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by

Hans Bertsch, Lindsey T. Groves, and Robert Dees

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Invertebrate Eponyms Honoring Women Members of the Western Society of Malacologists

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The Annual Report of the Western Society of Malacologists is based on its yearly meeting. Distribution of the Annual Report is free to regular, student, and institutional members who are, at the time of issue, in good standing. Membership dues are $20.00 for regular and institutional members and $8.00 for student members (add $20.00 for hard copy of annual report), and $40 for institutional members. Forms and payment information can be found at www.westernsocietymalacology.org

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The Western Society of Malacologists has issued three other Occasional Papers: No. 1, "'Sea Shells of Tropical West America': Additions and Corrections to 1975" by A. Myra Keen & Eugene V. Coan (1975); No. 2, "A Catalogue of Collations of Works of Malacological Importance," by George E. Radwin & Eugene V. Coan (1976); and No. 3, "Twenty-five Year Index to Publications of the Western Society of Malacologists: Author, Taxonomic, Geographic and Subject Indices," by Hans Bertsch (1993).

It is editorial policy to have all Occasional Papers as well as extended papers published within the Annual Report reviewed by the editor and at least two other subject matter experts.

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CONTENTS

CONTENTS (continued)

Introduction

The history of science details not just advances in our knowledge, but also the people who made those contributions. Although a significant means of recognition in science has traditionally been the use of eponyms in the naming of species and genera, scientists have primarily named these taxa in honor of men.

Science is an integral part and reflection of society's "patriarchal" culture. Notably, up to the late twentieth and early twenty-first centuries, women have had limited employment at universities, museums, and marine stations (Wellenreuther and Otto**,** 2016). These limitations are further evidenced by the low percentage of female eponyms. In a recent worldwide survey of 4,915 mollusk species, 12.5% of all species names were eponyms. Of these, 65 (10.6% of the eponyms) honored women, and 550 (89.4%) honored men (Vendetti, 2022). In a comprehensive biographical review and description of 808 eponymous mollusk genera and species from Alaska to central Baja California, Mexico, Dees (2022) reported 665 (82.3%) honoring real-life men or male figures from Greek and Roman mythology and classical literature; 134 genera and species (16.58%) honor females. Deleting taxa named for goddesses, nymphs, and other female figures from classical Greek and Roman mythology, a total of only 91 names (11.26%), including four named for both a husband and wife, honor real-life women living from the seventeenth century to the present day.

In contrast, Californian malacological organizations have an impressive record of contributions by and recognition of women researchers. The first society founded to encourage molluscan studies (in 1902) was the women-only organization The Tuesday Shell Club, which became The Conchological Study Club of Southern California several years later. It was briefly The Conchological Club of Los Angeles before becoming the Conchological Club of Southern California in 1925 (see the biography of Elsie Chace). Of the 51 charter members of the San Diego Shell Club, founded in 1961, 24 were women. Of special note is that from 1970 to 2014 the editor of that organization's monthly peer-reviewed molluscan journal *The Festivus* was Carole Hertz, who both described and is honored in the names of several molluscan species. In a similar vein, the Western Society of Malacologists had its first meeting (separating itself from the American Malacological Union-Pacific Division; see Mikkelsen, 2010) in the summer of 1968; 37 of the 69 people in attendance were women, ten of whom have been honored with eponymous species.

"The American Malacological Society and Western Society of Malacologists have been empowering forces for inclusion, not only of women but also other under-represented groups, by practicing malacology without borders. Unlike scientific disciplines that are constrained by factors such as equipment, techniques, questions, priorities, funding opportunities, and societal directives, malacology is relatively unlimited by anything other than its incredible taxonomic diversity and geological longevity" (Hickman, 2022).

Methodology

This work describes the legacies of all the women members of the WSM who have had eponymous taxa named in their honor (Tables 1-2). For each woman so honored, we present a biography of her life and descriptions of the taxa named for her and their distribution. The text of the morphological features is taken from original or secondary descriptions or references. Descriptions are for the most part paraphrased to ensure accuracy but use the original terminology. (There are only so many ways to say that a shell has six varices, with an umber coloration!) We have included some dedicatory quotations, especially when they refer significantly or personally to the honored individual's work. Photographs or portraits of each featured woman are included when they could be found (Figures 1-54). Several subjects occur in the group photos from early meetings of the WSM (see Figures 55-58). Illustrations of honoring taxa include original images from their first description and/or photographs of museum specimens (see Figures S1-S262). Only a few illustrations are of the living animal or in situ.

Taxonomic Classification, Ordering, and Accepted names

Classification of species (Table 3) and the order in which they are presented is constantly changing based on new information, sometimes to recognize assessment of evolutionary history and similarities based on shared ancestry. There is no universal order of presenting lists of species, but there are traditional orderings that are most convenient for readers to find information. Classification and ordering of the large modern databases (e.g. MolluscaBase, WoRMS, and the Paleobiology Database) and as judgment of species that are "accepted" or "not accepted" are valuable. Comprehensive taxonomic reviews may contradict those databases. For instance, Ponder & Lindberg (2020) have a different supra-familial classification for the families Cypraeidae, Eocypraeidae,

Ovulidae, and Triviidae than found in WoRMS. There is, however, widespread agreement that alphabetical orderings are valuable in some circumstances as well as hybrid arrangements. We have opted for a hybrid arrangement that is both familiar and appropriate to the purpose of honoring and celebrating the eponymous women of the Western Society of Malacologists.

