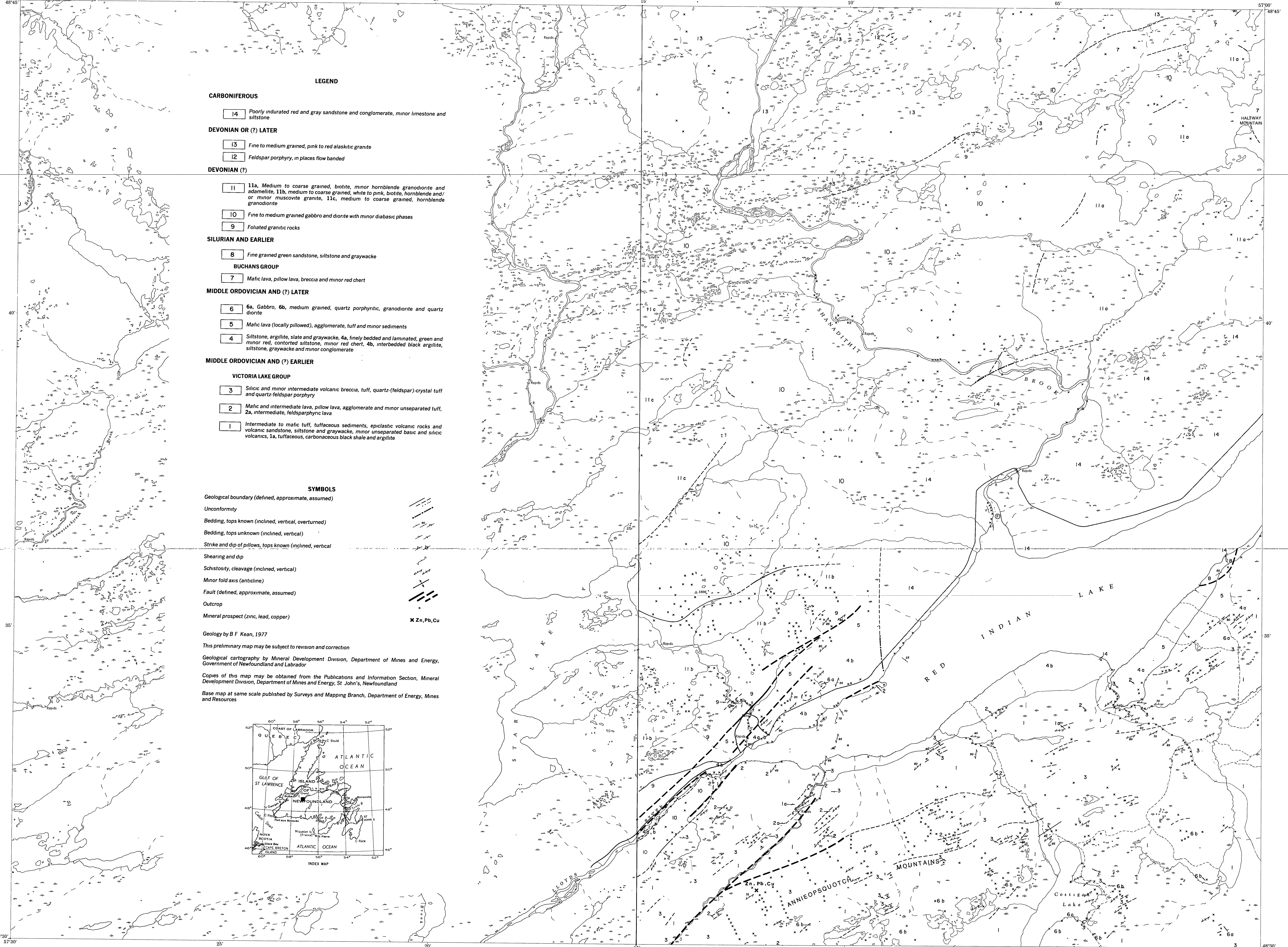


MINERAL DEVELOPMENT DIVISION
DEPARTMENT OF MINES AND ENERGY
GOVERNMENT OF NEWFOUNDLAND AND LABRADOR

12 A/11

1:50,000

12 A/11



- LEGEND**
- CARBONIFEROUS**
- 14 Poorly indurated red and gray sandstone and conglomerate, minor limestone and siltstone
- DEVONIAN OR (?) LATER**
- 13 Fine to medium grained, pink to red alaskitic granite
 - 12 Feldspar porphyry, in places flow banded
- DEVONIAN (?)**
- 11a Medium to coarse grained, biotite, minor hornblende granodiorite and adamellite, 11b, medium to coarse grained, white to pink, biotite, hornblende and/or minor muscovite granite, 11c, medium to coarse grained, hornblende granodiorite
 - 10 Fine to medium grained gabbro and diorite with minor diabasic phases
 - 9 Foliated granitic rocks
- SILURIAN AND EARLIER**
- 8 Fine grained green sandstone, siltstone and graywacke
- BUCHAN'S GROUP**
- 7 Mafic lava, pillow lava, breccia and minor red chert
- MIDDLE ORDOVICIAN AND (?) LATER**
- 6a, Gabbro, 6b, medium grained, quartz porphyritic, granodiorite and quartz diorite
 - 5 Mafic lava (locally pillowed), agglomerate, tuff and minor sediments
