TWO ADDITIONS TO THE CENOZOIC MURICINAE (GASTROPODA:MURICIDAE) OF THE WESTERN ATLANTIC REGION

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It should be an axiom of systematic paleontology that there is never a *complete* catalogue of any group. This is certainly the case in the Cenozoic Muricinae, where only recently a updated study, with additions and corrections (Vokes, 1990, 1992) has been presented. No sooner were these revisions published than two additional, unusually spectacular species were discovered. As there are no plans for another revision in the foreseeable future, these two species are described.

Family MURICIDAE Rafinesque, 1815
Subfamily MURICINAE Rafinesque, 1815
Genus CHICOREUS Montfort, 1810

Chicoreus MONTFORT, 1810, Conchyl Syst., v. 2, p. 611.

Type species: *Murex ramosus* Linnaeus, 1758, by original designation.

Discussion: Houart (1992) has separated the genus *Chicoreus* into two subgenera: *Chicoreus* s.s., characterized by having a labral tooth, and *Triplex* Perry, 1810, lacking such a tooth. This division works well in the Indo-Pacific but it does not transfer to the western Atlantic. Those species that I assigned to the group of *C. brevifrons* in the aforementioned revision (Vokes, 1990, p. 33) have a much greater morphologic similarity to the strict subgenus than to the members of *Triplex*. The only thing they lack is the labral tooth. I find it difficult to place these American species in the subgenus *Triplex;* therefore, pending Mr. Houart's anticipated study of the Atlantic species of *Chicoreus* they simply will be assigned to the genus *Chicoreus* s.l.

In the stratigraphic record there are no species of true *Chicoreus* (as opposed to the subgenera *Phyllonotus* and *Siratus*) known before the Burdigalian, when there is a virtual explosion of species in both the Old World and the New. In the New World, species of *Chicoreus* are widespread, occurring in the Chipola Formation (Florida), the Baitoa Formation (Dominican Republic), the Pirabas Formation (Brazil), and the Cantaure Formation (Venezuela), all thought to be of the same Burdigalian age. By the Middle Miocene there are several beautiful species in southern Australia (Muddy Creek Marl – Balcombian), indicating that the genus was probably worldwide, although we do not have the fossils to document this.

When I originally described the Chipola species *Chicoreus elusivus* (Vokes, 1974, p. 82, pl. 1, figs. 1-4) I suggested that it was most closely related to the living *C. brevifrons* (Lamarck, 1822), which first occurs in the geologic record in the Middle Miocene of the Gulf of Mexico area (Florida and Mexico; Vokes, 1990, p. 35), although the species does not occur there today.

However, with the discovery of *C. winifredae*, n. sp., in the Cantaure Formation, Venezuela, we may have a better candidate for the true predecessor of *C. brevifrons*, which more than likely developed in the Caribbean and only made a brief incursion into the Gulf during the Middle Miocene, for there is no record of the species in any Gulf formations after that time.

CHICOREUS WINIFREDAE Vokes, n. sp.
Plate 1, figure 1

Description: Shell with six teleoconch whorls preserved in the unique holotype; early whorls missing (broken and plugged in life). Earliest remaining axial ornamentation of eight or nine equi-sized ridges, becoming three varices and three knob-like intervarical nodes by third teleoconch whorl. Varices consisting of elaborately ramose processes, one longer at shoulder and a second just posterior to suture on spire whorls. Spiral ornamentation initially of three stronger cords alternating with weaker ones; additional spiral threads intercalated until surface of adult shell entirely covered by myriad spiral elements, varying in strength as primary and secondary cords, and tertiary threads. Original strongest cords gradually developing into broad, low spiral ridges, giving rise at varices to ramose spines, with a small projection along edge of spine at each spiral thread. On body whorl one large spine at shoulder, with four smaller spines anterior to shoulder on body portion, and an additional two spines on siphonal canal. In addition to major spines, where secondary spiral cords cross varices, numerous shorter spinelets produced. Suture somewhat appressed. Aperture ovate, inner lip narrow, smooth, appressed at posterior end, free-standing at anterior end. At posteriormost portion a strong anal ridge

combining with edge of outer lip to form an anal notch. Inner side of outer lip with several paired lirations; outer margin crenulated in harmony with spiral ornamentation: cords producing grooves, areas between cords producing forward-directed points. Siphonal canal moderately long, broad, recurved at distal end. Previous terminations of canal forming a small fasciole.

Holotype: Naturhistorisches Museum Basel H-17655; height 70.0 mm, diameter 40.4 mm.

Type locality: NMB 17516, Cantaure Formation; series of arroyos about 500 meters south of "Casa Cantaure," which is 14 km (by road) west of Pueblo Nuevo, Paraguaná Peninsula, Venezuela.

Discussion: From 1972 to 1982, Mr. and Mrs. Jack Gibson Smith, then of Caracas, Venezuela, now of Surrey, England, collected the Cantaure fauna of the Paraguaná Peninsula, Venezuela. Upon their return to England, they donated their entire collection to the Naturhistorishes Museum, Basel, from where Peter Jung kindly forwarded to me the type specimen of this new species. It was collected by Mrs. Winifred Gibson Smith, December 23, 1977, and it gives me great pleasure to name this species in her honor.

