of the Komaktorvik shear zone where the two converge south of Tower Mountain. This map accompanies Map 24P/7 (Van Kranendonk, 1993), which shows the western half of the bend in the Abloviak shear zone. The map area is well- exposed on the high ground in the north, southeast and southwest, but is extensively covered by Quaternary glacial deposits throughout the low-lying south-central part, where Tower Mountain and its northern neighbor stand as erect monoliths, their classical lee and stoss shape a striking testament to the erosional forces of past glaciers. A very large U- shaped glacial valley strikes north-northeast from Upper Kangalaksiorvik Lake to Two Loon Lake and east from there. The terrain is very rugged in the northeastern and southwestern parts of the map area, where elevations reach a maximum of 3800'. The northwestern part of the area consists of rounded hills on highland plateaux and broad river valleys lined with thigh-high willow bushes and traversed by numerous caribou. Map coverage was accomplished through helicopter-supported ground traverses from a basecamp located to the north of the map area. U-Pb age data was provided by D. Scott at the Université de Québec à Montréal.

Lithology

Three main groups of rocks, referred to as lithotectonic assemblages, are present in the map area. In the east and north are rocks of the Noodleook complex (Van Kranendonk et al., 1992). This area is largely underlain by rocks derived from Archean protoliths of the Nain Province, including migmatitic tonalitic orthogneisses [**Agl, Agn, Argn**] with inclusions and rafts of garnet-biotite+/-sillimanite paragneiss [**Ams**], mafic granulite gneiss [**Amf**], and ultramafic rocks [**Aum**]. Typical of the Nain Province are the numerous inclusions and lenses of metamorphosed ultramafic rock. Nain Province rocks are cut by Paleoproterozoic diabasic Avayalik dykes [**Pdb**]. Together, these rocks are metamorphosed to the granulite facies in the easternmost part of the map area (Archean and superimposed Paleoproterozoic granulite facies), and variably recrystallized under Paleoproterozoic amphibolite-facies conditions in the northern and eastern parts of the map area.

The Hutton anorthositic suite [**APan, APanl, APanm**], of Late Archean or earliest Proterozoic age, has a range in composition from anorthosite to anorthositic gabbro. Textures vary from pristine, coarse-grained anorthosite with subophitic textures of blue igneous plagioclase feldspar (Labradorite) and rare clots of clinopyroxene (variably recrystallized to hornblende) [**APan**], to granoblastic, equigranular garnet-hornblende gneisses [**APanl**]. Contact relationships between anorthositic rocks and Archean gneisses are sharp and commonly tectonized, so that a relative age relationship between these units is unknown. Rocks that clearly intrude the anorthositic rocks include diabasic Avayalik dykes [**Pdb**], Paleoproterozoic metaplutonic rocks of the DTG suite [**PiDTG**: 1910-1885 Ma], and megacrystic granite [**Pigt**: 1864 ± 2 Ma].

The Paleoproterozoic DTG suite [**PiDTG, Pid**] consists of metaplutonic rocks with a range in composition from oldest diorite and gabbro, through tonalite and granodiorite, to youngest monzodiorite and granite (Van Kranendonk et al., 1993). Tonalitic compositions are by far the most voluminous and range in texture from homogeneous, medium-grained rocks, to migmatitic gneisses. These rocks are seen to cut the Nain Province (Van Kranendonk and Scott, 1992) and rocks of the Hutton anorthositic suite, but do not contain Avayalik dykes. U-Pb zircon ages for this suite range between 1910-1885 Ma (D. Scott, personal communication, 1993).

Rocks of the DTG suite are interlayered with, and contain inclusions and rafts of layered mafic gneisses [**Psmg**], which are characterized by a centimetre- to decimetre-scale layering defined by modal variations between hornblende, plagioclase, titanite, ilmenite, quartz ± epidote. These rocks are interpreted to be derived from mafic volcanic and/or volcaniclastic protoliths and to be Paleoproterozoic in age, because they do not contain Avayalik dykes and are in tectonic contact with Archean Nain Province gneisses.

Cutting across the Hutton anorthositic suite in the map area is a unit of coarse-grained K-feldspar megacrystic granite [**Pigt**], characterized by a porphyroclastic texture (≤40% K-feldspar megacrysts, up to 5 cm in long dimension) and a strongly-developed schistosity defined by aligned micas. An identical rock from Killinek Island was dated as 1864 ± 2 Ma (D. Scott, pers. comm.).

