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GEOLOGICAL AND METALLOGENIC INVESTIGATIONS IN THE WESTERN BELT OF THE LOVE COVE GROUP (NTS 2D/1,2,8), AVALON ZONE, NEWFOUNDLAND

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ABSTRACT

The southern portion of the western belt of the Love Cove Group, located along the western margin of the Avalon Zone in eastern Newfoundland, was mapped at 1:50,000 scale and evaluated at a reconnaissance level for its mineral potential, since it lies partly within the proposed Bay du Nord wilderness reserve.

The belt includes extensive volcanic rocks that are dominantly pyroclastic and felsic to intermediate in composition, three bodies of granite that are probably comagmatic with the volcanic rocks, and several minor occurrences of quartzite. They are all folded, metamorphosed to chlorite-grade greenschist facies, and have a steeply west-dipping schistosity. Eastward, dominantly red, fluviatile sandstone and shale of the Musgravetown Group are progressively less deformed and metamorphosed away from the Love Cove Group. The contact between the two groups in the south is a steep fault, and in the north it is sinuous and possibly a thrust. Westward, the Love Cove Group is juxtaposed with retrograded migmatitic gneiss and sheared K-feldspar-megacrystic granite along the Dover Fault, a mylonite zone that may have had some late brittle movement after folding of the Love Cove Group. The Ackley Granite intrudes all of the above units.

Although limited rock sampling did not produce any significant gold results, several weak alteration zones and large quartz veins were identified.

INTRODUCTION

This is the third year of a continuing metallogenic study of the Avalon Zone in eastern Newfoundland. The project was initiated in 1984 to study gold-bearing rocks within the Love Cove Group in the vicinity of the Swift Current Granite, and expanded in 1985 to include areas to the southwest along the Burin Peninsula (Huard and O'Driscoll, 1985, 1986).

During the 1986 field season, the poorly known southern portion of the western belt of the Love Cove Group was mapped at a 1:50,000 scale. The area is located partly within and adjacent to the provisional Bay du Nord wilderness reserve. The dominantly volcanic Love Cove Group and the Dover Fault are of special interest because of their potential for hosting gold deposits. Samples for gold analyses were collected from rocks that contain either silicified material, sulfides, or significant aluminous or other hydrothermal-alteration minerals.

The map area is centred 20 km southwest of Port Blandford, and is about 20 km wide. It extends from the Tolt, in the eastern Meta Pond (2D/2) map area, north-northeastward for 50 km to the latitude of Clode Sound, in the Port Blandford (2D/8) map area. The Trans Canada Highway passes through and provides access to the extreme northeast corner of the map area. The remainder of the area is accessible only by float plane, helicopter and canoe.

The area has low relief. Bedrock exposure varies from moderate to good in the north and east to poor in the southwest, where bogs and glacial drift are extensive.

Jenness (1963) produced a 1:250,000 scale geological map of the Terra Nova map area, which includes the present map area. Hussey (1979) studied the Love Cove Group in the vicinity of Port Blandford as part of an M.Sc. thesis.

GENERAL GEOLOGY

The map area (Figure 1) lies along the western margin of the Avalon Zone, including the Dover Fault, the boundary between the Avalon and Gander zones. Schistose volcanic and related rocks (Unit 1) of the Late Precambrian Love Cove Group (Jenness, 1963) occupy the central belt of interest. Foliated, high-level granites (Unit 2) are thought to be comagmatic with the volcanic rocks. Schistose quartzites (Unit 3) may be younger than the volcanic rocks and granites. The Love Cove Group is in contact to the east with red fluviatile sandstones and shales (Unit 4) of the Musgravetown Group (Hayes, 1948). West of the Dover Fault, the Gander Zone comprises migmatitic gneiss (Unit 5) and sheared K-feldspar-megacrystic granite (Unit 6). All of the above units are intruded by the Devonian Ackley Granite (Unit 7), which forms a large batholith to the south. A small body of gabbro (Unit 8), which intrudes the Love Cove Group, has not been dated.