The Gibson Smiths provisionally identified the specimen as "*Chicoreus* aff. *brevifrons*" and this is indeed the species to which it has the closest resemblance. Both *C. brevifrons* and *C. winifredae* differ from the superficially similar appearing contempory *C. elusivus* in that the latter has a total of six varical spines (one large and five small) on each body whorl varix. The other two have one large and four smaller spines, although in *C. brevifrons* the secondary spine adjacent to the shoulder spine often becomes almost as large as the shoulder spine, making this species immediately recognizable whenever seen (see pl. 1, fig. 2). It is this latter trait of *C. brevifrons* that is the principal character distinguishing *C. winifredae* from *C. brevifrons*. In *C. winifredae* the four anterior spines are all approximately the same size. Between the shoulder spine and the next spine anterior to it in *C. brevifrons* there is a relatively strong secondary spiral cord that gives rise to a smaller spinelet between these two larger spines. There is no such intercalary cord or spine in *C. winifredae*. Also, *C. brevifons* is a more triangular shell, much expanded at the shoulder. In contrast, *C. winifredae* has a more elongate outline.

Genus ASPELLA Mörch, 1877

Aspella MÖRCH, 1877, Malak. Blatter, v. 24, p. 24.

Type species: *Ranella anceps* Lamarck, 1822, by monotypy.

Discussion: The genus *Aspella* first occurs in the Oligocene of Dax, France, and does not appear in the New World before the Early Pliocene, with a Recent species, *A. castor* Radwin and D'Attilio, 1976, reported from the Gurabo Formation of the Dominican Republic (Vokes, 1989, p. 58, pl. 7, fig. 12).

In Florida, the Recent species *Aspella senex* (Dall, 1889) is rare in the Middle Pliocene Pinecrest beds (Vokes, 1975, p. 132) but becomes slightly more abundant in the younger Caloosahatchee and Bermont formations. This species is not ever widely collected, due to its small size (maximum height under 15 mm).

Petuch has figured two specimens identified as *A. castor* and *A. senex* (1994, pl. 43, figs. L and Q, respectively), the first said to be from "Unit 10" and the second from "Unit 7" at the APAC pit, Sarasota, Florida (= locality TU 1000). The specimen of "*A. castor*" is just a small example

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PLATE 1

1. *Chicoreus winifredae* Vokes, n. sp. (X 1 1/4)
   NMB H-17655 (holotype); height 70.0 mm, diameter 40.4 mm.
   Locality: NMB 17516, Paraguaná Peninsula, Venezuela; Cantaure Formation.
2. *Chicoreus brevifrons* (Lamarck, 1822) (X 1 1/4)
   Vokes Collection; height 70.0 mm, diameter 48.0 mm.
   Locality: Paraguaná Peninsula, Venezuela, under rocks at low tide; Recent.
3. *Aspella petuchi* Vokes, n. sp. (X 3)
   USNM 842064 (holotype); height 25.3 mm, diameter 10.7 mm.
   Locality: TU 1000, Sarasota, Florida; Pinecrest beds.

