

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 *Bathyporellus 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 *Benthama sp. 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, *Bathyporellus abruptus* Billings, 1865, *Benthama sp. 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 marginatus* (Billings, 1865) occur in a variety of associations.

The base of the *Benthama sp. gibberula* Trilobite Zone was found 2 to 3 m below the top of conodont locality Z2-100 in extensively bioturbated lime mudstone-wackestone; *Benthama sp. 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 bituminous odor.

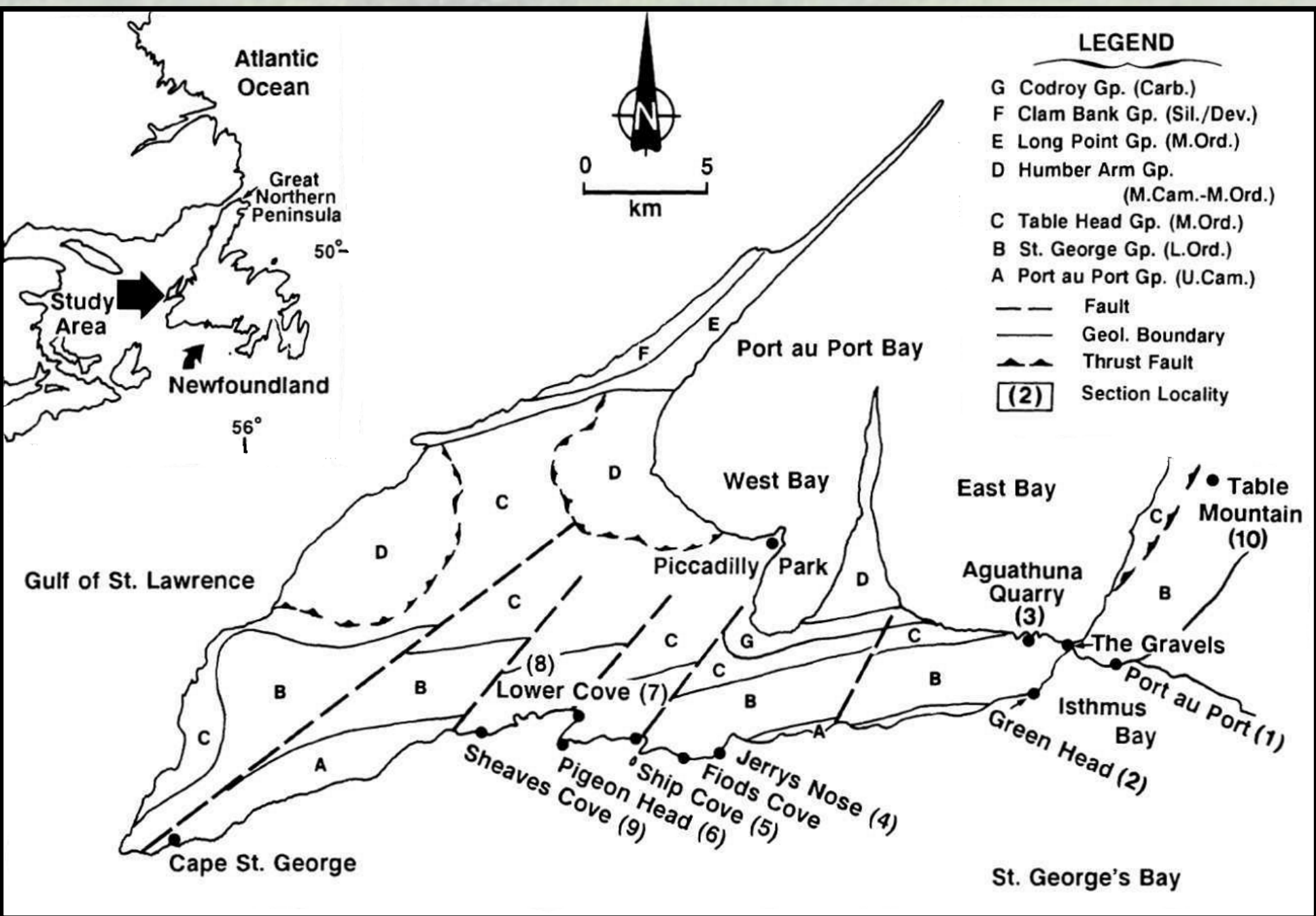


Figure 1. Simplified geology map of the Port au Port Peninsula (from Ji and Barnes, 1994b), showing the location of the West Isthmus Bay Section, (2).

North American Series	North American Stages	IBEX-UTAH, U.S.A.		Group Formation & Member	WESTERN NEWFOUNDLAND, CANADA						British Series	
		Trilobite Zone Ross 1961 Hintze 1963, 1973	Conodont interval Ethington & Clark 1981		Trilobite Zone Boyce 1989, this report	Conodont Zone Stouge this report	Conodont Fauna Stouge 1982	Conodont (SW) Zone Ji & Barnes 1994a	Conodont (DW) Zone Ji & Barnes 1994a			
CANADIAN	CASSINIAN	H	Jumodontus girardii — ? Reutterodus andrusi	CATOCHE LAURENCE POINT	Benthama sp. gibberula		5					
			ECW-055		Oepikodus communis	ECW-067						
		JEFFERSONIAN	G ₂		Oepikodus communis — "Microzarkodina marathonsensis"	ST. GEORGE BARBACE COVE	Strigigenalis caudata	ECW-044	4		Parapanderodus cariae Stultodotus ovalis	Oepikodus communis — Protoproteronotus simplicissimus
	Strigigenalis brevicaudata			ECW-025	ECW-033		ECW-033					
	G ₁		Acodus deltatus Macerodus dianae	ECW-025	Drepanostodotus concavus		ECW-025	3	ECW-025	Parapanderodus inconstans Scolopodus subreus	Acodus deltatus — Acodus? primus	
	DEMINGIAN	F	Acodus deltatus Macerodus dianae	BOAT HARBOUR LOWER	Hiatus							
		E			Randynia saundersi	Macerodus dianae	2	Striatodotus prolifus Striatodotus lanceolatus	Drepanostodotus rowlandi Macerodus dianae			
					"Scolopodus" quadrastodotus aff. Scolopodus rex	ECW-017 ECW-008 ECW-006	ECW-007	ECW-007 1 ECW-002	Glyptocoelus floweri Glyptocoelus bolles			
	GASCONDIAN	C	Loxodus bransoni	WATTS BRIGIT	Parahystericurus sp. I	(Not revised)	Hiatus				Rosodius manitouensis Polycostatus sulcatus Polycostatus laevispinosus Rosodius tenuis	Cordylodus angulatus
		B										

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



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 knobby 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 *Benthama sp. gibberula* (Billings, 1865) and smaller cranidium of *Ischyrotoma anataphra* Fortey, 1979 — penny for scale — base of *Benthama sp. gibberula* Trilobite Zone, Catoche Formation.