## POST-METAMORPHIC COVER LATE DEVONIAN TO LATE MISSISSIPPIAN? TAILINGS POND SEQUENCE MD:T Variably indurated, terrestrial sedimentary strata Tailings Pond polymictic conglomerate: Generally a poorly exposed redbed molasse, including massive to poorly stratified polymictic conglomerate distinguished by well-rounded clasts of plutoni volcanic, hypabyssal and metamorphic rocks; in drillcore, boulder and cobble conglomerate having detrital clasts of chloritic metabasalt and quartz-sericite schist together with strongly foliated clasts hosting tightly folded veinlets of quartz, carbonate and pyrite (similar to southeasterly adjacent rocks in the Gullbridge structural tract); abundant clasts of red hematized syenite, pink pyritic microgranite and grey saussuritized granodiorite (similar to rocks in units SD:SHs, SD:Tlgbgt and eS:Tlsb of the psails plutonic suite); distinctive outsized clasts of orange ignimbrite (similar to rocks in Unit S:SVf1 of the basal Springdale Group); minor, highly friable, crosslaminated beds of reddish brown siltstone, dark grey mudstone and light green argillite displaying reduction spots and having secondary podiform lenses of brecciated carbonate Note 1: The Tailings Pond sequence (Unit MD:T) is restricted to a small depocentre located near the South Brook Fault. It was probably deposited nonconformably above several map units of plutonic and hypabyssal rocks within the Topsails igneous terrane of Whalen and Currie (1988). However, in places along the southeast margin of Unit MD:T, the contact with underlying older rocks is observed to be a northwest-dipping, moderately inclined fault. As seen in drillcore from the area northeast of Diamond Pond, such fault structures are associated with graphitic and chloritic zones of random-fabric cataclastite. Note 2: The conglomerate and mudstone of Unit MD:Tcm are possibly the partial equivalent of some of the Carboniferous redbec sequences found in two pocket basins situated along the trace of the Green Bay Fault, one in the Indian Pond-Black Brook area (Un MS:sc; O'Brien, 2011) and the other in the King's Point area (Unit MS:mc; O'Brien, 2012). Unit MD:Tcm could possibly be the equivalen rocks as old as the Tournesian Shanadithit Formation on Red Indian Lake or as young as the Namurian Humber Falls Formation. th of Deer Lake. Plutonic rock units not included in the Robert's Arm volcanic bel MID PALEOZOIC INTRUSIONS UNMETAMORPHOSED INTRUSIVE ROCKS SILURO-DEVONIAN? TOPSAILS PLUTONIC SUITE SD:SH and SD:TI Post-lower Springdale Group intrusive rocks Gull Brook granite: Mainly monzonite-hosted graphic granite, hematized syenite, quartz-feldspar porphyry, and diabase dykes; massive, isotropic, light grey to pink, coarse-grained, plagioclase porphyritic, hornblende-biotite monzonite intruded by numerous microgranitic dykes and epidote-chlorite-quartz veins; light grey, very fine-grained graphic granite having rare biotite microlites; medium-grained, dark pink to light red, equigranular, potassium feldspar-phyric syenite displaying biotite and chlorite pseudomorphs after amphibole phenocrysts; brick red quartz svenite SD:TIgbgt having abundant accessory grains of hematite after perthite, particularly near texturally destructive replacement zones dominated by cubic pyrite; sericitized granophyre preserving resorbed guartz prisms and having secondary albite; fault breccia (hosted by silicified microgranite) injected by righ hand en echelon diabase dykes and quartz-carbonate veinlets; dark grey, light green, dark pink and brownish orange (variegated) granite adjacent to very closely spaced joints in multidirectional Note 3: In the map area, plutonic rock units previously included in the Topsails igneous terrane (cf. Whalen and Currie, 1988) or the Topsails igneous suite (cf. Whalen, 1989) have been separated from the constituent volcanic rocks. Here, they are informally assigned to the Topsails plutonic suite. Note 4: Although locally faulted against its Carboniferous cover (Unit MD:Tcm), the Silurian or younger Gull Brook granite (Unit SD:Tlgbgt) intruded the Early Ordovician metaplutonic rocks of the Hall Hill and Mansfield Cove complexes and the tectonically adjacent ounger rocks of the Robert's Arm volcanic belt after these units had been tectonically stitched by the Early Silurian South Brook anodiorite (Unit eS:Tlsb). Skull Hill quartz syenite: Mainly quartz syenite, perthitic granite and granophyre; massive, isotropic, light pink to red, medium- to fine-grained, potassium feldspar-phyric quartz syenite locally displaying rphyritic biotite laths and interstitial quartz; minor, light grey to pink, medium-grained, equigranular rnblende-biotite quartz monzonite; subordinate, medium- to coarse-grained, potassium feldspar h granite having pink perthitic megacrysts; dark red, fine-grained micrographic porphyry; maroon, uartz porphyritic granite net-veined by jasper; brick red hematitized granophyre; each intruded by conjugate dykes of porphyritic and aphanitic diabase, quartz-feldspar porphyry and aplite veins (Skull Hill Quartz Syenite of Kean and Jayasinghe, 1982; Williams et al., 1985; Evans et al., 1994) Note 5: Based solely on geophysical interpretation, unseparated enclaves of block-faulted sedimentary strata from the Springda Group (Unit S:SS) may be present within the Skull Hill quartz syenite (Unit SD:SHs) in the area to the south and east of the South Brook granodiorite (Unit eS:TIsb). **Note 6:** In the South Brook valley, rocks assigned to units SD:SHs and SD:TIgbgt probably intruded both the older granodiorites of the Topsails plutonic suite and the terrestrial volcanic strata of the Silurian Springdale Group. Skull Hill syenite: Mainly subcrop of syenite and granite within an unexposed extension of Unit Skull Hill felsic porphyry: Mainly quartz-feldspar porphyry, diabase dykes and aplite veins; massive, isotropic, light grey, fine-grained guartz-feldspar porphyry and porphyritic hornblende-biotite microgranite comprising apophyses and epipheses of Unit SD:SHs; satellite bodies of saussuritized SD:SHp felsic porphyry having abundant pyrite cubes, sericite overgrowths and secondary albite; in the area southeast of Election Pond, later sheets of fresh gabbro intruded by fractured diabase dykes and offset aplite veins (possibly part of Unit 12a of Evans et al., 1994) Skull Hill diorite: Mainly discrete isotropic bodies of saussuritized diorite and amygdaloidal gabbro; massive, dark grey, medium-grained, equigranular diorite and subordinate, coarse-grained, quartzaring gabbro occurring as satellite bodies and marginal sheets to the Skull Hill Quartz Syenite ting units SD:SHs and SD:SHp in certain localities); in places, silicified pyritic diorite displaying ematite-carbonate-sericite pseudomorphs after plagioclase and having common antiperthite; includes part of Unit SD:gd of Swinden and Sacks (1996). 7: A group of northwest-trending bodies of altered diorite and quartz gabbro assigned to Unit SD:SHd predate the Skull Hill z Syenite and the Skull Hill quartz-feldspar porphyry. Although most of these mafic intrusions postdate the Skull Hill Brook diorite (Unit eS:TIsh), some of them may be intruded by Unit eS:TIsh and correlate instead with the older metagabbros of Unit SILURIAN? HODGES HILL INTRUSIVE SUITE S:HI Post-metamorphic plutonic suite in the Robert's Arm volcanic belt Rocky Pond diorite: Mainly massive, isotropic, dark grey, medium-grained, equigranular diorite, ocally displaying a chilled margin against mariolitic granophyre; subordinate, block-faulted pyritic bodies of fine-grained diorite porphyry intruded as multiple sheets into an equigranular diorite host minor, silicified, carbonatized and sericitized diorite dykes crosscut by fresh porphyritic diabase; diorite-hosted guartz veins preferentially injected along northwest-trending fractures; leucogranitic ykes and dykelets (similar to those within Unit S:HIrpg, see below) emplaced along conjugate joints in Unit S:HIrpdr diorite Rocky Pond granite: Mainly massive, isotropic, light grey to pink, medium-grained, equigranular, potassium feldspar-rich and plagioclase-bearing quartz monzonite having interstitial biotite and minor hornblende, best developed along the northern periphery of the Rocky Pond granodiorite (see below); minor, fine-grained leucogranite having porphyritic biotite and seen in gradational contact with monzonite or as epidotized veins crosscutting monzonite and granodiorite; fresh satellite bodies of leucocratic microgranite and rare aplite dykes in metasedimentary country rocks; chloritecarbonate-quartz veins hosted by quartz monzonite predominantly along northeast-trending fractures associated with lateral faults; near Tommy's Arm River, a brecciated fluorite-bearing apophyse of the Rocky Pond granite having macroscopic fault gouges cemented by chalcedonic quartz, ferruginous carbonate and pyrite North Twin Lake granodiorite: Mainly massive, isotropic, light grey, medium-grained, equigranular, hornblende-biotite granodiorite intruded by porphyritic diabase dykes; massive, grey, fine-to nedium-grained, plagioclase porphyritic leucodiorite having biotite-rich schlieren; minor, massive, pinkish-grey, medium-grained leucogranite; rare, granite and aplite veins crosscutting granodiorite and leucodiorite; possible partial correlative of the Rocky Pond granodiorite (Unit eS:HIrpgd, see North Twin Lake quartz diorite: Mainly subcrop of magnetic diorite on the island archipelago and adjacent mainland; farther east in central North Twin Lake, along-strike exposures of massive, ropic, dark grey, coarse-grained quartz diorite; subordinate, equigranular hornblende diorite; minor bands of medium-grained pyroxene gabbro; previously included in Unit SHgl (Dickson, 2000); possibly related to the Long Pond pyroxene gabbro (Unit eS:HIIgb, see below) stectonic plutonic rocks described above were previously included in map units assigned to the Hodges Hill (000; 2001; 2004a; b). In the map area, they preferentially intrude rocks in the structurally lower tracts of the son, 2000; 2001; 2004a; b). In the map area, they preferentially intrude rocks in the structurany lower tracts of the restrict anic belt although, farther east near Charles Lake, similar rocks are postulated to have had intruded terrestrial felsic volcanic tickson 2000). Some subdivisions of Unit S:HI intrude isotropic intrusive rocks radiometrically dated as Early Silurian; other ed and regionally metamorphosed belts of metasedimentary schist and par Note 9: The subvertical satellite bodies of Rocky Pond granite (Unit S:HIrpg) were emplaced along, and had locally crosscut, northwest dipping ductile shear zones developed near the southwest termination of the Crescent Composite structural tract of the Robert's Arm Note 10: The North Twin Lake granodiorite (Unit S:HItlgd) forms the western peripheral zone of a concentric pluton in the northern part of the Hodges Hill intrusive suite. In the area northwest of the lake, this intrusion was emplaced into a pre-existing regional structure in the Robert's Arm volcanic bett (i.e., a synformal klippe locally controlling the disposition of rocks assigned to the Burnt Pond structural tract). However, to the immediate east of the limit of this geological map, in the structural foctwall sequence below the above-mentioned klippe, Unit S:HItlgd granodiorite is observed to intrude rocks of the Wild Bight Group (O'Brien, 2001) and thereby occupy and transect the Red Indian Line structural zone near the head of North Twin Lake. EARLY SILURIAN HODGES HILL INTRUSIVE SUITE eS:HI Post-metamorphic plutonic suite in the Robert's Arm volcanic belt ower Gull Pond diorite: Mainly massive, isotropic, dark grey, fine- to medium-grained, equigranular, lende-bearing diorite having abundant xenoliths of mafic granofels and mafic schist; coarseined, equigranular to porphyritic leucogabbro illustrating mariolitic cavities, mafic pegmatite, blendite pods and quartz-biotite-chlorite schlieren; pyritic intrusive breccia zones having angular iorite fragments cemented by a granitic matrix Rocky Pond granodiorite: Mainly massive, isotropic, light grey, medium-grained, equigranular granodiorite having localized trains of biotite-bearing diorite fragments (possibly coarse-grained cognate xenoliths); subordinate, hornblende-bearing porphyritic granodiorite characterized by matrixhosted calcite and disseminated epidote together with widespread pseudomorphs of saussurite after lagioclase and chlorite after amphibole; in places, hematite-rich, pyritic, quartz-phyric, potassium eldspar-bearing granodiorite hosting coarse pegmatite veins, particularly near its intrusive contact with country rock schist and older metamorphosed granite; locally, strongly jointed and fractured, pink to red, albite-bearing granodiorite developed in proximity to chlorite-epidote alteration zones marked by abundant kink bands, subhorizontal slickenlines and silicified fault gouge; along the western margin of the intrusion, abundant granodiorite sheets separating unmetamorphosed screens of quartz diorite and pyroxene-bearing hornblende porphyry (possibly related to Unit S:HItlqd) Long Pond hornblende gabbro: Mainly subcrop of hornblende gabbro in the area northwest of Long nd; elsewhere, massive, isotropic, grey-green, medium-grained, equigranular, brown rnblende-biotite gabbro; marginal fine-grained phase of quartz-bearing porphyritic gabbro eserving relict pyroxene phenocrysts overgrown by amphibole; minor, texturally inhomogeneous ppinite or diorite bodies locally intruded by sheets of porphyritic granodiorite and veins of alkali eldspar-rich granite and equigranular microgranite; previously included within Unit SHgp of the Hodges Hill intrusive suite (Dickson, 2000) Long Pond pyroxene gabbro: Mainly subcrop of pyroxene gabbro in the area northwest of Long Pond; along the southeast shore of the pond and elsewhere, massive, isotropic, dark green, nedium-grained, equigranular, plagioclase-rich pyroxene gabbro intruded by unmetamorphosed nodiorite sheets; in places, highly magnetic, pyroxene-rich gabbro illustrating cumulate banding, agmatic layering and matrix-disseminated magnetite; previously included within Unit SHgl of the Hodges Hill intrusive suite (Dickson, 2000) Crooked Lake gabbro: Mainly massive, isotropic, dark green, very coarse-grained, equigranular pyroxene gabbro emplaced into several of the structurally lowest tracts of the Robert's Arm volcanic belt; locally, grey-green, medium-grained, steeply-dipping layered gabbro crosscut by composite sheets of guartz diorite and leucodiorite; subvertical swarms of flow-layered guartz-feldspar porphyry nd en echelon porphyritic diabase dykes that extend from the margin of the Crooked Lake gabbro thwestward into its stratified host rocks; in the northwestern part of Unit eS:HIclgb, isotropic

# EARLY SILURIAN TOPSAILS PLUTONIC SUITE (CONTINUED) eS:TI Post-metamorphic intrusive suite in the Robert's Arm volcanic belt



# METAMORPHOSED INTRUSIVE ROCKS LATE ORDOVICIAN – EARLY SILURIAN Syn-metamorphic intrusions in schistose and gneissic rocks of the Robert's Arm volcanic belt



## Stratified rock units not included in the Robert's Arm volcanic belt PRE-CARBONIFEROUS TERRESTRIAL OVERSTEP SEQUENCE REGIONALLY METAMORPHOSED ROCKS (SILURIAN OR YOUNGER EVENT) EARLY – MIDDLE SILURIAN SPRINGDALE GROUP (lower part) S:S Volcanosedimentary basin fill (Kings Brook sequence)