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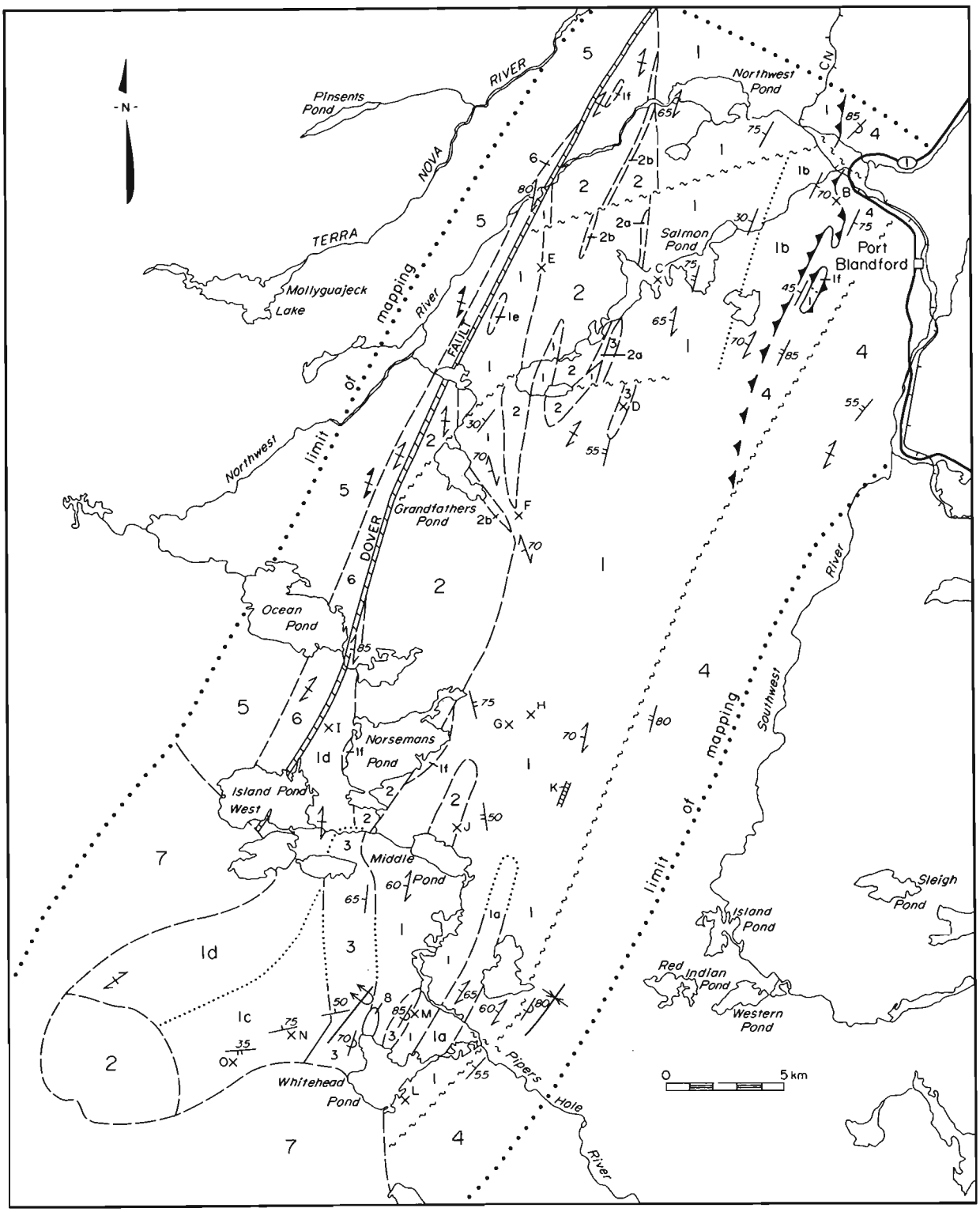

Figure 1. *Geological map of the southern portion of the western belt of the Love Cove Group.*

