NEW FOSSIL LOCALITIES IN THE MIDDLE ORDOVICIAN
TABLE POINT FORMATION, BONNE BAY LITTLE POND AREA, WESTERN NEWFOUNDLAND

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ABSTRACT

The trilobites Pseudomera barrandei (Billings, 1865) and Nileus scrutator Billings, 1865 are newly recorded from loose blocks and outcrop of rubbly, massive and platy, lime mudstone and wackestone of the Middle Ordovician (Whiterockian) Table Point Formation; they were found along an access road to the Aliant tower, Bonne Bay Little Pond area. Associated fossils include articulate brachiopods, gastropods and ostracodes. The faunas correlate with those of the Pseudomera barrandei and Cybelurus mirus trilobite zones of the Table Point and Table Cove formations at Table Point, and indicate a southward-younging direction for the formation, along the road, at the localities studied.

INTRODUCTION

Incomplete, 1:50 000-scale geological mapping is ongoing in the vicinity of Bonne Bay Little Pond, Lomond (NTS 12H/5) map area. A number of new fossil localities were discovered in rocks of the Middle Ordovician, Table Point Formation, Table Head Group along an access road to the Aliant tower, just west of Lomond River (Figure 1).

The Table Point Formation (Figure 2) is a thick sequence (100 m +) of minor peritidal to dominantly subtidal carbonates, of Middle Ordovician (Whiterockian) age, that is widely exposed in western Newfoundland. The type section is exposed just north of Bellburns, at Table Point, within the Table Point Ecological Reserve (Figure 1). The formation has attracted a lot of scientific attention as a result of the pioneering work of Billings (1865), and because of the richness of the contained faunas. Most recently, numerous species of gastropods were described by Rohr and Measures (2001) and Rohr et al. (2004) from the Table Point Ecological Reserve as well as the mollusc Archinacella instabilis (Billings, 1865) (Rohr et al., 2008).

Richardson (in Logan et al., 1863, pages 287-292 and 865-871) provided the first stratigraphic division of the succession at Pointe Riche and Table Point, based on his 1861 and 1862 reconnaissance mapping of western Newfoundland. Divisions K to N (Richardson, in Logan et al., 1863, page 865) were first referred to as the Table Head Series by Schuchert and Dunbar (1934, pages 16 and 38), who divided it into three parts. Subsequently, the Table Head Series was renamed the Table Head Formation by Whittington and Kindle (1963), who identified Schuchert and Dunbar's three parts as the lower, middle and upper Table Head Formation. These later became the Table Point, Table Cove and Black Cove formations, respectively, when Klappa et al. (1980) elevated the Table Head Formation to group status. Ross and James (1987) established the Spring Inlet Member for the lower 10 to 40 m of the Table Point Formation. Finally, Stenzel et al. (1990) removed the Black Cove Formation from the Table Head Group and assigned it to the overlying Goose Tickle Group.

The Table Point Formation consists of thick to massive, fine-grained to bioclastic limestone, algal sponge wackestone to packstone, and algal oncolitic wackestone and is succeeded by shaly nodular to ribbon limestone and shale of the Table Cove Formation (Stenzel et al., 1990). The upward-deepening environments of deposition include tidal flat, lagoon, shoal, open range shelf and sponge bioherms (Klappa et al., 1980). Ross and James (1987) correlated the brachiopod fauna with that of the Anomalolithis zone of the Great Basin.

PREVIOUS WORK

Boyce (1981) conducted reconnaissance hydrocarbon exploration in the Bonne Bay Little Pond area. This resulted in the discovery there of fossils in the Table Point Formation. Boyce (1980) identified the trilobite Illaenus fraternus Billings, 1865, from an exposure along the power line, west of the Aliant tower road, which then served as the southern boundary of Gros Morne National Park.
Figure 1. Geology of Bonne Bay Little Pond area, showing the locations of the fossil sites along the Aliant tower access road.
PRESENT STUDY

During the 2008 geological mapping survey, a number of new fossil-bearing limestone localities were discovered along an access road to the Aliant tower, southwest of Bonne Bay Little Pond; these new fossil-bearing limestone beds are the basis of this paleontological report.