:SSc	Kings Brook conglomerate: Mainly boulder cong argillite and felsic porphyry; predominantly, light grey, by well-rounded cobbles and boulders of ignimbrite sandstone interbedded with conglomerate; subor (lahar) marked by large angular blocks of porph scoraceous tuff; in places, fine-grained lahar illustra and smaller clasts of laminated mudstone; minor, f dykes displaying flow-layered margins where cross
	sorropic dykes of alone porphyty interminging w poorly sorted, highly indurated beds of sandstone h preserved spherulites and embayed quartz prisms se Note 22: The conglomerate occurring in Unit S:SSc may be a correl Colman-Sadd and Crisby-Whittle (2005). In some localities, it may a Group (Unit 2 of Coyle, 1992).
:SVx	Kings Brook volcanic breccia: Mainly rhyolite agglom buff-weathered, light grey, clast-supported volcanic b banded rhyolite, massive aphyric rhyolite and plagi fine-grained, laminated palagonitic sandstone interb granular sandstone; abundant dark grey sills of an layering; light pink to dark red dykes of quartz-felds
	Note 23: Concordant gabbro sills within Unit S:SVx of the Kings Bro posttectonically intrude adjacent gneissose rocks of the Hungry Moun tract of the Robert's Arm volcanic belt
	Kings Brook rhyolite: Mainly flow-folded rhyolite, fels light pink, thickly stratified, flow-banded and sphe rhyolite intruded by chalcopyrite-bearing sills of lay
SVf1	dykes; subordinate, light grey, poorly bedded, felsic Brook; in the valley of South Brook, Unit S:SVf1 may strata previously assigned to Unit S:Sa of Dean (197 Unit 1 of Coyle (1992); farther northeast along strike radiometrically dated at 432.4 +1.7/-1.4 Ma (Coyle, 1
	Note 24: In the region north of Little Joe Glodes Pond, the above v. (2009). They are re-assigned to the informal Kings Brook rhyolite an Springdale Group listed by Colman-Sadd and Crisby-Whittle , 2005).
SVm1	Kings Brook basalt: Mainly subcrop of basalt flows a amygdaloidal, medium-grained, plagioclase porphy andesite; massive, dark green, lithic-crystal tuff havi hematized basalt; greenish-grey, highly vesicular, r possibly includes an amygdaloidal basalt thought to Dean, 1977d); also possibly includes an extension near Little Joe Glodes Brook (Coyle, 1992); may ir intruding Unit S:SVx of the Kings Brook sequence
	Note 25: In the region north of Little Joe Glodes Pond, rocks withir O'Brien (2009). They are re-assigned to the older Kings Brook basalt (\$
S:SS	Kings Brook sandstone: Mainly pinkish grey, thick sandstone having abundant matrix-disseminated gra massive or thick-bedded, clast-supported pebble co laminated siltstone beds and argillaceous partings sedimentary strata succeeded by light grey to pink, th well developed igneous layering; rarely, ignimbrite porphyritic basalt; unseparated terrestrial volcanic ar welded tuff possibly similar to that found in Unit S:S similar to that seen within Unit S:SVx (Unit 2 of Coyle
	Note 26: Along South Brook, and especially in the area west of its co strata, coarse-grained polymictic sedimentary breccia, and a m stratigraphically lower part of the Springdale Group (Unit S:S). Such Strong, 1987) to contain extrabasinal detritus derived from the Early clasts) and the Hungry Mountain Complex (metatonalite clasts).
	Note 27: The Silurian Springdale Group was deposited in a cover be Notre Dame Subzone of the Dunnage Zone (see below). Units S:SS Lushs Bight Group and the Gullbridge structural tract of the Robert's <i>J</i> Cambrian and Early Ordovician rocks by an angular unconformity. Altho- polymictic basal conglomerate appears to have overstepped several ter-
	Note 28: Terrestrial stratified rocks similar to those in the oldest known igneous suite in the region west of South Brook (Whalen, 1989). Certa similar to, and have overlapping radiometric ages with, bimodal felsic a Ma (early Wenlockian – mid Ludlovian) succession of the Springdale 1992).
	Note 29: In the South Brook valley, the regional folding and tilting of th intrusion of at least some of the plutonic rocks assigned to Unit SD:SH

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O'Brien, B.H.

bbro is locally silicified, bleached and intruded by veins of medium-grained granodiorite and fine-

rained granite porphyry, particularly along east northeast-trending systematic fractures in the

gabbroic host rock; in contrast, near the lower reaches of Rocky Brook, the Crooked Lake gabbro is

chilled against, and also intruded by, a small subvertical body of granodiorite that is similar to the

Note 11: Units eS:HIlpgb, eS:HIlgb and eS:HIrpgd comprise parts of several concentrically zoned plutonic bodies In the vicinity of Long Pond and Rocky Pond. Unit eS:HIlgb may intrude the Crooked Lake gabbro (Unit eS:HIclgb) near the eastern end of Crooked Lake.

Note 12: Very coarse- grained pyroxene-bearing gabbro observed near the Trans-Canada Highway in the westernmost part of the Long Pond hornblende gabbro (Unit eS: Hilpgb) may represent a narrow enclave of the Crooked Lake gabbro (Unit eS:Hiclgb).

ote 13: The reverse magnetized diorite intrusion outcropping near Lower Gull Pond (Unit eS: Hllgdr) has a large enclave of isotrop ranodiorite correlated with the Rocky Pond granodiorite (Unit eS:Hlrpgd). Thus, the hornblende diorite of Unit eS: Hllgdr may lated to the thermally metamorphosed and altered diorite bodies that predate the Skull Hill Quartz Syenite and postdate the Skull H

rook granodiorite. In both areas, the noted diorites are also seen to be emplaced (posttectonically) into the adjacent rocks of the

Rocky Pond granodiorite (Unit eS:HIrpgd) of the Hodges Hill intrusive suite.

O'Brien, B.H. 2016: Geology of the Tommy's Arm River – Loon Pond area (parts of NTS 12H/08 and NTS 02E/05), central Newfoundland; Robert's Arm Volcanic Belt and Adjacent Rocks: Map 1 of 3. Scale 1:25 000. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Map 2016-01, Open File NFLD/3268. O'Brien, B.H. 2016: Geology of the Great Gull Lake – North Twin Lake area (parts of NTS 12H/01, NTS 12H/08, NTS 02/04 and NTS 02/05), central Newfoundland; Robert's Arm Volcanic Belt and Adjacent Rocks: Map 2 of 3. Scale 1:25 000. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Map 2016-02, Open File NFLD/3268.

2016: Geology of the Starkes Pond – Powderhorn Lake area (part of NTS 12H/01), central Newfoundland; Robert's Arm Volcanic Belt and Adjacent Rocks: Map 3 of 3. Scale 1:25 000. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Map 2016-03, Open File NFLD/3268.



# Dawes Pond granite: Mainly massive, isotropic, medium-grained, light grey, potassium feldsparhyric quartz monzonite having abundant biotite, titanite and ilmenite; minor, fine-grained, porphyrit

margins where they crosscut flat-lying metamorphic country rocks outcropping between the Dawes Pond granodiorite (Unit eS:Tldpgd) and the Crooked Lake gabbro (Unit eS:Hlclgb). Note 17: Together, the posttectonic plutonic rocks included in units eS:Tldpgt and eS:Tldpgd serve to tectonically stitch the upper and lower structural tracts of the Robert's Arm volcanic belt (thrust stack) in the vicinity of Dawe's Pond.





grains of ferruginous carbonate; subordinate, red, onglomerate; minor, dark grey and red, paralleldisplaying polygonal mud cracks; in places, thickly stratified, welded ash tuff locally displaying intercalated with minor flows of plagioclase nd sedimentary rocks, including local horizons o Vf1 above and tuffaceous sedimentary breccia nfluence with Gull Brook, interstratified felsic and mafic volcar Jd-matrix lahar (Dean, 1977d; O'Brien, 2009) comprise ti terrestrial strata have been previously interpreted (Coyle al Ordovician ophiolitic rocks of the Hall Hill Complex (metagabbro basin that overlapped the deformed marine stratified rocks of the SVm1 and S:SS accumulated above rocks assigned to volcanic belt, and were possibly once separated from the the sub-Springdale unconformity is only locally preserved constituents of the pre-Silurian basement complex. part of the Springdale Group have been included in the Topsai ain rock units within the Topsails plutonic suite are geochemica and mafic volcanic strata located within the ca. 432 Ma - ca.  $\ell$ 

Group (Coyle and Strong, 1987; Chandler et al., 1987; Coyle e Early – Middle Silurian terrestrial strata probably preceded th and Unit SD:TI. However, farther east, plutonic rocks assigned S:HI of the Hodges Hill intrusive suite (in part coeval with the Springdale Group volcanic rocks) were apparently not affected ( . deformed) by this shortening event. In contrast, within the eastern extension of the Topsails igneous suite, the Tower Hill fels iss (Unit OS:BPog) and the Dawes Pond metagabbro (Unit eS:Tldpgb) probably developed during an earlier phase of region than the one affecting the rocks of the Kings Brook sequence described above.





REGIONALLY METAMORPHOSED ROCKS (LATE ORDOVICIAN - EARLY SILURIAN AND YOUNGER EVENT) MIDDLE AND LATE ORDOVICIAN Robert's Arm volcanic belt (southeast part)

Late Ordovician – Early Silurian? Burnt Pond structural tract (BPT) IO-eS:SH Sops Head Complex (in part)

Tommys Arm Bridge mélange: Mainly black, fine grained, graphitic or carbonaceous schist; dark grey, pyrite-bearing porphyroclastic schist; light grey, very fine grained, laminated phyllonite; eS:SHm subordinate, small discontinuous tracts of pebbly mudstone and transitional broken formation comprising relict stratified belts of volcanic and sedimentary rocks within tectonic mélange; minor, pyritic banded mylonite; rare, podiform limestone and calcareous schist Note 37: Near Tommy's Arm River, in the area west of Kippen's Pond, augened volcanic megaclasts occur in a block-in-matrix tectonic mélange of the Sops Head Complex. Some of these sheared blocks locally include calc-alkaline rhyolite and alkaline basalt flows similar to those seen in partly broken to unbroken formations of Unit mO:BHHCv of the Sops Head Complex (see below).

## Late Ordovician and older Powderhorn Lake structural tract (PLT) IO:PB Powderhorn Brook division



Rocky Brook argillite: Mainly grey siliceous argillite and maroon laminated chert interstratified with bright red, fine-grained siltstone turbidite; in places, porphyroblastic grey siltstone, nodular green argillite and concretionary maroon sandstone; subordinate, light grey, thin-bedded sandstone turbidite having very thin resistant horizons of felsic lithic tuff; minor, light grey quartz-feldspar crystal tuff interbedded with red laminated siltstone; pretectonic quartz-feldspar porphyry sills intruding light grey, thin bedded siltstone and light green, finely banded argillite Rocky Brook wacke: Mainly greyish green, thick-bedded gritty wacke hosting isolated sheets of pebbly sandstone; in places, individual beds of pebbly wacke grading to gritty and sandy wacke; subordinate, light green, medium-bedded tuffaceous wacke displaying small argillite intraclasts; ninor, thin-bedded sandstone turbidite, laminated siltstone and siliceous argillite intruded by calcalkaline gabbro sills (Sarioglu, 2007); locally, poorly stratified debrite horizons having a black siliceous siltstone matrix and illustrating chaotically folded blocks of laminated argillite; in one locality near Rocky Brook, light grey volcanic breccia displaying fragments of slump-folded ash tuff Rocky Brook rhyolite: Mainly subcrop of rhyolitic breccia and tuff on the southeast shore of Great Brb1 Gull Lake near the outflow of Baker Brook; light grey, massive rhyolite flow gradational to coarse grained agglomerate; subordinate, light grey rhyolitic breccia interlayered with quartz-feldspar tuff unseparated Rocky Brook succession; Mainly poorly exposed sedimentary rocks that are stratigraphically undivided, including massive, light grey, coarse-grained tuffaceous wacke and thick bedded pebbly wacke; in the southern part of this unit, exposures of light grey, thin-bedded sandstone turbidite and parallel laminated argillite Note 40: Unit IO:Brbu may include Rocky Brook strata that have been elsewhere assigned to Unit IO:Brb1 (rhyolite) and parts of Unit IO:Brb2 (O'Brien, 2009), Locally, it also possibly contains older sedimentary rocks similar to those seen in the Middle Ordovician Eastern Baker Lake Brook division of the Baker Brook structural tract (see below). In earlier studies, some of the strata from the Rocky Brook division had been informally assigned to the Eastern felsic tuff and were tentatively placed in the uppermost preserved part of the Roberts Arm Group (s.s.) in the Gullbridge area (Pope et al., 1990; Pudifin, 1993).

Note 41: The uppermost preserved part of the Rocky Brook succession (Unit IO:Brb4; early Late Ordovician; mid Sandbian) crops out immediately south of the limit of geological mapping in the vicinity of Lake Bond (O'Brien, 2009). Such rocks represent the youngest known strata in the Robert's Arm volcanic belt.

