

American Museum Novitates

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79TH STREET, NEW YORK 24, N.Y.

NUMBER 1787

SEPTEMBER 28, 1956

A New Scaphopod Mollusk, *Dentalium* (*Tesseracme*) *hancocki*, from the Eastern Pacific

BY WILLIAM K. EMERSON¹

A study of the Scaphopoda in the Allan Hancock Foundation collections was undertaken at the suggestion of Dr. Irene McCulloch when the present writer was a Hancock Research Fellow at the University of Southern California, in 1949–1950. The scaphopod records in this collection have been included in a recently completed investigation of the eastern Pacific representatives of the class (Emerson, MS). In as much as publication of this manuscript will be delayed, it seems advisable to record and describe herein a previously unrecognized west American species of *Dentalium* contained in this collection.

It is a distinct pleasure to name this new species in honor of Capt. G. Allan Hancock, past Director of the Allan Hancock Foundation and a patron of science *par excellence*.

I am indebted to the following for the loan of pertinent specimens: Dr. R. Tucker Abbott, Academy of Natural Sciences of Philadelphia; Mr. Emery P. Chace, San Diego Museum of Natural History; Drs. William J. Clench and Ruth D. Turner, Museum of Comparative Zoölogy at Harvard College; Dr. Leo George Hertlein, California Academy of Sciences; and Dr. Harald A. Rehder, United States National Museum.

¹ Assistant Curator, Department of Fishes and Aquatic Biology, the American Museum of Natural History.

FAMILY DENTALIIDAE GRAY, 1847

GENUS *DENTALIUM* LINNÉ, 1758

TYPE SPECIES: *Dentalium elephantinum* Linné, 1758, by subsequent designation, Denys de Montfort (1810, p. 23) ; Recent, Indian and western Pacific oceans.

SUBGENUS *TESSERACME* PILSBRY AND SHARP, 1898

TYPE SPECIES: *Dentalium quadrapicale* Sowerby, 1860, by subsequent designation, Woodring (1925, p. 199) ; Recent, Indian Ocean.

DEFINITION: Shell small to medium-sized, cross section quadrangular in youth, anterior portion commonly subcircular in senescence; primary rib at each angle rounded, rarely serrate; four faces of tube sculptured with longitudinal riblets; number of riblets increasing anteriorly by intercalation; interstices with minute transverse lines or smooth; apical orifice unnotched, commonly with a short terminal pipe.

DISTRIBUTION: Eocene–Recent: Eocene of Peru and California; Miocene of Texas, Jamaica, Dominican Republic, Costa Rica, and Ecuador; Pliocene of Florida and Ecuador; Recent in shallow depths of the Pacific and Indian oceans.

In addition to the new species described below, two other species referable to this subgenus occur in the eastern Pacific Ocean. These are *Dentalium tesseragonum* Sowerby, 1832, and *Dentalium quadrangulare* Sowerby, 1832 (= *Dentalium fisheri* Pilsbry and Sharp, 1897). The former species is known to range from Acapulco, Mexico, to La Libertad, Ecuador, and is listed in the Pliocene Canoa fauna of Ecuador (Pilsbry and Olsson, 1941). The latter species is recorded from Los Animas Bay, Baja California, Mexico, to La Libertad, Ecuador, and is cited from the Pleistocene of Maria Madre Island, Mexico (Hertlein, 1934).

KEY TO THE RECENT WEST AMERICAN SPECIES OF *Tesseracme*,
BASED ON MATURE INDIVIDUALS

1. Longitudinal sculpture wanting on anterior third of shell 3
2. Longitudinal sculpture present on anterior third of shell 4, 5
3. Four faces of tube at mid-portion of shell sculptured with four to eight weak longitudinal threads *tesseragonum* Sowerby, 1832
4. Longitudinal riblets numerous (24–30) on mid-portion of shell; transverse striae of interstitial grooves not pitted *quadrangulare* Sowerby, 1832
5. Longitudinal riblets fewer (16–20) on mid-portion of shell; transverse striae of interstitial grooves minutely pitted *hancocki*, new species

Dentalium (Tesseracme) hancocki, new species

Figure 1

Dentalium fischeri [sic] "Stearns" STRONG AND HANNA, 1930, Proc. California Acad. Sci., ser. 4, vol. 11, p. 15 (Maria Madre Island, Tres Marias group, Mexico), in part.