Fossils correlative with the *Pseudomera barrandei* Trilobite Zone were identified from the more northerly localities 2008F021 to 2008F023 (Figure 1; Plates 1 to 3). The following taxa were recorded:

**Arthropoda–Trilobita**

*?Nileus* sp.undet. – cranidium, thorax

*Pseudomera barrandei* (Billings, 1865)

**Brachiopoda–Articulata**

*Gen. et sp. undet.*

**Mollusca–Gastropoda**

*Maclurites? acuminatus* (Billings, 1865)

The more southerly locality 2008F020A and 2008F020B (Figure 1) yielded fossils indicative of the younger *Cybelurus mirus* Trilobite Zone, including:

**Arthropoda–Ostracoda**

*Bivia bivia* (White, 1877)?

**Arthropoda–Trilobita**

*Nileus scrutator* Billings, 1865

*?Illaenus* sp. undet.

**Brachiopoda–Articulata**

*Gen. et sp. undet.*

**Mollusca–Gastropoda**

*Maclurites? acuminatus* (Billings, 1865)
The above faunal distribution demonstrates a southward-younging direction for the Table Point Formation along the access road to the Aliant tower in the area of the outcrops.

CONCLUSIONS

Fossils collected from the Table Point Formation along the access road to the Aliant tower indicate the presence of the *Pseudomera barrandei* and *Cybelurus mirus* zones. These faunas indicate that the Table Point Formation youngs southward along the road in the area of the outcrops.

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Plate 3. **Trilobite** Pseudomera barrandeii (Billings, 1865) from 2008F023. Dorsal and close-up view of pygidium (NFM F-763). A photographic illusion makes it appear as a cast instead of a mold. One-cent coin (18 mm in diameter) for scale. **Table Point Formation, Aliant tower access road, Bonne Bay Little Pond area, western Newfoundland.**

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APPENDIX

Fossil localities in the Table Point Formation (Table Head Group), along the Aliant tower access road, Bonne Bay Little Pond area, NTS 12H/05 (Lomond), UTM Zone 21

The datum for the fossil sites is NAD27. "2008F" = W.D. Boyce's samples; "K-2008-" = I. Knight's samples. The UTM coordinates and the altitude are shown in metres as indicated by GPS. + = case - = mold

2008F015 = GAST01
Loose blocks of massive lime mudstone/wackestone. 448011E, 5468862N, 302 m.

Brachiopoda–Articulata
   Gen. et sp. undet.
Mollusca–Gastropoda
   Maclurites emmonsi (Billings, 1865) – see Plate 1

2008F020A = SHELL01
Loose blocks of massive lime mudstone/wackestone and thinner, more planar-bedded lime mudstone. 448069E, 5468904N, 295 m. Cybelurus mirus Zone.

Arthropoda–Ostracoda
   Bivia bivia (White, 1877)?
Arthropoda–Trilobita
   Nileus scrutator Billings, 1865 – cephalon (+) – see Plate 2B – 2D
   ?Illeaenus sp. undet. – pygidium (+)
Brachiopoda–Articulata
   Gen. et sp. undet. see Plate 2E

2008F020B
Loose blocks of massive lime mudstone/wackestone. 448082E, 5468914N, 302 m.

Mollusca–Gastropoda
   Maclurites? acuminatus (Billings, 1865) – see Plate 2F, 2G

2008F021
Loose block of massive lime mudstone/wackestone. 447295E, 5470396N, 191 m. Pseudomera barrandei Zone.

Arthropoda–Trilobita
   Pseudomera barrandei (Billings, 1865)

2008F022

Arthropoda–Trilobita
   ?Nileus sp.undet. - cranidium, thorax
Brachiopoda–Articulata
   Gen. et sp. undet.

2008F023
Float and outcrop of rubbly weathering lime mudstone/wackestone. 447281E, 5470542N, 184 m. Pseudomera barrandei Zone.

Arthropoda–Trilobita
   Pseudomera barrandei (Billings, 1865) – 2 pygidia (-) – see Plate 3
Brachiopoda–Articulata
   Gen. et sp. undet. (+) – from loose material