<text>InterestEnder the set of the</text>	₋ate Midd 3aker Brool nO:Beb Ea	le Ordovician k structural tract (BBT) astern Baker Lake Brook division
<text>      Inclusion     Inclusion       Inclastion</text>	mO:Beb2	Eastern Baker Lake Brook metawacke: Mainly greyish green, thickly stratified, very coarse gra crystal-rich tuffaceous wacke having outsized clasts of felsic volcanic rocks; light grey, mag pebbly wacke having basal conglomerate lags; blue quartz-bearing feldspathic wacke lo displaying angular fragments of slump-folded laminites and partially disaggregated argillaceous up clasts; minor, thin-bedded intervals of felsic volcanic breccia, felsic lithic tuff and fine-gra
<text>      Interface     Description of the backet of the anti-aligned by the probability of the probability o</text>		volcaniclastic sandstone; rare, laminated intervals of black phyllite Note 42: Unit mo:Beb2 of the Eastern Baker Lake Brook division is thought to conformably underlie Unit IO:Brb1 and younger p the Rocky Brook division of the Baker Brook structural tract and, as such, Unit mo:Beb2 metawacke may contain strata of Ordovician age in certain localities. Note 43: Thinly bedded to laminated intervals of black slate and pyritic shale, each up to 10 m thick, are interstratified with tuffa
<text><text><table-row><table-row><table-container>      Bit Results     Bit Results       Bit Resul</table-container></table-row></table-row></text></text>	mO:Beb1	wacke within the lowest preserved part of Unit mo:Beb2 on the southeast shore of Powderhorn Lake. Eastern Baker Lake Brook metarhyolite tuff: Mainly light grey, felsic volcanic-derived granula pebbly wacke having thin beds of quartz–feldspar tuff; subordinate, light grey, thick bedded, co grained, poorly sorted, crystal-rich wacke displaying thin interbeds of dark grey siliceous sands in ascending order, sandy olistostrome having abundant porphyritic and aphyric rhyolite olisto massive crystal-rich packstone marked by abundant grains of resorbed quartz crystals and fract feldspar prisms; in a few localities, succeeding intervals of laminated siliceous red argillite, bedded maroon siltstone, and parallel-laminated grey sandstone; in the uppermost preserved p the subdivision, felsic crystal tuff having black shale laminations transitional to quartz–pyrite s and graphitic pelite; at the structural base of the unit near Joe's Lake, intraformational band sucrose metasedimentary schist and porphyroblast-rich granoblastic schist
<text>         Categories       Cotegories       Cotegories<!--</td--><td>∟ate Midd</td><td>Note 44: The basal olistrostrome and crystal packstone of Unit mO:Beb1 conformably overlie the bimodal pyroclastic strata Middle Ordovician; mid-Darriwilian) characteristic of Unit mO:CBv2 of the Catamaran Brook structural tract. Note 45: Unfoliated diabase dykes and quartz-chlorite veins are hosted by Unit mO:Beb1 schist near its faulted contact w adjacent turbidites of the Badger Brook sequence of the Badger group (Unit OS:B).</td></text>	∟ate Midd	Note 44: The basal olistrostrome and crystal packstone of Unit mO:Beb1 conformably overlie the bimodal pyroclastic strata Middle Ordovician; mid-Darriwilian) characteristic of Unit mO:CBv2 of the Catamaran Brook structural tract. Note 45: Unfoliated diabase dykes and quartz-chlorite veins are hosted by Unit mO:Beb1 schist near its faulted contact w adjacent turbidites of the Badger Brook sequence of the Badger group (Unit OS:B).
<text>          Inclusion         The second prior build begin prio</text>	Catamaran ∣ nO:CB Joe	Brook structural tract (CBT) es Lake division
<text><text><text><text><text><text></text></text></text></text></text></text>	mO:CBv2	flows; at the base of this subdivision, intercalated mafic lithic tuff, size-graded felsic lithic tuff, phreatic agglomerate composed of polylithic volcanic fragments; in ascending order, poorly stra coarse-grained volcanic breccia dominantly composed of rhyolitic blocks; rhyolitic agglom grading to felsic lithic tuff, succeeding felsic pyroclastic flows illustrating disaggregated fold quartz-feldspar porphyry dykes; southwest of Powderhorn Lake, basaltic breccia associated very thin-bedded mafic lapilli tuff and discontinuous graded beds of quartz-feldspar crystal tuft the uppermost preserved part of the map unit, fine-grained multicoloured sedimentary mincluding light grey to black siliceous argillite and black pyritic ribboned chert; locally, dark grey ferruginous siltstone underlying light grey, parallel-laminated sands turbidite
<text><text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text></text>	mO:CBv1	Joes Lake basaltic andesite: Mainly dark grey, plagioclase-phyric, massive and pillowed, matintermediate volcanic flows, including calc-alkaline basalt, basaltic andesite and less com andesite (cf. Sarioglu, 2007); subordinate, dark green, fine-grained basalt locally displaying lichlorite aggregates near chalcopyrite-pyrite veinlets; minor, light grey, very fine-grained, h silicified basalt having abundant albite-carbonate-quartz veins; rare, pink and red jasper-be basalt hosting a stockwork of quartz-hematite veins; where altered and regionally metamorphic chloritic basalt passing gradationally into phyllonitic mafic schist having matrix-disseminated p and jasper; locally, chloritic basalt transitional to net-veined sericitic metabasite showing lea zones adjacent to highly deformed and metamorphically recrystallized stringers of chalcop pyrite and quartz
<text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text>		Note 46: The arc-related volcanic flows of Unit mO: CBv1 of the Joes Lake division are observed to stratigraphically underlie the related bimodal pyroclastic strata of Unit mO: CBv2 in two areas located to the west of Joe's Lake and the Trans-Canada Highway. Joes Lake pillowed tholeiite: Mainly dark grey, thick-bedded pillow lavas, including normal
<text><text><text><text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text></text></text></text>	mO:CBv3	oceanic ridge basalt and less common island arc tholeiite (cf. Sarioglu, 2007); subordinate, light interstitial chert; subordinate, pillow breccia interbedded with mafic tuff; minor, dark green, mas basalt flows and equigranular gabbro sills; minor, malachite-bearing amygdaloidal basalt prese seriate porphyritic and ophitic textures; locally, chloritic basalt transitional to light guactinolite-biotite-cordierite schist, platey foliated metabasite and sucrose mafic granofels
<text><section-header>          Image: base of the transmission of transmission of the transmission of transmission of transmission of transmission of the transmission of tr</section-header></text>		Brook northeast of the abandoned railroad bed (Swinden and Sacks, 1996; O'Brien, 2009). <b>Note 48:</b> The regionally northwest-facing sequence of within-plate tholeiite and volcanic arc tholeiite (Sarioglu, 2007) comprisin m0:CBv3 of the Catamaran Brook structural tract is everywhere thrust fault-bounded. These undated lava flows are struu underlain by a probably mid-Darriwilian succession of Joes Lake andesite and Joes Lake felsic tuff. For this reason, Unit m0:CB
<ul> <li>Incomparison and pebbly mutatione: subordinate, interflow horizons of motiled silies and ribbond ferroginous chart</li> <li>Burtons Harbour silistone: Mainly dark grey, thin-bedded, pyrtic silistone turbidite and siliceous anglilie; subordinate, thin-bedded black shale interstratified with amorphous between the subordinate interstrating of mutatices succeeding grit decrite, graded conjoinerate turbidite, and polymicic boulder conjoinerate</li> <li>MoreBHOS</li> <li>Med P. Wethaed The Hind of specing angreys, strettice consolars, and social experiment of Unit nDEP between the subordinate, the neuropeak strettice consolars, and social problem specing of mutatices succeeding grit decretes and succeeding and the succeeding</li></ul>	3urnt Pond 3ops Head 0 nO:BHHC ∣ nO:BHHCv	structural tract (BPT) Complex (in part) Burtons Harbour – Herring Cove division Herring Cove basalt: Mainly dark green, medium-grained pillow lava and porphyritic pillow bre including alkaline and tholeiitic varieties of basalt (McConnell et al., 2002; Zagorevski and McN 2012); pillowed alkali basalt flows associated with bedded bioclastic limestone and pod carbonate; well stratified lava flows of tholeiitic basalt and graded basalt breccia, locally passing
<ul> <li>debries, graded congiomeratic turbidite, and polymicite Doubler congiomerate</li> <li>We et a kindback the limit of adoption acquere of limitions, after which all hand handback to the limit of limit of</li></ul>	nO:BHHCs	broken formation and pebbly mudstone; subordinate, interflow horizons of mottled siliceous w and ribboned ferruginous chert Burtons Harbour siltstone: Mainly dark grey, thin-bedded, pyritic siltstone turbidite and lamir siliceous argillite; subordinate, thin-bedded black shale interstratified with amorphous black o minor, dark grey pebbly mudstone and associated mud-matrix mixtite; succeeding gritty to s
<text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text>		debrite, graded conglomeratic turbidite, and polymictic boulder conglomerate Note 49: Northeast of the limit of geological mapping, at Kettle Cove in Sops Arm, a probable equivalent of Unit mO:BHHCs is seen to be in primary depositional contact with a latest Darriwilian sequence of limestone, shale and alkali basalt that resides wit H. teretiusculus graptolite zone (McConnell et al., 2002). This provides a probable upper age limit of ca. 461 Ma for accumulation Burtons Harbour siltstone, if the proposed correlation with strata in the lower part of the Sops Head Complex is correct.
monement       Julies Harbour migmatilic paragneiss: Mainly metasedimentary gneiss, amphibolite of migmatilic alternating porphyroblast-rich bands of light grey, coarse-grained psamm intercalated with dark grey, medium-grained semipelitic gneiss; banded gneiss compositional layers preserving detached intrastratial iscollinal folds and possessing an axial planar foliation; psammitic gneiss intruded by bodily rotated sills of foliated gabbro i lozenge-shaped enclaves of metagabbro and garnetiferous amphibolite; migmattic ingentitic migmattic ingential incess of boudinaged folds of gneissos: tectonically straightened (platey) psammitic gneiss bounding discoidal lenses of folde imparagneiss and ampagneiss and ampational to infinite day granodiorite gneiss and metasedimentary mimor, paragneiss and amphibolite infiniteta dby granodiorite gneiss and responsed on attenuated effect bedforms; layered paragneiss transitional to fine-grained platey hornfelsic schist, magnet granofels, and metasedimentary schist; in most localities, tectonically straightened (platey) parampticitic schist magnet granodiorite gneiss and crossenting and carrying multiple interfraing foliatonis, locali, platenet displaying granofels, and metasedimentary schist; in most localities, tectonically straightened confective schist transitional to inhercalated psammitic schist likelipayin metamorphic granding of index porphyrobiast-rich hornfelsic schist likelipayin metamorphic granding or index porphyrobiasts and having abuncal. Life and the analytic schist likelipayin a septed metagabbr complex; locality, sucrese psammitic schist likelipayin in a sheeted metagabbr complex; locality, sucrese psammitic schist likelipayin in a sheeted metagabbr complex; localy, sucrese psammitic schist likelipayin in a sheeted metagabbr complex; localy, sucrese psammitic schist likelipayin in a sheeted metagabbr complex; localy, sucrese psammitic schist likelitabone in with titich-bedded, fine-granied plate corostaminates andstone	Middle Or 3urnt Pond mO:BP Juli	dovician? structural tract (BPT) ies Harbour division
m0:BPpg       Integration of the sequence of the seque		Julies Harbour migmatitic paragneiss: Mainly metasedimentary gneiss, amphibolite gneiss migmatite; alternating porphyroblast-rich bands of light grey, coarse-grained psammitic grintercalated with dark grey, medium-grained semipelitic gneiss; banded gneiss illustr compositional layers preserving detached intrastratal isoclinal folds and possessing an atter axial planar foliation; psammitic gneiss intruded by bodily rotated sills of foliated gabbro and his paragraphics and agreed approximation and agreed for the second seco
Julies Harbour homfelsic schist: Mainly porphyroblast-rich homfelsic schist, magnet granofels, and metasedimentary schist; in most localities, tectonically straightened c homfelsic schist transitional to intercalated psammtic and semipelitic schist displayin grained layering and carrying multiple interfering foliations; locally, platey homfelsic schist is ophyllonite or mylonite; subordinate, metasedimentary augen schist displayin metamorphic grading of index porphyroblasts and having abuundant lit-par-lit mesergetions; in places, complexity folded veins of metamorphosed granite intruded by cudeformed granodiorite dykes; minor, cordierite-andalusite-magnetic-limenite schist in a sheeted metagabbro complex, locally, sucress psammitic schist illustrating a granobla marked by annealed iron sulphide and iron oxide granis; rare, crenulated cordierite-be and phylitie         MO:BPS       Julies Harbour phyllitic metaturbidite: Mainly phyllitic argillite, sulphidic siltstone, and turbidite; in ascending order, light grey, thick-bedded, siliceous, pyritic siltstone interbedeed with motted sandstone turbidite; thin-bedded sulfic out (forriched thole interbedeed with motted sandstone turbidite; thin-bedded sandstone turbidite, dark grey, thististone turbidite; incally, thin-bedded sandstone turbidite; oral, thin-bedded sandstone turbidite, and light green, parallel-laminated argillite; locally, thin-bedded sandstone sittstone turbidite, and light green, parallel-laminated argillite; locally, thin-bedded sandstone turbidite; dark grey, the sittstone turbidite; mainted bard dava grante interve dava grante	mO:BPpg	marked by restite pods composed of metagabbro and relict paragnesis; nebulitic migmatite agmatite zones concentrated in the boudin necks of boudinaged folds of gneissosity; subordi tectonically straightened (platey) psammitic gneiss bounding discoidal lenses of folded lit-p migmatitic gneiss and wrapping tectonic augen occupied by folds of boudinaged amphibolite dy platey hornfelsic gneiss displaying a dip-lineated shape fabric superposed on attenuated veins relict bedforms; layered paragnesis transitional to fine-grained platey gneiss within small di shear zones (locally recrystallized to sucrose reworked gneiss and metasedimentary grano minor, paragneiss and amphibolite infiltrated by granodiorite gneiss and crosscut by fol leucogranite; in places, metadolerite dykes back veined by folded lits of metamorphosed granod emanating from orthogneiss and migmatitic paragneiss
<ul> <li>Julies Harbour phyllitic metaturbidite: Mainly phyllitic argillite, sulphidic siltstone, and turbidite; in ascending order, light grey, thick-bedded granular wacke, graded vol sandstone and slump-folded sandstone turbidite; thin-bedded, siliceous, pyritic siltstone in with thick-bedded, fine-grained nodular sandstone; thin-bedded mafic tuff (enriched thole interbedded with mottled sandstone turbidite; at the top of the sequence, widesprear continuous beds of light grey, fine-grained crosslaminated sandstone turbidite, dark grey, the siltstone and siliceous argillite passing gradationally from slate into spotted phyllite near zones</li> <li>Note 50: The oldest known plutonic rock unit thought to provide an upper age limit on the deposition of Unit mOCE mo-BPP of the Julies Harbour division is the 463 +6/-4 Ma (Darriwilian) Mary Ann Lake Granite (G.R. Dunning, unput Dickson, 2000).</li> <li>Stratified rock units from the Notre Dame Subzone of the REGIONALLY METAMORPHOSED ROCKS (ORDOVICIAN AND SILUF EARLY AND MIDDLE ORDOVICIAN</li> <li>Robert's Arm volcanic belt (northwest part)</li> <li>Late Middle Ordovician Crescent Composite structural tract (CCT) mO:CC Deer Pond division</li> <li>Deer Pond sandy wacke: Mainly epiclastic wacke and sandstone turbidite interstratified common clastic carbonate, ribboned chert; red and grey, parallel laminated siliceous argillite; light green, thick-bedded.</li> </ul>	mO:BPhs	Julies Harbour hornfelsic schist: Mainly porphyroblast-rich hornfelsic schist, magnetite-be granofels, and metasedimentary schist; in most localities, tectonically straightened or mathematic schist transitional to intercalated psammitic and semipelitic schist displaying congrained layering and carrying multiple interfering foliations; locally, platey hornfelsic schist gradat to phyllonite or mylonite; subordinate, metasedimentary augen schist displaying remetamorphic grading of index porphyroblasts and having abundant lit-par-lit metamos segregations; in places, complexly folded veins of metamorphosed granite intruded by crosscu undeformed granodiorite dykes; minor, cordierite–andalusite–magnetite–ilmenite schist infiltrate a sheeted metagabbro complex; locally, sucrose psammitic schist illustrating a granoblastic rm marked by annealed iron sulphide and iron oxide grains; rare, crenulated cordierite-bearing and phyllite
<ul> <li>continuous beds of light grey, fine-grained crosslaminated sandstone turbidite, dark grey, th siltstone turbidite, and light green, parallel-laminated argillite; locally, thin-bedded sandston siltstone and siliceous argillite passing gradationally from slate into spotted phyllite near zones</li> <li>Note 50: The oldest known plutonic rock unit thought to provide an upper age limit on the deposition of Unit mO:E mo:BPg of the Julies Harbour division is the 463 +6/-4 Ma (Darriwilian) Mary Ann Lake Granite (G.R. Dunning, unput Dickson, 2000).</li> <li>Stratified rock units from the Notre Dame Subzone of the REGIONALLY METAMORPHOSED ROCKS (ORDOVICIAN AND SILUF EARLY AND MIDDLE ORDOVICIAN</li> <li>Robert's Arm volcanic belt (northwest part)</li> <li>Late Middle Ordovician</li> <li>Crescent Composite structural tract (CCT)</li> <li>mO:CC Deer Pond division</li> <li>Deer Pond sandy wacke: Mainly epiclastic wacke and sandstone turbidite interstratified common clastic carbonate, ribboned chert and laminated mudstone; in ascending order rhythmically bedded, laterally continuous ribboned chert; red and grey, parallel laminated siliceous argillite: light green. thick-bedded. size-granded pebbly sandstone bavione abundary</li> </ul>	mO:BPs	Julies Harbour phyllitic metaturbidite: Mainly phyllitic argillite, sulphidic siltstone, and sands turbidite; in ascending order, light grey, thick-bedded granular wacke, graded volcanicl sandstone and slump-folded sandstone turbidite; thin-bedded, siliceous, pyritic siltstone interstra with thick-bedded, fine-grained nodular sandstone; thin-bedded mafic tuff (enriched tholeiitic ba interbedded with mottled sandstone turbidite; at the top of the sequence, widespread, late
MO:BPpg of the Julies Harbour division is the 463 +6/-4 Ma (Darriwilian) Mary Ann Lake Granite (G.R. Dunning, unput Dickson, 2000). Stratified rock units from the Notre Dame Subzone of the REGIONALLY METAMORPHOSED ROCKS (ORDOVICIAN AND SILUF EARLY AND MIDDLE ORDOVICIAN Robert's Arm volcanic belt (northwest part) Late Middle Ordovician Crescent Composite structural tract (CCT) mO:CC Deer Pond division Deer Pond sandy wacke: Mainly epiclastic wacke and sandstone turbidite interstratified common clastic carbonate, ribboned chert and laminated mudstone; in ascending order rhythmically bedded, laterally continuous ribboned chert; red and grey, parallel laminated siliceous argillite; light green. thick-bedded. size-oraded nebbly sandstone having abunda		continuous beds of light grey, fine-grained crosslaminated sandstone turbidite, dark grey, thin-bed siltstone turbidite, and light green, parallel-laminated argillite; locally, thin-bedded sandstone, gra siltstone and siliceous argillite passing gradationally from slate into spotted phyllite near major zones Note 50: The oldest known plutonic rock unit thought to provide an upper age limit on the deposition of Unit mO:BPhs ar
Robert's Arm volcanic belt (northwest part) Late Middle Ordovician Crescent Composite structural tract (CCT) mO:CC Deer Pond division Deer Pond sandy wacke: Mainly epiclastic wacke and sandstone turbidite interstratified common clastic carbonate, ribboned chert and laminated mudstone; in ascending order rhythmically bedded, laterally continuous ribboned chert; red and grey, parallel laminated siliceous argillite; light green, thick-bedded, size-graded pebbly sandstone having abunda	Stratified Regiona Early an	m0:BPpg of the Julies Harbour division is the 463 +6/-4 Ma (Darriwilian) Mary Ann Lake Granite (G.R. Dunning, unpublished of Dickson, 2000).
Crescent Composite structural tract (CCT) mO:CC Deer Pond division Deer Pond sandy wacke: Mainly epiclastic wacke and sandstone turbidite interstratified common clastic carbonate, ribboned chert and laminated mudstone; in ascending order rhythmically bedded, laterally continuous ribboned chert; red and grey, parallel laminated siliceous argillite; light green. thick-bedded. size-oraded nebbly sandstone having abunda	Robert's A	rm volcanic belt (northwest part)
Deer Pond sandy wacke: Mainly epiclastic wacke and sandstone turbidite interstratified common clastic carbonate, ribboned chert and laminated mudstone; in ascending order rhythmically bedded, laterally continuous ribboned chert; red and grey, parallel laminated siliceous argillite; light green. thick-bedded. size-graded pebbly sandstone baying abundations are substantial to the sandstone baying abundation of the sandstone babundatio	rescent Co nO:CC Dee	omposite structural tract (CCT) er Pond division
mO:CCRs clasts of jasper, quartz–feldspar porphyry and hematitic basalt together with rip-up clasts chert and red argillite; subordinate, greenish grey, medium-bedded, highly siliceous tuffaced scoured into green crosslaminated crillite and introduced into green crosslaminated argillite; subordinate, greenish grey, medium-bedded, highly siliceous tuffaced scoured into green crosslaminated crillite and introduced into greenish grey.		Deer Pond sandy wacke: Mainly epiclastic wacke and sandstone turbidite interstratified with

