LEGEND

PROTEROZOIC

Paleohelikian

9	Massive, coarse grained granite-quartz monzonite of the Nain igneous complex

----------Intrusive contact----------

Aphebian (Churchill Province)

8	Felsic plutonic gneisses and amphibolites probably derived from rocks of unit 1; finely layered, granoblastic, lineated and streaky metamorphic textures at amphibolite facies; late synkinematic granitoids
7	Mylonitized and tectonically intercalated rocks of unit 8 and Ingrid group

----------Gradational contact, mylonitized----------

Ingrid group (units 2 to 6)

6	Grit, sandstone and minor purple siltstone and silty mudstone; minor polymictic conglomerate; maximum thickness 100 m
5	Felsic polymictic conglomerate; minor mafic volcanic conglomerate, sandstone and purple siltstone; thickness 100 to 400 m
4	Mafic volcanic conglomerate; minor felsic polymictic conglomerate, grit, sandstone, purple siltstone and mafic lavas; thickness 200 to 800 m
3	Porphyritic basalt; minor mafic to intermediate lavas and mafic volcanic conglomerate; maximum thickness 200 m
2	Mafic to intermediate lavas; minor porphyritic basalt and mafic volcanic conglomerate; rare pillowed lavas; 2a, diorite; maximum thickness 500 m

----------Inferred unconformable contact, remobilized(?)------

ARCHEAN/PROTEROZOIC (Nain Province)

1	Felsic, plutonic orthogneiss, layered gneiss and amphibolite of the Hopedale block; rocks attain upper amphibolite-granulite facies east of Ingrid group and are retrograded to lower greenschist facies near the contact with Ingrid group

Geological boundary (approximate, gradational, assumed).....

Bedding (tops known, overturned, tops unknown).....

Foliation (inclined, vertical, dip unknown .....

Cataclastic foliation (inclined) .....

Gneissosity (inclined, vertical, dip unknown) .....

Anticline and syncline (overturned) .....

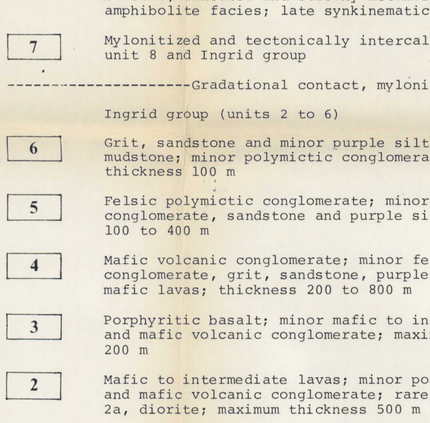
Thrust fault (assumed) .....

Area of outcrop .....

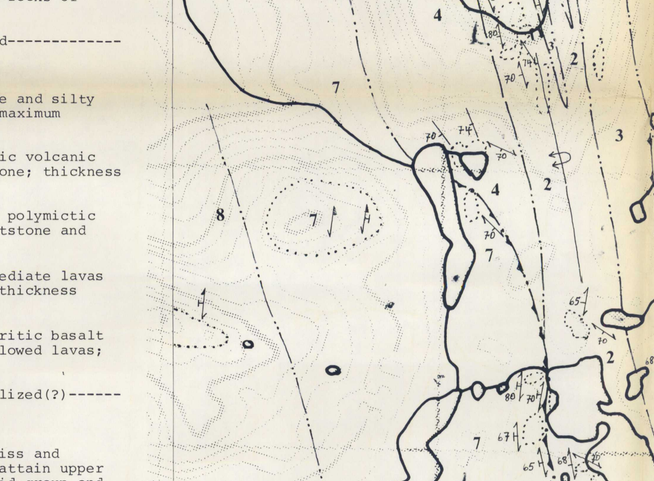
Elevation in metres ..... 317+

Geology by R. Knight, J. Pearson and I. Ermanovics, 1980. Interpretation by I. Ermanovics and J. Korstgård, 1981. Cartography by I. Ermanovics, 1981.

The geology of this area is discussed in a report by Ermanovics and Korstgård (1981), and was the topic of two B.Sc. dissertations by R. Knight (University of Western Ontario, Spring of 1981) and J. Pearson (Lakehead University, Spring of 1981).



Equal area, lower hemisphere projection of poles to • bedding, + overturned bedding, and o foliation of Ingrid group. ↙ lineation.



REFERENCES

Ermanovics, Ingo and Korstgård, John. 1981. Geology of the Hopedale block and adjacent areas, Labrador: Report 3; in Current Research, Part A, Geological Survey of Canada, Paper 81-1A, p. 69-76, 1981.

Taylor, F.C. 1977. Geology - Hopedale, Newfoundland; Geological Survey of Canada, Map 1444A.

Taylor, F.C. 1979. Reconnaissance geology of a part of the Precambrian Shield, Northeastern Quebec, Northern Labrador and Northwest Territories; Geological Survey of Canada, Memoir 393, 99 p.