The second lithotectonic assemblage is referred to as the Tasiuyak gneiss complex (Van Kranendonk et al., 1992, after Van Kranendonk and Ermanovics, 1990) and is metamorphosed to the granulite facies. It consists of a monotonous sequence of metasedimentary gneisses - known as the Tasiuyak gneiss (Wardle, 1983) [**PsTg**] - and interlayered metaplutonic rocks of Paleoproterozoic age [**Pigd, Piqd**]. The Tasiuyak gneiss is white- and rusty-brown weathering and homogeneous on a large scale, but at the outcrop scale is seen to consist of 10's of centimetres- to metres-wide layers of garnet- sillimanite ± biotite ± graphite quartzo-feldspathic gneiss (metamorphosed pelitic protolith), garnet-quartz ± feldspar rock (quartz arenite), and garnet quartzo-feldspathic gneiss (diatexite granite: not shown on map). Garnets are typically lilac-coloured in these rocks, and garnetiferous granite is ubiquitous, comprising up to 40% of some outcrops.

Paleoproterozoic metaplutonic rocks in this assemblage include black-weathering, mesocratic (C.I. = 25-30%; orthopyroxene, hornblende ± biotite) quartz diorites [**Piqd**] and beige-weathering, leucocratic rocks (C.I. ≤ 20%; orthopyroxene ± rare garnet) of tonalite- granodiorite composition [**Pigd**]. These rocks contain a simple fabric and were locally seen to have an intrusive relationship with the Tasiuyak gneiss. Rocks of this suite have been dated as 1895-1886 Ma outside of the map area (Map 24P/7; Van Kranendonk, 1993: Maps 25A/2, 25A/7), whereas a sample of orthopyroxene-bearing granodiorite in the map area is 1839 ± 3 Ma (D. Scott, pers. comm., 1993).

The third lithotectonic assemblage includes tonalitic gneisses derived from Archean Rae Province protoliths [**ARtn**], Paleoproterozoic metasedimentary rocks of the Lake Harbour Group [**PLqz, PLpg, PLmb**], and homogeneous, orthopyroxene-bearing granodioritic rocks [**Pigd**] that have an identical field appearance to those in the Tasiuyak gneiss complex and which are therefore assumed to be of Paleoproterozoic age. These rocks are interlayered and infolded with those of the Tasiuyak gneiss complex, but there is a sharp division between Lake Harbour Group paragneisses and the Tasiuyak gneiss.

Rocks belonging to the Rae Province include white-weathering, migmatitic tonalite gneisses, and inclusions of mafic and anorthositic rocks. Inclusions of ultramafic rocks are rare in the map area. Locally, thin amphibolite sheets in the gneisses are interpreted to represent transposed mafic dykes.

Rocks ascribed to the Lake Harbour Group in the map area include garnet-biotite-sillimanite paragneiss and coarse-garnet quartz arenite [collectively under **PLpg**], and pure white marble [**PLmb**]. A thin unit of very strongly deformed and tightly folded, hetereogeneous calc-silicate and marble [**Pscs**] located in the core of the fold of the Abloviak shear zone (see below), may also belong to the Lake Harbour Group. The paragneisses differ from the Tasiuyak gneiss in that they are less migmatitic in character, have red rather than lilac coloured garnets, and are more homogeneous on the outcrop scale.

Cutting across all units in this third lithotectonic assemblage are numerous sheets of pink, fine- to medium-grained granite [**Pigg**], which locally contain up to 5%, fine-grained garnet, but that are otherwise devoid of mafic minerals. Such granite sheets are not found outside of the southernmost part of the map area.

Across the contact between lithotectonic assemblages 1 and 2 are porphyroclastic mylonites and ultramylonites of the Katherine River shear zone. These rocks contain amphibolite- to greenschist-facies metamorphic mineral assemblages and typically contain disrupted inclusions of anorthositic rock [**APan**]. Mylonitic and ultramylonitic rocks of the Komaktorvik shear zone strike N-S within the eastern part of the map area, derived from Nain Province protoliths (see below).

