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STUDIES ON THE CRUSTACEA OF THE TURKS AND CAICOS ISLANDS, BRITISH WEST INDIES. II. *ARMADILLONISCUS STEPTUS*, N. SP (ISOPODA: ONISCIDEA: SCYPHACIDAE) FROM PINE CAY.

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ABSTRACT *Armadilloniscus steptus*, n. sp., the second species of this genus from the Caribbean Sea, is described and distinguished from the other five species from the New World. The new species, collected from the upper intertidal zone on Pine Cay, Turks and Caicos Islands, differs from *A. coronacapitalis*, *A. ellipticus*, *A. holmesi*, *A. lindahli*, and *A. ninae* by the greater degree of tuberculation of the integument, smaller size at maturity, and sexual dimorphism in the structure of the pleon.

Introduction

While participating in the Turks and Caicos Coral Reef Ecology Program, the second author collected isopods from a variety of shallow-water marine habitats, in the vicinity of Pine Cay. These collections contained three species of marine oniscidean isopods, *Ligia baudiniana* H. Milne Edwards, 1840; *Littorophiloscia culebrae* (Moore,1901) and undescribed species of *Armadilloniscus* Ul'yanin, 1875. The description of the last is the subject of this report.

Although the name and a short description of *Armadilloniscus* was published in Russian by Ul'yanin in 1875, Verhoeff (1918) provided a more accessible generic diagnosis, based on his observations (he did not see Ul'yanin's paper) and the definition of Budde-Lund (1885). Vandel (1962) later corroborated and expanded this diagnosis. Verhoeff's diagnosis is based on, among other things, the morphology of the antennae, antenules, and mouthparts. The antenna has a flagellum of four articles and the antennule is minute, consisting of two articles. Both mandibles, though dissimilar in shape, have a setose lobe below the lacinia mobilis; between the lacinia and the molar the setal row consists of stiff setae known as "penicils." Although Verhoeff found two pencils on each mandible, Sutton (1972) states that these may vary in number between species. The internal lobe of the first maxilla (maxillule) is simple with two bundles of setae. Vandel (1970) states that the tergal ornamentation is the most useful character in distinguishing species.

Eight species of *Armadilloniscus* from the USNM collection were examined: *A. aestuarii* Verhoeff, 1930 (from Yugoslavia); *A. coronacapitalis* Menzies, 1950 (California); *A. dalmatinus* Verhoeff, 1901 (Italy and Yugoslavia); *A. ellipticus* (Harger, 1878) (Virginia); *A. heroldii* Verhoeff, 1918 (Switzerland); *A. holmesi* Arcangeli, 1933 (California); *A. lindahli* (Richardson, 1905) (California); and *A. ninae* Schultz, 1984 (Belize). The material of *A. tuberculatus* (Holmes and Gay, 1909) from Baja California is listed as missing at USNM and was not examined, but according to Van Name (1940), it is conspecific with *A. holmesi*. The highly tuberculate dorsum of the new species relates it most closely to the North American *A. coronacapitalis* and *A. ninae*. The new species from Pine Cay, which occurs in marine upper intertidal habitats, is the second to be found in the tropical northwestern Atlantic following *A. ninae* from Belize (Schultz, 1984).

Family Scyphacidae Dana, 1852
Armadilloniscus steptus, new species
Figs. 1, 2

Material.- HOLOTYPE: female, total length (tl) 2.9 mm, USNM 252209, Turks and Caicos Islands, Pine Cay, upper intertidal under slabs of soft carbonate rock, 1 May 1990, coll. R. W. Heard.- ALLOTYPE: male, tl 2.1 mm, USNM 2522210, same collection data as holotype. PARATYPES: 5 males, 3 females (ovig.), 19 juveniles, USNM 252211, same collection data as holotype; 2 males, 1 female (ovig.), Gulf Coast Research Laboratory Museum, GCRL 1147, same collection data as holotype; 1 juvenile, USNM 252212, Pine Cay dock, upper intertidal under dead leaves, 9 Nov 1989, coll. R. W. Heard.