Formation of Scientific Names

The rules for naming species, including eponyms, are specified in the International Code of Zoological Nomenclature. For an excellent background guide to forming species names, including eponyms, we refer readers to Vendetti and Garland (2019).

Emendation of Mis-Gendered Names

During our research for this paper, we found several instances of eponyms with the wrong Latin ending. The International Code of Zoological Nomenclature (4th Edition), Article 31.1.2, clearly stipulates the mandatory use of the correct Latin genitive endings: *-i* for masculine singular, *-ae* for feminine singular, *-orum* for two or more males or a male and a female, and *-arum* for two or more females. Moreover, the code states (Articles 32.3 and 34.2) that when these rules have not been followed in the original description and the Latin is incorrect, the suffix ending must be changed. Use of correct Latin is also emphasized in Article 31.2, "agreement in gender."

Changing the termination of a genus or species name from the incorrect male ending to the correct feminine ending does not affect scientific nomenclatural stability any more than changing the ending of *billeeana* to *billeanum* when the species is transferred from a feminine to a neuter genus. One should also take into account Appendix A, Code of Ethics (item 4), which states, "No author should propose a name that to his or her knowledge or reasonable belief, would be likely to give offence on any grounds." In today's awareness of gender sensitivity, this statement is especially appropriate.

In this paper, we have adhered to the principle that the intention of the author as written in the original description of a new species determines which rules of suffix termination should apply, whether a newly proposed name be an adjective, an eponym, or a noun in apposition. The ICZN rules regarding nomenclature are very clear and should be followed. When not, they should be emended.

Four original names (*Septifer keeni, Micrarionta chacei*, "*Fusitriton*" *terrysmithi*, and *Gyrineum judithi*) have already been corrected elsewhere by other authors. *Chattonia trigonata keeni, Parasyrinx hickmani*, *Ischnochiton skoglundi*, and *Solen gemmelli* are emended herein.

Standardization of Morphological Terms

Throughout the history of descriptive taxonomy, different terms have been used in figure captions to describe the same comparative viewpoint. For example, we use *apertural* and *abapertural* to describe views of gastropod shell that earlier authors referred to as *ventral* and *dorsal* and *exterior* and *interior* views of bivalve shells that earlier authors referred to as *external* and *internal*. In most cases these standardizations conform to the terms used in modern shell books and identification manuals, as well as the most recent descriptive taxonomic literature.

Abbreviations Used

AMNH: American Museum of Natural History, New York

AMS: American Malacological Society

AMU-PD: American Malacological Union, Pacific Division

ANSP: Academy of Natural Sciences of Drexel University, Philadelphia, Pennsylvania

BMSM: Bailey-Matthews National Shell Museum and Aquarium, Sanibel, Florida

CAS: California Academy of Sciences, San Francisco, California

CASG: California Academy of Sciences Geology, San Francisco, California

CCSC: Conchological Club of Southern California, Los Angeles

CONACyT: Consejo Nacional de Ciencia y Technología (National Council of Science and Technology), Mexico City, Mexico

DMNS: Delaware Museum of Natural Science, Wilmington, Delaware

FGS: Florida Geological Survey, Tallahassee

FMNH: Florida Museum of Natural History, Gainesville

HMNS: Houston Museum of Natural Science, Texas

ICZN: International Code of Zoological Nomenclature

IRSNB: Institut Royal des Sciences Naturelles de Belgique, Brussels

LACM: Natural History Museum of Los Angeles County, Malacology Department, California

LACMIP: Natural History Museum of Los Angeles County, Invertebrate Paleontology Department, California

PRI: Paleontological Research Institute, Ithaca, New York

RBCM: Royal British Columbia Museum, Victoria, Canada

SBMNH: Santa Barbara Museum of Natural History, California

SDNHM: San Diego Natural History Museum, California

SDSC: San Diego Shell Club

UCB: University of California, Berkeley

UCLA: University of California, Los Angeles

UCMP: University of California Museum of Paleontology, Berkeley

UCR: University of California, Riverside

UF: University of Florida, Gainesville

UNAM: Universidad Nacional Autónoma de México (National Autonomous University of Mexico)

USGS: United States Geological Survey

USNM: National Museum of Natural History (Smithsonian Institution), Washington, D.C.

WSM: Western Society of Malacologists

ZMMU: Zoology Museum, Moscow State University, Russia

Symbols

* = synonym

† = fossil taxon

† = deceased (*passim* when no dates are given)

WSM Women Honored with Invertebrate Eponyms

Elsie M. Chace (1885-1975)

(Figures 1-4, 55)

Elsie (née Herbst) was born in Sedan, Chautauqua County, Kansas, 30 August 1885. She moved to Ontario, California, in 1891 with her grandparents, mother, and two younger brothers. In 1901 she was attending the Los Angeles Normal School to pursue a career in teaching. She married Emery Chace on 25 April 1905. Four children were born between 1905-1910. Only two children survived to adulthood, daughter Ruth C. French, a Licensed Vocational Nurse, and son Gail Chace, a mail carrier at San Pedro, California.