Note 52: In some of the lowest observed (basalt-hosted) lenticles of Unit mO:CCRs strata, interbedded horizons of red chert and tuffaceous wacke were dissected and eroded beneath scoured surfaces infilled by massive mixities. These probable debris flow deposits are marked by slump-folded partially consolidated fragments of variolitic pillow breccia chilled against blocks of clastic carbonate. Intruded by vesicular sills of island arc tholeitie (IAT gabro; Sarioglu, 2007), the mixities and sub-seafloor intrusions were subsequently fractured to form crevasses infilled by younger sedimentary beds within the Unit mO:CCRs succession. Note 53: The hemipelagites and turbidites of Unit mO:CCRs crop out to the west of Deer Pond stratigraphically above the under felsic volcanic rocks of Unit mO:CCv2 of the Crescent Composite structural tract, although the former is locally overthrust by the lat In contrast, in locations such as Spot Pond and Anthony Pond, a similar sequence of Unit mO:CCRs chert and wacke appears directly overlie the mafic volcanic rocks of Unit mO:CCV1 of the Crescent Composite structural tract, possibly implying some along-st lithofacies variations. Nearby felsic volcanic-derived sedimentary rocks associated with the mineralized bimodal pyroclastic str exposed at Ghost Pond have, however, been assigned to the Gullbridge structural tract and are thought to be older than the Deer Pond sandy wacke succession of the Crescent Composite structural tract. Deer Pond rhyolite tuff: Mainly light grey, thin-bedded, quartz-feldspar crystal tuff; subordinate parse grained rhyolite breccia grading into fine-grained lithic tuff; minor, fine grained crystal-lithic tuf vitreous ash tuff interstratified with light grey, thin-bedded, quartz-bearing wacke, cross minated feldspathic sandstone, and red siliceous argillite; locally, poorly sorted wacke having angular clasts of quartz-phyric rhyolite; thin layers of red jasperite developed within fine-grained ash Note 54: Felsic tuffs correlated with those herein assigned to Unit mO:CCv2 have been radiometrically dated at 466 +/-4 Ma and 467 +/- 4 Ma (late Middle Ordovician; early Darriwilian) in two localities by Zagorevski and McNicoll (2012). These authors considered the dated pyroclastic strata to have formed from eruptions of tholeitic rhyolite.

Deer Pond tholeiitic basalt: Mainly magnetic tholeiitic basalt and mafic volcanic breccia locally intruded by amygdaloidal gabbro; dark green, fine-grained, pyroxene-porphyritic basalt flows; light green, massive, aphanitic, vesicular basalt; stratabound zones of hematized mafic breccia, particularly in the upper part of the subdivision; minor, laminated red argillite separating basalt flows; rare, interstitial ferruginous chert lying conformably below Unit mO:CCv2 Note 55: On a geological map accompanying this legend (Map 1 of 3), the late Middle Ordovician volcanic and sedimentary rocks of the Deer Pond division are shown to be confined to the Crescent Composite structural tract. This term has been modified from the Crescent Lake composite terrane as defined by Zagorevski and McNicoll (2012). Note 56: The oldest exposed part of Unit mO:CCv1 of the Deer Pond division is composed of dark grey to green (non-hematized) pillo

# IFLD/3268 NIC BELT AND ADJACENT ROCKS





### overlying pillow lava and basal , size-graded felsic lithic tuff, and ascending order, poorly stratified itic blocks; rhyolitic agglomerate lustrating disaggregated folds o basaltic breccia associated with of quartz-feldspar crystal tuff; in multicoloured sedimentary rocks. boned chert: locally, dark green ey, parallel-laminated sandstone

the deposition of Unit mO:BPhs and Unit Granite (G.R. Dunning, unpublished data in bzone of the Dunnage Zone IAN AND SILURIAN EVENTS)

e turbidite interstratified with less one; in ascending order, maroon, rey, parallel laminated or banded indstone having abundant detrita ether with rip-up clasts of maroon niahlv siliceous tuffaceous wacke stone turbidite: minor, polymictic granite, rhyolite and basalt; all of abbro sills herein correlated with sedimentary r ally extended into the Great Gull Lake area

Note so: The bidest exposed part of Onth tho.CCV to the Deer Poind division is composed of dark grey to green (non-hematized) pillow lavas; highly magnetic flows of normal island arc tholeitite (IAT) are locally represented. Sariogu (2007) indicated that some of the IAT pillow breccias in Unit mO:CCV1 could be lithogeochemically classified as basaltic andesite (i.e., a tholeititic andesite). Zagorevski and McNicoll (2012) recognized similar volcanic arc tholeities in association with back arc basin basalt (BABB) in their Ghost Pond terrane (Crescent Lake composite terrane). However, they also reported the presence of subalkaline within-plate tholeitic basalts, such as normal mid oceanic ridge basalt (N-MORB) and transitional enriched mid oceanic ridge basalt (T-MORB).

liddle Ordovician?
outh Brook structural tract (SBT)
O:Rgi Black Gull Island division

Black Gull Island pillowed tholeiite: Mainly pillow lava, ferruginous chert, pillow breccia and rar limestone; dark grey, variably porphyritic, high-Fe or high-Mg tholeiitic basalts (Sarioglu, 2007 including titaniferous pillow lava, magnetic pillow breccia and mafic tuff; light green, epidotize chloritized and albitized basalt flows interstratified with dark green laminated chert, locally intruded by stockworks of quartz-carbonate veins; pervasively silicified pillowed basalt transitional to chalcopyrite-bearing metabasite schist; chemostratigraphically, a dominantly arc tholeiite succession succeeded by a dominantly within-plate tholeiite succession; in probable ascending order, back ar basin basalt (BABB), transitional back arc basin basalt-ocean island basalt (Trans BABB-OIE highly magnetic ocean island basalt (OIB), LREE-enriched mid oceanic ridge basalt (tholeiitic E AORB), high Mg–low Si–low Ti mid oceanic ridge basalt (komatiitic E-MORB), transitional enriched mid oceanic ridge basalt-normal mid oceanic ridge basalt (T-MORB), normal island arc tholeiite (titaniferous IAT), and normal mid oceanic ridge basalt (N-MORB) Note 57: The variably deformed and metamorphosed basalt flows of the Black Gull Island division (Unit mO:Rgi) have a maximu ombined stratigraphical and structural thickness of 750 m and a strike length of up to 15 km in certain parts of the South Brook tructural tract. WithIn the folded imbricate thrust sheets exposed near South Brook, around Great Gull Lake, near the upper Tommy's wrm River, and in the klippe southeast of Dawes Pond, the thickest element of the Unit mo.Rgi volcanic stratigraphy appears to be the ppermost preserved part. This interval is marked by voluminous eruptions of normal mid oceanic ridge basalt and an underlying interval of interstratified N-MORB and IAT basalt, which is host to rare lenses of interpillow carbonate. The volcanic rocks herein issigned to the Black Gull Island division have been previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and lithogeochemical previously discriminated by Sarioglu (2007) on a petrological and by Sarioglu (2007) on a petrological and Sarioglu (2007) on a petrological and Sarioglu (2007) on a petrological Note 58: Lava flows comprising the Black Gull Island division (Unit mO:Rgi) were previously and erroneously assigned to the Hanks Island division (Unit mO:Rhi) of the South Brook structural tract in the Little Joe Glodes Pond – Catamaran Brook region (O'Brien, 2009). The folded basalt succession exposed on Hanks Island proper in southeastern Great Gull Lake has been herein reassigned from the South Brook structural tract to the Catamaran Brook structural tract (cf. O'Brien, 2008). Note 59: Near Tommy's Arm River, sheared metabasite schist herein assigned to the Black Gull Island division (Unit mO:Rgi) of the South Brook structural tract is porphyroblast-rich for an approximate 100 m structural thickness above the thrust fault boundary with the underlying metasedimentary rocks of Unit mO:BPhs of the Burnt Pond structural tract. Note 60: Between Dawe's Pond and Great Gull Lake, the tholeiitic pillowed basalts of the Black Gull Island division (Unit mO:Rqi) structurally overlie the tholeiitic pillowed basalts of Unit mO:CBv3 of the Catamaran Brook structural tract. In places along Baker Broo the two tholeiite belts are separated from each other by narrow thrust sheets partly composed of sedimentary strata from the La ordovician Rocky Brook division. Farther northeast, between Tommy's Arm River and Deer Pond, the Black Gull Island division of the South Brook structural tract is in direct contact with the tholeitic pillowed basalts of Unit mO: CCv1 (Deer Pond division) of the tectonically underlying Crescent Composite structural tract. lote 61: West of Kippen's Pond, the probably early Darriwilian volcanic strata of the Black Gull Island division and the Deer Pond division (Notre Dame Subzone of the Dunnage Zone) are thought to be regionally underplated by an imbricate thrust duplex partly made up of middle Darriwilian arc-related rocks from the Catamaran Brook structural tract (southeastern part of the Robert's Arm volcanic belt; mid-lapetan realm of the Dunnage Zone). Late Early Ordovician Gullbridge structural tract (GT) eO:R Robert's Arm volcanic belt in the Dawes Pond–Great Gull Lake–Loon Pond area eO:Rph Powderhouse division

Powderhouse tuffaceous wacke: Mainly tuffaceous wacke, volcanic conglomerate and felsic pyroclastic strata; in probable ascending order, a massive to thickly stratified, very coarse grained volcanic breccia composed of angular blocks of aphyric rhyolite and quartz-feldspar microporphy crosscut by vesicular gabbro dykes; in some places, silicified felsic ash tuff interbedded with red hematized mafic breccia of island arc tholeiite (IAT) type; a widespread interval of thin-bedded, finegrained, felsic lithic-crystal tuff and red chert alternating with thick-bedded, size-graded tuffaceous acke displaying intraformational rip-up clasts; maroon ribboned chert and interlaminated red, green and black siliceous argillite; succeeding light green, medium-bedded, calcareous, pebbly volcaniclastic wacke marked by detrital clasts of jasper and rhyolite passing upward into dark grey aminated argillite; overlying light grey, thick-bedded sandstone turbidite and cream, massive to graded, rhyolite cobble conglomerate eO:Rgb Gull Brook Bridge division Gull Brook Bridge tuff and jasperite: Mainly a regionally altered and mineralized sequence represented by a bimodal suite of pyroclastic volcanic rocks, siliceous argillite, volcaniclastic sandstone, and jasper-rich basalt; in probable ascending order, dark grey, fine-grained, well stratified lavas of pillowed calc-alkaline basalt; light green, massive to poorly stratified flows of porphyriti basaltic andesite displaying widespread silica-epidote-chlorite alteration zones and an extensive guartz vein stockwork: an interstratified pyroclastic sequence typically composed of medium-grained

outsized blocks of red chert and felsic tuff set in green chloritic basalt breccia; also, felsic volcanic breccia having large fragments of bedded mafic tuff and isolated intervals of hematitic pillow lava, a intruded by a gabbro sill complex; subordinate, rhyolite-dominant agglomerate marked by outsized ombs of coarse-grained basalt preserving chilled margins; locally, mafic and felsic pyroclastic strat ansitional to cordierite-anthophyllite schist hosting recrystallized chalcopyrite-pyrite mineralizatior Isic crystal-lithic tuff altered to black chloritic tuff near quartz vein arrays and gossan zones; chlori nafic tuff illustrating disseminated sulphide grains replaced by hematite or jasper and crosscut fresh diabase; at the top of the interval of bimodal eruptions, alternating thin-bedded felsic lithic t and fine-grained felsic crystal tuff interlaminated with black pyritic shard-bearing siltstone; minor, hematite-rich tholeiitic basalt associated with dark green, medium bedded, size-graded wacke rich in red jasper clasts; minor, light grey, thin-bedded sandstone turbidite having detrital grains of rhyolite and embayed quartz; in the uppermost part of the subdivision, partially silicified and hematized basaltic pillow lavas intercalated with bright red siltstone, dark red chert, light grey phyllite and quartz-feldspar crystal tuff selectively replaced by thin stratabound zones of orange jasperite Gull Brook Bridge pumiceous wacke: Mainly greenish grey, poorly sorted, medium-grained, crudely stratified, pumice-rich granular wacke locally displaying erosional bases and pebbly lags; thick bedded, vertically graded, coarse-grained volcaniclastic wacke illustrating ubiquitous matrix eplacement by hematite but preserving scoriaceous vitroclasts; light grey, thick-bedded, medium grained feldspathic sandstone injected by an anastomosing network of dark pink quartz-hematite