Description. - Body elongate-elliptical, not capable of completely rolling into ball; frontal margin acute, anterolateral lobes of cephalon rounded; cephalon highly sculptured with 5 large tubercles, 2 anterior and 3

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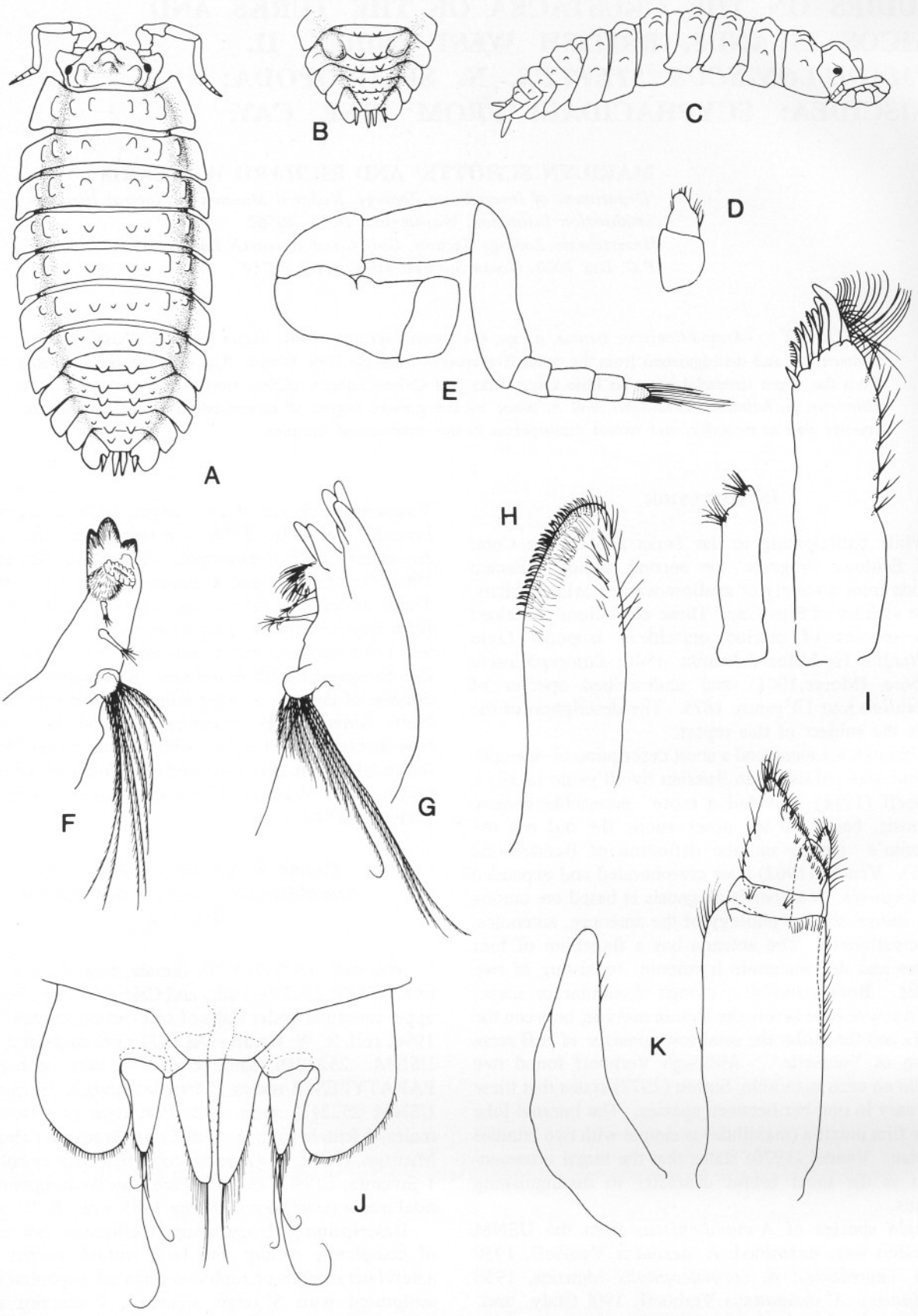

Fig. 1. ***Armadilloniscus steptus,*** **female: A, Whole animal in dorsal view; C, Lateral view; D, Antennule; E, Antenna; F, Right mandible; G, Left mandible; H, Second maxilla; I, First maxilla; J, Uropods; K, Maxilliped. Male, B: Pleon.**