Emery and Elsie both became interested in shells late in 1910 when they vacationed at Terminal Island, a seaside resort at San Pedro, California, frequently beach combing and collecting shells. They soon began a lifelong dedication to being citizen scientists. They received a copy of Josiah Keep's *West Coast Shells* as a Christmas gift from Elsie's mother, searched for books about conchology in the Los Angeles Public Library, and began their subscription to *The Nautilus*. When a cottage at Seal Beach came into the family, they began a long series of collecting trips to Seal Beach and the adjacent Anaheim Bay. One afternoon they were talking with another shell hunter, Mrs. W. F. Ball, a charter member of The Tuesday Shell Club. The club was limited to 12 ladies and met at the homes of members. Through Mrs. Ball, Elsie was invited to be a guest at a meeting in Mrs. Ida Oldroyd's home on Signal Hill, north of Long Beach, and in June of 1913 was invited to join the club. In 1915 the club was invited to meet at the Southwest Museum. It changed its name to the Conchological Club of the Southwest Museum and opened its membership to anyone interested in conchology. Elsie's husband Emery became the first male member. Shortly thereafter, Allyn G. Smith and Archibald M. Strong became members of this fledgling study club. The club eventually became the CCSC, which today is known as the Pacific Conchological Club.

Elsie and Emery's conchological journey had begun. "For the next forty-odd years, during vacations, on weekends and between construction jobs, they ranged the mountains, deserts and seashore from Puget Sound, Washington, to Kino Bay in Sonora, Mexico" (Howard, 1970: 13). They became the quintessential twentieth-century hunter-gatherers. Their reminiscences recount their hunting for shells and gathering dinner at the same time. They frequently cooked abalone steaks over a campfire or made a tasty chowder from geoduck, cockles, and mussels. Friends and family were often invited. "In the fall of 1934 there were two collecting trips to record. One was to Morro Bay and my father and mother were along on that one. I dug *Panope* (goeyducks)[*sic*] and Elsie made a big chowder that was enjoyed by all" (Chace, 1967: 17).

The Chaces' first trips to Baja California, Mexico (1926-1937), were in the vicinity of Ensenada. Significantly, they noted the occurrence of northern Monterey molluscan fauna from the south side of Punta Banda. There are localized areas of cold-water upwelling along the Pacific coast of the Baja California peninsula on the south-facing sides of prominent headlands which affect the distributional patterns of marine algae (Dawson, 1946, 1951) and marine invertebrates (Emerson, 1956a, 1956b). In these areas of upwelling, cold-temperate, northern organisms occur south of their expected latitudinal ranges (Emerson, 1956b: 325).

In April 1954, Elsie and Emery moved to San Diego to become curators of mollusks at the SDNHM in Balboa Park. Their part-time contract specified 100 hours per month. Their "first work was unpacking, labeling, and cataloguing the Archibald M. Strong collection" (Chace, 1967: 30). They also contributed to the holdings of the SDNHM by curating the collections of Herbert N. Lowe and Joshua L. Baily, Jr.

Their time in San Diego also offered the Chaces numerous opportunities to collect fossil and living marine mollusks from the northern Gulf of California and the Pacific Coast of Baja California. The Chaces retired from the San Diego Museum in the spring of 1967, moving back to their home in Lomita, California.

Elsie and Emery Chace's contributions to conchology and the community of conchologists in the first half of the twentieth century cannot be underestimated. Myra Keen (1981) wrote, "The Chaces were especially considerate in helping beginners. I well remember how, in 1934, they were the first experienced collectors to give me advice" (Keen, 1981: 20). Additional information on the pioneering contributions by Elsie and her husband can be found in Bertsch (2022b) and Howard (1975).

Monadenia chaceana Berry, 1940 (Plates S1a-b)

This beautiful chestnut-brown shell has a smooth, glossy surface. The periostracum is encircled by a conspicuous dark brown band about 2 mm wide just above the periphery that is bordered on each side by a narrower yellowish band. Shell with five and a half to six whorls, "low domed to moderately raised; embryonic whorls not notably projecting" (Roth, 2014: 11). A moderate columellar flare covers only the edge of the open, steep-walled umbilicus. About 18-26 mm in diameter.

Distribution: The type specimen was collected 29 September 1937 by Emery P. Chace, "among rocks about half-way up a spur of Badger Mt. on west side of Shasta River Canyon not far above its mouth, Siskiyou County, California" (Berry, 1940: 10). *Monadenia chaceana* is endemic to northern California (Siskiyou County) and southwest Oregon (Jackson and Klamath Counties). Within this limited range, it lives in forested and open-talus rocky areas.

Herpeteros chaceorum (Willett, 1940) (Plates S2a-b)

Originally *Micrarionta chacei* Willett, 1940. See Roth (1996) and Bertsch (2022a) for taxonomic history and emendation of genitive ending.