 - 4 Siltstone, argillite, slate and graywacke, 4a, finely bedded and laminated, green and minor red, contorted siltstone, minor red chert, 4b, interbedded black argillite, siltstone, graywacke and minor conglomerate
- MIDDLE ORDOVICIAN AND (?) EARLIER**
- VICTORIA LAKE GROUP**
- 3 Siliceous and minor intermediate volcanic breccia, tuff, quartz-feldspar crystal tuff and quartz-feldspar porphyry
 - 2 Mafic and intermediate lava, pillow lava, agglomerate and minor unseparated tuff, 2a, intermediate, feldsparphyric lava
 - 1 Intermediate to mafic tuff, tuffaceous sediments, epiclastic volcanic rocks and volcanic sandstone, siltstone and graywacke, minor unseparated basic and siliceous volcanics, 1a, tuffaceous, carbonaceous black shale and argillite

- SYMBOLS**
- Geological boundary (defined, approximate, assumed)
- Unconformity
- Bedding, tops known (inclined, vertical, overturned)
- Bedding, tops unknown (inclined, vertical)
- Strike and dip of pillows, tops known (inclined, vertical)
- Shearing and dip
- Schistosity, cleavage (inclined, vertical)
- Minor fold axis (anticline)
- Fault (defined, approximate, assumed)
- Outcrop
- Mineral prospect (zinc, lead, copper) X Zn, Pb, Cu

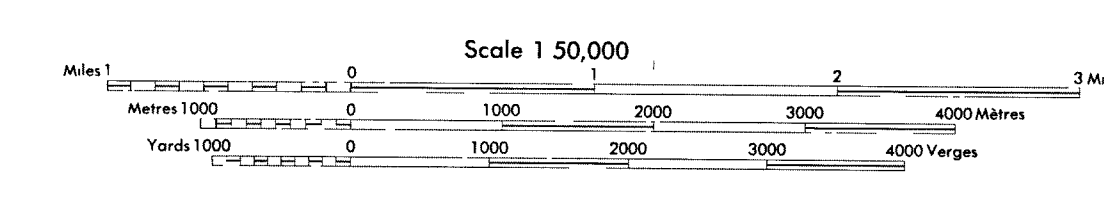
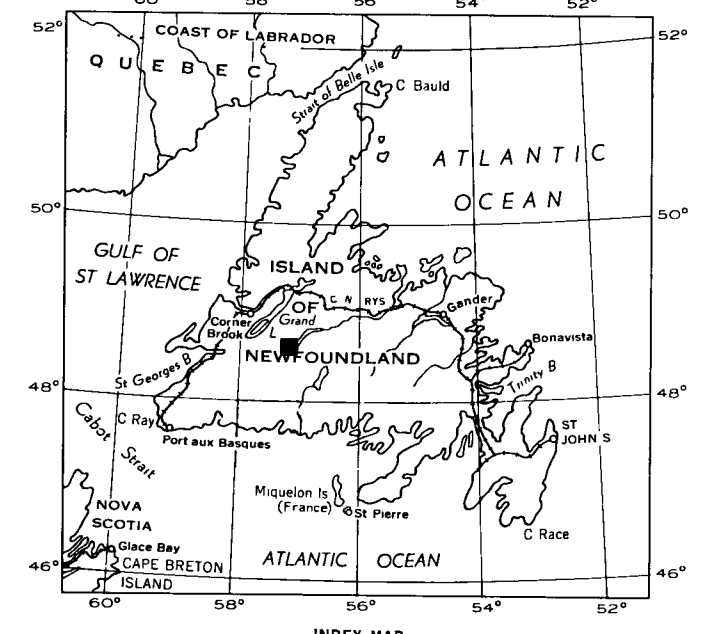
Geology by B F Kean, 1977

