THE CAECIDAE (GASTROPODA: RISSOACEA) OF WATER ISLAND, U. S. VIRGIN ISLANDS, WITH A NEW SPECIES.

Hugh J. Mitchell-Tapping[1]
Department of Geology
The Florida State University
Tallahassee, Florida 32306

ABSTRACT

Eleven shallow-water species of Caecum, *from the marine sediment around Water Island, are described according to their microsculpture as observed under the scanning electron microscope. One new species,* Caecum donmoorei, *which was found in Sprat Bay, Water Island, is also described.*

In 1973, a study was made of the shallow marine carbonate sediment around Water Island, the fourth largest island in the U. S. Virgin Islands group. A total of 56 samples of approximately 100 grams each was collected around the island at sites which were exposed to differing amounts of wave-energy. A total of 618 *Caecidae* was picked from the samples and their distribution around the island was plotted according to the number of specimens found (Fig. 1).

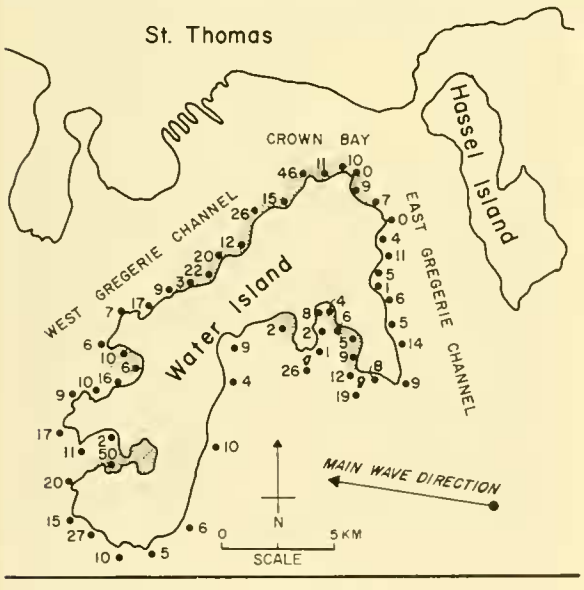
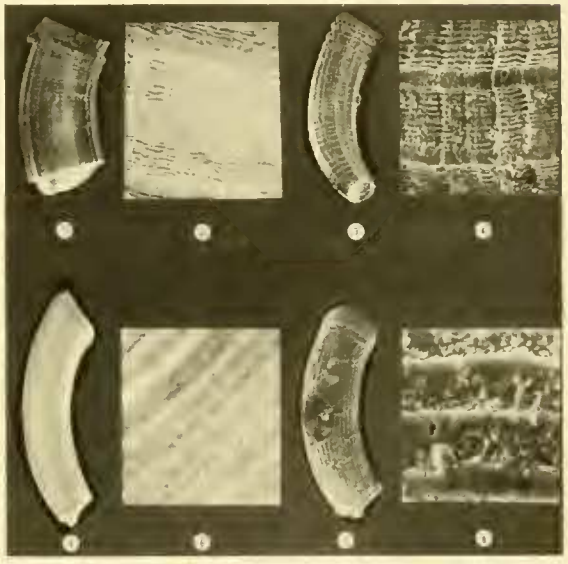


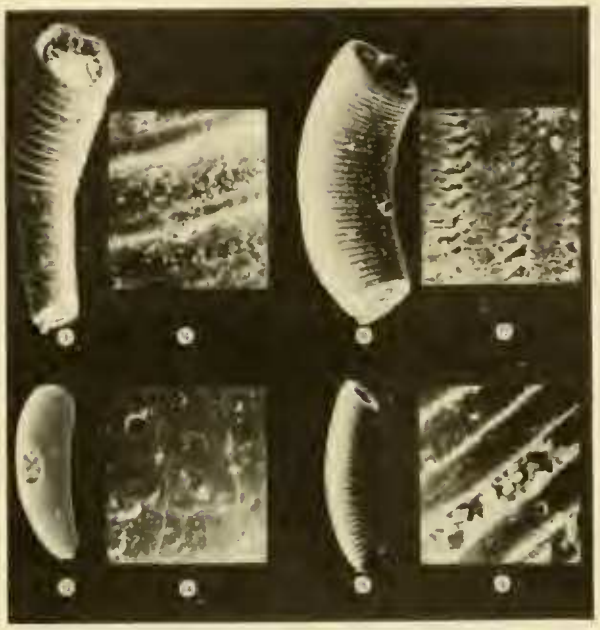
FIG. 1a, *Distribution of the number of specimens collected around Water Island, U. S. Virgin Islands. Stippled areas are grassbed, low wave-energy areas.*

[1]Present address: 6101 Warwick Court, New Orleans, La 70114.