This species has a relatively high-spired shell, with five to five and a quarter whorls. The umbilicus is almost entirely covered by the expanded columella. The thin, polished periostracum is a buffy brown, encircled by a conspicuous dark brown band about 1-1.5 mm in width. The shell can reach 22 mm in diameter.

Distribution: This helminthoglyptid snail is known only from a few individuals found at or near the type locality, the lower end of El Tigre Canyon, nine miles north of Ensenada, Baja California (see map in Smith et al., 1990: 139).

† *Chrysallida elsiae* (Willett, 1948) (Plates S3a-b)

Originally *Odostomia* (*Chrysallida*) *elsiae*. Comb. nov. herein; *Chrysallida* Carpenter, 1856, has been reinstated and is today considered a full genus.

Shell small (~2.7 mm), elongate-ovate with channeled sutures. "Nucleus tilted, partly immersed in succeeding turn. Postnuclear whorls ornamented with slightly retractive axial ribs running from suture to suture" (Willett, 1948: 19). The two type specimens were collected by George P. Kanakoff (LACMIP); George Willett's description of *Chrysallida elsiae*, along with three other species, was published posthumously.

Distribution: This rare, enigmatic little pyramidellid was recorded originally from the Pleistocene deposits at Newport Bay, California (see also Kanakoff & Emerson, 1959). Recent specimens identified as this species in the LACM collections are from Santa Rosa Island, Channel Islands, California (103 m), and Point Lobos State Park, Monterey, California (14-23 m). More research is needed on the natural history and occurrence of this species.

* *Pusula elsiae* (Howard & Sphon, 1960) (Plate S4)

Originally *Trivia elsiae* Howard & Sphon, 1960. Junior synonym of *Pseudopusula californiana* (Gray, 1827), fide Fehse & Grego, 2014: 47.

The small (7-8 mm) ovate shell has 18 smooth ribs, eight of which are intercalary. The remaining 10 pass over the columella, where they are knobbed.

Distribution: Type locality, Punta Final, Baja California, Mexico, approximately 10 miles south of Bahía San Luis Gonzaga. Also known from Puertecitos, Baja California, Gulf of California, Mexico (Howard, 1961).

This species was "named in honor of Elsie M. Chace for her long-standing interest in conchology and for the unstinting help which she has given the authors over the many years they have known her" (Howard & Sphon, 1960: 43).

Ischnochiton chaceorum Kaas & Van Belle, 1990 (Plates S5a-b)

This small, rare chiton has a brownish tegument that is vaguely blotched with lighter or darker tones. Maximum known size is 7 mm long, by 4.5 mm in width. The animal is "moderately elevated, carinated, side slopes slightly convex, valves not beaked, lateral areas hardly or not raised, poorly defined. Tegmentum evenly, quincuncially microgranulose, in the end valves and lateral areas of the larger specimens a weak radial ribbing can be observed" (Kaas & Van Belle, 1990: 167).

Distribution: Type locality, Puerto Peñasco, Sonora, Mexico.

"This species is named *chaceorum* after Emery P. and Elsie M. Chace in honour of their lifelong devotion and many contributions to the malacology of North America" (Kaas & Van Belle, 1990: 169).

Jean M. Cate (1917-2001)

(Figures 4-5, 55-57)

Jean McCreary Cate was born on 13 July 1917, in Detroit, Michigan, and passed away on 11 September 2001 (a rather infamous day in American history) in San Diego, California. She was educated in public and private schools in San Francisco and New York and attended UCLA, from 1936 to 1940, majoring in English composition and literature. Jean also studied for a time at the New York School of Interior Design.

Jean and husband Crawford's interest in shells began in 1950 with the gift of a polished specimen of the Indo-Pacific commercial top shell *Trochus niloticus* Linnaeus, 1767 [now = *Rochia nilotica* (Linnaeus, 1767)] that had been handed down as a family heirloom. They never dreamed that this specimen would lead to 30-plus years of collecting and studying shells. At the encouragement of Rose and John Q. Burch, from whom they purchased numerous specimens, Jean and Crawford began attending meetings of the CCSC. Soon thereafter they both decided to specialize in different families, Crawford with the Cypraeidae and Ovulidae and Jean with the Mitridae and Costellariidae. Although her early ambition had been to completely revise these families, Jean realized that with over 3000 species names to be considered, that goal would not be achievable.

Jean and Crawford were instrumental in the formative years of *The Veliger* and its governing body, the California Malacozoological Society (CMS), under the guidance of its editor, Rudolf Stohler. After discovering several typographic errors in issue 4 of volume 2 (1960), she became assistant editor and was assigned the task of proofreading each issue. She was officially promoted to associate editor and CMS manager in April 1964, a position she held until April 1987. Because she lived in Los Angeles (at their 12719 San Vicente address), editing chores required her to fly to Berkeley on a quarterly basis to assist with editing. In 1970 Jean and Crawford moved to Sanibel Island, Florida, which meant that editing tasks were accomplished via air mail. They returned to southern California in 1975 and settled in Rancho Santa Fe, San Diego County. Sadly, Crawford suffered a stroke in 1977 and was a semi-invalid until his death in 1981. Jean moved to a smaller house in Rancho Santa Fe but spent the last few years of her life in a San Diego assisted living facility in relative seclusion. She and Crawford are buried next to each other at Forest Lawn Memorial Park, Glendale, California.