LEGEND *(Figure 1)*

PALEOZOIC

8 *Gabbro*

7 Ackley Granite: *massive, coarse grained granite*

6 *Sheared, orange K-feldspar-megacrystic granite*

5 Hare Bay Gneiss: *medium grained, crudely layered, tonalitic migmatite and paragneiss*

PRECAMBRIAN

4 Musgravetown Group: *red fluviatile sandstone and shale*

3 *White to gray quartzite, locally cross-bedded*

2 *Foliated, fine to medium grained granite;* 2a, *quartz porphyry;* 2b, *gabbro and lesser mafic volcanic rocks*

1 Love Cove Group: *felsic to intermediate volcanic and related sedimentary rocks;* 1a, *feldspar–quartz-crystal tuff;* 1b, *red to white felsic tuff and flows;* 1c, *thin to medium bedded tuffaceous sedimentary rocks;* 1d, *intermediate tuff and flows;* 1e, *pyroxenephyric andesite;* 1f, *mafic volcanic rocks*

SYMBOLS

Location of mineral occurrence or alteration zone..... ×B–O

Quartz vein.....

Dover Fault.....

Love Cove Group (Unit 1)

The Love Cove Group southwest of Port Blandford includes a high proportion of intermediate to felsic pyroclastic rocks. In most places, the pyroclastic rocks are massive and do not display stratification; however, large-scale cross-bedding was noted in one outcrop. Individual beds are very thick, typically greater than several metres. The pyroclastic rocks are poorly sorted and comprise fragments of diverse rock types. The distinction, in the field, between pumice and lithic fragments is generally difficult; however, vesicular pumice texture is locally preserved. Ragged-edged, flattened fragments of pumice indicate welding and an ash-flow origin (Plate 1). Most of the tuffs are thought to be composed of ash-flow rather than ash-fall material because they are so devoid of stratification (Ross and Smith, 1961). Fine grained pyroclastic rocks, specifically tuff, lapilli tuff and lapillistone, are much more abundant than pyroclastic breccias. The more felsic tuffs are variably colored, ranging from gray rocks, which weather buff to cream, to red rocks, which weather red and white. Crystals, which typically constitute several percent and rarely up to 30 percent of felsic tuff, are mainly feldspar and/or quartz in the 1 to 3 mm size range. Fragment types include red feldsparphyric rhyolite and white quartzphyric rhyolite. The intermediate varieties of tuff are gray to green and weather buff to brown. They locally contain up to several percent feldspar crystals but in general are massive, featureless rocks. In many exposures, these tuffs host dense networks of thin quartz and epidote veinlets.

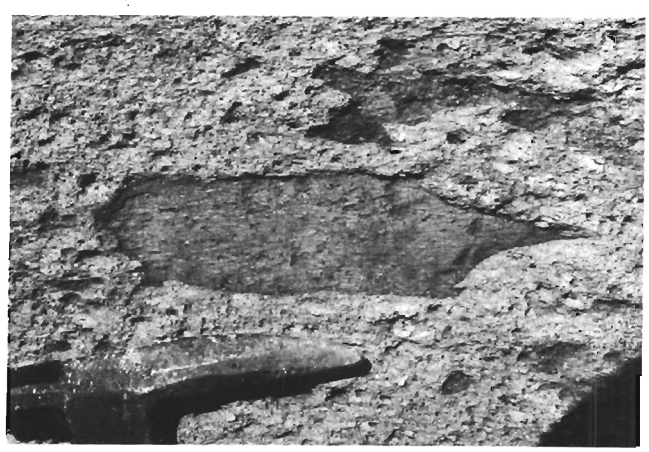

Plate 1: *Flattened, ragged-edged pumice fragment in felsic ash-flow tuff, Unit 1 (Love Cove Group). Note poor size-sorting and lack of stratification, which are typical of this unit. The fragment is about 7 cm by 15 cm.*

The Love Cove Group includes lesser amounts of lava flows, dikes, and sedimentary rocks. The lava flows are massive and include red feldsparphyric rhyolite; green to gray, abundantly feldsparphyric intermediate lava, which is distinctly coarser grained than typical aphanitic lava; light-green, pyroxenephyric intermediate lava; and green basalt, which contains relict needle-shaped crystals of plagioclase. The sedimentary rocks consist of gray sandstone, siltstone and shale, which are thinly to thickly interbedded.