INGRID LAKE MAP-AREA
13N/5 LABRADOR

Scale 1:12,500 Échelle

Metres 300 0 300 600 900 Mètres

Feet 1000 0 1000 2000 Pieds

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NOTES

An occurrence of andesite was reported by Taylor (1977, 1979) just west of longitude 61°30', and immediately north of latitude 55°20' in map sheet 13 N/5. Mapping in 1980 showed an area of 11 km^2 to be underlain by mafic lavas and unsorted sedimentary rocks that were intruded by Paleohelikian granites (unit 9) of the Nain igneous complex. The supracrustal rocks were affected by Hudsonian deformation (last deformation in adjacent Churchill Province) and hence are probably Aphebian in age. The rocks are foliated and metamorphosed to greenschist facies (chlorite, epidote, actinolitic amphibole). This succession has been informally named Ingrid group (Ermanovics and Korstgard, 1981).

Lavas (unit 2) are dominantly subaerial basalts and minor andesites intercalated with thin members of mafic volcanic conglomerate. Individual flows were not recognized and lava pillows are rare. Porphyritic basalt (unit 3) is characterized by 10 to 30 per cent plagioclase phenocrysts (1 to 2 cm) developed in discontinuous horizons. Mafic conglomerate members in this formation include clasts of porphyritic lavas. Mafic volcanic conglomerates (unit 4) are unsorted, rarely bedded, and comprise angular rock fragments (1 to 15 cm, 4 cm average) including basalt, gabbro, intermediate porphyritic aphanites, rare bedded shale, and cobbles and boulders of basement gneiss.

The uppermost formations (units 5 and 6) comprise clasts derived from volcanics, sediments and basement gneiss. Clasts include granodiorite, perthitic granite, diabase; polymictic conglomerate, sandstone, siltstone, shale, quartzite and limestone with rare mafic volcanics and felsic volcanics. Conglomerates have open frameworks, and gritty sandstones, sandy siltstones and rare silty mudstones form poorly sorted graded beds that have indistinct gradational bed boundaries. Intraformational rip-ups, soft sediment slump and large isolated clasts in finer grained beds are common. Coarse detritus lies unsorted in beds of unsorted felsic sandstones. These depositional features suggest debris slide deposits or, in a more general sense, unstable depositional conditions. Lava formations intercalated with polymictic coarse detritus derived from basement rocks and underlying lavas also suggest that volcanism may have occurred in a tectonically unstable environment.

Ingrid group is intruded (only a hornfelsed contact is exposed) by granite and quartz monzonite of paleohelikian age along its northern contact. The western contact is gradational (tectonic interleaving?) and obscured by mylonite at lower amphibolite facies. The eastern contact is sheared and only exposed in a single outcrop north of Ingrid Lake. The isolated outcrop area of basalt within Archean gneisses immediately east of Ingrid Lake may be in part a feeder dyke. The rocks there exhibit chilled diabase, basalt and mafic tuff textures.

Gneisses as far as 10 km east of Ingrid group develop garnet + hornblende + plagioclase + clinopyroxene, (± chloritized hypersthene) as a stable mineral assemblage. Small metaigneous granitoids contain perthite + clinopyroxene + amphibole (1 to 2% quartz, no plagioclase) or hypersthene + biotite + amphibole + plagioclase, (15% quartz). This high metamorphic grade, atypical of the Hopedale block as a whole, becomes retrograded 2 to 3 km east of Ingrid group. This younger metamorphism increases in intensity westward and develops poorly formed aggregates of chlorite, actinolite, biotite and epidote in Ingrid group.

In the western zone of cataclasis (unit 7) the same minerals develop fine grained idioblastic habits and colourless to pale green amphibole gives way to brown hornblende. Westward, beyond the zone of intensely deformed rocks, granoblastic layered gneisses (unit 8) contain biotite + hornblende + plagioclase and supracrustal enclaves thought to be derived from Ingrid group developed amphibole + biotite + staurolite + plagioclase and amphibole + diopside + plagioclase.

Sedimentary formations fine upwards and appear to be deposited on the lavas. Foliation and bedding generally dip steeply west and rare determinations in sparsely bedded horizons indicate overturned bedding tops. The regional structure of the group is interpreted as a gently flexed anticline that was subsequently folded and faulted along steep, west dipping thrust faults. Thrust faults are assumed and were placed where the normal order of the stratigraphic succession is interrupted by missing formations. Post-consolidation mesoscopic structures are restricted to minor drag and kink folds in fine grained rocks near the western margin of the group and are attributable to mylonite deformation.

Mineral showings of economic interest were not observed. Some basalts contain 2 to 4 per cent disseminated euhedra of magnetite. Small euhedral crystals of pyrite occur in small chlorite and carbonate veins in fine grained rocks and are found disseminated in most rocks.