

1848) in having a lighter-weight shell, lacking the strong shoulder nodules on the last two whorls, in having more numerous spiral threads, and in being a little more elongate in proportions. The variations in colors and patterns are very similar. It is possible that these colonies in the "Panhandle" region of Florida represent an ecological, rather than a genetic, form.

Mr. Granda obtained two "clutches" of small, horny egg-capsules which he found on pieces of carapace from the horseshoe crab, *Limulus*. The urn-shaped capsules, about 5 × 8 mm, closely resembled those so well illustrated by D'Asaro in his account of the capsules of *Cantharus multangulus* from the same region (1986, p. 86, figs. A-D). Very similar capsules of the nominate species from Sanibel Island were illustrated by Perry and Schwengel, 1955, pl. 50, fig. 340.

Cantharus cancellarius (Conrad, 1846) from the same region differs in being more ovoid, having a shorter spire and in having much

stronger and fewer spiral threads. The similar muricid, *Calotrophon ostrearum* (Conrad, 1846), has stronger shoulder nodes and a mauve to rosy-purple aperture. Fossil *C. multangulus* from the old St. Petersburg pits have fewer axial nodes per whorl. This group of species appears to be largely confined to southeast United States, the Bahamas, the north coast of Cuba and Yucatan, Mexico.

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ON THE TAXONOMICAL STATUS OF *TRITONIUM VIRIDULUM* FABRICIUS, 1780 (GASTROPODA: CANCELLARIIDAE)

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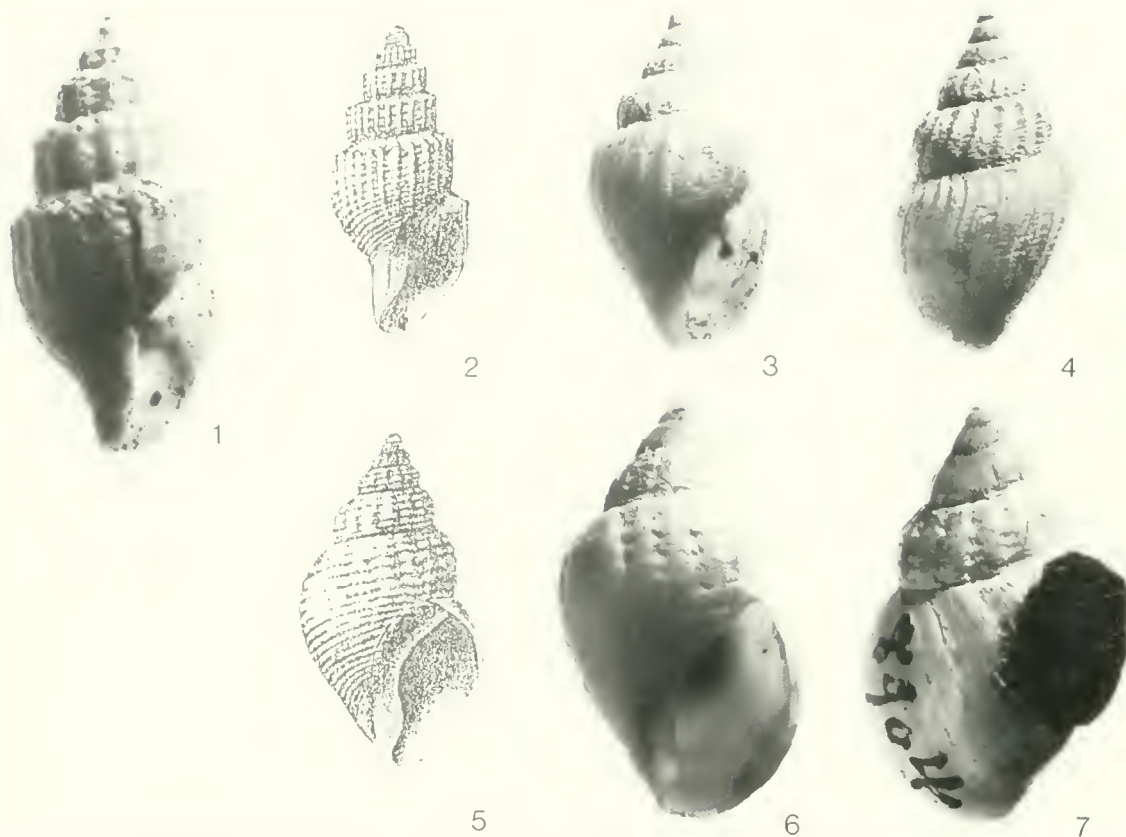
ABSTRACT