Several subunits of the Love Cove Group are distinctive and extensive enough to be separately mapped on a 1:50,000 scale. They are lithologic subdivisions and have no stratigraphic significance. Subunit 1a is a remarkably homogeneous belt of feldspar–quartz-crystal tuff northeast of Whitehead Pond. Subunit 1b includes a high proportion of red pyroclastic and flow rocks, and is located along the eastern margin of Unit 1 in the northern part of the map area; its boundaries are gradational. Subunit 1c, thinly bedded tuffaceous sedimentary rocks, outcrops on two hills west of Whitehead Pond. Subunit 1d, dominantly lava flows, dikes, and pyroclastic rocks of intermediate composition, is exposed in sparse outcrops in the southwestern part of Unit 1. Subunit 1e, pyroxenephyric andesites, lies west of Salmon Pond.

Most Love Cove Group rocks have a schistosity defined by chlorite and sericite; other metamorphic minerals include epidote, albite and lesser amounts of calcite.

Unit 2

Unit 2, composed mainly of granite and granodiorite, forms two major bodies and a third minor one that are located, respectively, in the vicinities of Salmon Pond, Norseman's Pond, and north of Middle Pond. Broad magnetic lows correspond with the felsic parts of Unit 2, and weak to strong linear highs correspond with the mafic parts. Strong magnetic highs around the perimeter of Unit 2 are attributed to contact metamorphism.

Fine to medium grained, equigranular to porphyritic granite and granodiorite constitute most of Unit 2. The unit has a weak foliation, which corresponds to the schistosity of Unit 1. Along the eastern margin of the Salmon Pond body, quartz porphyry (subunit 2a) forms a thin unit, which may be a partial ring dike. Subunit 2b consists mostly of gabbro but includes some mafic volcanic rocks or dikes at Grandfather's Pond. The gabbro is medium grained, equigranular, and massive; its age relative to the granite is unknown.

Granite of Unit 2 strongly resembles the Swift Current Granite, which, because of its Late Precambrian age, is also thought to be comagmatic with volcanic rocks of the Love Cove Group (Dallmeyer *et al.*, 1981). Both units are prekinematic.

Unit 3

Unit 3 consists of variably schistose quartzite and interbedded gray shale west of Whitehead Pond (previously mapped (Jenness, 1963) as Musgravetown Group), together with four additional occurrences of quartzite located to the north and east. The unit is greater than 50 m thick west of Whitehead Pond. The same structures are developed in Unit 3 as in Unit 1.

The quartzite is generally cross-bedded and ranges from gray quartz arenite, containing several percent lithic clasts and feldspar grains, to white orthoquartzite. In the section west of Whitehead Pond, cross-bedding is particularly well displayed in nearly pure white quartzite due to black laminae of heavy-mineral grains (Plate 2). In the northernmost occurrence east of Salmon Pond, several beds contain cobbles and boulders of vein quartz, white to pink quartzite, and rare granite that resembles granite of Unit 2.

Plate 2: *Cross-bedded quartzite, Unit 3 (west of Whitehead Pond). This unit contrasts sharply with adjacent volcanic rocks of Unit 1. It may in part be a shoreline facies correlative with the Random Formation, although its stratigraphic position is uncertain.*

The contacts of Unit 3 are not exposed, but granite boulders in Unit 3 suggest it has an unconformable relationship with Units 1 and 2. Orthoquartzite, displaying well developed cross-bedding, resembles quartzite of the Random Formation (Walcott, 1900; Christie, 1950; Greene and Williams, 1974)of earliest Cambrian age.

Musgravetown Group (Unit 4)

Unit 4 is composed of relatively undeformed, dominantly red, fluviatile sedimentary rocks in the Port Blandford area, and to the north and south of Port Blandford. This unit was included in the Musgravetown Group by Hayes (1948) and Jenness (1963). Hussey (1979) informally named it the Southwest River formation, removed it from the Musgravetown Group, and included it in the Love Cove Group (Unit 1) because he interpreted the basal contact of