This preliminary map may be subject to revision and correction

Geological cartography by Mineral Development Division, Department of Mines and Energy, Government of Newfoundland and Labrador

Copies of this map may be obtained from the Publications and Information Section, Mineral Development Division, Department of Mines and Energy, St. John's, Newfoundland

Base map at same scale published by Surveys and Mapping Branch, Department of Energy, Mines and Resources



MAP 79-1
STAR LAKE
NEWFOUNDLAND

MARGINAL NOTES

The southern half of the map area is accessible via logging roads and Red Indian Lake, the northern portion is most easily accessible by helicopter

The area south of Red Indian Lake is characterized by a heavily wooded (spruce and fir) rolling topography with northeast trending ridges. This area is underlain by volcanic and sedimentary rocks with siliceous volcanic rocks and granitic (sensu lato) rocks forming the high ridges. The area north of Red Indian Lake is a basin subject to that is part of the High Central Plateau of central Newfoundland (Twenhofel and MacClintock, 1940). It is underlain by intrusive rocks that in places form monadnocks, the summits of which represent remnants of the Long Range Plateau. All of the map area has been glaciated with dominant ice movement probably to the south. The main drainage pattern is northeasterly into the Red Indian Lake-Exploits River system

Previous mapping in the area has been by Riley (1957) and Cooper (1966). Parts of the area have been mapped on a scale of 1:20,000 by the American Smelting and Refining Company

The map area lies in the Paleozoic Central Mobile Belt of the Newfoundland Appalachians (Williams, 1964). The rocks are tightly folded and faulted and cut by a variety of intrusions. Fossiliferous Carboniferous rocks are the only dated rocks in the map area. The other layered rocks are correlated lithologically with dated Ordovician and Silurian rocks along strike to the northeast (Kean, in preparation). Rocks of unit 13 from outside the map area have been radiometrically dated as Devonian (K. Bell, personal communication, 1977)

Map units 1-3 comprise the Victoria Lake group (Kean, 1977), an intercalated sequence of mafic and felsic flow and pyroclastic rocks (units 2 and 3) and fine to medium grained tuffs, epiclastic volcanic rocks and volcanic sediments (unit 1). The epiclastic and sedimentary rocks vary from volcanic derived siltstone, sandstone, graywacke, argillite and black carbonaceous shale to tuffaceous siltstone, sandstone and graywacke. Black shale is commonly found in close spatial relationship to the siliceous volcanic rocks. Ash and lapilli tuff are interbedded with the sediments. Fine limestone clasts in clastic rocks and limy sediments occur in places near the top of the sequence

The Victoria Lake group is conformably overlain by a well bedded unit of green and gray siltstone, argillite and minor tuff (unit 4) that is correlatable in part with the Harbour Round formation of the Lake Ambrose map area (Kean, in preparation). Minor mafic lava and sills are intercalated with these sedimentary rocks

Volcanic rocks (unit 5) conformably overlie lithologies of unit 4 outside the map area (Kean, in preparation). The relationship is not exposed within the map area but volcanic rocks similar to unit 5 are in part intercalated with unit 4. Units 4 and 5 in the type area at Harbour Round are lithologically different from the underlying Victoria Lake group and may be of Middle Ordovician or younger age