FIGS. 1-8. 1, C. breve *Folin* ×15; 2, C. breve *Folin* ×120; 3, C. imbricatum *Carpenter* ×15; 4, C. imbricatum *Carpenter* ×120; 5, C. tenuicostatum *Folin* ×30; 6, C. tenuicostatum *Folin* ×215; 7, C. tenuicostatum *Folin* ×15; 8, C. tenuicostatum *Folin* ×240.

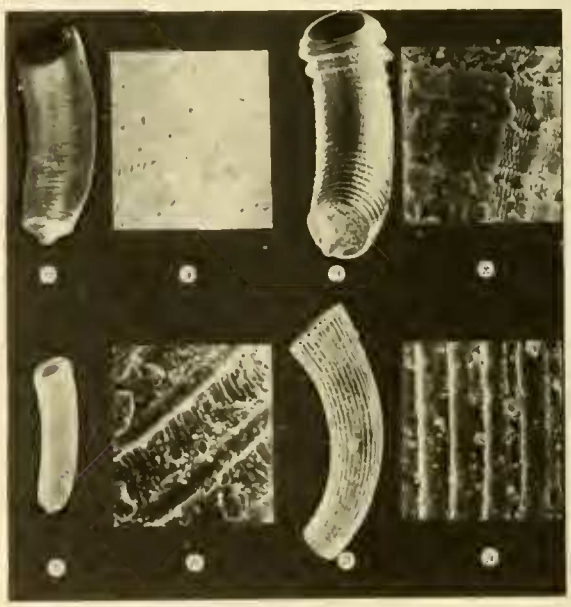
Compared with samples from Bahia Honda in the Florida Keys, where up to 212 specimens per sample occur, there are few specimens in this area. This may be due to the geographical location of the Virgin Islands and the prevailing east-west current. This current results in the specimens being representative of the local standing crop only. It is interesting to note that not a single specimen of *Caecum insularum* Moore, originally found on the sister island of St. John (Moore, 1970), was present in Water Island samples.



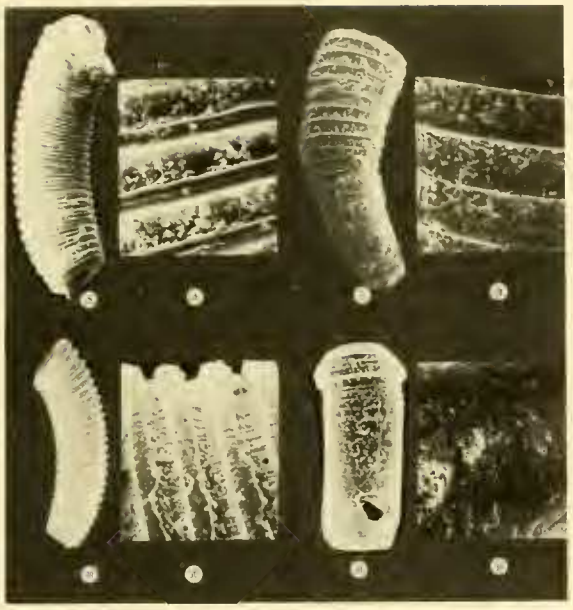
FIGS. 9-16. **9,** C. regulare *Carpenter* ×*25;* **10,** C. regulare *Carpenter* ×*175;* **11,** C. textile *Folin* ×*35;* **12,** C. textile *Folin* ×*340;* **13,** C. cornucopiae *Carpenter* ×*15;* **14,** C. cornucopiae *Carpenter* ×*240;* **15,** C. gurgulio *Carpenter* ×*20;* **16,** C. gurgulio *Carpenter* ×*160.*