Within the Komaktorvik shear zone, Nain gneisses, Avayalik dykes and their recrystallized equivalents at amphibolite facies, and rocks of the DTG suite are cut by a set of fine- to medium-grained, olive green-weathering, hornblende-plagioclase+/-garnet dykes [**Pdg**]. In general, these dykes are not feldspar phyric, but some contain black feldspar megacrysts (≤5 cm) or round feldspar+/-quartz and K-feldspar (?)xenocrysts (<1 cm). The olive green dykes trend N-S and have a restricted occurrence within the Komaktorvik shear zone. They commonly have highly irregular intrusion forms and are weakly deformed relative to strongly sheared country rocks; features which suggest a syn-tectonic emplacement during Komaktorvik shear deformation (ca. 1790 Ma). In addition, the Komaktorvik shear zone is host to a set of compositionally and texturally heterogeneous amphibolite dykes, which vary from undeformed, equigranular, medium-grained amphibolites (locally with round plagioclase-phyric portions) that cut across strongly sheared Archean gneisses, to thin (<10 cm), foliated hornblendites which strike parallel to the shear foliation. These dykes cut all previous sets of dykes and are considered to be late tectonic with respect to the Komaktorvik shear zone (see Fig. 4 of Van Kranendonk and Wardle, 1994).

Metamorphic rocks of the map area are cut by fresh, brown-weathering diabase dykes [**Cd**] which strike generally east-west. A K-Ar age of 524 ± 78 Ma has been obtained from one such east-west striking dyke located north of the map area (Taylor, 1979: Map 24P/15), but some NW-striking dykes may be Neoproterozoic in age (K. Buchan, unpublished information).

Structural geology

Planar fabric elements (S_n), lineations (L_n) and folds (F_n) in Archean Nain gneisses, that are cut by Avayalik dykes, are interpreted to be of Archean age. These structures represent at least two deformational events, as older gneisses with a migmatitic gneissosity are cut by younger tonalitic rocks which themselves contain a granulite-facies foliation and lineation. An early set of intrafolial isoclinal folds are recognized in the older gneisses. The second foliation is axial planar to a set of regionally-developed, south- plunging folds, whose axes are sub-parallel to granulite-facies mineral lineations. The second set of structures is believed to be Late Archean in age (ca. 2.8-2.7 Ga).

Archean structures within Rae gneisses have been thoroughly transposed into parallelism with Paleoproterozoic structures of the Abloviak shear zone (D_{n+2}).

Structures of interpreted Paleoproterozoic age occur throughout the map area; they have been divided into three sets, based on orientation, kinematics, and associated metamorphic grade. The earliest set of Paleoproterozoic structures (D_{n+1}) includes a planar fabric, which is manifest as a gneissic layering in Paleoproterozoic rocks, and as a foliation in Archean gneisses. In the former, the degree of migmatization varies greatly with metamorphic grade and protolith: granulite-facies paragneisses are highly migmatitic, whereas amphibolite-facies metaplutonic rocks are foliated to weakly gneissic. In the northwestern part of the map area, Archean structures in Nain gneisses are transposed into parallelism with S_{n+1}, which is itself parallel to the interlayering of rock units [**Argn, PiDTG,** and **Psmg**]. Tectonic intercalation between Archean gneisses [**Argn**], mafic supracrustal rocks [**Psmg**], and Paleoproterozoic metaplutonic rocks [**PiDTG**] within the Noodleook complex is interpreted as a D_{n+1} event, as is the intercalation of the lithotectonic assemblages. A possible age constraint for this deformation is provided by the oldest metamorphic U-Pb date of 1870 ± 3 Ma (D. Scott, pers. comm.), obtained from monazite from a sample of Tasiuyak gneiss located in the adjacent map sheet 24P/7 (Van Kranendonk, 1993). No linear fabric elements associated with this deformation have been recognized.

D_{n+2} structures of the Abloviak shear zone include a subvertical mylonitic schistosity with kinematic indicators of sinistral transcurrent translation, and subhorizontal ribbon lineations developed at granulite-facies metamorphic grade. D_{n+2} structures are not recognized across the Katherine River shear zone into the amphibolite-facies rocks of the Noodleook complex. An orthopyroxene-bearing granodiorite body in the southwestern part of the Tasiuyak gneiss complex, that contains strong L_{n+2} and S_{n+2} fabric elements but does not contain evidence of an earlier migmatitic gneissosity (D_{n+1}), has been dated as 1839 ± 3 Ma (see map), providing a maximum age for at least some of the D_{n+2} deformation. A post D_{n+2}, pre-D_{n+3} pegmatite from just west of the map area (see Van Kranendonk, 1993) is 1824 ± 2 Ma, and provides a minimum age for the formation of the Abloviak shear zone. These results are consistent with ages obtained for Abloviak shear deformation to the south of between 1845-1822 Ma (Bertrand et al., 1993).