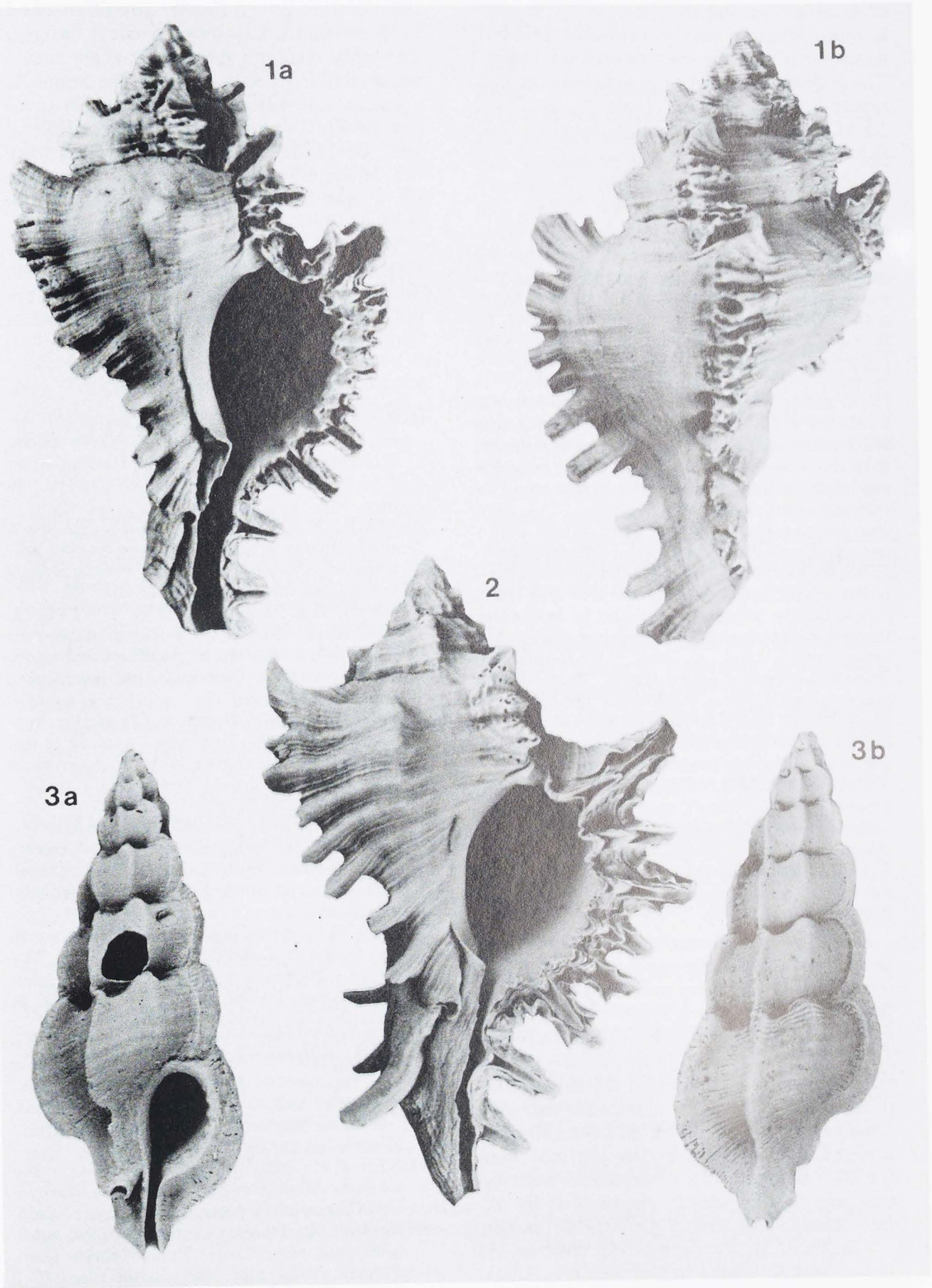

PLATE 1

of *A. senex* but the specimen of "*A. senex*" is more slender and is probably another example of the species described below. The holotype of this new species was collected by Dr. Petuch from "Unit 7" at APAC, and identified by him as "*A. senex*."

ASPELLA PETUCHI Vokes, n. sp.
Plate 1, figure 3

Description: Lanceolate shell, large for the genus; seven teleoconch whorls, protoconch missing. Axial ornamentation on first four teleoconch whorls of six equally rounded ridges; by fifth whorl two of these on opposite sides of shell becoming stronger, forming narrow strap-like varices, giving a dorso-ventral flattening to shell. Other ridges remaining as intervarical swellings, two between each pair of varices, that one located abaperturally to each varix stronger than the other. Varical margins gently rounded except at base of body whorl where a small incurving breaks simple curved line. Only faint spiral cords, about five on body whorl, otherwise shell smooth between axial ornamentation. In life shell covered by a thick chalky intritacalx, when worn displaying a network of fine spiral tubes. Suture impressed, crossed by buttresses formed at apical end of intervarical ridges. Aperture small, oval, no anal notch; inner lip smooth, appressed entire length. Inner side of outer lip with about eight small denticles. Siphonal canal short, broad, slightly recurved at distal end; termination of previous canal diverging as a spur beside present canal.

Holotype: USNM 842064; height 25.3 mm, diameter 10.7 mm.

Type locality: TU 1000, Pinecrest beds; APAC pits at east end of 17th St., about 8 miles east of U.S. Highway 301 [now northwest of Fruitville Rd. exit, I-75], at Sarasota (T36S, R19E), Sarasota Co., Florida.

Discussion: Although identified as *A. senex* by Petuch, this species differs in the more elongate outline and the larger size. In general outline it is more similar to the eastern Pacific *A. pyramidalis* (Broderip, 1833), which is also generally a smaller shell (although Radwin and D'Attilio, 1976, p. 23, give 21 mm as a maximum size and figure one shell [pl. 1, fig. 5] about 19 mm, under 15 mm seems to be the "normal" size for the species). The intervarical buttresses are much more appressed in *A. pyramidalis* (see Vokes, 1975, pl. 1, fig. 13).

The three similar appearing species, *A. senex* and *A. castor* in the western Atlantic, and *A. pollux* Radwin and D'Attilio, 1976, in the eastern Pacific, are all marked by much more expanded varical flanges. The only western Atlantic species somewhat similar to *A. petuchi* is the small *A. cryptica* Radwin and D'Attilio, 1976 (usually under 10 mm in length; see Vokes, 1992, pl. 12, fig. 7), which differs in lacking the enlarged axial ridge adjacent to the varix seen in all of the other species mentioned.

The type specimen was collected by Dr. Edward J. Petuch at the APAC pit in 1990, and was presented to me by him. I am pleased to name this remarkable addition to the genus *Aspella* in his honor.

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