Jean and Crawford were active members of numerous national and international malacological organizations, including the Western Society of Malacologists (Charter Members), the Hawaiian Malacological Society, the Sanibel Shell Club, and the Conchological Society of Great Britain and Ireland, among others. Locally they were members of the CCSC, which bestowed them with honorary membership in 1978, and the SDSC.

In addition to collecting shells, Jean enjoyed shell photography and collecting antiques and owls of every description—except live ones. As music lovers, she and Crawford rarely missed a concert by the Los Angeles Philharmonic Orchestra at the Los Angeles Music Center or the Hollywood Bowl.

Jean named three still valid species of gastropods in some 30 scientific papers. She enjoyed promoting and popularizing knowledge about mollusks. In the late 1960s Jean founded "Shellectures," a non-profit educational venture which loaned recorded programs on shell-related topics to shell clubs across the U.S. While living at Sanibel Island, Florida, she wrote a weekly column on shells for the island newspaper. She believed that for anyone, "It's Easy to Say Crepidula!" and then published a phonetic guidebook (Cate & Raskin, 1986) by that title to support this statement. (This biography is a revision of Groves, 2005).

Zoila jeaniana C. N. Cate, 1968) (Plate S6)

Originally *Zoila friendii jeaniana* C. N. Cate, 1968. Beals (1977:12) proposed to raise this subspecies to full species, which was later confirmed by Burgess (1977: 3).

Large, strong shell, to 85.8 mm long, 52 mm wide, and 43 mm high. Humped, globular-ovate, terminals prominent, thin-sided, sharply edged, and more thickly and roundly formed in front. Aperture straight, curving abruptly left adapically, teeth numerous, up to 32 lip teeth and 29 columellar teeth. Primary shell color on dorsum is light gray, with broad off-white brown spotted margins.

Distribution: Holotype collected at Koks Island, off north tip of Bernier Island, Shark Bay, West Australia. Also reported further south from Geraldton and Green Head (approximately 140 miles north of Perth).

Mitromica jeancateae (Sphon, 1969) (Plate S7)

Originally *Thala jeancateae* Sphon, 1969. See Rosenberg & Salisbury, 2003.

Sub-acuminate shell reaches 9.4 mm in length. Sculpture cancellate, canal slightly recurved, and aperture moderately narrow. Labrum lirate within. Anal sulcus and subsutural band present. Color white, with lines and irregular smudges of brown.

Distribution: Holotype dredged 50-60 fathoms by the Allan Hancock Expedition of 1934, off Tagus Cove, Albemarle Island, Galápagos Islands. One fossil Pleistocene specimen is also known from off James Island in the Galápagos (Sphon, 1969).

Pseudosimnia jeanae (C. N. Cate, 1973) (Plate S8)

Originally *Aperiovula jeanae* C. N. Cate, 1973. See Lorenz & Fehse, 2009: 44.

Ovate shell, fairly large (16.1 mm), with a produced terminal and ridged funiculum. Color deep, rich pinkish-rose, with clouds of deep rose to pale orange.

Distribution: Holotype collected at Ensyunada, between Izu Peninsula and Ise Bay, Honshu, Japan. Found in depths between 90-300 m (Lorenz & Fehse, 2009: 44).

Helen DuShane (1907-2002)

(Figures 6, 27, 55-58)

California educator and authority on Epitoniidae species Helen DuShane (1907-2002) was born in Mt. Pleasant, Iowa, the daughter of Edward George and Hazel Dell (Neel) Schwartz. Helen attended the Sargent School of Physical Education in Boston, Massachusetts, from 1925-1928, after which she earned a Bachelor of Science degree (1931) and a Master in Science degree (1936) from the University of Southern California, Los Angeles. From 1937 to 1965 she taught Physical Education in the Los Angeles City School District. In 1945 she married Joseph DuShane (d. 1988), with whom she had one daughter, Renee DuShane.

Helen first became interested in shell collecting during a family driving trip to Cabo San Lucas, Baja California Sur, Mexico, in 1956, back in the days prior to the paved roads down the peninsula. From La Paz they rode the ferry across the Gulf of California to Mazatlan and returned to Los Angeles. It was on a Sonoran beach where she collected numerous specimens of a strange, unusual, fragile-looking purple shell. Curious as to what kind of shells she had found, she took her findings to George Kanakoff (1897-1973), curator of invertebrate paleontology at the then Los Angeles County Museum of Natural History. After Kanakoff identified her shells as *Janthina janthina* (Linnaeus, 1758), Helen began a lifetime career as an enthusiastic conchologist. The following year, she joined the CCSC, eventually serving as the club's secretary (1959 and 1960), vice-president (1962, 1968), and president (1963, 1987). She was also later made an honorary member of the club.