Third generation structures (D_{n+3}) include: lineations, fold axes, and a weakly-developed foliation in rocks of the Noodleook complex from across the northwestern part of the map area; mylonite and ultramylonite that show a dextral sense of displacement in the Katherine River shear zone; and rocks within the southerly part of the Komaktorvik shear zone, which a contain porphyroclastic mylonitic to ultramylonitic, N-S striking planar schistosity and moderately south-plunging to subvertically-plunging elongation lineations, and that show evidence of east-side-up displacement. D_{n+3} structures form a triple point within the map area, directly northwest of Upper Kangalaksiorvik Lake, where S_{n+1} planar fabric elements are folded about moderately northwest-plunging fold axes (F_{n+3}) which are co-linear to mineral elongation lineations (L_{n+3}). To the west, D_{n+3} linear fabric elements show a progressive change in orientation to east-west trends, whereas to the east, they become more steeply plunging on north-south striking foliation surfaces.

In the southeastern corner of the map area, the Komaktorvik shear zone is 1.5 km wide and composed of alternating zones of straight gneiss, porphyroclastic mylonite and spectacular zones, up to 500m wide, of ultramylonite. The easternmost zone of ultramylonite is the most impressive, with abundant indicators of intense strain including sheath folds, wide zones of ultramylonite that has a smooth-weathering, almost glassy appearance due to an ultra-fine grain size, common pseudotachylite - including folded veinlets of pseudotachylite - and highly elongate downdip mineral aggregate and hornblende porphyroblast lineations. A host of shear sense indicators viewed in outcrop and in oriented thin sections from this zone display east-side-up kinematics. In between the zones of ultramylonite are belts of straight, re-worked Archean gneiss at Paleoproterozoic amphibolite facies, that contain a porphyroclastic mylonitic foliation superimposed on tightly folded and sheared Archean gneissosity. These rocks contain strongly foliated to schistose garnet-hornblende Avayalik dykes, and at least two sets of syn-tectonic mafic dykes (described above and in Van Kranendonk and Wardle, 1994).

D_{n+3} structures formed in the period 1798-1780 Ma, as determined from a number of ages on syn-kinematic granitic material in the Komaktorvik and Katherine River shear zones (Scott et al., 1993; D. Scott, pers. comm.). Both shear zones are interpreted to have formed contemporaneously: the Katherine River shear zone as a slip plane that developed during flexural folding of the Abloviak shear zone and Burwell domain rocks; the Komaktorvik shear zone as a result of slip along the sheared fold limb (see Van Kranendonk et al., 1993).

A set of north-south striking ultramylonite zones, parallel to and located within the Komaktorvik shear zone, that contain downdip elongation lineations and exhibit west-side- up kinematic indicators, comprise a fourth generation of Paleoproterozoic strucutres (D_{n+4}). These are interpreted to have formed roughly contemporaneously with a set of brittle-ductile faults that occur within the core of the bend in the Abloviak shear zone (north-south), and a set of northwest-striking faults along the outer limb of the fold. These faults cut all earlier ductile fabric elements within the map area and commonly contain pseudotachylite veins which locally outline the displacement surfaces of spectacular, outcrop-scale, strike-slip duplexes. Throughout the map area, these strike-slip faults show a sinistral sense of displacement.

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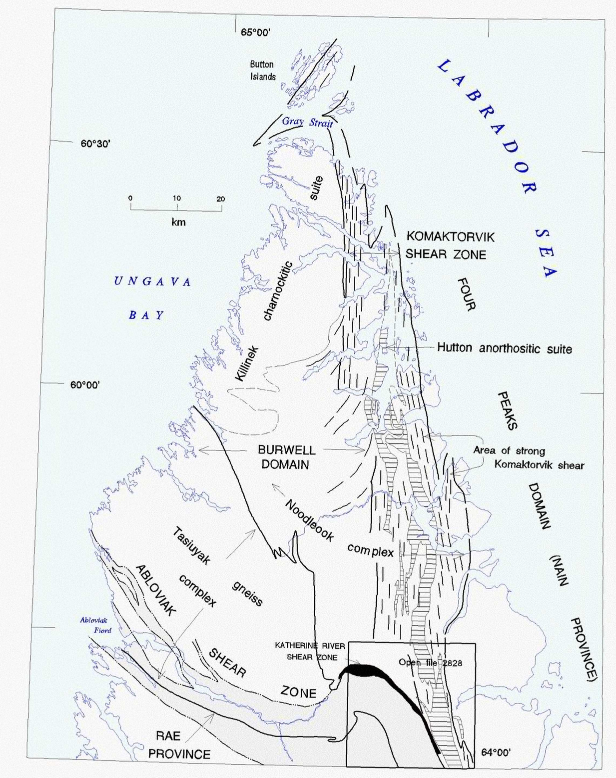


