RE-EXAMINATION OF THE UPPER ST. GEORGE GROUP, WEST ISTHMUS BAY SECTION, PORT AU PORT PENINSULA, WESTERN NEWFOUNDLAND

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The St. George Group on the Port au Port Peninsula (Figure 1) is something of a macrofaunal enigma. Compared to their development elsewhere in western Newfoundland, both the Boat Harbour and Catoche formations are atypically, sparsely fossiliferous. In type and reference sections at Boat Harbour, Port au Choix and Eddies Cove West, many trilobite zones are recognized (Figure 2). In the West Isthmus Bay Section, however, trilobites are rare, even in the relatively fossiliferous Barbace Cove Member at the top of the Boat Harbour Formation. In the overlying Catoche Formation, a small number of taxa were previously known. Gastropods (Photo 1) are the most common fossils, followed by brachiopods and cephalopods (Photo 2), and correlations with the trilobite zones are therefore challenging. Biostratigraphic problems also exist within the section because of previously undocumented covered intervals and the dolomitization of the middle boundstone interval of the Catoche Formation. Despite this, many trilobites were found here for the first time.

The Boat Harbour Formation (Barbace Cove Member) contains *Bathyurellus abruptus* Billings, 1865**,** *Bolbocephalus convexus* (Billings, 1865), *Isoteloides peri* Fortey, 1979, *Jeffersonia angustimarginata* Boyce,1989, *Peltabellia crassimarginata* (Cullison, 1944) and *Petigurus nero* (Billings, 1865), collectively indicative of a Late Canadian (latest Jeffersonian) *Strigigenalis brevicaudata* Trilobite Zone age. Except for *Peltabellia crassimarginata* (Cullison, 1944; Photo 3) these species range into the overlying Catoche Formation.

Within the Catoche Formation, a new species of *Punka (* Photo 4) accompanied by *Ischyrotoma* sp., *Isoteloides peri* Fortey, 1979 and *Petigurus nero* (Billings, 1865) was found 4.84 to 5.17 m above its base. The bases of the late Canadian (Cassinian) *Strigigenalis caudata* and *Benthamaspis gibberula* trilobite zones are documented for the first time in the section.

The base of the *Strigigenalis caudata* Trilobite Zone occurs 1.12 m above the base of the formation. Higher, *Bathyurellus abruptus* Billings, 1865, *Benthamaspis conica* Fortey, 1979, *Bolbocephalus convexus* (Billings, 1865), *Catochia ornata* Fortey, 1979, *Ischyrotoma anataphra* Fortey, 1979, *Isoteloides peri* Fortey, 1979, *Jeffersonia angustimarginata* Boyce, 1989, *Petigurus nero* (Billings, 1865), *Punka flabelliformis* Fortey, 1979, *Strigigenalis caudata* (Billings, 1865; Photo 5), *Uromystrum affine* (Poulsen, 1937) and *Uromystrum marginiatus* (Billings, 1865) occur in a variety of associations.

The base of the *Benthamaspis gibberula* Trilobite Zone was found 2 to 3 m below the top of conodont locality Z2-100 in extensively bioturbated lime mudstone-wackestone; *Benthamaspis gibberula* (Billings, 1865) and *Ischyrotoma anataphra* Fortey, 1979 occur together (Photo 6). No trilobites were found above conodont locality Z2-101 in beds of the middle boundstone dolostone – an interval also essentially devoid of conodonts.

When split, the rocks of some fossil horizons in the section exuded a bitumenous odor.