Intrusive rocks of unit 6 may, in part, be comagmatic with the volcanic rocks of the Victoria Lake group. This is indicated by the lithological similarity and general spatial relationship of this unit to the quartz (feldspar) crystal tuffs (unit 3). The unit is characterized by a quartz porphyritic texture. An inhomogeneous, locally penetrative, fabric in the unit has been identified by the regionally developed foliation (Kean, 1977)

Mafic volcanic rocks of unit 7 are referred to the Buchans Group because they can be traced eastwards into, and are lithologically similar to, the Buchans Group (Kean, in preparation). The unit is intruded by mafic rocks of unit 10, which, in the fine grained phases, are lithologically and texturally inseparable from the volcanic rocks

Fine grained sedimentary rocks (unit 8) are correlated lithologically with the Silurian (?) green, quartzose siltstone and graywacke at the northeast end of Red Indian Lake (Williams, 1970). The unit has a more massive and less deformed nature than the surrounding rocks. The contact relationships are not exposed in the map area but extensive shearing close to the contacts indicates that they may be faulted. Williams (1970) reports intertonguing of lithologies of this type with Buchans Group volcanic rocks at the northeast end of Red Indian Lake

Unit 9 consists predominantly of biotite, minor hornblende, tonalite, granodiorite, and granite characterized by the development of a general fabric that has a cataclastic nature in places. The contact of the main outcrop mass with unit 5 is faulted. However, in places, minor rocks similar to unit 9 intrude and are deformed with unit 5

Mafic intrusions (unit 10) are generally massive and undeformed except for local zones of deformation east of Lloyds Valley. The rocks are extensively sheared and locally brecciated by faulting in the Lloyds Valley area. Numerous xenoliths, screens, and roof pendants of the country rock occur in the gabbro east of Lloyds Valley

Unit 11 forms a suite of undeformed, fine to medium grained, pink, pink-white and white, granodiorite, adamellite and granite. The white phases contain biotite and minor hornblende whereas the pink phases contain biotite, minor muscovite and a greater percentage of K-feldspar. Unit 11 intrudes map unit 9 post-tectonically

Feldspar porphyry (unit 12) occurs as roof pendants in alaskitic granite (unit 13). The rocks of unit 12 are mafic, poor and consist predominantly of hornblende perthitic microcline with well developed graphic texture. The mafic mineral, where identifiable, is a chloritized hornblende, minor green pyroxene (aegirine-augite?) is also present

Loosely consolidated beds (unit 14) of horizontal or subhorizontal attitude exposed along the shores of Red Indian Lake have been dated by fossil plants (Newhouse, 1931) and mosses (Bell, 1965) as Carboniferous (of "Horton age"). Coarse red conglomerates occurring at the exposed base of the sequence are overlain by gray, green and rare red sandstone, siltstone, thin conglomerate beds, and two pale gray, nodular (caliche?) limestone beds. Pebbles in the conglomerate were all derived locally from the underlying volcanic and plutonic basement rocks

The rocks of the map area have a general northeasterly trend, an inhomogeneously developed, northeast trending and steeply dipping, penetrative fabric is developed in units 1-5. Bedding cleavage intersections, geosynclinal structures and small scale isoclinal folds indicate that the sequence is tightly folded. The area is characterized by northeast trending ridges bound by steep, generally fault bounded, valleys. Shearing and sickensiding, but little mappable displacement, mark these fault zones. The rocks have generally been metamorphosed to greenschist facies. The Carboniferous strata have been gently folded, flexured and faulted

Disseminated pyrite and minor chalcocite mineralization occur in unit 3 and, to a lesser extent, in unit 2. The most significant mineral showing is the Tulk's Hill prospect associated with disseminated pyritic mineralized horizons which pass laterally into three plunging and steeply dipping lenses of massive to disseminated chalcocite, sphalerite, galena and pyrite (Cooper, 1966). The prospect is presently of subeconomic tonnage (Cooper, 1966)

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