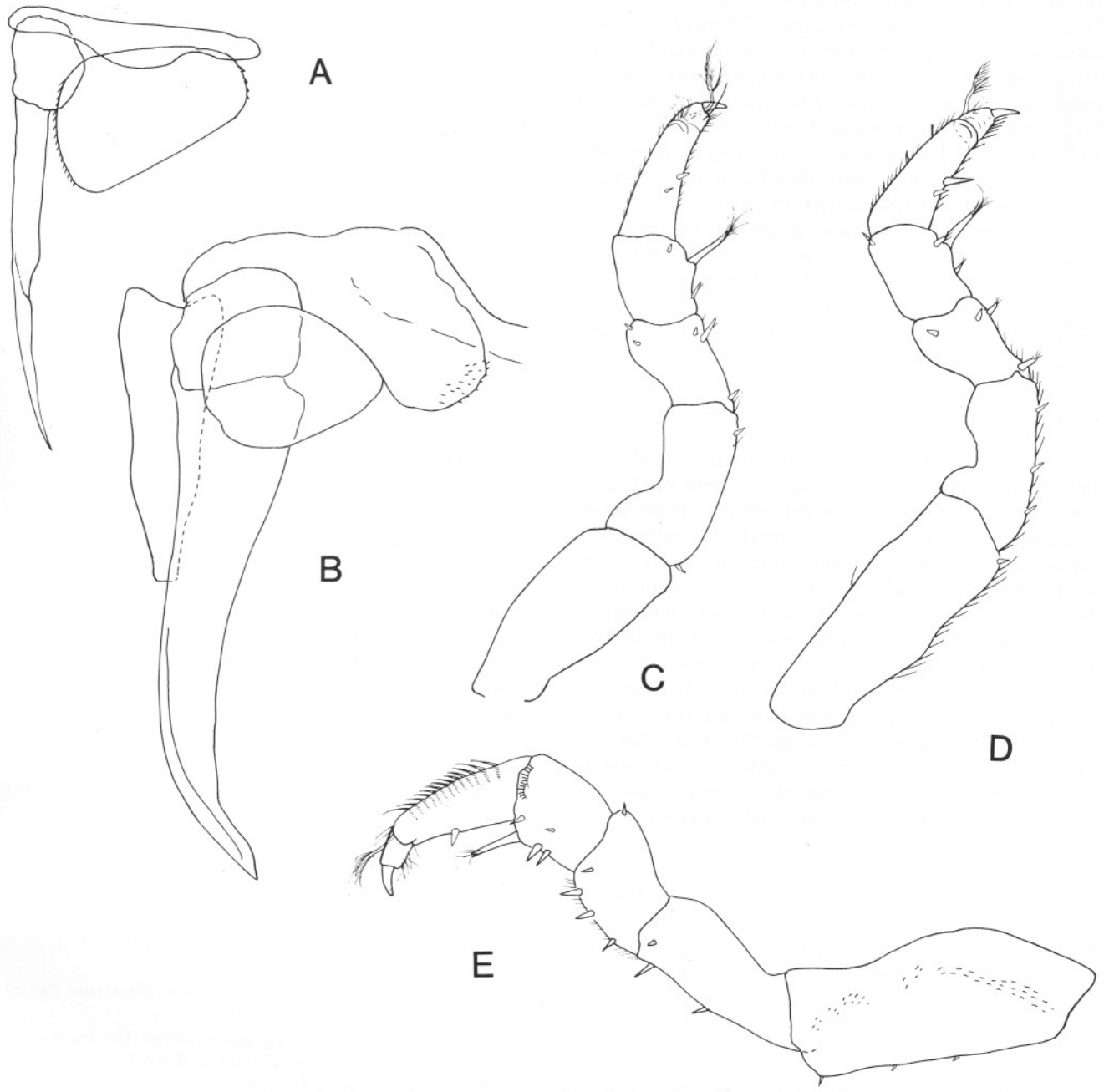

Fig. 2. ***Armadilloniscus steptus,*** **male: A, Pleopod 2; B, Pleopod 1; C, Pereopod 1; D, Pereopod 2; E, Pereopod 7.**

posterior (posteromesial tubercle appearing double). Dorsum covered with tubercles of varying sizes: pereonites each with 4 larger, elongate tubercles and several interspersed smaller ones. Pleonites each with pair of submedial tubercles each flanked by smaller lateral ones. Sexual dimorphism evident in second pleonite having large dorsal swelling on each side only in males; males also smaller in size. Apex of telson truncate. Uropodal endopods flexed ventrally, at least in preserved specimens, uropodal rami unequal, exopod more than half length of endopod. Endopods each with one long seta and several smaller ones; exopods each having 3 long (one extremely long) thin hair-like setae plus others.