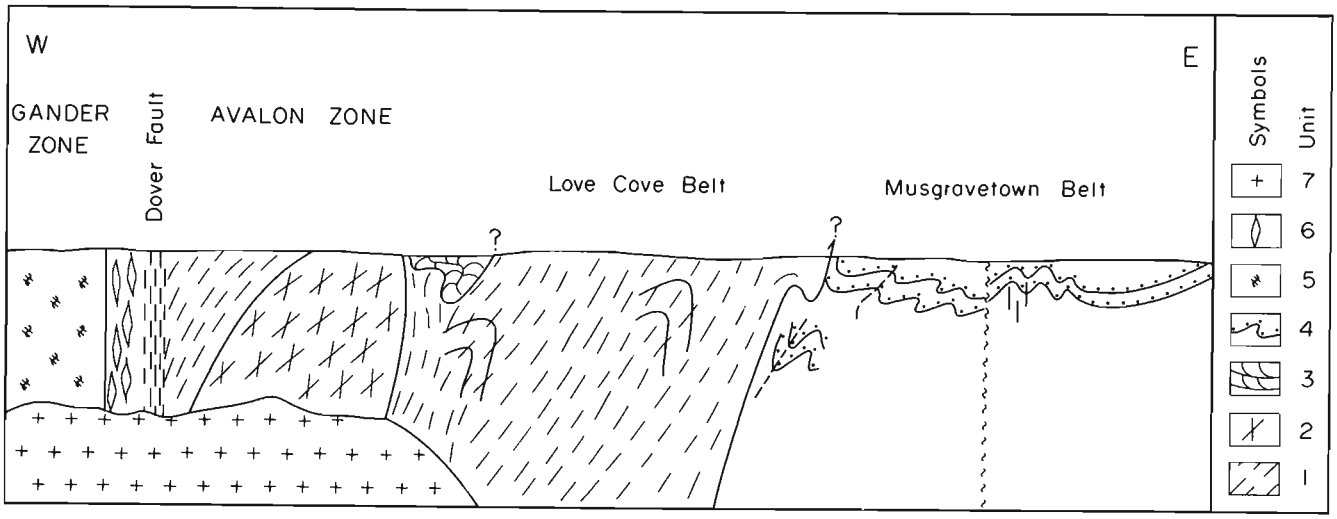

Figure 2: *Schematic, generalized cross section of the western belt of the Love Cove Group and adjacent rocks.*

Unit 4 to be conformable with volcanic rocks of Unit 1 to the west. The name Southwest River formation is retained here for Unit 4, but it is included as part of the Musgravetown Group. Hussey (1979) estimated a thickness of 1280 m for the Southwest River formation.

Unit 4 consists of red and lesser green, thin to thick bedded sandstone and shale. The sandstone is litharenite, and is generally trough cross-bedded. Thick bedded sandstone is predominant to the west and shale to the east. A thin conglomerate bed occurs at the western edge of Unit 4 in the Northwest River–Salmon Brook area. In the central part of Unit 4, several outcrops, located between 2 and 5 km southwest of the bridge where the Trans Canada Highway crosses Southwest River, consist of thinly interbedded gray to green siltstone and shale and lesser white quartz-rich sandstone. Bedding surfaces are planar, and beds locally have sharp bases and parallel laminations.

Units 5 and 6

Unit 5 is part of an extensive area of medium grained tonalitic gneiss and migmatite (Hare Bay Gneiss, Blackwood, 1976) in the adjacent Gander Zone.

Unit 6, the Dover Fault granite (Blackwood, 1976), occupies a narrow belt along the eastern edge of the Gander Zone adjacent to the Dover Fault. It consists of sheared to protomylonitic K-feldspar-megacrystic granite. In places, the granite weathers distinctively orange. Muscovite is locally present, and chlorite occurs along many of the shear surfaces.

Units 7 and 8

Unit 7, the Ackley Granite, forms an extensive batholith to the south of the map area. It comprises various phases of dominantly coarse grained equigranular granite and locally feldspar-porphyritic granite.

Unit 8, a small body of gabbro, outcrops north of Whitehead Pond. It is medium grained, equigranular, and massive to weakly layered. Pyroxenite layers, plagioclase-rich schlieren, and basalt dikes occur locally. An exposed contact with Unit 1 lapilli tuff to the east is sharp, parallel to the schistosity in Unit 1, and apparently intrusive in nature.

