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

GEOLOGY OF THE ISLAND OF NEWFOUNDLAND

Geology compiled by S. P. Colman-Sadd, J. P. Hayes and I. Knight, 1990, from published and unpublished sources.

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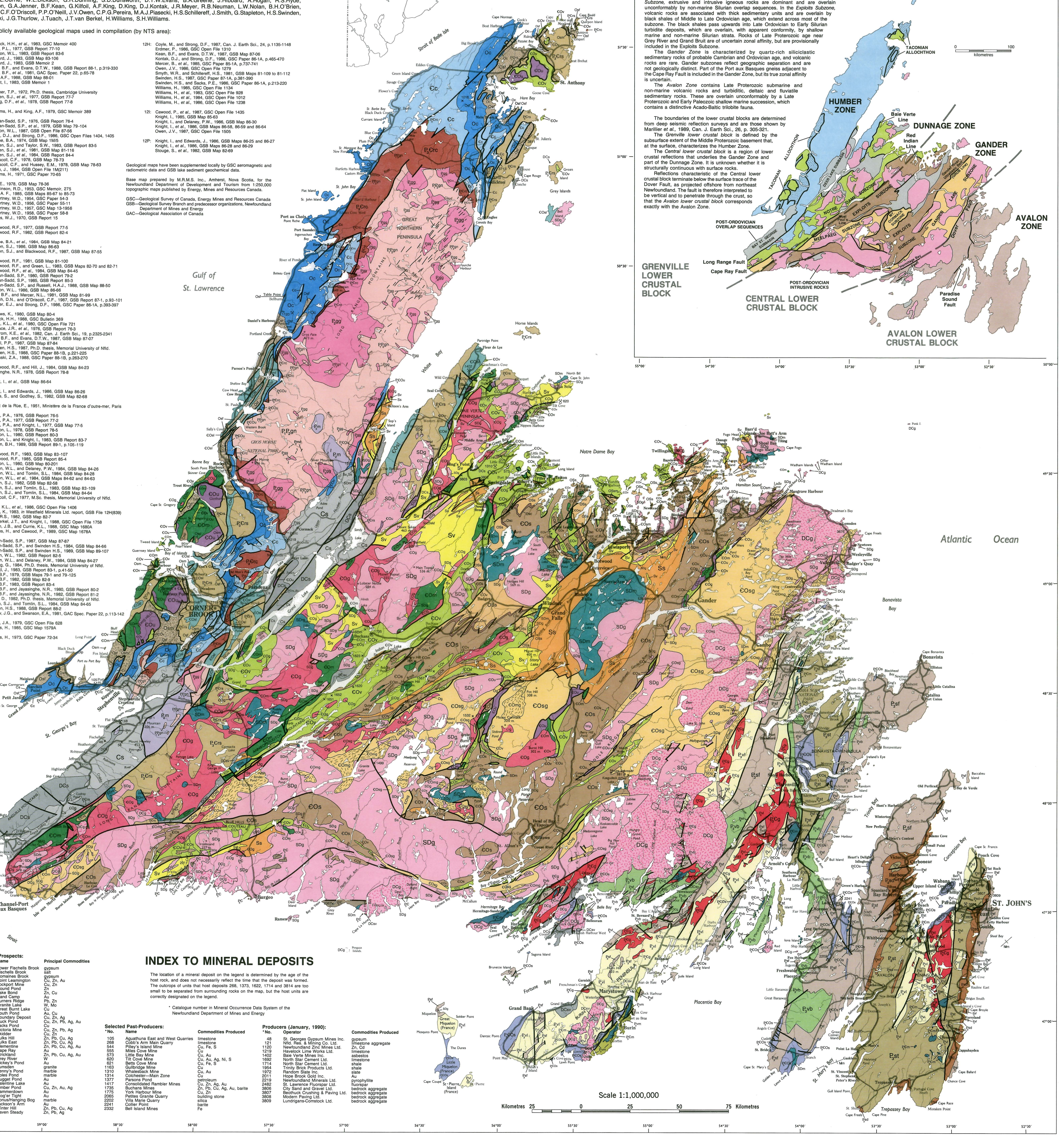
Geological maps have been supplemented locally by GSC aeromagnetic and radiometric data and GSB lake sediment geochemical data.

Base map prepared by M.R.M.S. Inc., Amherst, Nova Scotia, for the Newfoundland Department of Development and Tourism from 1:250,000 topographic maps published by Energy, Mines and Resources Canada.