Antennule inconspicuous, of 2 articles. Antenna stout, with peduncle of 5 articles, fifth longest, second article with small flange on lateral margin; flagellum of 4 articles.

Left mandible with incisor of 3 cusps; large setose lobe below lacinia mobilis; setal row of 2 stiff setae ("penicils") between lacinia and molar with many long,

plumose setae. Right mandible having incisor of 3 teeth; lacinia a "rosette" of tiny cusps; 2 penicils between setose lobe and molar process. Exopod of maxilla 1 with 10 spines, 4 with spinules, outer margin with several paired setae, anterolateral margin with tuft of numerous long, thin setae; endopod simple with 2 bundles of setae. Maxilla 2 with single row of curved, irregular spines and fringing setae near apex. Maxilliped with setae on endite and on apex and mesial margin of palp.

Pereopods 1, 2, and 7 similar, as figured, each with single large, stiff, tufted seta on inner margin of carpus; all pereopods with one long, flagellate seta ["organe dactylien," of Vandel (1962: 467)], at base of dactyl. Male pleopod 1 endopod apically acute; genital apophysis appearing truncate at apex. Male pleopod 2 having exopod squarish with spinose mesial margin and few spines on lateral border; endopod long, thin and membranous, acute at tip.

Remarks.- *Armadilloniscus steptus* is the only species of the six now known to occur in North and Central America that exhibits sexual dimorphism in the pleon. *Armadilloniscus ellipticus* has produced anterolateral lobes, almost truncate, on the cephalon and very low, poorly defined tubercles on the dorsum. According to Menzies (1950), *A. holmesi* appears almost smooth; the cephalic lobes are long and truncate, and the telsonic apex is rounded, not truncate as in *A. steptus*. Truncate lateral lobes and a rounded apex at the telson are also features of *A. lindahli*. The new species is easily distinguished from *A. coronacapitalis*, which has four large elevated tubercles on the cephalon in the female, a flange on the fourth antennal article, and a large lobe on the carpus of pereopod 7 in the male. It is also a much larger species than *A. steptus* at maturity. *Armadilloniscus ninae*, the other Caribbean species, is far less tuberculate than *A. steptus*. The uropods of *A. ninae* do not appear to be flexed ventrally and it a distinctly larger species (4.3 mm ovigerous females versus 2.2 mm). *Armadilloniscus steptus* has ten curved spines on maxilla 1 as opposed to six in *A. ninae*. The right mandible of *A. steptus* appears to have two penicils, in contrast to three in *A. ninae*. Again, no dimorphism has been noted in structure of the pleon of *A. ninae*.

Etymology. - The specific name is derived from the Greek (steptos = "crowned"), referring to the arrangement of tubercles on the cephalon.

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REFERENCES CITED

Budde-Lund, G. 1885. Crustacea Isopoda Terrestria per familias et genera et species descripta. Hauniae.

Menzies, Robert J. 1950. Notes on California Isopods of the genus *Armadilloniscus*, with the description of *Armadilloniscus coronacapitalis* n. sp. *Proc. Calif. Acad. Sci.* 26 (13): 467- 481.

Schultz, George. 1984. Three new and five other species of Oniscoidea from Belize, Central America (Crustacea: Isopoda) *J. Nat. Hist.* 18: 3- 14.

Sutton, Stephen. 1972. *Woodlice*. 143 pp. London: Ginn & Company.

Ul'yanin, B. N. 1875. (Voyage of Fendtchenko to Turkestan. Crustacea. [*Imperatorskoe obshchestvo Lyubitelei Estestvoznaniya Antropologhii i Etnoghrafii* vol. 2, pt. 6. Moscow (In Russian and Latin.]

Vandel, Albert. 1962. Isopodes Terrestres (Deuxieme Partie). *Faune de France* 66: 417-927.

Vandel, Albert. 1970. Les Isopodes terrestres des iles Rennell et Bellona. The Natural History of Rennell Island, British Solomon Islands: 139 -153.

Van Name, Willard G. A. 1940. Supplement to the American Land and Fresh-water Isopod Crustacea. *Bull. Am. Mus. Nat. Hist.* 77(II): 109-142.

Verhoeff, Karl W. 1918. Zur Kenntnis der Ligidien, Porcellioniden und Onisciden. 24. Isopoden-Aufsatz. Archiv fur Naturgeschichte 82(A): 108-169.