STRUCTURE AND METAMORPHISM

The greenschist-facies Love Cove Group is bounded by amphibolite-facies polydeformed rocks (Gander Zone) to the west and by relatively undeformed and unmetamorphosed rocks to the east (Figure 2). The western contact with the Gander Zone is the Dover Fault, a steep mylonite zone. The eastern contact was mapped as the Salmon Brook fault by Jenness (1963). Hussey (1979), however, considered the eastern contact of the Love Cove Group in the area west of Port Blandford to be conformable with his Southwest River formation (Unit 4).

Bedding in the Love Cove Group can only be observed in a few places due to the massive, thick nature of the tuff beds. Moderately west-dipping upright beds and steeply dipping east-facing beds were noted. The Love Cove Group is reported elsewhere to be isoclinally folded, but no examples of isoclinal folds were found in the map area. An overall lack of small-scale folds is attributed to the thick, competent nature of the predominant tuff beds.

Unit 2 outcrops in several elongated bodies. The broad magnetic lows associated with the two major bodies of Unit 2 indicate that they extend downward at least several kilometres. The unit is pretectonic and has the same fabric as the enclosing Love Cove Group.

At several places within Unit 3, bedding dips steeply westward and faces east. If Unit 3 is younger than Unit 1, these east-facing beds require that the contact between the

two units be a fault where Unit 1 lies immediately to the east. Along Piper's Hole River, Unit 3 is folded into a kilometre-scale northeast-plunging anticline. On the hilltop to the south, it displays extremely ductile folds within the contact aureole of the Ackley Granite. In general, however, Unit 3 appears to be no less deformed or metamorphosed than Units 1 and 2. This observation suggests that if the relationship between Unit 3 and Units 1 and 2 is unconformable, then only minor uplift and erosion, but no major deformation or metamorphism, occurred prior to the deposition of Unit 3. Dallmeyer *et al.* (1983) also concluded from the Paleozoic ages of sericites that there was no major deformation or metamorphism during the Precambrian in the Avalon Zone.

The Love Cove Group is metamorphosed to greenschist facies, and contains abundant sericite, chlorite and albite. The sericites yield Devonian ages (Dallmeyer *et al.*, 1983). This regional metamorphism overprints features of volcanic origin, including welding, devitrification, and vapour-phase crystallization. The sericite and chlorite impart a strong schistosity to the rocks, which dips steeply west-southwest in the area north of Grandfather's Pond but dips steeply west-northwest elsewhere.

The strong schistosity in the Love Cove Group has been cited as an important criterion for distinguishing it from other less deformed groups in the area (Jenness, 1963). The schistosity is most apparent on weathered surfaces. Planar, smooth surfaces perpendicular to cleavage reveal relatively undeformed volcanic textures. The tuffs locally have a more intense schistosity than intercalated sedimentary rocks, which may in part be attributed to the initially glassy to ultra-fine grain size of the tuffs.

Eastern Contact Relationships

Unit 4 (Southwest River formation) near Port Blandford is flat lying and mildly cleaved. The metamorphic grade is marked by a prehnite–pumpellyite assemblage (Hussey, 1979). Westward, it has a subvertical to vertical cleavage and minor steep faults that are axial planar to upright open folds. Within 1 km of the contact with Unit 1 along Northwest River, folds in Unit 4 are tight, asymmetric and verge to the east. Short, steeply dipping to overturned, east-facing limbs alternate with long, moderately west-dipping to horizontal, upright limbs. A millimetre-spaced axial planar slatey cleavage dips steeply to moderately westward.

In most places along the contact between Units 1 and 4, it is equivocal whether or not either unit is truncated. Mafic rocks within Unit 1 west of Port Blandford may strike into the contact, although outcrop is not sufficient to be entirely certain. Along the western margin of Unit 4, a thickly bedded sandstone subunit persists for the full 50-km length of the map area. A conglomerate bed occurs at the western edge of Unit 4 in the Northwest River–Salmon Brook area. In general, beds in Unit 4 within 50 m of the contact with Unit 1 face east. However, along Piper's Hole River they face west, which suggests a fault forms the contact in that area.