reins; an overlying thinly stratified interval of sandstone turbidite containing prominent resistant bed

nostly replaced by disseminated jasper grains; subordinate, massive jasper veinlets crosscutting red

basalt breccia and fine-grained rhyolite tuff (interlayered on the scale of an exposure); angular

liceous siltstone and interbedded maroon chert; minor, variegated, green and red, ferruginous argillite; minor, very thin-bedded, partially hematized, quartz–feldspar crystal tuff; locally, in the upper part of the subdivision, clast-supported crystal-rich volcanic sandstone and rare rhyolite breccia Gull Brook Bridge basaltic andesite: Mainly dark grey, plagioclase-porphyritic pillow lava and dark green, size-graded pillow breccia comprising stratified flows of calc-alkaline basalt, basaltic andesite and andesite in the thickest and oldest part of the subdivision; a relatively thin overlying interval of felsic tuff and subordinate wacke having detrital clasts of green basalt and pink rhyolite; minor, komatiitic basalt flows in the upper part of the subdivision; locally succeeded by laminated beds of hematized quartz-feldspar crystal tuff and a banded hematite-magnetite iron formation up to a decimetre in thickness; near the stratigraphic top of Unit eO:Rgb1, a dark red sequence of pillowed calc-alkaline basalt and pervasively silicified basaltic andesite (Sarioglu, 2007) Gull Brook Bridge anthophyllite schist: Mainly unseparated cordierite-bearing metamorphic rocks, sericitized volcanic rocks and volcaniclastic sedimentary rocks from the northwest part of the obert's Arm volcanic belt that have been provisionally assigned to the Gull Brook Bridge division; cordierite-anthophyllite schist belt (Upadhyay and Smitheringale, 1972) Note 62: Mafic volcanic rocks of the Gull Brook Bridge division of the Gullbridge structural tract generally record an island arc-rela chemostratigraphic transition (cf. Sarioglu, 2007) from calc-alkaline basalt (CAB), to basalt transitional between calc-alkaline basalt island arc tholeitie (Trans CAB-IAT), and to normal island arc tholeitie (IAT). In particular, this transition characterizes the upper part Unit eO:Rgb3, where copper mineralization is commonly hosted by arc tholeite flows intercalated with calc-alkaline pyroclastic strata

Note 63: According to Sarioglu (2007), lava flows of calc-alkaline basalt (CAB) are also locally interstratified with enriched mid oceanic ridge basalt (E-MORB) in parts of the Gull Brook Bridge division. The CAB-EMORB association typically occurs within the upper part of the Unit eO:Rgb3 subdivision. Such volcanic strata were locally altered and reddened by the addition of jasper and hematite subsequent to the matrix sulphidation and stockwork veining of the interbedded felsic tuffs. At the Gullbridge and Handcamp prospects, the black chloritic basalts were totally replaced by disseminated silica and iron oxides and demagnetized in certain localities. Note 64: To the east of Lady Slipper Pond, and in the area north of Two Bit Pond, some calc-alkaline lavas in the lower part of Unit eO:Rgb1 (the division's oldest volcanic strata) have also been demonstrated to be basalts transitional between calc-alkaline basalt and island arc tholeiite (Trans CAB-IAT volcanic rocks; cf. Sarioglu, 2007). Northeast of the Southwest Shaft, they underlie a more altered sequence of basaltic andesite and island arc tholeiite. In one location east of Skull Pond near the Lake Bond Zn-Cu prospect, a komatilitc basalt (Trans CAB-IAT) has also been recognized lying below iron formation and reddened calc-alkaline basalt within the unper part of Unit eO/Rgb1 Note 65: The episodic calc-alkalic, tholeiitic and komatiitic magmatism recorded in the Gull Brook Bridge rocks described above herake the beginning of distal marine sedimentation and the introduction of waterlain rhyolitic ash into a volcanic arc basin (Unit eO:Rgb2), th eruption of more proximal calc-alkaline rhyolite tuffs within a mafic-felsic bimodal pyroclastic interval (lower Unit eO:Rgb2), th emplacement of occanic tholeite magmas melted from enriched mantle during the eruption of arc tholeite (upper Unit eO:Rgb3) an eventually, the thick accumulation of quartz porphyry-derived tuffaceous turbidites (Unit eO:Rphw of the Powderhouse division). eO:Rdb Dawes Pond Brook division Dawes Pond Brook calc-alkalic pillow breccia: Mainly dark grey, plagioclase porphyritic, amygdaloidal, medium-grained, basaltic pillow breccia; very rare, light grey, highly vesicular pillow O:Rdb3 lavas of aphanitic basaltic andesite; fresh basalt breccia passing into isotropic silicified basalt;

massive pyritic basalt transitional to cordierite-bearing chlorite schist; in the vicinity of Starkes Pond, sphalerite-bearing protomylonitic basalt gradational to crenulated ultramylonite Note 66: Subalkaline basalts assigned to Unit eO:Rdb3 comprise a calc-alkaline suite of volcanic breccias and subordinate lava flows in the youngest preserved part of the Dawes Pond Brook division. Such basalts form map scale lenticles within and above the felsic pyroclastic strata of Unit eO:Rdb2 (see below) Dawes Pond Brook rhyodacite and aquagene tuff: Mainly thickly stratified lenticles dominated by felsic lithic tuff interbedded with felsic crystal tuff; size-graded rhyodacite breccia passing upward into felsic ash tuff and guartz-feldspar tuff; subordinate, coarse basalt breccia displaying bombs of o:Rdb2 vitric felsic tephra; subordinate, basalt breccia interbedded with felsic lithic tuff; minor, pillow lava gradational with aquagene tuff; locally, aquagene tuff passing vertically into vitreous felsic-mafi gglomerate having bombs of quench-textured basalt; minor, pyritic felsic breccia transitional to siliceous sericitic schist; in places, black chloritized tuff replaced by semi-massive pyrite Note 67: In the Loon Pond area, rhyodacite tuffs comprise part of the regional calc-alkaline suite of volcanic rocks in the Dawes Pond Brook division. West of Dawe's Pond proper, felsic volcanic rocks assigned to Unit eO:Rdb2 are interpreted to directly succeed the rocks of Unit eO:Rwb3 of the West Lake Brook division (see below). Dawes Pond Brook rhyolite tuff and red mudstone: Mainly light grey, fine-grained rhyolite tuff and less common rhyolite breccia making up the basal lenticle; size-graded beds of guartz-feldspar eO:Rdb1 crystal tuff locally intercalated with basaltic lithic tuff; subordinate, red mudstone laminae within rhyolitic ash tuff; thin intervals of light grey argillite, dark grey phyllite, red siltstone and maroon chert

interbedded with banded quartz-feldspar tuff; minor, black chloritic tuff and quartz-sericite schist displaying rare porphyroblasts of chalcopyrite and pyrite Note 68: Unit eO:Rdb1 felsic tuffs are thought to conformably overlie andesite flows from the uppermost part of the West Lake uccession in an area east of South Brook and south of Starkes Pond, where the rocks occur in a structurally higher part of the Sullbridge imbricate thrust stack. Given the relationship with strata from Unit eO:Rdb2 described above, this possibly implies lateral cies variation within the Dawes Pond Brook division Dawes Pond Brook pillow lava: Mainly mafic volcanic rocks, including pillowed basalt; interpreted to comprise most or all of Unit eO:Rdbm on the basis of its aeromagnetic character and the overlying till composition Dawes Pond Brook rhyolite breccia: Mainly stratified felsic volcanic rocks, particularly chloritized rhyolite breccia; rocks assigned to Unit eO:Rdbf on the basis of their electromagnetic character and the overlying till composition Dawes Pond Brook unseparated: Mainly unseparated felsic pyroclastic strata and mafic flow breccia m the northwest part of the Robert's Arm volcanic belt that have been provisionally assigned to the Dawes Pond Brook division; variably altered volcanic rocks transitional to quartz-sericite schist and chlorite-actinolite schist Note 69: The coarsening-upward tuffs and volcanic breccias comprising the Dawes Pond Brook sequence (Unit eO:Rdb1 to Unit eO:Rdb3) represent the oldest preserved and thickest succession of coeval felsic and mafic pyroclastic strata in the Gullbridge structural tract. Basaltic lava flows are most common in the upper part of the Dawes Pond Brook division and are geochemically similar to some of those in Unit eO:Rgb1of the Gull Brook Bridge division. Note 70: All of the analyzed mafic volcanic rocks in the Dawes Pond Brook division have been interpreted as being compositionally

Tansitional between calc-alkaline baselt (CAB) and island are thole life (IAT). Along with the rhyodcrife tuffs and breccias, they compr bimodal calc-alkaline volcanic suite (Trans CAB-IAT; Sarioglu, 2007). Although the Dawes Pond Brook sequence appears to be dev

f normal island arc tholeiite, it is probably petrologically related to rocks in the other tectonically adjacent divisions of the Gullbridge

eO:Rwb West Lake Brook division West Lake Brook high-Mg gabbro: Mainly dark grey, medium-grained, equigranular gabbroic accoliths, locally chloritized and epidotized within propylitic alteration zones; in the mostly isotropi parts of these intrusions, systematically fractured, highly silicic gabbro; subordinate, marginally schistose pyritic gabbro (typically present where sheared country rocks having relict pillow structure are gradational with pervasively altered, chalcopyrite-bearing metabasite); subalkalic high-Mg jabbroic laccoliths marked by cooling joints related to the West Lake Brook continental flood basalts (CFB; see NAR-III group of Sarioglu, 2007) Note 71: The gabbroic rocks assigned to Unit eO:Rwb5 of the West Lake Brook division have compositions lying between those enriched mid oceanic ridge basalt (E-MORB) and ocean island basalt (OIB), although they illustrate calc-alkalic rather than tholeit nods. Sarioglu (2007) interpreted the intrusions to be related to a continental flood basalt magnatice event recorded within certain ro the Gullbridge structural tract (see below). On the basis of their LILE and LREE ratios, Sarioglu (ibid) contrasted mafic intrusive ro herein grouped in Unit eO:Rwb5 with subvolcanic intrusions in the younger back-arc basin basalts seen in the Black Gull Island division of the South Brook structural tract and in the Deer Pond arc tholeiltes of the Crescent Composite structural tract. West Lake Brook calc-alkalic gabbro: Mainly light grey, medium-grained equigranular gabbro gradational to dark grey, fine-grained porphyritic gabbro near intrusive margins; subordinate, concordant bodies of highly conductive gabbro comprising a sill complex, particularly where altered country rocks host extensive stockwork zones (Unit eO:Rwb2; see below); minor, isotropic gabbro illustrating chlorite-epidote-calcite-pyrite-chalcopyrite-quartz veins; locally, cumulate layered abbro transitional to lime-green metagabbro crosscut by foliated stringers of black chlorite and having structurally disaggregated folds of quartz veinlets; marginally schistose gabbro carrying arsenopyrite-bearing guartz veins near folded thrust faults; post-mineralization swarm of diabase dykes; calc-alkaline suite of gabbro sills having a composition between that of calc-alkaline basalt and island arc tholeiite (Trans CAB-IAT gabbro; cf. Sarioglu, 2007) Note 72: Immediately south of the mapped area (Map 3 of 3), the regionally deformed and metamorphosed sills of calc-alkalic gabbro herein assigned to Unit eO:Rwb4 are observed to crosscut sphalerite-bearing alteration zones in flow banded rhyolite of the Starkee Pond division and chalcopyrite-bearing alteration zones in pillowed basalt of the West Lake Brook division (O'Brien, 2009). In the map area, tightly folded sills of recrystalized gabbro (Unit eO:Rwb4) are observed to intrude volcanic strata assigned to units eO:Rwb1 and O:Bwb3 of the West Lake Brook division (O'Brien, 2009). In the map area, tightly folded sills of recrystalized gabbro (Unit eO:Rwb4) are observed to intrude volcanic strata assigned to units eO:Rwb1 and O:Bwb3 of the West Lake Brook division (O'Brien, 2009). Rwb2 and eO:Rwb3 of the West Lake Brook division (see below). West Lake Brook basaltic andesite: Mainly dark green, porphyritic, fine-grained pillow lava terstratified with pillow breccia; light green, massive, aphanitic, vesicular volcanic flows intercalate with subordinate volcanic breccia and lithic tuff; mafic to intermediate pillow lavas locally hosting chalcopyrite-sphalerite mineralization

ote 73: Basaltic andesite and andesite flows predominate in the Unit eO:Rwb3 volcanic succession, although minor intervals of cal kaline basalt and rare island arc tholeiite are also present within the subdivision (Sarioglu, 2007). In the Loon Pond area, lavas the ve been geochemically discriminated as continental flood basalts occur within the Unit eO:Rwb3 sequence in that part of the discrimination of the second s West Lake Brook arc tholeiite: Mainly dark green, porphyritic, fine-grained pillow lava interstratified with pillow breccia; light green, massive, aphanitic, vesicular basalt flows intercalated with subordinate volcanic breccia and lithic tuff; widespread alteration zones marked by lime green, netveined basalt flows and chloritic lithic tuff Note 74: Unit eO:Rwb2 is mainly composed of pillowed basalt of island-arc tholeiite-type, although the subdivision has minor flows of calc-alkaline basalt and rare basaltic andesite (Sarioglu, 2007). Alteration zones in the West Lake Brook division are most commonly observed within Unit eO:Rgb2, which also hosts most of the division's calc-alkalic gabbro sills (Unit eO:Rgb4).