The taxonomic and nomenclatorial problems associated with the species Admete viridula (Fabricius, 1780) are discussed. The fact that the type specimens of both Admete viridula and A. crispa Möller, 1842 are missing from the Zoological Museum in Copenhagen complicates the situation considerably as three species are involved. Tritonium viridulum Fabricius, 1780, Defrancia viridula Möller, 1842, and D. exarata Möller, 1842. Fabricius's name is to be regarded as a nomen dubium and that Admete couthouyi (Jay, 1839) should be used as the correct name for that species. Möller's D. viridula and D. exarata are both good species; but D. viridula should probably be named Oenopota decussata (Couthouy, 1839) and D. exarata, Propebela exarata (Möller, 1842).

The original description of *Tritonium viridulum*, which was published by Fabricius in 1780 without an illustration, has commonly been regarded as the original description of *Admete viridula* auctt. The description fits the species fairly well, and the taxonomic situation would

appear quite simple.

However, Dall (1886: 298) after having examined the holotype in the Zoological Museum in Copenhagen, claimed that the species belonged to the group *Bela* auctt. He also found that *Defrancia viridula* Möller, 1842 (Fig. 1)



FIGS. 1-7. 1, *Propebela exarata* (Möller, 1842); one of the larger specimens from the syntype-collection of Möller (Zool. mus., Copenhagen). 2, *Propebela exarata* (Möller) as drawn by G. O. Sars, 1878. 3 and 4, A specimen of *Oenopota deccusata* (Couthouy, 1839) = *Bela viridula*, from the collection of Möller (Zool. mus., Copenhagen). On the label is also written: "*B. viridula* (et var. *inflata*) = *B. deccusata* Couthouy var. *ventricosa*". 5, *Admete viridula* uctt. as drawn by G. O. Sars, 1878. 6 and 7, Holotype of *Cancellaria buccinoides* Couthouy, 1838 (Reg. no. 279394 in Mus. Comp. Zool., Cambridge, Mass.). The species is *Admete couthouyi* Jay, 1839.

was founded on the same specimen, and concluded that it was identical with *Defrancia exarata* Möller, 1842 (Fig. 2). Dall writes that Mörch had discovered these facts before him and Posselt (1898: 168) confirms this by referring to a handwritten catalogue by Mörch. Concerning the nomenclatorial situation, Posselt claims that the correct name of *Admete viridula* auctt. (Fig. 3) should be *Admete couthouyi* Jay, 1839, because the older *Cancellaria buccinoides* (Fig. 4) of Couthouy, 1838 was described in another genus.

All three species involved in this problem show a great deal of variability, and Fabricius description fits both Möller's *Defrancia viridula* and *Admete viridula* auctt. as well. Concerning *Defrancia exarata*, Posselt (1898: 168) states that *Admete crispa* Möller 1842, which common-

ly is regarded as conspecific with *A. viridula* auctt., resembles *D. exarata* with respect to sculpture.

This situation could have easily been cleared up if the type specimens in question, which were all from Greenland, had been available, but unfortunately the type specimens of both *Tritonium viridulum* and *Admete erispa* appear to have disappeared early in this century (Jörgen Knudsen, pers. comm.). Only one sample in the collection of the Zoological Museum in Copenhagen could possibly be Fabricius type, but this sample contains three specimens whereas the original description states that Fabricius had only one specimen available. In the Zoological Museum in Copenhagen there are type lots of both Möllers species *Defrancia exarata* (Fig. 2) and *D. viridula* (Fig. 1). The type

lots of the last species contains seven syntypes and thereby shows that Möller did not base his description on Fabricius specimen.

None of Möller's type specimen fits very well with Fabricius description. However, Knipowitsch (1901) illustrates a specimen of *D. exarata* from Svalbard which rather closely resembles *Admete viridula auctt.* Considering this, and that the form called *Admete crispa* has a sculpture like that of *D. exarata*, we assume that some morphological overlap between the species is present. Although fitting the common forms of *Admete viridula auctt.* better than those of Möller's *Defrancia exarata*, Fabricius description covers the overlapping forms, with the exception that we never have observed *D. exarata* without prominent ribs on the last whorl as mentioned in the description. However, considering the large intraspecific variation within most species in this group it is no wonder that Dall (1886) reduced them to synonymy.

Möller's sample of *Defrancia viridula* fits Fabricius description fairly well except that the ribs, which are said to be straight ("costae longitudinales") in Fabricius description, are somewhat curved. As Möller's *Defrancia viridula*, which probably is conspecific with *Pleurotoma decussata* Couthouy, 1839, has a large intraspecific variation like all species in this group, Fabricius description fits both species fairly well, and one cannot apply it to one rather than the other.