The contact between Units 1 and 4 is curvilinear in the north, producing a sinuous map pattern, and rectilinear in the south. The northern segment, where mapped in detail, has a much more sinuous course than the straight lines shown on previous maps (Jenness, 1963; Hussey, 1979). It swings eastward with increasing elevation on a hill south of Salmon Brook, suggesting a westerly dip at this location. About 1 km south, an isolated body of Unit 1 volcanic rocks is surrounded by Unit 4 sandstone.

Near the contact, the variation in dips of the main axial plane cleavage indicates the cleavage is openly folded. A second, centimetre-spaced, cleavage, gently west-dipping, was noted at one place. Within 100 m of the contact, shales are locally sheared and quartz veins are abundant. On the south side of Northwest River, sedimentary rocks mapped as Unit 4 contain sericite and are schistose. Tuffs of Unit 1 are also locally sheared adjacent to the contact. Where exposed in Northwest Brook, the contact is steep and relatively sharp, and adjacent conglomerate of the Musgravetown Group shows weak to moderate strain.

In summary, the contact relationship between Units 1 and 4 is equivocal. Stratigraphic relationships within the western part of Unit 4, namely the conglomerate bed and the persistent sandstone suggest a stratigraphic contact, whether conformable or unconformable. However, the localized shearing and veining suggest fault movement along the contact.

The interpretation preferred here for the northern segment of the contact is a fault, specifically a thrust, which implies the isolated body of volcanic rocks west of Port Blandford is a klippe. Thrusting and folding would be broadly contemporaneous, since the curvilinear nature of the thrust is due to folding and the localized open folding of cleavage implies further, continued movement along the contact. A thrust contact explains the contrast in metamorphic grade between Units 1 and 4. It also explains the asymmetry of folding along the western margin of Unit 4, and the decrease in intensity of deformation eastward. Finally, deformation and metamorphism that postdate the Late Precambrian Musgravetown Group (Unit 4) are consistent with the Paleozoic age of sericites from Unit 1 (Dallmeyer *et al.*, 1983).

The southern rectilinear segment is interpreted as a later, vertical fault, which continues northward within Unit 4 and parallels the northwest shore of Clode Sound. Minor late faults offset the contact between Units 1 and 4 left-laterally south of Northwest River and right-laterally north of Piper's Hole River.

Western Contact Relationships

Westward, the Love Cove Group is juxtaposed with the amphibolite-facies terrane of the Gander Zone along the Dover Fault, a steeply dipping mylonite zone several hundred metres wide (Blackwood, 1978). The fault truncates granites

of Unit 2. The transition from mylonites derived mainly from Units 1 and 2 to sheared and protomylonitic rocks clearly derived from Unit 6 granite is relatively sharp. This contact is rectilinear, particularly north of Ocean Pond. Two minor dextral faults within Unit 1 are possible splays of the Dover Fault.

Within the mylonite zone, two related foliations are present. The dominant foliation is pervasive and spaced one millimetre apart. Locally, a second, more widely spaced foliation is present, and the two foliations together represent *S* and *C* planes, respectively (Ramsay, 1980; Andrews, 1985). The sense of asymmetry on these is dextral, which agrees with the sense of displacement reported by Caron (1986) for the Dover Fault in the north. The dominant mylonitic foliation is locally asymmetrically folded about steep axes, but these do not give a consistent sense of movement.

Blackwood (1978) reported that the mylonitic foliation is gradational with the main regional foliation of the adjacent Love Cove Group and the foliation that overprints migmatitic gneiss and granites of the Gander Zone. In the map area, the age relationship between deformation of the Love Cove Group and the Dover Fault is difficult to determine. It is uncertain whether or not the two cross faults that clearly truncate folds and the related schistosity in the Love Cove Group are contemporaneous with the Dover Fault, although they terminate against it. Also, it is uncertain whether the mylonite foliation along the Dover Fault and the regional axial planar schistosity in the Love Cove Group are gradational, or whether the fault truncates folds in the Love Cove Group. Nevertheless, the fault is notably rectilinear in the map area compared to the quite variable orientation of beds in the Love Cove Group.