Solution         Solution and solution		
Bissel Constraints and a sequence of a sequence o	eO:Rwb1	West Lake Brook high alumina basalt: Mainly dark green, porphyritic, fine-grained pillow lava interstratified with pillow breccia; light green, massive, aphanitic, vesicular basalt flows intercalated with volcanic breccia; subordinate, quartz vein arrays and stringer stockworks structurally isolated from less altered basalts in other parts of the subdivision; minor, chloritized basalt displaying localized chalcopyrite–pyrite mineralization <b>Note 75:</b> Strongly fractionated high alumina basalts are interstratified with abundant calc-alkaline basalt and rare basaltic andesite flows (Sarioglu, 2007) in Unit e0:Rwb1 of the West Lake Brook division. This basal volcanic sequence is interpreted to have stratigraphically underlike and engine and the durbine to the division. The
Selection         Fig. Selection of selection space selection is selection and selection selection is selection in the selection in the selection is selection in the selection is selection in the selection in the selection is selection in the selection in the selection is selection in the selection		underlain the subdivisions of island-arc tholeilte and basaltic andesite that predominate in the middle and upper part of the division. The high-Al basalt-CAB association is postulated to be a hallmark of rocks in the Unit eO:Rwb1 subdivision, although geochemically similar calc-alkalic basalts do occur in Unit eO:Rwb2 and are described above. West Lake Brook unseparated: Mainly unseparated mafic to intermediate extrusive and intrusive rocks from the porthwest part of the Robert's Arm volcanic belt that have been provisionally assigned
<text>      Aligned Sector Sect</text>	eO:Rwbu	to the West Lake Brook division; variably altered volcanic strata that have been regionally metamorphosed and inhomogeneously deformed Note 76: The calc-alkaline volcanic suite present in the West Lake Brook division is generally made up of subalkaline basalt or andesite flows, all of which have compositions transitional between those of calc-alkaline basalt and island-arc tholeiite (the Trans CAB-IAT suites
<text>          Bit Baser 2019 Baser</text>		or Saroglu, 2007). They are generally more common than the division's tholeitle suite rocks. However, the latter are also volcanic arc- related and comprise several intervals of typical island-arc tholeiite (IAT). <b>Note 77:</b> A few volcanic flows resembling continental flood basalts (CFB; Sarioglu, 2007) have been recognized in the upper stratigraphic unit of the West Lake Brook division. Although they are volumetrically insignificant, such rocks serve to characterize Unit eO:Rwb3. The CFB lavas are pillowed however, occurring within a marine volcanic sequence mostly made up of basaltic andesite.
OUNCE OF CONTRACT AND ADDRESS OF THE NUMBER OF THE PROPERTY OF CONTRACT AND ADDRESS OF THE PROPERTY OF	eO'Rsn St	Note 78: The gabbroic sills of Unit eO:Rwb5 were most probably related to the same episode of flood basalt magmatism. Possibly emplaced throughout the entire West Lake Brook succession, such rocks herald the voluminous bimodal magmatism recorded in the overlying Dawes Pond Brook division of the Gullbridge structural tract.
<text>          Control         Contro         <t< td=""><td>eQ<sup>.</sup>Rspr</td><td>Starkes Pond banded rhyolite: Mainly base metal-mineralized coherent rhyolite flows and associated lava domes; dark grey, massive, aphanitic rhyolite and light grey, banded, quartz-phyric rhyolite, locally hosting sphalerite and galena mineralization; subordinate, chloritized spherulitic rhyolite</td></t<></text>	eQ <sup>.</sup> Rspr	Starkes Pond banded rhyolite: Mainly base metal-mineralized coherent rhyolite flows and associated lava domes; dark grey, massive, aphanitic rhyolite and light grey, banded, quartz-phyric rhyolite, locally hosting sphalerite and galena mineralization; subordinate, chloritized spherulitic rhyolite
BUILDING         Biological and analysis and analys		intruded by dykes and sills of quartz–feldspar porphyry; minor, light pink, flow layered and flow folded, vitric rhyolite illustrating a thixatropically deformed interval of light grey ash tuff and parallel- laminated siltstone at the top of individual flow units Starkes Pond ash tuff: Mainly felsic lithic-crystal tuff and metamorphic equivalents; light grey, fine- grained, ash-rich tuff interstratified with quartz-phyric crystal tuff; subordinate, dark grey, medium-
Control         Subscription for the force of a control with a space of a control with a contr	eO:Rspt	grained, well bedded, quartz-feldspar crystal tuff supported by grains of fractured intratelluric phenocrysts; minor, laterally discontinuous layers of thin-bedded to laminated red chert within felsic lithic-crystal tuff; rhyolite lapilli tuff crosscut by minor intrusions of quartz-feldspar porphyry and associated gabbro; quartz-rich crystal tuff transitional to pyritic quartz-sericite schist; light pink to rose, highly sucrose feldspathic felsite; coarse-grained granofels intercalated with schistose chalcopyrite-bearing tuff; locally, overprinting porphyroblasts of euhedral pyrite
<text><ul> <li>Action of the second of the se</li></ul></text>	eO:Rspb	Starkes Pond rhyolite breccia: Mainly rhyolite agglomerate and autobreccia; light grey, massive, volcanic breccia composed of large indented bombs of aphyric rhyolite; subordinate, rhyolite breccia containing clast-rotated blocks of purplish-red laminated chert and jasperitized bands of quartz-phyric rhyolite; minor, chalcopyrite-bearing rhyolite breccia grading to pumiceous lithic tuff; in places, autoclastic breccia having angular flow-foliated fragments of eutaxitic rhyolite, layered ignimbrite and folded ash tuff
<text>      Instant and the second sec</text>	eO:Rspu	Starkes Pond unseparated: Mainly large blocks and possible subcrop of flow-banded rhyolite; unexposed outcrop area assumed to be underlain by rocks of the Starkes Pond division Note 79: Thrust sheets and klippe carrying the felsic volcanic strata of the Starkes Pond division extend discontinuously southeastward
<text>      Control     Control       Control     Contrel       Control     Contrel</text>		in a structural arc for at least 10 km past the limit of geological mapping on Map 3 of 3 (see O'Brien, 2008; 2009). Note 80: Northwest of the former Gullbridge mine, felsic volcanic strata within Unit eO:Rspr show a bedding-parallel platey foliation in the hanging wall plate of a regionally folded thrust fault which had placed the rocks of the Starkes Pond division above basaltic andesite flows in Unit eO:Rwb3 of the West Lake Brook division. In places, these tectonites were intruded by diabase dykes carrying accidental xenoliths of the deformed strata. The diabase intrusions were subsequently metamorphosed and sheared (along with their country rocks
<text>          CPU Construction of the standard standard</text>		and local metagabbroic hosts) adjacent to reverse faults that display a northwest-over-southeast tectonic polarity.  Note 81: Rocks of the Starkes Pond division are most commonly disposed in northwest-dipping thrust sheets in the upper part of the imbricate thrust stack that makes up the Gullbridge structural tract in the Dawes Pond-Great Gull Lake-Loon Pond area. However, primary conformable boundaries are thought to be preserved in the region around Starke's Pond proper. There, rhyolite flows assigned to the Starkes Pond division crop out in a regional periclinal anticline and are interpreted to stratiargabically underlie the calc-alkaline
<text>  Control of a strategy of a strat</text>	O.D. Daha	basalts at the base of the younger West Lake Brook division (Unit eO:Rwb1). Some of the rhyolite breccia and rhyolite tuff subdivisions of the Starkes Pond division have been previously assigned to the informal Gull Hill felsic volcanics by Pope et al. (1990) and Pudifin (1993), both of whom placed the correlative (Gull Hill) sequence in the lowest exposed lithostratigraphic unit of the Roberts Arm Group in the Gullbridge area.
<text></text>	O:R Robel O:Rc Ordo	Mud Pond Terrane: Mainly bimodal volcanic strata of calc-alkaline composition (cf. Bostock, 1988;
<text><text><text><text><text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text></text></text></text></text>	O:RCm	Kerr, 1996); unseparated subdivisions generally composed of dark green, fine-grained, chloritic pillow breccia and red to green (variegated) flows of a highly magnetic epidosite; subordinate, light grey, thin-bedded, quartz-phyric felsic tuff; minor, fine-grained intrusions of quartz-feldspar porphyry crosscutting interbedded felsic tuff and pillow breccia; minor, red argillite, green siltstone and light grey volcaniclastic wacke Note 82: Unit O:RCm of the Mud Pond Terrane may locally include felsic volcanic-derived sedimentary rocks equivalent to those found in the Powderhouse division (Unit eO: Rph) of the Gullbridge structural tract. Such strata are well displayed in the vicinity of the past-
<text><text><text><text><text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text></text></text></text></text>		Boot Harbour Terrane: Mainly an island-arc-related suite of mafic and felsic volcanic strata and related subvolcanic intrusions (cf. Bostock, 1988; Kerr, 1996); unseparated subdivisions of dark grey, coarse-grained, variably porphyritic, calc-alkaline pillowed basalt (low-Ti), dark green, medium-
<text><text><text><text><text><text><text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text></text></text></text></text></text></text>	U:RCD	grained anygoaloidal andesite (IOW-K), and light green, trick-bedded, size-graded aquagene tuit; subordinate, submarine lava flows of light grey, calc-alkaline pillowed rhyolite, associated tholeiitic basalt (low-P island-arc tholeiite), and scoraceous to locally flow-banded, highly vitreous, felsic pyroclastic strata
<text><text><text><text><text><text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text></text></text></text></text></text>		Note 83: Northeast of Map 1 of 3, Williams (1963) originally proposed the name Roberts Arm Group for the sequence of undated rocks previously referred to as the Roberts Arm Volcanics and the Crescent Lake Formation (Esphenshade, 1937). Williams (ibid) indicated that the older Crescent Lake Formation was everywhere faulted along its southeast boundary but that, in places, the dominantly sedimentary rocks of this formation were conformably overlain by the mainly mafic and felsic extrusive rocks of the Roberts Arm Volcanics. The younger of the constituent rock formations was deemed to have cropped out extensively in the northwestern part of the arroup extending to the cast and west of the Robert's Arm type area.
<text><text><text><text><section-header><text><section-header><ul> <li>Beter in the super theres one super supe</li></ul></section-header></text></section-header></text></text></text></text>		Note 84: Subsequent to the establishment of the group name, several disparate Ordovician tectonic terranes have been postulated to occur within the well exposed coastal region of the Roberts Arm Group as defined above (e.g. Bostock, 1988; Kerr, 1996; Zagorevski and McNicoll, 2012; Zagorevski et al., 2015). Consequently, there has been concern about the appropriateness of having exotic terranes included within the same rock group (e.g. Bostock, 1988) and hence the use of the term Robert's Arm volcanic belt in this
<text><text><text><text><section-header><text><text><text><text><text></text></text></text></text></text></section-header></text></text></text></text>		legend (cf. the usage of Swinden and Sacks, 1996). Note 85: Along the northern boundary of the map area, in the northwestern part of the Robert's Arm volcanic belt, several discrete divisions of calc-alkaline volcanic rocks and associated tuffaceous turbidites have been grouped together and herein placed within Unit O:RC (the Robert's Arm accreted terranes). Such rocks have been previously assigned to the Early to Middle Ordovician Roberts Arm
<text><section-header><section-header><ul> <li>Build and any any any any any any any any any any</li></ul></section-header></section-header></text>		Broup of the Note Dame Subzone of the Dunnage Zone (cf. Swinden and Sacks, 1996, Connan-Sadd and Crisby-Whittle, 2005). Note 86: Unit eO:RCm represents a small part of the Mud Harbour Terrane of previous workers (e.g., Bostock, 1988; Kerr, 1996). It possibly includes the middle to upper part of Unit eO:Rgb3 and the lower part of Unit eO:Rph (the youngest known constituents of the Gullbridge structural tract). A portion of what has been previously referred to as the Boot Harbour Terrane possibly underlies Unit
<section-header><section-header>         CP:CF Loon Pond plutonic sufficiency       Sufficiency         CP:CF:U       Sufficiency       Sufficiency         CP:CF:U       Sufficiency       Sufficiency         CP:CF:U       Sufficiency       <td< th=""><th>REGIONA (SYN-OR LATE EA e0:F Pre-1</th><th>C UNITS COEVAL WITH FOCKS OF THE RODERT'S ARM VOICANIC BEIT ALLY METAMORPHOSED INTRUSIVE ROCKS DOVICIAN AND LATER EVENTS) RLY ORDOVICIAN? tectonic intrusions in the northwest part of the Robert's Arm volcanic belt</th></td<></section-header></section-header>	REGIONA (SYN-OR LATE EA e0:F Pre-1	C UNITS COEVAL WITH FOCKS OF THE RODERT'S ARM VOICANIC BEIT ALLY METAMORPHOSED INTRUSIVE ROCKS DOVICIAN AND LATER EVENTS) RLY ORDOVICIAN? tectonic intrusions in the northwest part of the Robert's Arm volcanic belt
COINED       Caladactyric bearing sericits microgranite (and aqaacent intrusive breacia) crossout by fresh sheeds         COINED       Diabator and dubits         COINED       Diabator and dubits       Diabator and dubits       Diabator and dubits         COINED       Diabator and dubits       Diabator and dubits       Diabator and dubits         COINED       Diabator and dubits       Diabator and dubits       Diabato	eO:FL Loc	An Pond plutonic suite Loon Pond granite: Mainly light grey, medium-grained biotite granite gradational to fine-grained porphyritic leucogranite: light pink granophyre intruded by swarms of aplite dykes: locally
Constraints and a production of the second sec	eO:FLg	chalcopyrite-bearing sericitic microgranite (and adjacent intrusive breccia) crosscut by fresh sheets of gabbro and diorite Note 87: Satellite dykes of quartz-phyric graphic granite, probably related to those seen within the main part of the Unit eO:FL plutonic suite, are locally found northwest of Loon Pond proper and along Loon Pond Brook and Long Brook, southeast of the pretectonic intrusive body. However, some 15 km farther northeast, similar apophyses of metamorphically recrystallized granitic veins and carbonate-altered granitic dykes from the Woodfords Arm plutonic suite, which may or may not be time equivalents of the Floian or
<text>          Bit Bit The product panochic track is managed as coascilling the condery of the West Lase look and Development Label Cook and Development Label Cook and Development Label Cook Phylic           BOIFLID         Loon Pond diorite: Mainly dark grey, medium-grained equipranular diorite and porphylic quartz diorite in the form of anall bodes manginal to the Loon Pond graine (Lind Neuros Sand and Crisby)-Withlie, 2005).           BOIFLID         Loon Pond diorite: Mainly dark grey, medium-grained equipranular diorite and porphylic quartz discusses           BOIFLID         Loon Pond diorite: Mainly dark grey, medium-grained equipranular diorite and porphylic quartz discusses           BOIFLID         Divide transmission of the Loon Pond graine (diorite) and the media pond transmission of the Loon Pond grained, quartz-feldspary and recystalized aphantic felsite displaying tightly folded quartz-epidote-cholite versis: locally, light grained, quartz-feldspary and recystalized aphantic felsite displaying tightly folded quartz-epidote-cholite versis: locally, light grained, quartz-feldspary and recystalized aphantic felsite displaying tightly folded quartz-epidote-cholite versis: locally, light grained.           BOITLID         Boit The productic Marta displaying tightly folded quartz-epidote-cholite versis: locally, light grained.           BOITLID         BoitLID         BoitLID         BoitLID         BoitLID           BOITLID         BOITLID         BOITLID         BOITLID         BOITLID         BOITLID           BOITLID         BoitLID         BoitLID         BoitLID         BoitLID         BoitLID      <tr< td=""><td>eO:FLgd</td><td><ul> <li>younger woodrotes Arm grante (kerr and bunning, 2003), have been considered as possible fault-related minor intrusions nosted by the adjacent lava flows of two disparate terranes of the Robert's Arm volcanic belt (Kerr, 1996).</li> <li>Loon Pond granodiorite: Mainly light green, coarse-grained, equigranular hornblende-biotite granodiorite having abundant magnetite and secondary titanite; subordinate, pinkish grey, sericitized, quartz-phyric granodiorite; minor, light grey, medium-grained, equigranular, biotite-bearing quartz monzonite; minor, crosscutting granophyric dykes and later stage leucogranitic veins</li> </ul></td></tr<></text>	eO:FLgd	<ul> <li>younger woodrotes Arm grante (kerr and bunning, 2003), have been considered as possible fault-related minor intrusions nosted by the adjacent lava flows of two disparate terranes of the Robert's Arm volcanic belt (Kerr, 1996).</li> <li>Loon Pond granodiorite: Mainly light green, coarse-grained, equigranular hornblende-biotite granodiorite having abundant magnetite and secondary titanite; subordinate, pinkish grey, sericitized, quartz-phyric granodiorite; minor, light grey, medium-grained, equigranular, biotite-bearing quartz monzonite; minor, crosscutting granophyric dykes and later stage leucogranitic veins</li> </ul>
both the final of solidar bodies in aligned to the Solid and Orisby Prof. granted of als inductive of aligned in the formation of the solidar bodies in aligned and Orisby Prof. granted and independent final is being promotion of the solidary and the solidary and prof. Solidary and the soli		Note 88: The Loon Pond granodiorite (Unit eO:FLgd) is mapped as crosscutting the boundary of the West Lake Brook and Dawes Pond Brook divisions of the Gullbridge structural tract. It is intruded by the Loon Pond granite (Unit eO:FLg). Loon Pond diorite: Mainly dark grey, medium-grained equigranular diorite and porphyritic quartz
eO:FF Firetower Hill intrusive suite         eO:FF Grittower Hill quartz-feldspar porphy:: Mainly light pirk, massive, very fine grained, quartz-feldspar porphy: having resorbed quartz phenocrysis: subordinate, lectonically folaled quartz morphy having resorbed quartz phenocrysis: subordinate, lectonically folaled quartz morphy having resorbed quartz phenocrysis: subordinate, lectonically folaled quartz morphy having resorbed quartz phenocrysis: subordinate, lectonically folaled quartz morphy having resorbed quartz phenocrysis: subordinate, lectonically folaled quartz morphy having resorbed quartz morphy having monolitic musave breacting of the phenoty of the phenoty having resorbed quartz morphy having resorbed quartz morphaving having resorbed quartz morphy having resorbed qua	eO:FLa	Control in the form of small bodies marginal to the Loon Pond granite of as mactured satellite intrusions near faults (cf. Unit eO:Fd of Colman-Sadd and Crisby-Whittle, 2005) Note 89: Unit eO: FLd diorite of the Loon Pond plutonic suite was originally mapped and placed in Unit O:Id by Bostock (1988). He grouped these intrusive bodies into a Unit F suite of minor mafic and felsic intrusions and interpreted them as being generally comagnatic with volcanic rocks in this part of his Roberts Arm Group.
eO:FFop       and recrystalized aphanitic festile displaying tightly folded quartz-epidote-chlorite vering: locally, light grey. slicitificat, quartz-feldspar porphyry heating monolithic intrusive breckas or being intruded by tuffisite pipes         Mote 90: The pretention body of quartz-feldspar porphyry heating monolithic intrusive breckas or being intruded by tuffisite pipes         Mote 90: The pretention body of quartz-feldspar porphyry heating monolithic intrusive breckas or being intruded by tuffisite pipes         Mote 90: The pretention body of quartz-feldspar porphyry heating monolithic intrusive breckas or being intruded by tuffisite pipes         Mote 90: The pretention body of quartz-feldspar porphyry heating monolithic intrusive breckas or being intruded by tuffisite pipes         Mote 90: The pretention body of quartz-feldspar porphyry heating monolithic intrusive breckas of the saywocautic intrusion in ophiolitic rocks of the eastern Notre Dame Subz 0:HU Hungry Mountain Complex         Mote 11: Subordinate, schistose coarse-grained inalite displaying grey quartz ribbors crosscul by folded bodies of quartz-feldspar porphyry, or anastomosing venietis of fine-grained grained in a foldspar porphyry, and interpret displaying an internal wall-to-wall sigmoidal foldslow; subordinate, schistose coarse-grained diabase; minor, light grey, quartz-phyric homblende granedione intruded by mafic dykes displaying an internal wall-to-wall sigmoidal foldslow; subordinate, schistose metagabbro annitir to hat observed in Un O'HU morphy Mountain Complex         OHUT       Hungry Mountain metagabbro: Mainly dark green to black, coarse-grained, equigranular proxeme gabbro fansitir to that observed in Un O'HU morphy Mountain Complex         E0:HHuge       Ma	eO:FF Fire	Stower Hill intrusive suite Firetower Hill quartz–feldspar porphyr: Mainly light pink, massive, very fine grained, quartz–feldspar porphyry having resorbed quartz phenocrysts; subordinate, tectonically foliated quartz microporphyry
CHILDENE PROPERTY CONTRICT THE TRANSPORTED AND CONTROL TO THE TRANSPORTED AND TRAN	eO:FFqp	and recrystallized aphanitic felsite displaying tightly folded quartz–epidote–chlorite veins; locally, light grey, silicified, quartz–feldspar porphyry hosting monolithic intrusive breccias or being intruded by tuffisite pipes Note 90: The pretectonic body of quartz–feldspar porphyry herein assigned to Unit eO:FFqp is interpreted to be a synvolcanic intrusion emplaced into Unit eO:Rspr felsic volcanic strata of the Starkes Pond division of the Gullbridge structural tract. In places, the Firetower Hill quartz–feldspar porphyry also intrudes bibly altered adabto sills.
REGIONALLY METAMORPHOSED INTRUSIVE ROCKS (SYN-ORDOVICIAN AND LATER EVENTS) EARLY TO LATE ORDOVICIAN CHUY OULDED CONDUCIAN CHUY Mountain Complex	ROCKS Plutoni	OF THE EASTERN OPHIOLITE BELT c units older than the rocks of the Robert's Arm volcanic b
O:HU Hungry Mountain Complex         O:HU Ingry Mountain metatonalite: Mainly light grey, medium-grained, equigranular, blue quartz-bearing to folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz ribbons crosscut by folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz-phyric inortbende granolicine intruded by mafic dykes displaying an internal wall-to-wall sigmolidal failon; podiform bodies of quartz-rich microporphyry or anastomosing veinlets of fine-grained granite are the margins of the metatonalite         O:HUm       Monty Part Mountain metagabbro: Mainly dark green to black, coarse-grained, equigranular pyroxene gabbro transitional to schibtose metagabbro, amphibolite gneiss and banded mylorite; in places, ductile shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins         EARLY ORDOVICIAN         e0:HM       Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic ging trey, medium-grained equigranular trondjhemite and grey porphyritic plagogranite; mior, light ging trey, medium-grained equigranular tondjhemite and grey porphyritic plagogranite; mior, light gink abite-rich granodiorite having abundant epidote-quartz veins         e0:HM       Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some orses-turing of soft of sortes-grained quartz diorite and medium-grained formite and protoclase-rich leucagabbro invesses and protoclase-rich leucagabbro invesses and protoclase-rich leucagabbro invesses and protoclase-rich leucagabbro having some orsescuting (one-sided) mafic dykes; subordinate, fine-grained quartz diorite and medium-grained into mission and protoclasse dykes; ontheast- and medium-grained (augranular pyroxene gabbro gradat	REGIONA (SYN-OR <b>EARLY T</b> 0:H Syn-t/	ALLY METAMORPHOSED INTRUSIVE ROCKS DOVICIAN AND LATER EVENTS) O LATE ORDOVICIAN ectonic and earlier intrusions in ophiolitic rocks of the eastern Notre Dame Subze