Concerning Mörch's earlier opinions as first published by Dall (1886), there is a sample in the Zoological Museum, University of Bergen (no. 28208) which should be mentioned. This contains two dry specimens of Möller's *viridula* from Greenland which are identified to "*Bela viridula* M. Sars" by Mörch. Michael Sars never described any species with this name, but the sample could indicate that Mörch had Möller's species in mind when he claimed to have discovered that this and Fabricius species was founded on the same specimen. However, this is in contradiction to the presence of the seven syntypes of *Defrancia viridula* Möller in the Zoological Museum of Copenhagen.

Some additional information about the problems within the genus *Admete* may be found in Troschel's (1866-1893) work on gastropod

radulae. Troschel investigated preserved material of both *Defrancia viridula* and the genus *Admete* in the Zoological Museum in Copenhagen with respect to radular teeth. He found the radulae in *D. viridula* were like those of other species within *Bela auctt.*, while in *Admete* he found two kinds of teeth. He also found two shell forms which he called *Admete viridula* (Fabricius) and *A. crispa* Möller according to figures in Middendorff's (1849) work on Russian mollusks. The shell forms corresponded with the radular forms, which may indicate that Troschel was correct in dividing the traditional *Admete viridula* into two species.

The nomenclatorial consequences of these taxonomic circumstances may now be summarized. Möller's *Defrancia exarata* presents no problems, and in our opinion it is best placed within *Propebela* Iredale, 1918. Fabricius *Tritonium viridulum* seems difficult to identify with any species, and in our opinion it should, since the holotype is lost, be regarded as a *nomen dubium*. One could use the existence of the sample identified by Mörch to attach the name to Möller's *viridula*, having also the facts presented by Dall in mind. However, since both Mörch and Dall seems to have considered that Fabricius original specimen belonged to *Propebela exarata* (Möller, 1842), this argument seems somewhat dubious. The fact that Möller founded his *Defrancia viridula* on a sample of seven syntypes still present in the Zoological Museum in Copenhagen also contradicts the view of Mörch and Dall. In our opinion, Möller's *Defrancia viridula* is best placed in *Oenopota* Mörch, 1852, probably as a synonym of *Oenopota decussata* (Couthouy, 1839).

Concerning *Admete viridula auctt.*, the oldest name for this species is *Cancellaria buccinoides* Couthouy, 1838. This name is, however, a primary homonym of *Cancellaria buccinoides* W. Wood, 1828 and has to be rejected as there are no strong reasons why it should be referred to the International Commission on Zoological Nomenclature for eventual preservation. The next available name is *Admete couthouyi* Jay, 1839, which meets all demands as a correct name for the species. The type of this is also Couthouy's type of *buccinoides* since Jay's name was proposed as a *nomen novum*. An eventual separation of Möller's *Admete crispa* from *A.*

couthouyi as proposed by Troschel (1866–1893) will not be discussed in detail, but as the type specimen of *A. crispa* is lost either a neotype should be selected or a new name should be proposed and Möller's name, *A. crispa*, regarded as a *nomen dubium*. As Möller never described the radula of his species the second possibility is probably the best.

Mr. Georg Crawford kindly corrected our English text.

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PISIDIUM HENSLOWANUM (SHEPPARD) IN THE CONNECTICUT RIVER, MASSACHUSETTS (BIVALVIA: PISIDIIDAE)

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ABSTRACT

The pisidiid clam Pisidium henslowanum has been considered by several authors as an introduced species in North America despite its discovery in several parts of North America well away from industrial centers. The species has been recently found in the Connecticut River in Massachusetts which is the southeastern most record yet in North America. It is suggested that this species is native but locally distributed. The Connecticut River record seems also to represent the softest water in which the species has been reported in North America.

Since its first discovery in North America by Sterki (1899), the pisidiid clam, *Pisidium henslowanum* (Sheppard, 1825), was known on the continent from only a small number of sites mostly clustered in the Great Lakes and St. Lawrence River drainages (Heard, 1961, 1962; Herrington, 1962). The species is well known in the palearctic region (Woodward, 1913; Zhadin,

1957; Ellis, 1978). Herrington (1962, 1965) and Heard (1962) determined that *P. henslowanum* was introduced into North America. Subsequent to Herrington's (1962) and La Rocque's (1967) reviews of the North American distribution of *P. henslowanum*, the species was reported from a number of localities in central and western Canada by Harris (1973), who also documented