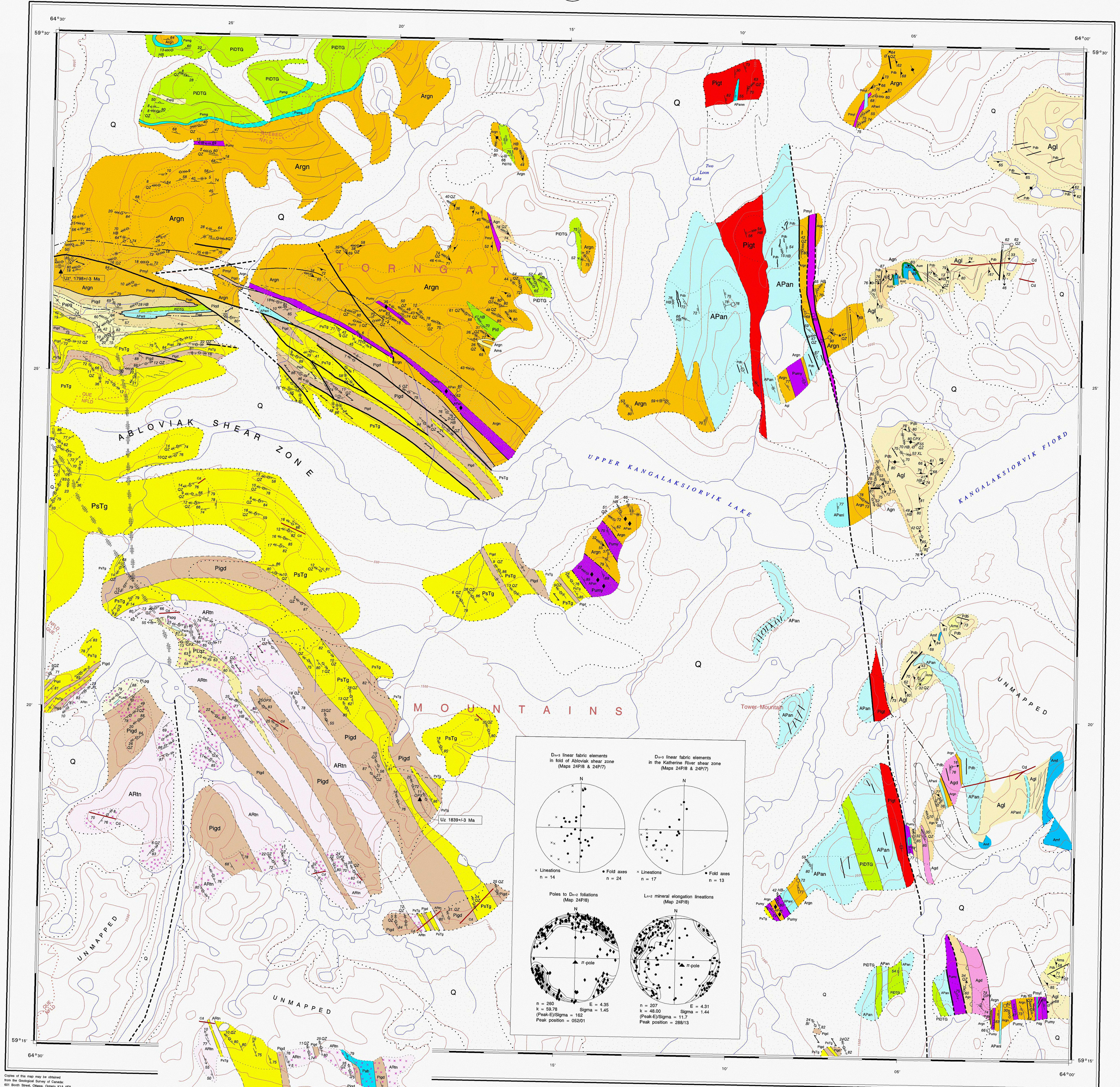
Structural (UPPER CASE) and lithological (lower case) subdivisions of the northern part of the Paleoproterozoic Torngat Orogen, Labrador, Québec and Northwest Territories (after Van Kranendonk et al., 1992). Location of map area outlined by square box.