After learning all she could about mollusks and shell collecting, Helen eventually began specializing in shells belonging to the family Epitoniidae. After coauthoring her first new species of shell, *Scalina billeeana* DuShane & Bratcher, 1965 [now = *Epidendrium billeeanum* (DuShane & Bratcher, 1965)], with fellow conchologist Twila Bratcher (1911-2006), she went on to describe an additional 21 epitonid species between 1965 and 1988. Following her retirement from the Los Angeles City School District in 1965, she and her husband Joe made regular shell collecting trips to Mexico and visited Alaska, British Columbia, and Panama. Helen donated many of the shells she collected on these trips to the AMNH and the LACM, where as a volunteer at the latter she helped to maintain the museum's Epitoniidae collection. She was appointed as a Research Associate in Invertebrate Zoology at the Museum in 1967. An adept amateur archaeologist, she helped to identify shell artifacts from the Casas Grandes site in Chihuahua, Mexico, and from Chaco Canyon, New Mexico.

Along with these activities, Helen was a member and officer of several conchological and malacological organizations, including the AMU-PD (treasurer, 1966-1968) and the WSM (charter member; treasurer, 1967, 1968; vice-president, 1976; president, 1977; honorary member, 1978). In 1980 she received WSM's Award of Honor, and in 1988 she was awarded lifetime membership in the Pacific Shell Club. She was also a member of the SDSC from 1984-1999.

A prolific writer, Helen authored 44 papers singly and another seven with coauthors including James H. McLean, Twila Bratcher, Hugh Bradner, Gale G. Sphon, Roy Poorman, Bertram C. Draper, and Ellen Brennan. Although the majority of her publications were on eastern Pacific epitoniids, she also wrote distributional lists for mollusks in the central and northern Gulf of California (e.g., DuShane & Poorman, 1967; DuShane & Brennan, 1969) and published on archaeological artifacts from the Baja California peninsula (DuShane, 1981, 1984), Hawaiian epitoniids (DuShane, 1988b), and optical and SEM comparisons of Cassidae species (Bradner & DuShane, 1982). In all she described some 24 still accepted molluscan species (11 *Epitonium*) in nine genera, including the muricid genus *Cinclidotyphis* DuShane, 1969. She also published *The Baja Travels of Charles Russell Orcutt* (DuShane, 1971, 1988a).

Helen DuShane passed away at the age of 95 at her home in Whittier, California (Groves, 2003), survived by her daughter Renee. Much of her correspondence, covering a span of some 30 years, is archived at the SBMNH.

* *Terebra dushanae* Campbell, 1964 (Plates S9a-c)

Synonym = *Terebra bridgesi* Dall, 1908. See Keen, 1971: 672. This synonymy may need to be revisited.

Protoconch of four and a half glassy whorls; teleoconch with nine whorls. Axial sculpture of sharp ribs, continuous and in line with the subsutural nodes. Nodes and ribs are white. Shell color brown with a light tan peripheral band. Length to 17.4 mm.

Distribution: Ranges from Puertecitos, Baja California, northern Gulf of California, Mexico (type locality of *T. dushanae*), to Panama (type locality of *T. bridgesi*). Campbell named his species "in honor of Mrs. Helen DuShane who was the first to compile and publish a complete check-list [DuShane, 1962] of the Puertecitos molluscan fauna" (p. 136). Dall named his species in honor of the collector, "the late Thomas Bridges" (p. 253). Dall's eponyms were frequently based on who collected the specimens; otherwise, he did not specifically state the origin of those eponyms.

Thelecythara dushanae McLean & Poorman, 1971 (Plate S10)

Tall-spired shell with impressed sutures. "Spiral cording is stronger than the axial ribbing, the terminations of the cords imparting a serrate edge to the lip" (Keen, 1971: 753). To 8.4 mm in length.

Distribution: Ranges from Guaymas, Sonora, Mexico (type locality, Bahía San Carlos, dredged from 93 m), to Panama.

Nassarina helenae Keen, 1971 (Plates S11a-b)

Pink-brown to buff, with a lighter band below the suture. Four spiral cords per whorls, with 18-20 axial riblets. Holotype 7.5 mm in length.

Distribution: Type locality Puertecitos, Baja California, Mexico. Ranges from the northern Gulf of California to Ecuador (Shasky, 1984), from 7-55 m.

Opalia dushaneae García, 2004 (Plate S12)

Shell 15.2 mm long. Teleoconch with 7.75 convex whorls. Axial sculpture with 16 rounded, low ribs per whorl. Deep, crenulated suture. Spiral sculpture consists of evenly pitted spiral striae, forming a finely textured surface on shell.

Distribution: Known only from Vanuatu, South Pacific, from 281-288 m.

Claviscala dushaneae Brown, 2019 (Plate S13)

Acuminate shell, 46.7 mm in length. Unknown protoconch, a bit over 8 convex teleoconch whorls remaining. Broad, non-lamellar axial ribs increase in number from 13 on first intact whorl to about 40 on body whorl. On last two whorls three ribs are thickened into varices. Aperture oval, columella thin. Color grey-white.

Distribution: Type locality 454.4 mi from Cape Foulweather, Lincoln County, Oregon, at 3,860 m, by the R/V *Yaquina*.