The adjacent Dover Fault granite, part of the Gander Zone, is also strongly sheared and protomylonitic. It contains distinctive K-feldspar megacrysts up to several centimetres across, which are sheared into lenses. The shear fabric is defined by chlorite. This retrograde metamorphism took place when the Gander Zone was uplifted along the Dover Fault and juxtaposed with the lower grade Avalon Zone.

Discussion

The geological evolution of the map area began with eruptions of ash-flow tuff and contemporaneous, comagmatic granite intrusion within a caldera environment. Subsequently, fluvial, shoreline and shallow-marine sediments were deposited in latest Precambrian through Cambrian time during a period of gradual regional subsidence.

Metamorphism and telescoping of the westerly volcanic–granite terrane over redbeds to the east preceded, but was probably linked to, large-scale dextral(?) movement along the Dover Fault in Siluro-Devonian time. This was followed by the intrusion of the posttectonic Ackley Granite in Devonian time.

ECONOMIC GEOLOGY

The Love Cove Group is thought, in general terms, to be a good target for precious metals by comparison with similar volcanic rocks elsewhere that host significant epithermal gold and/or silver deposits (Buchanan, 1981). The probable comagmatic relationship between Units 1 and 2 supports a caldera environment, in which the necessary ingredients for a gold deposit, i.e., tensional fractures and a heat source to drive fluids, are present. To a lesser extent, the Dover Fault, one of the most profound structural breaks in Newfoundland, is also considered to have potential as a precious-metal target.

Several hydrothermal alteration zones were identified (Figure 1; Table 1). Their extent is poorly known due to the limited outcrop and the scope of this investigation. They

Table 1. Alteration occurrences and gold analyses

Map Location	Sample Number	Au (ppb)	Description
A*	3001	4	Narrow, quartz–pink feldspar–chlorite vein, trace malachite
	3002	21	Pyritic, sericitic rhyolite schist (50 m wide)
B	3031	1	Felsic tuff, moderately pyritic and sericitic; several hundred metres long
C	3004	1	Pyritic zone in weakly pyritic and sericitic quartz-crystal tuff; several hundred metres long
	3005	2	Moderately pyritic, weakly silicic, gray intermediate tuff
D	3034		Pyritic, sericitic, weakly hematitic quartz-rich sandstone
E	NS		White bull-quartz veins within and along granite margin
F	3035		White bull(?)-quartz vein forms exposure 5 m by 20 m in bog
G	3038	1	Weakly altered pyritic, sericitic felsic tuff, minor pink feldspar alteration, trace of unidentified metallic mineral (specularite?, arsenopyrite?)

Table 1. *(Concluded)*

Map Location	Sample Number	Au (ppb)	Description
H	3009	2	Weakly pyritic, gray felsic tuff
I	3011	21	Light-gray, massive, featureless silica
J	3007	1	Red, hematitic, fine grained granite; quartz veins
K	3036		Light gray quartz vein containing trace limonite is 15 m by 1000 m
L	3012	3	Altered felsic tuff containing minor pyrite, sericite and narrow quartz veins
M	3014	4	Narrow zone of altered felsic tuff, quartz veins, disseminated coarse grained pyrite, hematite
N	3013	16	10-cm-thick bed of gray siltstone containing disseminated pyrite
O	3032 3033		Spotted hornfels-altered, thinly bedded, tuffaceous siltstone containing finely disseminated pyrrhotite

Note: Samples are representative grabs or composites.

* Location A is outside the map area on the headland immediately east of Love Cove in Clode Sound.

include zones that contain pyrite, anomalous amounts of sericite or chlorite, rare hematite and pink feldspar, and variable amounts of quartz veins. Extensive silicification was not found, although one small, isolated outcrop near the Dover Fault (Occurrence 9) is composed of light gray, massive silica. Large quartz veins occur in several places; they are mainly white bull quartz, however Occurrence 11, a 1-km-long vein (examined at only one place), includes some sparsely limonitic gray quartz.

A limited amount of sampling did not yield any highly anomalous gold values. Any serious evaluation of the map area for precious metals will require extensive geochemical sampling, particularly of stream and till material, since bedrock is so poorly exposed.

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