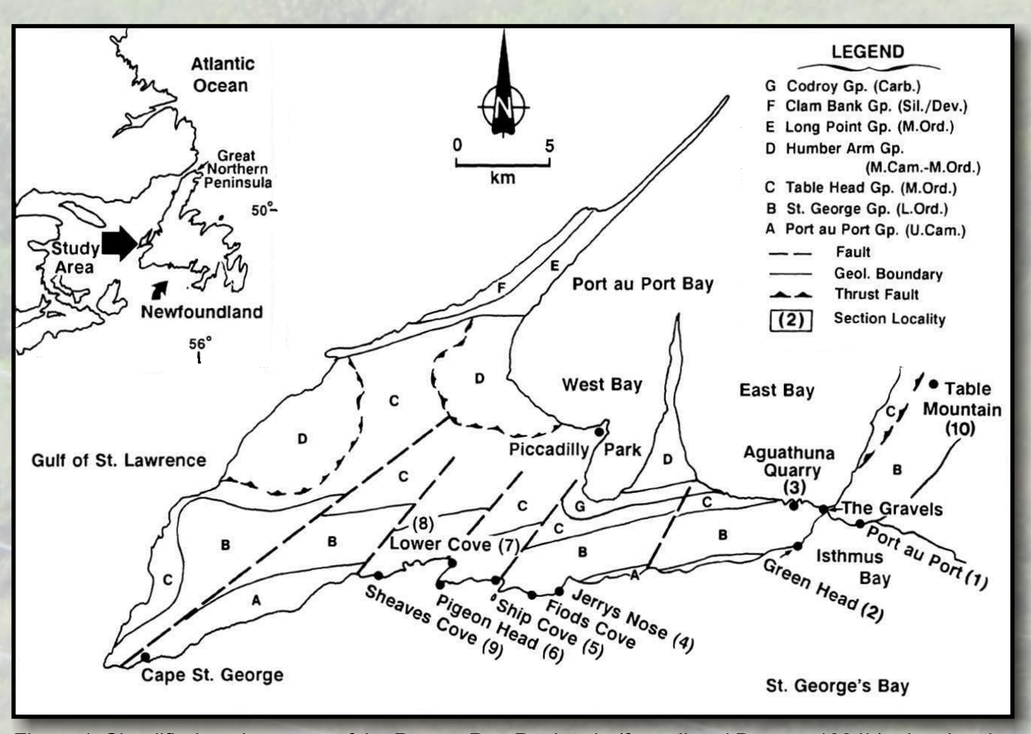

Figure 1. Simplified geology map of the Port au Port Peninsula (from Ji and Barnes, 1994b), showing the location of the West Isthmus Bay Section, (2).

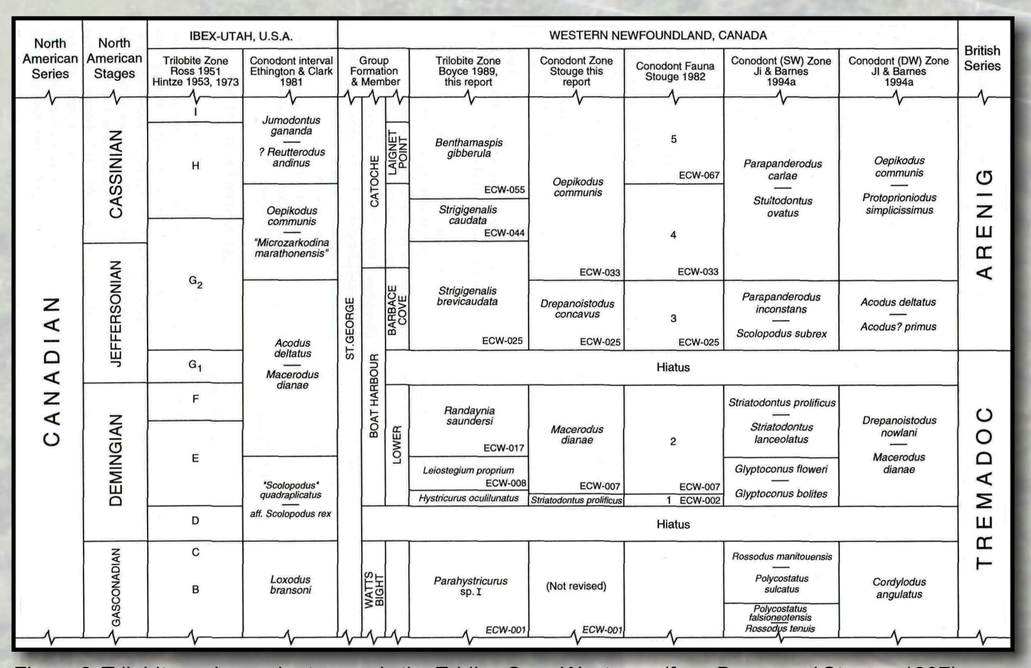

Figure 2. Trilobite and conodont zones in the Eddies Cove West area (from Boyce and Stouge, 1997).

Aguathuna Formation, Isthmus Bay, Port au Port Peninsula

Partly covered Lower Catoche Formation, Port au Port Peninsula

Photo 1. Gastropod, *Lytospira* — penny for scale — upper Boat Harbour Formation (Barbace Cove Member).

Photo 2. Coiled cephalopod, *Pycnoceras apertum* Hyatt, 1894 — penny for scale — upper Boat Harbour Formation (Barbace Cove Member).

Photo 3. Pygidium of *Peltabellia crassimarginata* (Cullison, 1944) — penny for scale — *Strigigenalis brevicaudata* Trilobite Zone, uppermost Boat Harbour Formation (Barbace Cove Member). This species also occurs in North-East Greenland, Missouri—Arkansas and Oklahoma.

Photo 4. Pygidium of new, undescribed species of *Punka* — penny for scale — *Strigigenalis brevicaudata* Trilobite Zone, basal Catoche Formation.

Photo 5. Broken pygidium (NFM F-771) and librigena (NFM F-772) of *Strigigenalis caudata* (Billings, 1865) from a 1.15-metre-thick interval of thin, irregular knobbly bedded lime mudstone-wackestone — penny for scale — basal *Strigigenalis caudata* Trilobite Zone, Catoche Formation. The base of the interval is 5.75 m above the base of the formation.

Photo 6. “Large” cranidium of *Benthamaspis gibberula* (Billings, 1865) and smaller cranidium of *Ischyrotoma anataphra* Fortey, 1979 — penny for scale — base of *Benthamaspis gibberula* Trilobite Zone, Catoche Formation.