Beatrice L. Burch (1917-2013)

(Figures 7, 55-58)

Beatrice L. Burch was born in Alameda, California, to Edith May (1876-?) and John Henry LaRue (1865-1955). Her parents' honeymoon in 1900 was to the Grand Canyon, where her mother then spent the next three years photographing the scenery of the canyon. This seems to have set the stage for Beatrice's interest in zoology and the natural world. She received her Bachelor of Arts at UCLA in 1939, and her Master of Science at UCB, in 1941. While at Berkeley, her zoology professor told her to "look up and marry Tom Burch" (Rundo, 2014). The result was a wedding on Valentine's Day, 14 February 1942, a happy marriage for 72 years, with two wonderful children and a variety of assignments with her husband in the U.S. Public Health Service to Guatemala, Liberia, Venezuela, Mexico, Maryland, Arizona, and Hawaii. While in the Washington, D.C., area, she became Chief of Laboratory for testing Salk Polio Vaccine at the National Institutes of Health (1955-1960). Then Beatrice worked as a Zoologist at the Smithsonian Institution (1960-1965), where she set up the Smithsonian's Oceanic Sorting Center, making marine animal collections available to scientists all over the world. She was the first woman to be sent to the Antarctic for the Smithsonian Institution to collect marine invertebrates—twice! She later became an Instructor in Museum Methods at Arizona State University in Tempe, Arizona (1965-1970). Beatrice and Tom moved to Kaneohe, Hawaii, in 1971, where "she did environmental research for Hawaiian Electric Company and Chevron Oil, set up the Naval Oceanographic data center, and did shipboard collecting trips on the University research ship, NOAA vessels, and was chief scientist on several National Marine Fisheries vessels. She was a Zoologist at Bishop Museum in Honolulu (1980-2001) before moving to Bremerton, Washington, to be near her children and their families" (Rundo, 2014).

Joining Andres Warén, she and Tom named five still-valid species of Eulimidae from the Hawaiian Islands (Waren et al., 1984).

Opalia burchorum DuShane, 1988b (Plate S14)

Small shell, 4.5 mm in length; dark, glassy protoconch with four whorls; teleoconch with six whorls; ribs and intervals sculptured with small punctations. Distinct suture. Oval, oblique aperture.

Distribution: Holotype dredged from 540 m on fine sand, off Kahe Point, Oahu, Hawaii. Also reported from the Marquesas Archipelago, Wallis Island, Fiji, and New Caledonia (García, 2004).

Vexillum burchorum Salisbury, 2011 (Plates S15a-b)

Strongly sculptured, elongate-fusiform shell, reaches 28 mm in length. Protoconch conical, with 3 to 3½ smooth, glassy white whorls. Strong spiral lirae override the axial ribs giving the shell a pustulate appearance along the axial ribs. Body whorl with 21-24 axial ribs. Outer lip with 8-10 strong, close-set lirations, columella with four or five columellar folds. Shell color consists of white and brown bands.

Distribution: Holotype dredged on sandy mud bottom, 76 m, Keehi Lagoon, Oahu. Known only from deeper water around the island of Oahu, dredged between 76-284 m.

"Named in honor of Bea and Tom Burch for their many years of work with Hawaiian marine molluscs and their many contributions to the Hawaiian Malacological Society" (Salisbury, 2011: 592).

Lois J. Pitt (1930-2020)

(Figures 8, 55-58)

When Lois married Bill Pitt in 1965, she was already a shell collector, while he was a sheet metal worker by profession. When she later became a stay-at-home wife, they continued shelling adventures together from their home base in Sacramento, California. They concentrated on the eastern Pacific from Alaska to Peru. Shortly thereafter, a friend suggested they look at the Pliocene marine mollusk deposits in the Kettleman Hills, California. Introduced to and hooked on fossils, they concentrated on Neogene fossil faunas. They began to collect and trade for fossil specimens from many localities worldwide.

In accepting the Harrell L. Strimple Award of the Paleontological Society, Bill and Lois wrote (Pitt & Pitt, 1997), "Between 1975 and 1980 we collected the Gatun Formation in Panama and the Rio Banano Formation in Costa Rica. We went to Ecuador in 1980 to collect Recent specimens. We knew that little had been done on the Neogene molluscan faunas from northwest Ecuador and therefore collected Axel Olsson's locality at Quebrada Camarones, which proved to be a fantastic locality. We decided that we would try to do something with the fauna and compare it to the Caribbean and eastern Pacific fauna (fossil and Recent), including specimens that we had collected in Costa Rica and Panama."

Lois and Bill returned to Ecuador in 1981 and decided to detour out to the Galápagos Islands. Carole Hickman, another of our eponymous women, wonderfully describes their adventures: "The Director of the Charles Darwin Research Station at the time had a young lady love who had collected some fossil Pleistocene mollusks and was having difficulty identifying them. Lois and Bill were eager to help and curious about the locality. One thing led to another, and the director said he could arrange to get a collecting permit for them– something no professionals had ever been able to obtain because it involved three different agencies and lots of red tape. Lois and Bill said 'Why not?' and found themselves with a permit. They contacted me as well as Jere Lipps at UC Davis about mounting an 'expedition.' Of course, Jere and I were both keen on the idea of the first-ever paleontological expedition to the Galápagos, and I invited my then doctoral student Matt James (now a former WSM president) to join us and we laid the groundwork for islands and likely locations to visit. We had no funds other than some scrounged from our respective universities. We arrived hoping to use the Station's research boat (*Beagle IV*) to get from one island to another. Of course we got there and *Beagle IV* was not available. At the Port, we found a decrepit little fishing boat, the *Gabriella*, and negotiated in rudimentary Spanish for two weeks of island hopping. The two cheerful fishermen spoke almost no English but were keen to make a bit of money at it, agreeing to procure all the food and prepare meals for us (lots of potatoes, onions, under-ripe tomatoes, limes for ceviche with freshly caught fish, and lots of beer) and a supply of fresh water, and we set off. It was great fun and wildly successful" (Hickman, pers. comm. 7 July 2022). The five members of the expedition published a