GSC—Geological Survey of Canada, Energy Mines and Resources Canada
GSB—Geological Survey Branch and predecessor organizations, Newfoundland Department of Mines and Energy
GAC—Geological Association of Canada


LABRADOR
Strait of Belle Isle
Gulf of St. Lawrence
GREAT NORTHERN PENINSULA
LONG RANGE MOUNTAINS
White Bay
Notre Dame Bay
Atlantic Ocean
Bonavista Bay
St. George's Bay
Cabot Strait
Fortune Bay
Placentia Bay
Trinity Bay
Conception Bay
Trepassey Bay
ST. JOHN'S
CORNER BROOK
Channel-Port aux Basques
St. Anthony
Gander
Grand Falls
PRINCIPAL TECTONIC DIVISIONS
HUMBER ZONE
DUNNAGE ZONE
GANDER ZONE
AVALON ZONE
TACONIAN ALLOCHTHON
Baie Verte Line
Red Indian Line
NOTRE DAME SUBZONE
EXPLOITS SUBZONE
MEELPAEG SUBZONE
MT. CORMACK SUBZONE
DEER LAKE SUBBASIN
BAY ST. GEORGE SUBBASIN
Noel Paul's Line
Dover Fault
Hermitage Bay Fault
Paradise Sound Fault
Long Range Fault
Cape Ray Fault
POST-ORDOVICIAN OVERLAP SEQUENCES
POST-ORDOVICIAN INTRUSIVE ROCKS
GRENVILLE LOWER CRUSTAL BLOCK
CENTRAL LOWER CRUSTAL BLOCK
AVALON LOWER CRUSTAL BLOCK
Scale 1:1,000,000
Kilometres 25 0 25 50 75 Kilometres

PRINCIPAL TECTONIC DIVISIONS

Zones are determined from surface geology and are distinguished on the basis of Ordovician and older features. Younger rocks are not part of the zonal system and are shown separately as post-Ordovician overlap sequences or intrusions. Zone boundaries are adapted from Williams *et al.*, 1988, GSC Paper 88-1B, p. 91-98.

The *Humber Zone* has a basement of continental crust, metamorphosed and intruded during the Middle Proterozoic. It includes Late Proterozoic to Middle Ordovician cover rocks, which were deposited during development of the ancient North American continental margin and in Taconian foreland basins.

The *Dunnage Zone* is characterized by Cambrian to Middle Ordovician submarine volcanic rocks and Early Ordovician ophiolite suites. The geochemistry of many of the volcanic rocks is typical of island arc and back-arc environments. In the *Notre Dame Subzone,* extrusive and intrusive igneous rocks are dominant and are overlain unconformably by non-marine Silurian overlap sequences. In the *Exploits Subzone,* volcanic rocks are associated with thick sedimentary units and are overlain by black shales of Middle to Late Ordovician age, which extend across most of the subzone. The black shales pass upwards into Late Ordovician to Early Silurian turbidite deposits, which are overlain, with apparent conformity, by shallow marine and non-marine Silurian strata. Rocks of Late Proterozoic age near Grey River and Grand Bruit are of uncertain zonal affinity, but are provisionally included in the Exploits Subzone.

The *Gander Zone* is characterized by quartz-rich siliciclastic sedimentary rocks of probable Cambrian and Ordovician age, and volcanic rocks are rare. Gander subzones reflect geographic separation and are not geologically distinct. Part of the Port aux Basques gneiss adjacent to the Cape Ray Fault is included in the Gander Zone, but its true zonal affinity is uncertain.

The *Avalon Zone* contains Late Proterozoic submarine and non-marine volcanic rocks and turbiditic, deltaic and fluviatile sedimentary rocks. These are overlain unconformably by a Late Proterozoic and Early Paleozoic shallow marine succession, which contains a distinctive Acado-Baltic trilobite fauna.

The boundaries of the lower crustal blocks are determined from deep seismic reflection surveys and are those shown by Marillier *et al.*, 1989, Can. J. Earth Sci., 26, p. 305-321.

The *Grenville lower crustal block* is defined by the subsurface extent of the Middle Proterozoic basement that, at the surface, characterizes the Humber Zone.

The *Central lower crustal block* is a region of lower crustal reflections that underlies the Gander Zone and part of the Dunnage Zone. It is unknown whether it is structurally continuous with surface rocks.