COOPERATION
COOPERATION AGREEMENT MINERAL DEVELOPMENT — ENTENTE DE COOPÉRATION SUR L'EXPLOITATION MINÉRALE

Contribution to Canada-Newfoundland Cooperation Agreement on Mineral Development (1990-1994), a subsidiary agreement under the Economic and Regional Development Agreement.

Contribution à l'Entente de coopération Canada-Terre-Neuve sur l'exploitation minérale (1990-1994), entente auxiliaire négociée en vertu de l'Entente Canada/Terre-Neuve de développement économique et régional.

Canada — Newfoundland Terre-Neuve



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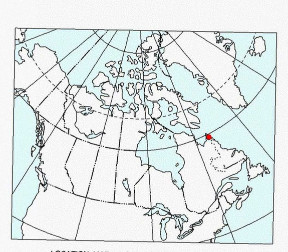

LOCATION MAP - LOCALISATION DE LA CARTE

OPEN FILE 2828

GEOLOGY

TOWER MOUNTAIN

NEWFOUNDLAND (LABRADOR) - QUÉBEC

Scale 1:50 000 - Échelle 1/50 000

Kilometres 1 0 1 2 3 4 Kilomètres

Transverse Mercator Projection, CM 64°15', Scale Factor 1.0 — Projection transverse de Mercator, M.C. 64°15', facteur d'échelle 1,0

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24P/10	24P/9	14M/12
24P/7 OF 2738	24P/8 OF 2828	14M/5
24P/2	24P/1	14M/4

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS
SYSTÈME NATIONAL DE RÉFÉRENCE CARTOGRAPHIQUE ET INDEX DES CARTES ATTENANTES PUBLIÉES PAR LA COMMISSION GÉOLOGIQUE DU CANADA

LEGEND

Q Unconsolidated Quaternary deposits and felsenmeer

Cd Brown-weathering, undeformed diabase/microgabbro dykes with delicate ophitic texture; locally with plagioclase agglomerate texture. K-Ar = 524 +/-78 on an east-west striking dyke in map area 24P/15 (Taylor,1979); others may be Neoproterozoic

PALEOPROTEROZOIC ROCKS

Pumy Amphibolite- to greenschist-facies mylonite and ultramylonite

Pmyl Amphibolite-facies ductile shear zone and/or mylonite

META-IGNEOUS ROCKS

Mafic dykes

Pdg Pale green weathering, garnet-hornblende-plagioclase dykes, cut Avayalik dykes (**Pdb**) and were probably emplaced during Komaktorvik shear deformation

Pdb Avayalik meta-diabase dykes, locally with plagioclase-phenocrystic texture. Dykes vary from brown-weathering garnet-clinopyroxene-hornblende-plagioclase-quartz granulites with characteristic black feldspar megacrysts immediately east of the Komaktorvik shear zone to hornblende-plagioclase ± garnet ± epidote amphibolites within and to the west of the Komaktorvik shear zone

META-PLUTONIC ROCKS

Pigg Fine- to medium-grained granite to syenite, locally with small, deep-red garnet; at granulite-facies: occurs as sheets intruding the Tasiuyak gneiss (**PsTg**), Lake Harbour Group metasediments (**PLpg, PLqz, PLmb**), Paleoproterozoic charnockitic rocks (**Pigd, Piqd**), and Archean gneisses (**ARtn**) in the bend of the Abloviak shear zone. Density of sheeting reflected by density of crosses

Pigt K-feldspar megacrystic granite, with single-cycle augen to mylonitic texture. Intrudes rocks of the Hutton anorthositic suite. Sample from McLelan Straight (25A/7) dated as 1864 ±2 Ma (Scott et al., 1993)

PiDTG Polyphase intrusive suite, varying from mafic diorite, through tonalite and granodiorite, to granite and quartz monzodiorite; at amphibolite facies. Dominantly (>80%) homogeneous, leucocratic tonalite to quartz diorite (hornblende-biotite ± epidote), with inclusions of plagioclase-phyric diorite and metagabbro, and layered mafic gneiss (**Psmg**); cut by porphyritic gabbro sheets and numerous phases of leucocratic veins and pegmatitic granite. Textures vary from weakly-foliated meta-plutonic rocks to migmatitic orthogneisses that locally show complex isoclinal folding.