Dentalium tetragonum "Sowerby" PILSBRY AND LOWE, 1932, Proc. Acad. Nat. Sci. Philadelphia, vol. 84, p. 130 (Manzanillo; Acapulco, Mexico), in part, reference to Manzanillo only.

Dentalium fischeri [sic] "Stearns" HERTLEIN, 1934, Bull. Southern California Acad. Sci., vol. 33, no. 2, p. 61 (Pleistocene, Tres Marias Island, Mexico), in part.

Dentalium fischeri "Stearns" LOWE, 1935, Trans. San Diego Soc. Nat. Hist., vol. 8, no. 6, p. 29 (Punta Peñasco, Mexico). Not *D. fischeri* Pilsbry and Sharp, 1897, ex Stearns (1894, p. 157) manuscript name.

DIAGNOSIS: Characterized by numerous pits in interstitial grooves separating the transverse striae.

DESCRIPTION: Shell small for group, only moderately arcuate, not much tapering, essentially quadrangular in cross section, especially near the apex where the angles are raised to form four narrow, primary ribs. Intervening faces are slightly concave and under moderate magnification are shown to be filled from the region below the apical orifice to the apertural rim with minute transverse striae, which are separated from one another by a depressed pitted groove (fig. 1D). Four faces of the tube also are divided by a submedial riblet which extends from the apertural rim to a point a short distance below the apex; the length of the riblet is dependent on the amount of posterior truncation achieved by individual specimens. Secondary riblets or threads extend from the apertural rim for varying distances towards the apex, on both sides of the central riblet. Tertiary threads appear between the secondary riblets and the raised, primary angles, and may extend from the apertural rim for a short distance, rarely to the middle of the tube (fig. 1A). Arrangement and number of threads may vary on the various faces and among individuals; development of secondary and tertiary riblets and threads depends on the age of the individual and the consequent amount of posterior truncation achieved. A fragile projecting collar and pipe are present in some truncated specimens (fig. 1C). Unfortunately, no soft parts were available for study.

MEASUREMENTS OF HOLOTYPE: Length, 13.8 mm.; diameter of oral aperture, 1.9 mm.; diameter of apical orifice, 0.85 mm.; largest paratype measures 18.5 mm. in length.