Reflections characteristic of the Central lower crustal block terminate below the surface trace of the Dover Fault, as projected offshore from northeast Newfoundland. The fault is therefore interpreted to be vertical and to penetrate through the crust, so that the *Avalon lower crustal block* corresponds exactly with the Avalon Zone.

INDEX TO MINERAL DEPOSITS

The location of a mineral deposit on the legend is determined by the age of the host rock, and does not necessarily reflect the time that the deposit was formed. The outcrops of units that host deposits 268, 1373, 1622, 1714 and 3814 are too small to be separated from surrounding rocks on the map, but the host units are correctly designated on the legend.

* Catalogue number in Mineral Occurrence Data System of the Newfoundland Department of Mines and Energy

Selected Prospects:

*No.	Name	Principal Commodities
46	Lower Fischells Brook	gypsum
56	Fischells Brook	salt
100	Romaines Brook	gypsum
186	Point Leamington	Cu, Zn, Au
225	Lockport Mine	Cu, Zn
1016	Round Pond	Zn
1183	Lake Bond	Zn, Cu
1290	Hand Camp	Au
1373	Turners Ridge	Pb, Zn
1499	Granite Lake	W, Mo
1531	Great Burnt Lake	Cu
1532	South Pond	Au, Cu
1562	Boundary Deposit	Cu, Zn, Ag
1567	Duck Pond	Cu, Zn, Pb, Ag, Au
1620	Jacks Pond	Cu
1622	Victoria Mine	Cu, Zn, Pb, Ag
1623	Skidder	Cu, Zn
1651	Tulks Hill	Zn, Pb, Cu, Ag
1652	Tulks East	Zn, Pb, Cu, Ag
1740	Clementine	Zn, Pb, Cu, Ag, Au
2137	Cape Ray	Au
2159	Strickland	Zn, Pb, Cu, Ag, Au
2367	Grey River	W
3183	Hickey's Pond	Au
3676	Lumsden	granite
3710	Penny's Pond	marble
3713	Coles Pond	marble
3800	Nugget Pond	Au
3801	Valentine Lake	Au
3802	Timber Pond	Cu, Zn, Au, Ag
3803	Hammerdown	Au
3805	Stog'er Tight	Au
3811	Bonus/Hanging Bog	marble
3812	Jackson's Arm	Au
3813	Winter Hill	Zn, Pb, Cu, Ag
3814	Haven Steady	Zn, Pb, Ag

Selected Past-Producers:

*No.	Name	Commodities Produced
105	Aguathuna East and West Quarries	limestone
268	Cobb's Arm Main Quarry	limestone
544	Pilley's Island Mine	Cu, Fe, S
555	Miles Cove Mine	Cu
573	Little Bay Mine	Cu, Au
620	Tilt Cove Mine	Cu, Au, Ag, Ni, S
621	Betts Cove Mine	Cu, Fe, S
1163	Gullbridge Mine	Cu
1310	Whalesback Mine	Cu, Au
1314	Colchester—Main Zone	Cu
1377	Parsons Pond	petroleum
1417	Consolidated Rambler Mines	Cu, Zn, Ag, Au
1735	Buchans Mines	Zn, Pb, Cu, Ag, Au, barite
1775	York Harbour Mine	Cu, Zn
2065	Petites Granite Quarry	building stone
2202	Villa Marie Quarry	silica
2241	Collier Point	barite
2332	Bell Island Mines	Fe

Producers (January, 1990):