The distribution of the 618 specimens (Fig. 1) shows no discriminate pattern, other than the low count for the eastern side of the island. This small number of specimens might be attributed to the local water current through Gregerie Channel, which would move the specimens to a lower energy area. The dominant species in the grass-beds, low-energy areas, were *Caecum cornucopiae* Carpenter (Figs. 13 and 14) and *C. nitidum* Stimpson. Distinguishing between these two species is rather difficult, but *C. nitidum* tends to be larger with a more oblique aperture in the adult stage. The row of dark spots sometimes seen on *C. cornucopiae* by Moore (1972) was not apparent in the specimens from the grassbeds and only seen on two specimens from a reef area in a southside bay. In the reef, or medium wave-energy areas, the most abundant species was *C. regulare* Carpenter (Figs. 25, 26, 27 and 28). *C. breve* Folin (Figs. 1 and 2), *C. lineicinctum* Folin (Figs. 31 and 32), and *C. floridanum* Stimpson (Figs. 19 and 20) were also found in these areas. The dominant species in the rocky, high wave-energy areas on the southern side of the island was *C. imbricatum* Carpenter (Figs. 3 and 4). A rare species, *C. tenuicostatum* Folin (Figs. 5, 6, 7, 8, 23 and 24) was also found in these areas. Some of the specimens of *C. tenuicostatum* appear under the SEM to have longitudinal ribs which are smoother and less raised on one side, giving an appearance of wavelike ribs moving clockwise looking down from the aperture.

One species common to all areas is *C. textile* Folin (Figs. 11 and 12). Some specimens of *C. textile* (Figs. 17 and 18) appear under the light microscope as having a raised interspace between the annular ridges, giving an almost smooth appearance, while the SEM reveals that the longitudinal striae on the ridges are continued through the interspace and are joined to those on the adjacent ridges (Fig. 18). Another species, also common to all wave-energy environments, is *C. regulare* Carpenter and its close relative, *C. gurgulio* Carpenter (Figs. 15 and 16). The sculpture of *C. regulare*, as revealed by the SEM, shows an absence of striae between the well-raised, flat-topped annular ridges (Fig. 26). This can also be seen in the specimen described by



FIGS. 17-24. **17,** C. textile *Folin* ×*30;* **18,** C. textile *Folin* ×*210;* **19,** C. floridanum *Stimpson* ×*20;* **20,** C. floridanum *Stimpson* ×*145;* **21,** C. donmooreі *n.s. paratype* ×*10;* **22,** C. donmooreі *n.s. paratype* ×*140;* **23,** C. tenuicostatum *Folin Second stage* ×*20;* **24,** C. tenuicostatum *Folin* ×*140.*



FIGS. 25-32. **25,** C. regulare *Carpenter* ×*10;* **26,** C. regulare *Carpenter* ×*210;* **27,** C. regulare *Carpenter Second stage plus part of third stage* ×*25;* **28,** C. regulare *Carpenter* ×*175;* **29,** C. donmoorei *n.s. holotype* ×*20;* **30,** C. donmoorei *n.s. holotype* ×*120;* **31,** C. lineicinctum *Folin* ×*20;* **32,** C. lineicinctum *Folin* ×*80.*

Moore (1972). *C. gurgulio* is very similar in appearance, but is smaller, has less curvature, and low, flat-topped, closely set ribbing with striae present only between the ribs (Fig. 16).

Caecum donmoorei, n. sp.

Description: Shell tapered with slight curvature; 27 annular ribs well-spaced, raised, rounded-topped (Fig. 31); primary striae in interspace thick; secondary striae thin; all striae continue over surface of ribs (Fig. 32); Septum slightly convex, bearing broad, weak mucro angled to right; two small circular ribs around circular aperture; no varix; color white in holotype, some specimens tinged brown near aperture; length 1.4 mm.

Remarks: This species has round-topped and striated ribs as opposed to the smooth, flat-topped ribs of *C. regulare.* It differs from *C. gurgulio* which has rounded, robust, but not so raised, ribs which are small, smooth, and bear no striae. There is also no similarity to *C. tornatum* Verrill and Bush which has strong ribs and a very strong mucro and appears to be confined to Bermuda. The most distinguishing feature of *C. donmoorei,* which appears to justify the naming of a new species, is the round-topped striae-covered ribs. This species is named after Dr. D. R. Moore, a leader in the field of the study of the *Caecidae.*

Type-locality: Holotype: In 5 m of water in Sprat Bay, Water Island, USVI. Four paratypes were found in Ruyter Bay and Elephant Bay at similar water depths and of low wave-energy.

Types: Holotype deposited in 1977 in the Delaware Museum of Natural History #119521. Paratypes were placed in the collection at the Florida Bureau of Geology, Tallahassee, #12909.

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