Pid Homogeneous, hornblende-biotite diorite, locally with 20% granite veins: colour index = 40-60%. Dated at Eclipse Channel (24P/16) by U-Pb on zircon, as 1891 ± 2 (Scott et al., 1993)

Piqd Grey- to black-weathering melanocratic quartz diorite (colour index = 20-30%) at granulite-facies (orthopyroxen-hornblende-biotite); commonly with relic igneous plagioclase and cognate xenoliths of fine-grained diorite/quartz diorite. Contains a mylonitic foliation within the Abloviak shear zone. Dated by U-Pb on zircon as 1895 ± 2 Ma (D. Scott, pers. comm., 1993)

Pigd Massive to foliated, leucocratic, orthopyroxene-bearing granitoid rocks. Dominantly buff- weathering, medium-grained, equigranular granodiorite. Sample from McLelan Straight (NTS 25A /10) dated by U-Pb on zircon as 1895 ± 3 Ma (Scott et al., 1993), and one from NTS 25A/2 as 1886 ± 4 Ma (D. Scott, pers. comm., 1993)

SUPRACRUSTAL ROCKS

Pspg Grey- to buff-weathering paragneiss with red garnet and biotite, abundant leucosome and complex migmatitic character

Pscs Calc-silicate and impure diopside-olivine-calcite marble

PsTg Tasiuyak gneiss; rusty brown and white weathering paragneiss and diatexite, characterized by lilac-coloured garnets and sillimanite. Well layered on a 10cm-2m scale, varying from garnet quartzite to semi-pelitic garnet-biotite-feldspar-quartz gneiss, to pelitic sillimanite-biotite-garnet quartzo-feldspathic gneiss; all cut by and/or interlayered with white garnet granite

Psmg Centimetre-layered mafic gneiss, interlayered with plagioclase-phyric and more homogeneous amphibolites; intruded by Paleoproterozoic diorite and tonalite of the **PiDTG** suite

Pab Homogeneous, equigranular mafic amphibolite to granulite; layering generally not present

Lake Harbour Group

PLpg Biotite paragneiss; varying from psammitic quartzo-feldspathic gneisses, to semi-pelitic garnet-biotite quartzo-feldspathic gneiss. Leucosome material is rare or absent in these rocks, in contrast to the Tasiuyak gneiss (**PsTg**) and paragneisses farther north (**Pspg**)

PLqz Metamorphosed quartzite, quartz arenite and semipelitic gneiss; locally with thin units (30cm- 5m) of coarse garnet-sillimanite metapelite

PLmb Pure, white, coarse-grained calcite marble

ARCHEAN AND/OR PROTEROZOIC ROCKS

HUTTON ANORTHOSITIC COMPLEX

APan White meta-anorthosite, gabbroic anorthosite and leucogabbro; commonly with relic igneous textures and compositional layering, and locally with igneous mineralogy (blue plagioclase and coarse-grained orthopyroxene). Gabbroic anorthosite is dominant, but unit is compositionally heterogeneous

APanl Granoblastic, recrystallized anorthositic gneiss, derived from **APan** at amphibolite facies. Contains variable amounts of leucocratic veins and is characterized by disrupted mafic layers and cm-dm scale layering. Locally recrystallized to a granoblastic garnet-hornblende gneiss

APanm Layered amphibolite metagabbro to ultramafic rocks; occurs as marginal phase to the Hutton anorthositic complex or as internal layers

ARCHEAN ROCKS

Nain Province

Agd Buff-weathering, leucocratic granodiorite, with coarse-grained to megacrystic textures, <5-10% orthopyroxene ± biotite ± garnet, and a weak foliation. Altered to a grey, foliated orthogneiss where deformed and retrogressed to Paleoproterozoic amphibolite facies. Cut by plagioclase-phyric metamorphosed diabasic dykes (**Pdb**)