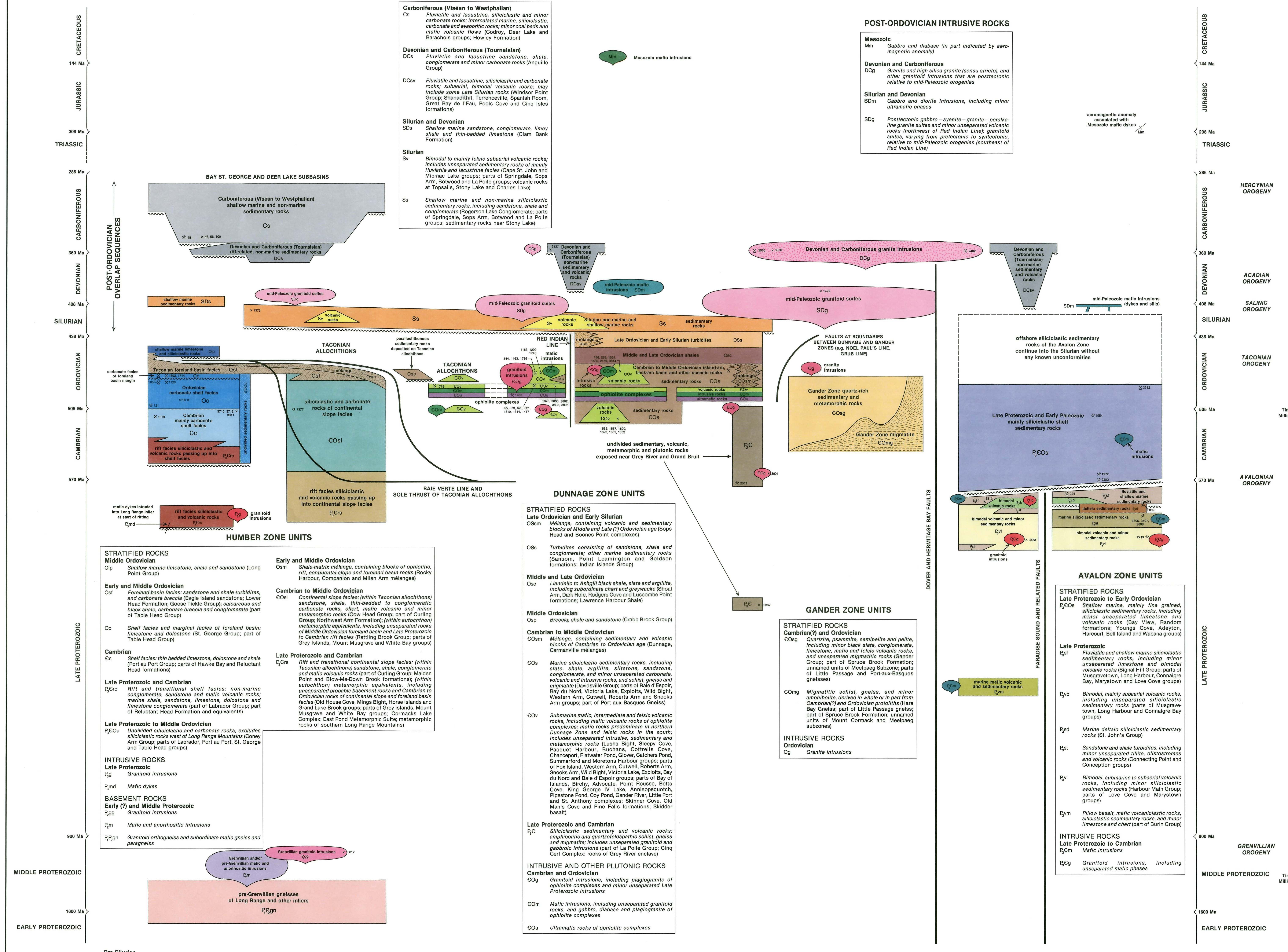
*No.	Operator	Commodities Produced
48	St. Georges Gypsum Mines Inc.	gypsum
121	Nfld. Res. & Mining Co. Ltd.	limestone aggregate
1120	Newfoundland Zinc Mines Ltd.	Zn, Cd
1219	Havelock Lime Works Ltd.	limestone
1402	Baie Verte Mines Inc.	asbestos
1692	North Star Cement Ltd.	limestone
1714	North Star Cement Ltd.	shale
1954	Trinity Brick Products Ltd.	shale
1972	Random Slate Inc.	slate
2011	Hope Brook Gold Inc.	Au
2219	Newfoundland Minerals Ltd.	pyrophyllite
2482	St. Lawrence Fluorspar Ltd.	fluorspar
3806	City Sand and Gravel Ltd.	bedrock aggregate
3807	Beothuck Crushing & Paving Ltd.	bedrock aggregate
3808	Modern Paving Ltd.	bedrock aggregate
3809	Lundrigans-Comstock Ltd.	bedrock aggregate

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

Map 90-01

Geological cartography and colour separation by T.Paltanavage, photomechanical and colour processing by D.Leonard, cartographic supervision by K.Byrne