REMARKS: The possession of minutely pitted transverse striae in well-

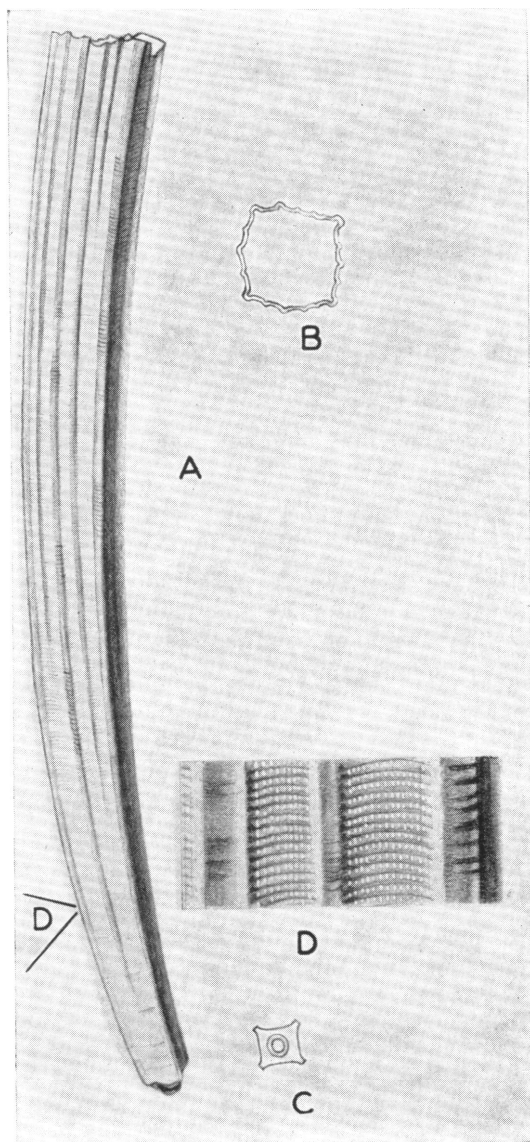


FIG. 1. Holotype of *Dentalium (Tesseracme) hancocki*, new species. A. Surface ornamentation, $\times 10$. B. Outline of anterior orifice, $\times 10$. C. Outline of apical portion, $\times 10$. D. Greatly magnified portion of surface sculpture, $\times 38$.

preserved specimens serves to separate this species readily from all known eastern Pacific forms. Specimens in which the characters of the interstitial grooves are not preserved may be distinguished from the superficially similar *D. (T.) quadrangulare* by the fewer longitudinal riblets. Fragmental portions of the posterior tip of the much larger species, *D. (T.) tesseragonum*, might be confused with this species, but lack the very fine transverse striae and have a greater curvature near the apex than *D. (T.) hancocki*.

Hertlein (1934) and Lowe (1935) referred specimens of this species to *D. (T.) fisheri*; additional records from the Gulf of California attributed to *D. (T.) quadrangulare* may be this species. Pilsbry and Lowe (1932) include citations to both "*Dentalium tesseragonum*" and "*Dentalium tetragonum*" in Lowe's list of species from west Mexican localities. An examination of this material shows the latter to be referable to this species, as specimens labeled "*Dentalium fisheri*" in the H. N. Lowe collection of the San Diego Museum from Manzanillo, Mexico, are this species.

RANGE: Santa Maria Bay, west coast of Baja California, Mexico, 24° 44' N. to off Punta Peñasco, Sonora, Mexico, 30° 18' N. (Hancock collection), south to Manzanillo, Colima, Mexico, 19° 03' N. (San Diego Society of Natural History collection).

VERIFIED DISTRIBUTIONAL RECORDS

WEST COAST OF BAJA CALIFORNIA, MEXICO

Santa Maria Bay, 24° 44' N., 11 fathoms, sand, Allan Hancock Foundation locality 1787-49 (holotype).

Off Santa Maria Bay, 24° 42' N., 23 fathoms, gray sand, Allan Hancock Foundation locality 1031-40, one specimen.

GULF OF CALIFORNIA, MEXICO

Punta Peñasco, Sonora, 31° 18' N., 8.5 fathoms, Allan Hancock Foundation bottom sample 2044, two specimens.

Off Punta Peñasco, Sonora, 31° 18' N., 11 fathoms, mud, sand, Allan Hancock Foundation 1074-40, two paratypes.

Off Punta Peñasco, Sonora, 10 fathoms, Herbert N. Lowe collection, San Diego Society of Natural History No. 30697, 16 specimens, as "*Dentalium fisheri* Stearns" Lowe (1935, p. 29).

Gonzaga Bay, Baja California, 29° 48' N., 11 fathoms, Allan Hancock Foundation bottom sample 2038, 21 specimens.

Off south end of Tiburon Island, 28° 48' N., 9 fathoms, Allan Hancock Foundation bottom sample 2050, two specimens.

East of Tiburon Island, 28° 45' N., 12 fathoms, Allan Hancock Foundation bottom sample 282, three specimens.

Puerto Escondido Bay, Baja California, 25° 48' N., 20 fathoms, Allan Hancock Foundation bottom sample 2017, one specimen.

Auga Verde Bay, Baja California, 25° 31' N., 20 fathoms, Allan Hancock Foundation bottom sample 298, one paratype.

Two and one-quarter miles southeast of Cape Pulmo, Baja California, 23° 24' N., 20 fathoms, sand, Allan Hancock Foundation locality 1733-49, one paratype.