O:HUf       folded bodies of quartz-feldspar porphyty, pegmatite and dabase; minor, light grey, quartz-phytic homblende granodiorite intruded by mafic dykes displaying an internal wall-to-wall sigmoidal foliation; podiform bodies of quartz-rich microporphyty or anastomosing veinlets of fine-grained granite near the margins of the metatonalite         O:HUff       Not 91: Northwest of Joe Clodes Pond, intrusive sheets of schiatose tonalite assigned to Unit O:HUf locally illustrate aligned trains of pertaily disaggregated venoliths of altered metagabbro similar to that observed in Unit O:HUf or the Hungy Mountain Complex.         O:HUff       Hungry Mountain metagabbro: Mainly dark green to black, coarse-grained, equigranular pyroxene gabbro transitional to schiatose metagabbro, amphibolite gneiss and banded mylonite; in places, ductile shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins         ECRLY ORDOVICIAN       e0:H Metamorphosed intrusions in rocks of the Eastern ophiolite belt         e0:HMg       Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic grainte (cf. Bostock, 1988) hosting swarms of mafic dykes and coeval aplite dykelets; subordinate, light grey, medium-grained equigranular trondjhemite and grey porphyritic plagiogranite; minor, light pink, abite-rich granodiorite having abundant epidote-quartz veins         e0:HHg       Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some crosscutting (one-sided) mafic dykes; subordinate, fine-grained quartz diorite and medium-grained homblende diorite         e0:HHg       Mainly mafic intrusive rocks, including schistose metagabbro and layered pyroxenite; dark grey, coarse-grained, equigranular	O:HU Hun	gry Mountain Complex
O:HUm       Hungry Mountain metagabbro: Mainly dark green to black, coarse-grained, equigranular pyroxene gabbro transitional to schistose metagabbro, amphibolite gneiss and banded mylonite; in places, ductile shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins         EARLY ORDOVICIAN       EQ:H Metamorphosed intrusions in rocks of the Eastern ophiolite belt         e0:HMg       Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic         e0:HMg       Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic light grey, medium-grained equigranular trondjhemite and grey porphyritic plagiogranite; minor, light pink, albite-rich granodiorite having abundant epidote-quartz veins         e0:HMg       Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some cosscutting (one-sided) mafic dykes; subordinate, fine-grained quartz diorite and medium-grained hornblende diorite         e0:HMs       Mainly mafic intrusive rocks, including schistose metagabbro and layered pyroxenite; dark grey, coarse-grained, equigranular pyroxene gabbro gradational to plagioclase-rich leucogabbro having diffuse pods of coarser gabbroic pegmatite; subordinate, massive amphibolitized gabbro; well-banded, epidotized, amphibolite gneiss and protoclastic gneiss (restricted to ductile shear zones); crosscutting postlectonic bodies of quartz diorite and/or diabase dykes; northeast- and northwest-treding conjugate sets of vertical shear zones preferentially occupied by swarms of composite quartz-fieldspar porphyry and diabase dykes (some predating intrusion of Unit eO:HMg of the HalHill Complex, on this basis, Unit a0:HHs ab been tentativey phalogiggranite beiogning to Unit eO:HMg dire	O:HUf	tonalite: subordinate, schistose coarse-grained tonalite displaying grey guartz ribbons crosscut by
EARLY ORDOVICIAN         eO:H Metamorphosed intrusions in rocks of the Eastern ophiolite belt         eO:HM Mansfield Cove Complex         Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic granite (cf. Bostock, 1988) hosting swarms of mafic dykes and coeval aplite dykelets; subordinate, light grey, medium-grained equigranular trondjhemite and grey porphyritic plagiogranite; minor, light pink, abite-rich granodiorite having abundant epidote-quartz veins         eO:HMg       Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some crosscutting (one-sided) mafic dykes; subordinate, fine-grained quartz diorite and medium-grained homblende diorite         eO:HMg       Mainly mafic intrusive rocks, including schistose metagabbro and layered pyroxenite; dark grey, crosscutting postlectonic bodies of quartz diorite and/or diabase dykes; northeast- and northwest; crosscutting postlectonic bodies of quartz diorite and/or diabase dykes; northeast- and northwest; crossing postlectonic bodies of quartz diorite and/or diabase dykes; northeast- and northwest; quartz-feldspar porphyry and diabase dykes (some predating intrusion of Unit eO:HM granodiorite)         Norte 92: Gabbro and diorite assigned to Unit eO:HHs intrusion might corcelate with Unit eO:HM grint diorite bodies of Unit eO:HHs intrusion might corcelate with Unit eO:HM grint bodies of Unit eO:HHs intrusion might correlate with Unit eO:HM grint eo the bate is been totaltwey placed in the Hall HII Complex and is postby correlated with the South Pond gabbro of Bostock (1988). Alternatively part of the Unit eO:HHs intrusion might correlate with Unit eO:HM grint eo the Mansfield Cove Complex. Both deformed and isotropic varities of Unit eO:HHs intrusion might correlate with Unit eO:HM gri	O:HUm	tonalite; subordinate, schistose coarse-grained tonalite displaying grey quartz ribbons crosscut by folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz-phyric hornblende granodiorite intruded by mafic dykes displaying an internal wall-to-wall sigmoidal foliation; podiform bodies of quartz-rich microporphyry or anastomosing veinlets of fine-grained granite near the margins of the metatonalite Note 91: Northwest of Joe Glodes Pond, intrusive sheets of schistose tonalite assigned to Unit O:HUf locally illustrate aligned trains of partially disaggregated xenoliths of altered metagabbro similar to that observed in Unit O:HUm of the Hungry Mountain Complex.
eO:HMg       Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic granite (cf. Bostock, 1988) hosting swarms of mafic dykes and coeval aplite dykelets; subordinate, light grey, medium-grained equigranular trondjhemite and grey porphyritic plagiogranite; minor, light pink, albite-rich granodiorite having abundant epidote-quartz veins         eO:HHB       Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some crosscutting (one-sided) mafic dykes; subordinate, fine-grained quartz diorite and medium-grained homblende diorite         Mainly mafic intrusive rocks, including schistose metagabbro and layered pyroxenite; dark grey, coarse-grained, equigranular pyroxene gabbro gradational to plagioclase-rich leucogabbro having banded, epidotized, amphibolite gneiss and protoclastic gneiss (restricted to ductile shear zones); crosscutting posttectonic bodies of quartz diorite and/or diabase dykes; northeast- and northwest-trending conjugate sets of vertical shear zones preferentially occupied by swarms of composite quartz-feldspar porphyry and diabase dykes (some predating intrusion of Unit eO:HMg granodiorite)         Note 92: Gabbro and diorite assigned to Unit eO:HHs intrude metagabbro and pyroxenite assigned to Unit eO:HHs intrude metagabbro and pyroxenite assigned to Unit eO:HMg of the Hall Hill Complex. Both deformed and isotropic varieties of Unit eO:HHs intrusion might correlate with Unit eO:HMg of the Mansfield Cove Complex. Both deformed and assigned to Unit eO:HHs intrusion might correlate with Unit eO:HMg diorite of the Mansfield Cove Complex. Both deformed and and crisb-v-Whitte 2005.	EARLY O eO:H Metz	<ul> <li>tonalite; subordinate, schistose coarse-grained tonalite displaying grey quartz ribbons crosscut by folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz-phyric hornblende granodiorite intruded by mafic dykes displaying an internal wall-to-wall sigmoidal foliation; podiform bodies of quartz-rich microporphyry or anastomosing veinlets of fine-grained granite near the margins of the metatonalite</li> <li>Note 91: Northwest of Joe Glodes Pond, intrusive sheets of schistose tonalite assigned to Unit O:HUf locally illustrate aligned trains of partially disaggregated xenoliths of altered metagabbro similar to that observed in Unit O:HUm of the Hungry Mountain Complex.</li> <li>Hungry Mountain metagabbro: Mainly dark green to black, coarse-grained, equigranular pyroxene gabbro transitional to schistose metagabbro, amphibolite gneiss and banded mylonite; in places, ductile shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins</li> </ul>
eO:HH Hall Hill Complex eO:HHs Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some crosscutting (one-sided) mafic dykes; subordinate, fine-grained quartz diorite and medium-grained hornblende diorite Mainly mafic intrusive rocks, including schistose metagabbro and layered pyroxenite; dark grey, coarse-grained, equigranular pyroxene gabbro gradational to plagioclase-rich leucogabbro having diffuse pods of coarser gabbroic pegmatite; subordinate, massive amphibolitized gabbro; well- banded, epidotized, amphibolite gneiss and protoclastic gneiss (restricted to ductile shear zones); crosscutting posttectonic bodies of quartz diorite and/or diabase dykes; northeast- and northwest- trending conjugate sets of vertical shear zones preferentially occupied by swarms of composite quartz-feldspar porphyry and diabase dykes (some predating intrusion of Unit eO:HMg of the Hall Hill Complex. Both deformed and isotropic varieties of Unit eO:HHs are crosscut by plagiogranite belonging to Unit eO:HMg of the Mansfield Cove Complex. On this basis, Unit eO:HHs has been tentatively placed in the Hall Hill Complex and is possibly correlated with the South Pond gabbro of Bostock (1988). Alternatively, part of the Unit eO:HHs intrusion might correlate with Unit eO:HMg diorite of the Mansfield Cove Complex (Bostock, 1988: Colman-Sadd and Crisby-Whittle. 2005).	е <b>О·</b> НМ М-	<ul> <li>tonalite; subordinate, schistose coarse-grained tonalite displaying grey quartz ribbons crosscut by folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz-phyric hornblende granodiorite intruded by mafic dykes displaying an internal wall-to-wall sigmoidal foliation; podiform bodies of quartz-rich microporphyry or anastomosing veinlets of fine-grained granite near the margins of the metatonalite</li> <li>Note 91: Northwest of Joe Glodes Pond, intrusive sheets of schistose tonalite assigned to Unit O:HUF locally illustrate aligned trains of partially disaggregated xenoliths of altered metagabbro similar to that observed in Unit O:HUF locally illustrate aligned trains of partially disaggregated xenoliths of altered metagabbro, amphibolite gneiss and banded mylonite; in places, ductile shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins</li> <li><b>PRDOVICIAN</b></li> <li><b>amorphosed intrusions in rocks of the Eastern ophiolite belt</b></li> </ul>
<ul> <li>hornblende diorite</li> <li>Mainly mafic intrusive rocks, including schistose metagabbro and layered pyroxenite; dark grey, coarse-grained, equigranular pyroxene gabbro gradational to plagioclase-rich leucogabbro having diffuse pods of coarser gabbroic pegmatite; subordinate, massive amphibolitized gabbro; well-banded, epidotized, amphibolite gneiss and protoclastic gneiss (restricted to ductile shear zones); crosscutting posttectonic bodies of quartz diorite and/or diabase dykes; northeast- and northwest-trending conjugate sets of vertical shear zones preferentially occupied by swarms of composite quartz-feldspar porphyry and diabase dykes (some predating intrusion of Unit eO:HMg granodiorite)</li> <li>Note 92: Gabbro and diorite assigned to Unit eO:HHs intrude metagabbro and pyroxenite assigned to Unit eO:HMg of the Mansfield Cove Complex. Both deformed and isotropic varieties of Unit eO:HHs intrusion might correlate with Unit eO:HMg diorite of the Mansfield Cove Complex (1988). Alternatively, part of the Unit eO:HHs intrusion might correlate with Unit eO:HMg diorite of the Mansfield Cove Complex (Bostock, 1988: Colman-Sadd and Crisby-Whittle. 2005).</li> </ul>	eO:HM Ma	<ul> <li>tonalite; subordinate, schistose coarse-grained tonalite displaying grey quartz ribbons crosscut by folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz-phyric hornblende granodiorite intruded by mafic dykes displaying an internal wall-to-wall sigmoidal foliation; podiform bodies of quartz-rich microporphyry or anastomosing veinlets of fine-grained granite near the margins of the metatonalite</li> <li>Note 91: Northwest of Joe Glodes Pond, intrusive sheets of schistose tonalite assigned to Unit O:HUf locally illustrate aligned trains of partially disaggregated xenoliths of altered metagabbro similar to that observed in Unit O:HUf locally illustrate aligned trains of partially disaggregated xenoliths of altered metagabbro, amphibolite gneiss and banded mylonite; in places, ductile shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins</li> <li>ORDOVICIAN</li> <li>Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic granite (cf. Bostock, 1988) hosting swarms of mafic dykes and coeval aplite dykelets; subordinate, light grey, medium-grained equigranular trondjhemite and grey porphyritic plagiogranite; minor, light pike, albite-rich granodiorite having abundant epidote-quartz veins</li> </ul>
eO:HHg anded, epidotized, amphibolite gneiss and protoclastic gneiss (restricted to ductile shear zones); crosscutting posttectonic bodies of quartz diorite and/or diabase dykes; northeast- and northwest- trending conjugate sets of vertical shear zones preferentially occupied by swarms of composite quartz-feldspar porphyry and diabase dykes (some predating intrusion of Unit eO:HM granodiorite) Note 92: Gabbro and diorite assigned to Unit eO:HHs intrude metagabbro and pyroxenite assigned to Unit eO:HMg of the Hall Hill Complex. Both deformed and isotropic varieties of Unit eO:HHs are crosscut by plagiogranite belonging to Unit eO:HMg of the Mansfield Cove Complex. On this basis, Unit eO:HHs has been tentatively placed in the Hall Hill Complex and is possibly correlated with the South Pond gabbro of Bostock (1988). Alternatively, part of the Unit eO:HHs intrusion might correlate with Unit eO:HMg diorite of the Mansfield Cove Complex (Bostock, 1988: Colman-Sadd and Crisby-Whittle. 2005).	eO:HM Ma eO:HMg eO:HH Ha	<ul> <li>tonalite; subordinate, schistose coarse-grained tonalite displaying grey quartz ribbons crosscut by folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz-phyric hornblende granodiorite intruded by mafic dykes displaying an internal wall-to-wall sigmoidal foliation; podiform bodies of quartz-rich microporphyry or anastomosing veinlets of fine-grained granite near the margins of the metatonalite</li> <li>Note 91: Northwest of Joe Glodes Pond, intrusive sheets of schistose tonalite assigned to Unit O:HUf locally illustrate aligned trains of partially disaggregated xenoliths of altered metagabbro similar to that observed in Unit O:HUm of the Hungry Mountain Complex.</li> <li>Hungry Mountain metagabbro: Mainly dark green to black, coarse-grained, equigranular pyroxene gabbro transitional to schistose metagabbro, amphibolite gneiss and banded mylonite; in places, ductile shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins</li> <li><b>PRDOVICIAN</b></li> <li>Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic granite (cf. Bostock, 1988) hosting swarms of mafic dykes and coeval aplite dykelets; subordinate, light grey, medium-grained equigranular trondjhemite and grey porphyritic plagiogranite; minor, light pink, albite-rich granodiorite having abundant epidote-quartz veins</li> <li><b>II HIII Complex</b></li> <li>Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some crosscutting (one-sided) mafic dykes: subordinate, fine-grained guartz diorite and medium-grained</li> </ul>
Note 92: Gabbro and diorite assigned to Unit eO:HHs intrude metagabbro and pyroxenite assigned to Unit eO:HHg of the Hall Hill Complex. Both deformed and isotropic varieties of Unit eO:HHs are crosscut by plagiogranite belonging to Unit eO:HHg of the Mansfield Cove Complex. On this basis, Unit eO:HHs has been tentatively placed in the Hall Hill Complex and is possibly correlated with the South Pond gabbro of Bostock (1988). Alternatively, part of the Unit eO:HHs intrusion might correlate with Unit eO:HMg diorite of the Mansfield Cove Complex (Bostock, 1988; Colman-Sadd and Crisbv-Whittle 2005).	eO:HM Ma eO:HMg eO:HH Ha eO:HHs	<ul> <li>tonalite; subordinate, schistose coarse-grained tonalite displaying grey quartz ribbons crosscut by folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz-phyric homblende granodiorite intruded by mafic dykes displaying an internal wall-to-wall sigmoidal foliation; podiform bodies of quartz-rich microporphyry or anastomosing veinlets of fine-grained granite near the margins of the metatonalite</li> <li>Note 91: Northwest of Joe Glodes Pond, intrusive sheets of schistose tonalite assigned to Unit O:HUF locally illustrate aligned trains of partally diseggregated xenolitis of altered metagabbro similar to that observed in Unit O:HUF locally illustrate aligned trains of partally diseggregated xenolities of altered metagabbro, amphibolite gneiss and banded mylonite; in places, ductile shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins</li> <li><b>PRDOVICIAN</b></li> <li>Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic granite (cf. Bostock, 1988) hosting swarms of mafic dykes and coeval aplite dykelets; subordinate, light grey, medium-grained equigranular trondjhemite and grey porphyritic plagiogranite; minor, light pink, albite-rich granodiorite having abundant epidote-quartz veins</li> <li><b>II HII Complex</b></li> <li>Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some crosscuting (one-sided) mafic dykes; subordinate, fine-grained quartz diorite and medium-grained homblende diorite</li> <li>Mainly mafic intrusive rocks, including schistose metagabbro and layered pyroxenite; dark grey, coarse-grained, equigranular pyroxene gabbro fractional to plagioclase-rich leucogabbro having difference and medium-grained diorite</li> </ul>
	eO:HM Ma eO:HH Ha eO:HH Ha eO:HHs	<ul> <li>tonalite; subordinate, schistose coarse-grained tonalite displaying grey quartz ribbons crosscut by folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz-phyric hornblende granodiorite intruded by mafic dykes displaying an internal wall-to-wall sigmoidal foliation; podiform bodies of quartz-rich microporphyry or anastomosing veinlets of fine-grained granite near the margins of the metatonalite</li> <li>Nor 91: Northwest of Joe Glodes Pond, intrusive sheets of schistose tonalite assigned to Unit O:HUI locally illustrate aligned trains of partially disaggregated xenolities or altered metagabbro similar to that observed in Unit O:HUm of the Hungry Mountain Complex.</li> <li>Hungry Mountain metagabbro: Mainly dark green to black, coarse-grained, equigranular pyroxene gabbro transitional to schistose metagabbro, amphibolite gneiss and banded mylonite; in places, ductile shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins</li> <li><b>PCDOVICIAN</b></li> <li><b>Monty variably deformed and metamorphosed bodies of coarse-grained</b>, blue quartz-bearing sodic granite (cf. Bostock, 1988) hosting swarms of mafic dykes and coeval aplite dykelets; subordinate, light grey, medium-grained equigranular trondjhemite and grey porphyritic plagiogranite; minor, light pink, albite-rich granodiorite having abundant epidote-quartz veins</li> <li><b>II HII Complex</b></li> <li>Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some crosscuting (one-sided) mafic dykes; subordinate, fine-grained quartz diorite and medium-grained hornblende diorite</li> <li>Mainly mafic intrusive rocks, including schistose metagabbro and layered pyroxenite; dark grey, coarse-grained, equigranular pyroxene gabbro gradational to plagioclase-rich leucogabbro having some crosscuting (one-sided) mafic dykes; subordinate, massive amphibolitized gabbro; well-bornblende diorite</li> <li>Mainly mafic intrusive rocks, inclu</li></ul>
Note 93: The arc-related plutonic rocks of the Mansfield Cove Complex (Early Ordovician, Tremadocian stage, ca. 479 Ma; Dunning et al., 1987) may have originally comprised part of the underlying crystalline basement or the depositional substrate above which certain calc-alkaline volcanic rocks of the Robert's Arm volcanic betl (late Early Ordovician, Floian stage, ca. 473 Ma; Dunning et al., 1987) may have had been erupted (Swinden, 1987). In this explanation, the older deeper crustal level plutonic rocks and the younger submarine volcanic rocks were brought into their present position across undated symmetamorphic thrusts and later fault structures.	eO:HM Ma eO:HHH eO:HH Ha eO:HHs eO:HHg	<ul> <li>binalite; subordinate, schistose coarse-grained tonalite displaying grey quartz ribbons crosscut by folded bodies of quartz-feldspar porphyry, pegmatite and diabase; minor, light grey, quartz-phyric hornblende granodiorite intruded by mafic dykes displaying an internal wall-to-wall sigmoidal diolation; podiform bodies of quartz-rich microporphyry or anastomosing veinlets of fine-grained grantle near the margins of the metatonalite</li> <li>Most 3: chrothwest 0: de Godes Pond, intrusive sheets of schistose tonalite assigned to Unit 0-HU focally illustrate aligned trains of pertaily disaggregated xenolities of altered metagabbro similar to that observed in Unit 0-HU mort the Hungry Mountain Complex.</li> <li>Hungry Mountain metagabbro: Mainly dark green to black, coarse-grained, equigranular pyroxene gabbro transitional to schistose metagabbro, amphibolite gneiss and banded mylonite; in places, ductie shear zones in chloritized and epidotized metagabbro occupied by unfoliated tonalite veins.</li> <li><b>DEDVICIAN</b></li> <li>Mainly variably deformed and metamorphosed bodies of coarse-grained, blue quartz-bearing sodic granite (cf. Bostock, 1988) hosting swarms of mafic dykes and coeval aplite dykelets; subordinate, light grey, medium-grained equigranular trondjhemite and grey porphyritic plagiogranite; minor, light pink, albite-rich granodiorite having abundant epidote-quartz veins</li> <li><b>Hill Complex</b></li> <li>Mainly dark green, medium-grained, massive to foliated, pyroxene-bearing gabbro having some consocuting (one-sided) mafic dykes; subordinate, fine-grained quartz diorite and medium-grained hornblomed dointe</li> <li>Mainly mafic intrusive rocks, including schistose metagabbro and layered pyroxenite; dark grey, coarse-grained, equigranular pyroxene gabbro gradational to plagioclase-rich leucogabbro having surgenze gabbro (gradational to plagioclase-rich leucogabbro having unresting discoprese gabbroic pegmatite; subordinate, massive amphibolitized gabbro; well-banded,</li></ul>