LEGEND


CRETACEOUS
144 Ma
JURASSIC
208 Ma
TRIASSIC
286 Ma
CARBONIFEROUS
360 Ma
DEVONIAN
408 Ma
SILURIAN
438 Ma
ORDOVICIAN
505 Ma
CAMBRIAN
570 Ma
LATE PROTEROZOIC
900 Ma
MIDDLE PROTEROZOIC
1600 Ma
EARLY PROTEROZOIC
POST-ORDOVICIAN OVERLAP SEQUENCES
BAY ST. GEORGE AND DEER LAKE SUBBASINS
Carboniferous (Viséan to Westphalian) shallow marine and non-marine sedimentary rocks
Cs
Devonian and Carboniferous (Tournaisian) rift-related, non-marine sedimentary rocks
DCs
Mesozoic mafic intrusions
Mm
shallow marine sedimentary rocks
SDs
mid-Paleozoic granitoid suites
SDg
volcanic rocks
Sv
Ss
Silurian non-marine and shallow marine rocks
sedimentary rocks
Devonian and Carboniferous (Tournaisian) non-marine sedimentary and volcanic rocks
DCsv
DCg
mid-Paleozoic mafic intrusions
SDm
Devonian and Carboniferous granite intrusions
mid-Paleozoic mafic intrusions (dykes and sills)
aeromagnetic anomaly associated with Mesozoic mafic dykes
TACONIAN ALLOCHTHONS
shallow marine limestone and siliciclastic rocks
Olp
carbonate facies of foreland basin margin
Taconian foreland basin facies
Osf
mélange
Osm
Ordovician carbonate shelf facies
Oc
Cambrian mainly carbonate shelf facies
Єc
rift facies siliciclastic and volcanic rocks passing up into shelf facies
P$_3$Єrc
undivided sedimentary rocks
P$_3$ЄOu
siliciclastic and carbonate rocks of continental slope facies
ЄOsl
rift facies siliciclastic and volcanic rocks passing up into continental slope facies
P$_3$Єrs
parallochthonous sedimentary rocks deposited on Taconian allochthons
Osp
BAIE VERTE LINE AND SOLE THRUST OF TACONIAN ALLOCHTHONS
mafic dykes intruded into Long Range inlier at start of rifting
P$_3$md
rift facies siliciclastic and volcanic rocks
granitoid intrusions
P$_3$g
HUMBER ZONE UNITS
Grenvillian and/or pre-Grenvillian mafic and anorthositic intrusions
P$_2$m
Grenvillian granitoid intrusions
P$_2$gg
pre-Grenvillian gneisses of Long Range and other inliers
P$_1$P$_2$gn
RED INDIAN LINE
mafic intrusions
ЄOm
granitoid intrusions
ЄOg
ЄOv
ЄOu
ophiolite complexes
Late Ordovician and Early Silurian turbidites
OSs
mélange
OSsm
Middle and Late Ordovician shales
Osc
Cambrian to Middle Ordovician island-arc, back-arc basin and other oceanic rocks
intrusive rocks
volcanic rocks
sedimentary rocks
ЄOs
ЄOsm
intrusive rocks
ultramafic rocks
undivided sedimentary, volcanic, metamorphic and plutonic rocks exposed near Grey River and Grand Bruit
P$_3$Є
DUNNAGE ZONE UNITS
FAULTS AT BOUNDARIES BETWEEN DUNNAGE AND GANDER ZONES (e.g. NOEL PAUL'S LINE, GRUB LINE)
granite intrusions
Og
Gander Zone quartz-rich sedimentary and metamorphic rocks
ЄOsg
Gander Zone migmatite
ЄOmg
GANDER ZONE UNITS
DOVER AND HERMITAGE BAY FAULTS
offshore siliciclastic sedimentary rocks of the Avalon Zone continue into the Silurian without any known unconformities
Late Proterozoic and Early Paleozoic mainly siliciclastic shelf sedimentary rocks
P$_3$ЄOs
mafic intrusions
P$_3$Єm
fluviatile and shallow marine sedimentary rocks
P$_3$sf
bimodal volcanic rocks
P$_3$vb
deltaic sedimentary rocks
P$_3$sd
marine siliciclastic sedimentary rocks
P$_3$st
bimodal volcanic and minor sedimentary rocks
P$_3$vl
P$_3$Єg
granitoid intrusions
marine mafic volcanic and sedimentary rocks
P$_3$vm
PARADISE SOUND AND RELATED FAULTS
AVALON ZONE UNITS
HERCYNIAN OROGENY
ACADIAN OROGENY
SALINIC OROGENY
TACONIAN OROGENY
AVALONIAN OROGENY
GRENVILLIAN OROGENY
Time Scale in Millions of Years
0
10
20
30
40
50
60
70
80
90
100
200
300
400
500