Maria Madre Island, Tres Marias group, Mexico, 21° 16' N., 106° 16' W., 5-10 fathoms, California Academy of Sciences locality 23779, 10 specimens, as "*Dentalium fischeri* [sic] Stearns" Strong and Hanna (1930, p. 15), in part.

Manzanillo, Mexico, Herbert N. Lowe collection, San Diego Society of Natural History No. 18603, three specimens, as "*Dentalium tetragonum* Sby." Pilsbry and Lowe (1932, p. 130).

FOSSIL RECORD

Pleistocene: Maria Madre Island, Tres Marias group, Mexico, California Academy of Sciences locality 1834, as "*Dentalium fischeri* [sic] Stearns" Hertlein (1934, p. 61), in part.

TYPE LOCALITY: One-half a mile southeast of Hughes Point, Santa Maria Bay, Baja California, Mexico, 24° 44' 31" N., 112° 14' 59" W., 11 fathoms, sand (Allan Hancock Foundation locality 1787-49).

TYPE DEPOSITORY: Allan Hancock Foundation, University of Southern California. Holotype: No. 1787-49, here illustrated (fig. 1); paratypes: No. 1074-40 (two specimens), No. 1733-49 (one specimen), and bottom sample 298 (one specimen).

LITERATURE CITED

DENYS DE MONTFORT, PIERRE

1810. Conchyliologie systématique. Paris, F. Schoell, vol. 2, 676 pp., 161 pls. EMERSON, WILLIAM K.

MS. A review of the eastern Pacific scaphopod molluscs. Unpublished Ph.D. dissertation, Univ. California library, vi + 312 pp., 10 figs., 10 pls.

GRAY, J. E.

1847. A list of the genera of Recent Mollusca, their synonyma and types. Proc. Zool. Soc. London, pp. 129-219.

HERTLEIN, LEO GEORGE

1934. Pleistocene mollusks from the Tres Marias Islands, Cedros Island, and San Ignacio Lagoon, Mexico. Bull. Southern California Acad. Sci., vol. 33, pp. 59-73, 1 pl.

LINNÉ, CARL VON

1758. Systema naturae. Editio decima, reformata. Stockholm, vol. 1, 824 pp.

LOWE, HERBERT N.

1935. New marine Mollusca from west Mexico, together with a list of shells collected at Punta Peñasco, Sonora, Mexico. Trans. San Diego Soc. Nat. Hist., vol. 8, pp. 15-34, 4 pls.

PILSBRY, H. A., AND HERBERT N. LOWE

1932. West Mexican and Central American mollusks collected by H. N.

- Lowe, 1923-31. Proc. Acad. Nat. Sci. Philadelphia, vol. 84, pp. 33-144, 17 pls.
- PILSBRY, H. A., AND A. A. OLSSON
1941. A Pliocene fauna from western Ecuador. Proc. Acad. Nat. Sci. Philadelphia, vol. 93, pp. 1-79, 19 pls.
- PILSBRY, H. A., AND B. SHARP
1897-1898. Scaphopoda. *In* Tryon, George W., Jr., Manual of conchology. Philadelphia, vol. 17, xxx + 280 pp., 39 pls.
- SOWERBY, G. B., I
1832. Genus Dentalium. Proc. Zool. Soc. London, pt. 2, p. 29.
- SOWERBY, G. B., II
1860. Monograph of the genus Dentalium. *In* Thesaurus conchyliorum, vol. 3. London, publ. by the author, pp. 97-104, 3 pls.
- STEARNS, ROBERT E. C.
1894. The shells of the Tres Marias and other localities along the shores of Lower California and the Gulf of California. Proc. U. S. Natl. Mus., vol. 17, pp. 139-204.
- STRONG, A. M., AND G. D. HANNA
1930. Marine Mollusca of the Tres Marias islands. Proc. California Acad. Sci., ser. 4, vol. 11, pp. 13-22.
- WOODRING, WENDELL P.
1925. Miocene mollusks from Bowden, Jamaica. Pelecypods and scaphopods. Publ. Carnegie Inst. Washington, no. 366, pp. i-v, 1-222, 28 pls.