Agl Unsubdivided tonalite-granodiorite orthogneiss and migmatite, with highly variable composition and texture: typically complex, very well-layered and heterogeous migmatites with <50% of inclusions of mafic gneiss (**Amf**), anorthositic gneiss (**Aan**) and metasedimentary gneiss (**Ams**), varies to homogeneous, foliated metaplutonic rock (**Aglf**) with <10-20% inclusions of mafic and supracrustal gneisses. Metamorphosed under Late Archean granulite-facies (orthopyroxene), and cut by Avayalik dykes (**Pdb**), and metamorphosed under Paleoproterozoic granulite-facies (garnet-clinopyroxene)

Agn As above, with Paleoproterozoic amphibolite-facies overprint on Archean granulite-facies mineral assemblages

Argn As **Agl** above, but fully retrogressed to Paleoproterozoic amphibolite facies mineral assemblages

Ams Metasedimentary gneisses: predominantly rusty brown weathering garnet-biotite ± sillimanite paragneiss and metapelite, but also with rare, thin layers of garnetiferous silicate iron formation, impure marble, and quartzo-feldspathic gneiss of unknown derivation

Amf Equigranular, homogeneous to layered mafic gneiss of unknown derivation; locally with plagioclase megacrysts

Aum Ultramafic rocks; tan coloured meta-dunite or dark brown pyroxenite

Rae Province

ARtn White to grey tonalite gneiss and migmatite, with inclusions and layers of amphibolite, layered mafic gneiss and anorthositic rocks: interlayered with Lake Harbour Group metasedimentary rocks (**PL..**). Distinguished from Archean Nain gneisses by a much lesser amount of leucosome, abundant granite veins, (**Pigg**) and a relatively simple fabric. Contains amphibolite dykes, and is cut by Paleoproterozoic charnockitic rocks (**Pigd**)

Lithological contact (defined, inferred)
Trace of gneissosity from airphoto interpretation
Fault (defined with shear sense where known, inferred)
Limit of visited outcrop
Limit of unconsolidated sedimentary cover + felsenmeer
Lithotectonic assemblage boundary (defined, inferred)
Eastern limit of penetrative Paleoproterzoic deformation in the Komaktorvik shear zone (D_{n+3}) (known, inferred)
Subvertically-dipping zone of east-side-up ultramylonite with downdip elongation lineations, marking the eastern limit of the Komaktorvik shear zone
Limit of D3 dextral mylonite in Katherine River shear zone (defined, inferred)
Limit of amphibolite-facies retrogression M_{n+3} (defined, inferred)
Location and U-Pb zircon age of geochronology sample: 1 = Syn-kinematic granite vein — Uz¹ 1895+/-2 Ma
Trace of axial plane to F_{n+3} fold of the Abloviak shear zone
Dykes inclined (Cd, Pdb)
Inclusion of meta-anorthosite to -gabbro (APan)

Paleoproterozoic fabric elements

D_{n+4} fabric elements: Ultramylonites and faults
Brittle fault and ultramylonite, with movement unknown: inclined, vertical
Inclined brittle fault or ultramylonite: normal, reverse
Outcrop-scale, brittle, sinistral fault
Lineations on brittle faults and ultramylonites: mineral elongation, stripping

D_{n+3} fabric elements: amphibolite facies
Inclined schistosity: no movement sense, sinistral, dextral
Vertical schistosity: no movement sense, sinistral, dextral
Fold axial plane: inclined, vertical
Fold axis: symmetrical, s-asymmetric, z-asymmetric
Lineation: mineral elongation, striping

D_{n+2} fabric elements: granulite facies
Inclined schistosity: no movement sense, sinistral
Vertical schistosity: no movement sense, sinistral
Fold axis: symmetrical, s-asymmetric
Lineation: mineral elongation, striping

D_{n+1} fabric elements
Schistosity or gneissosity: inclined, vertical
Fold axial plane: inclined

Archean fabric elements (Dn)
Gneissosity: inclined, vertical
Fold axis: symmetrical, z-asymmetric
Lineation: mineral elongation

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Any revisions or additional information known to the user would be welcomed by the Geological Survey of Canada

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Copies of the topographical edition of this map area may be obtained from the Canada Map Office, Natural Resources Canada, Ottawa, Ontario, K1A 0E9

Magnetic declination 1994, 33°00' W, decreasing 12.6' annually

Elevations in feet above mean sea level

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