POST-ORDOVICIAN OVERLAP SEQUENCES

Carboniferous (Viséan to Westphalian)
Cs — *Fluviatile and lacustrine, siliciclastic and minor carbonate rocks; intercalated marine, siliciclastic, carbonate and evaporitic rocks; minor coal beds and mafic volcanic flows* (Codroy, Deer Lake and Barachois groups; Howley Formation)

Devonian and Carboniferous (Tournaisian)
DCs — *Fluviatile and lacustrine sandstone, shale, conglomerate and minor carbonate rocks* (Anguille Group)

DCsv — *Fluviatile and lacustrine, siliciclastic and carbonate rocks; subaerial, bimodal volcanic rocks; may include some Late Silurian rocks* (Windsor Point Group; Shanadithit, Terrenceville, Spanish Room, Great Bay de l'Eau, Pools Cove and Cinq Isles formations)

Silurian and Devonian
SDs — *Shallow marine sandstone, conglomerate, limey shale and thin-bedded limestone* (Clam Bank Formation)

Silurian
Sv — *Bimodal to mainly felsic subaerial volcanic rocks; includes unseparated sedimentary rocks of mainly fluviatile and lacustrine facies* (Cape St. John and Micmac Lake groups; parts of Springdale, Sops Arm, Botwood and La Poile groups; volcanic rocks at Topsails, Stony Lake and Charles Lake)

Ss — *Shallow marine and non-marine siliciclastic sedimentary rocks, including sandstone, shale and conglomerate* (Rogerson Lake Conglomerate; parts of Springdale, Sops Arm, Botwood and La Poile groups; sedimentary rocks near Stony Lake)

POST-ORDOVICIAN INTRUSIVE ROCKS

Mesozoic
Mm — *Gabbro and diabase (in part indicated by aeromagnetic anomaly)*

Devonian and Carboniferous
DCg — *Granite and high silica granite (sensu stricto), and other granitoid intrusions that are posttectonic relative to mid-Paleozoic orogenies*

Silurian and Devonian
SDm — *Gabbro and diorite intrusions, including minor ultramafic phases*

SDg — *Posttectonic gabbro – syenite – granite – peralkaline granite suites and minor unseparated volcanic rocks (northwest of Red Indian Line); granitoid suites, varying from pretectonic to syntectonic, relative to mid-Paleozoic orogenies (southeast of Red Indian Line)*

HUMBER ZONE UNITS

STRATIFIED ROCKS

Middle Ordovician
Olp — *Shallow marine limestone, shale and sandstone* (Long Point Group)

Early and Middle Ordovician
Osf — *Foreland basin facies: sandstone and shale turbidites, and carbonate breccia* (Eagle Island sandstone; Lower Head Formation; Goose Tickle Group); *calcareous and black shale, carbonate breccia and conglomerate* (part of Table Head Group)

Oc — *Shelf facies and marginal facies of foreland basin: limestone and dolostone* (St. George Group; part of Table Head Group)

Cambrian
Єc — *Shelf facies: thin bedded limestone, dolostone and shale* (Port au Port Group; parts of Hawke Bay and Reluctant Head formations)

Late Proterozoic and Cambrian
P$_3$Єrc — *Rift and transitional shelf facies: non-marine conglomerate, sandstone and mafic volcanic rocks; marine shale, sandstone, limestone, dolostone and limestone conglomerate* (part of Labrador Group; part of Reluctant Head Formation and equivalents)

Late Proterozoic to Middle Ordovician
P$_3$ЄOu — *Undivided siliciclastic and carbonate rocks; excludes siliciclastic rocks west of Long Range Mountains* (Coney Arm Group; parts of Labrador, Port au Port, St. George and Table Head groups)

Early and Middle Ordovician
Osm — *Shale-matrix mélange, containing blocks of ophiolitic, rift, continental slope and foreland basin rocks* (Rocky Harbour, Companion and Milan Arm mélanges)

Cambrian to Middle Ordovician
ЄOsl — *Continental slope facies: (within Taconian allochthons) sandstone, shale, thin-bedded to conglomeratic carbonate rocks, chert, mafic volcanic and minor metamorphic rocks* (Cow Head Group; part of Curling Group; Northwest Arm Formation); *(within autochthon) metamorphic equivalents, including unseparated rocks of Middle Ordovician foreland basin and Late Proterozoic to Cambrian rift facies* (Rattling Brook Group; parts of Grey Islands, Mount Musgrave and White Bay groups)