ROCKS OF THE WESTERN NOTRE DAME BAY VOLCANIC BELT Stratified units older than the rocks of the Robert's Arm volcanic bel REGIONALLY METAMORPHOSED ROCKS (CAMBRO-ORDOVICIAN EVENTS) LATE CAMBRIAN OR OLDER? C:? oldest constituent of the Western Notre Dame Bay volcanic belt C:L Lushs Bight Group

	Mainly unconstant matic volcanic rocks and accosisted subvolcanic intrusions including dark		
C:Lu	green, fine-grained, basaltic pillow lava and poorly bedded pillow breccia; subordinate, black chlorite schist and pyritic mafic schist; minor, dark green, medium-grained, gabbro sills and multiple diabase dykes		
C:Lu?	Mainly unseparated mafic volcanic rocks, including pillow lava and basaltic tuff		
	Note 94: In the map area, the mafic extrusive rocks herein assigned to Unit C:L were previously included in the Early Ordovician Hall Hill Complex and termed the Rowsell Hill basalt (Unit eO:HR of Bostock, 1988; Colman-Sadd and Crisby-Whittle, 2005). They are herein tentatively assigned to the Cambrian and/or Early Ordovician Lushs Bight Group (cf. Kean and Evans, 1994) and considered part of the southeast-directed Taconic allochthon that tectonically overlies the Robert's Arm volcanic belt (O'Brien and Dunning, 2014).		
	Note 95: Northeast of the town of South Brook and Rowsell's Hill proper, the structural footwall sequence lying beneath the thrust fault delimiting the Cambrian Lushs Bight Group (Unit C:Lu) may locally include much younger volcanic strata. Identified herein as Unit C:Lu?, it is possible that such pillow lavas and mafic tuffs might be better correlated with those present in Early Ordovician parts of the Western Arm Group or the Moretons Harbour Group rather than a younger Cambrian part of the Lushs Bight Group.		

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