Late Proterozoic and Cambrian
P$_3$Єrs — *Rift and transitional continental slope facies: (within Taconian allochthons) sandstone, shale, conglomerate and mafic volcanic rocks* (part of Curling Group; Maiden Point and Blow-Me-Down Brook formations); *(within autochthon) metamorphic equivalents, including unseparated probable basement rocks and Cambrian to Ordovician rocks of continental slope and foreland basin facies* (Old House Cove, Mings Bight, Horse Islands and Grand Lake Brook groups; parts of Grey Islands, Mount Musgrave and White Bay groups; Cormacks Lake Complex; East Pond Metamorphic Suite; metamorphic rocks of southern Long Range Mountains)

INTRUSIVE ROCKS

Late Proterozoic
P$_3$g — *Granitoid intrusions*

P$_3$md — *Mafic dykes*

BASEMENT ROCKS

Early (?) and Middle Proterozoic
P$_2$gg — *Granitoid intrusions*

P$_2$m — *Mafic and anorthositic intrusions*

P$_1$P$_2$gn — *Granitoid orthogneiss and subordinate mafic gneiss and paragneiss*

DUNNAGE ZONE UNITS

STRATIFIED ROCKS

Late Ordovician and Early Silurian
OSsm — *Mélange, containing volcanic and sedimentary blocks of Middle and Late (?) Ordovician age* (Sops Head and Boones Point complexes)

OSs — *Turbidites consisting of sandstone, shale and conglomerate; other marine sedimentary rocks* (Sansom, Point Leamington and Goldson formations; Indian Islands Group)

Middle and Late Ordovician
Osc — *Llandeilo to Ashgill black shale, slate and argillite, including subordinate chert and greywacke* (Shoal Arm, Dark Hole, Rodgers Cove and Luscombe Point formations; Lawrence Harbour Shale)

Middle Ordovician
Osp — *Breccia, shale and sandstone* (Crabb Brook Group)

Cambrian to Middle Ordovician
ЄOsm — *Mélange, containing sedimentary and volcanic blocks of Cambrian to Ordovician age* (Dunnage, Carmanville mélanges)

ЄOs — *Marine siliciclastic sedimentary rocks, including slate, shale, argillite, siltstone, sandstone, conglomerate, and minor unseparated carbonate, volcanic and intrusive rocks, and schist, gneiss and migmatite* (Davidsville Group; parts of Baie d'Espoir, Bay du Nord, Victoria Lake, Exploits, Wild Bight, Western Arm, Cutwell, Roberts Arm and Snooks Arm groups; part of Port aux Basques Gneiss)

ЄOv — *Submarine mafic, intermediate and felsic volcanic rocks, including mafic volcanic rocks of ophiolite complexes; mafic rocks predominate in northern Dunnage Zone and felsic rocks in the south; includes unseparated intrusive, sedimentary and metamorphic rocks* (Lushs Bight, Sleepy Cove, Pacquet Harbour, Buchans, Cottrells Cove, Chanceport, Flatwater Pond, Glover, Catchers Pond, Summerford and Moretons Harbour groups; parts of Fox Island, Western Arm, Cutwell, Roberts Arm, Snooks Arm, Wild Bight, Victoria Lake, Exploits, Bay du Nord and Baie d'Espoir groups; parts of Bay of Islands, Birchy, Advocate, Point Rousse, Betts Cove, King George IV Lake, Annieopsquotch, Pipestone Pond, Coy Pond, Gander River, Little Port and St. Anthony complexes; Skinner Cove, Old Man's Cove and Pine Falls formations; Skidder basalt)

Late Proterozoic and Cambrian
P$_3$Є — *Siliciclastic sedimentary and volcanic rocks; amphibolitic and quartzofeldspathic schist, gneiss and migmatite; includes unseparated granitoid and gabbroic intrusions* (part of La Poile Group; Cinq Cerf Complex; rocks of Grey River enclave)

INTRUSIVE AND OTHER PLUTONIC ROCKS

Cambrian and Ordovician
ЄOg — *Granitoid intrusions, including plagiogranite of ophiolite complexes and minor unseparated Late Proterozoic intrusions*

ЄOm — *Mafic intrusions, including unseparated granitoid rocks, and gabbro, diabase and plagiogranite of ophiolite complexes*

ЄOu — *Ultramafic rocks of ophiolite complexes*

GANDER ZONE UNITS

STRATIFIED ROCKS

Cambrian(?) and Ordovician
ЄOsg — *Quartzite, psammite, semipelite and pelite, including minor black slate, conglomerate, limestone, mafic and felsic volcanic rocks, and unseparated migmatitic rocks* (Gander Group; part of Spruce Brook Formation; unnamed units of Meelpaeg Subzone; parts of Little Passage and Port-aux-Basques gneisses)

ЄOmg — *Migmatitic schist, gneiss, and minor amphibolite, derived in whole or in part from Cambrian(?) and Ordovician protoliths* (Hare Bay Gneiss; part of Little Passage gneiss; part of Spruce Brook Formation; unnamed units of Mount Cormack and Meelpaeg subzones)

INTRUSIVE ROCKS

Ordovician
Og — *Granite intrusions*

AVALON ZONE UNITS

STRATIFIED ROCKS

Late Proterozoic to Early Ordovician
P$_3$ЄOs — *Shallow marine, mainly fine grained, siliciclastic sedimentary rocks, including minor unseparated limestone and volcanic rocks* (Bay View, Random formations; Youngs Cove, Adeyton, Harcourt, Bell Island and Wabana groups)

Late Proterozoic
P$_3$sf — *Fluviatile and shallow marine siliciclastic sedimentary rocks, including minor unseparated limestone and bimodal volcanic rocks* (Signal Hill Group; parts of Musgravetown, Long Harbour, Connaigre Bay, Marystown and Love Cove groups)

P$_3$vb — *Bimodal, mainly subaerial volcanic rocks, including unseparated siliciclastic sedimentary rocks* (parts of Musgravetown, Long Harbour and Connaigre Bay groups)

P$_3$sd — *Marine deltaic siliciclastic sedimentary rocks* (St. John's Group)

P$_3$st — *Sandstone and shale turbidites, including minor unseparated tillite, olistostromes and volcanic rocks* (Connecting Point and Conception groups)

P$_3$vl — *Bimodal, submarine to subaerial volcanic rocks, including minor siliciclastic sedimentary rocks* (Harbour Main Group; parts of Love Cove and Marystown groups)

P$_3$vm — *Pillow basalt, mafic volcaniclastic rocks, siliciclastic sedimentary rocks, and minor limestone and chert* (part of Burin Group)

INTRUSIVE ROCKS

Late Proterozoic to Cambrian
P$_3$Єm — *Mafic intrusions*

P$_3$Єg — *Granitoid intrusions, including unseparated mafic phases*

Pre-Silurian surface tectono-stratigraphic zones	←HUMBER→	←DUNNAGE→	←GANDER→	←AVALON→
		←Notre Dame Subzone→ ←Exploits Subzone→	Meelpaeg, Mount Cormack, Gander Lake Subzones	
Seismically defined lower crustal blocks	←GRENVILLE→	←CENTRAL→		←AVALON→

Geologic time scale from:
Palmer, A.R., 1983, Geology, 11, p.503-504

SYMBOLS

Geological boundary, nature unspecified ………
Fault ………
Observed unconformity, legend only ………
Aeromagnetic anomaly ………
Mine or industrial minerals operation, producer ……… ⚒
Mine or industrial minerals operation, past-producer ……… ⚒
Oil well, past-producer ……… ◑
Mineral prospect ……… ×

The legend has been drawn as a space-time diagram, so that unit ages can be shown with an accuracy reflecting the precision of modern dating techniques. The adjacent colour blocks are provided for users who prefer a list-style legend or who need a more compact legend for displays. Such legends can be prepared by pasting the colour blocks in the appropriate spaces next to the unit descriptions, or by adding them to text prepared by the user. The descriptions can then be mounted separately and the diagrammatic part of the legend discarded. If the colour blocks are not required, they may be folded behind the map or trimmed off.

Cs | DCs | DCsv | SDs | Sv | Ss | Mm | DCg | SDm | SDg | Olp | Osf | Oc | Єc | P$_3$Єrc | P$_3$ЄOu | P$_3$g | P$_3$md | P$_2$gg | P$_2$m | P$_1$P$_2$gn | Osm | ЄOsl | P$_3$Єrs | OSsm | OSs | Osc | Osp | ЄOsm | ЄOs | ЄOv | P$_3$Є | ЄOg | ЄOm | ЄOu | ЄOsg | ЄOmg | Og | P$_3$ЄOs | P$_3$sf | P$_3$vb | P$_3$sd | P$_3$st | P$_3$vl | P$_3$vm | P$_3$Єm | P$_3$Єg