paper on the second locality they visited (Pitt et al., 1986). Moreover, based on results obtained from this expedition, Carole and Jere published a paper on molluscan evidence for the geologic youth of the Galápagos Islands (Hickman & Lipps, 1985).

Carole Hickman continues: "This led to a second expedition with Bill and Lois and more visits to more islands. Jere and I got a small grant from National Geographic, and we had the elegant research vessel this time. The projects built up and we enlisted others to work on mollusks from several localities, including Alison Kay and my former Ph.D. student Sally Walker. Sally got so swept up in it that she traveled to the Galápagos on her own, where she enchanted all the locals and ended up marrying Fausto Cortez, who ran the local pizza parlor in Porto Ayora. Lois and Bill wallowed in all this and continued to work on curating Galápagos mollusks into collections at the CAS. There are still unpublished manuscripts that will never see the light of day. The important thing was having fun, and we did. Lois had a keen eye for fossils, loved collecting, had a very high tolerance for hot sun and truly grubby conditions, and was able to laugh about going two weeks without a bath or shower" (Hickman, pers. comm. 7 July 2022).

For Matt James, the first expedition marked the beginning of a life-long love affair with the Galápagos. It resulted in two books, *Galápagos Marine Invertebrates*, an edited volume of 19 papers (James, 1991), and *Collecting Evolution*, an outstanding chronicle of the science and drama of the 1905 CAS Galápagos Expedition (James, 2017).

Lois was a Charter Member of the WSM, Fossils for Fun Society in Sacramento, and the Sacramento Valley Conchological Society. Along with Bill, she collected many localities in the United States, Mexico, Canada, and England, in addition to their work in Central and South America. They exhibited portions of their collections at the California State Fair, Fossils for Fun Society, Gem Faire, Coalinga Mineral Society, the Sacramento Valley Rockrustlers, and the California Federation Show. Their interest in horticulture led them to participate in flower shows, where Lois and Bill won first place awards for potted shade plants and hairy fibrous begonias in the Sacramento Begonia Show (e.g., Clarence, 1968, Elaine, 1969).

Lois and Bill donated holotype and paratype specimens to various museums, including CAS, SBMNH, LACMIP, Humboldt State University, the AMNH, the British Museum of Natural History, and the PRI. They also named *Trichopterys vokesae* Pitt & Pitt, 1989, honoring Emily Vokes.

Mitrella loisae Pitt & Kohl, 1979 (Plates S16a-c)

Smooth, slender shell, 5.3 mm in length. Ground color yellow, with unique pattern of brown irregular dots and wavy lines.

Distribution: Type locality north side of Punta Coralillo, Bahía de Calderas, Puntarenas Province, Costa Rica. Also known from Ecuador and Peru.

† *Torquifer pittorum* Roth, 1981 (Plate S17)

Pyriform shell, coronate whorls with thick, upturned spines at the shoulder. Raised cords and large knobs or beads form a prominent spiral sculpture between the shoulder and suture. Shell measured 82.8 mm in height and 63.6 mm in diameter. Color pattern revealed by ultraviolet photography (Figure S17, number 3) showed dark banding near the middle of the body whorl.

The genus *Torquifer* Roth, 1981, was erected to accommodate this species.

Distribution: Shell collected from the lower Gatun Formation (late Miocene), about 1 kilometer northwest of Sabanita, Panama.

† *Pseudozonaria pittorum* (Groves, 1997) (Plates S18a-b)

Originally *Zonaria* (*Zonaria*) *pittorum*. See Lorenz, 2017.

Pyriform shell, 40.1 mm long; dorsum prominently arched (height, 20.9 mm). Labial lip with 19 teeth, columellar lip with 17 teeth. Smooth, narrow fossula.

Distribution: Collected from the lower Pliocene Esmeraldas beds, Onzole Formation, at road cut on west side of Camarones village, Esmeraldas Province, Ecuador.

"This species is named for William D. and Lois J. Pitt, Sacramento, California, in recognition of their numerous important paleontological works on the Tertiary of Ecuador and Panama" (Groves, 1997: 154).

Margaret F. Mulliner (1926-2010)

(Figure 9)

A memorial to Margaret Mulliner was written by her good friend, Carole Hertz. Both were members of WSM and the SDSC, along with their husbands David and Jules, respectively. Carole's remembrances are used here (Hertz, 2010):

"Margaret Maughan Quirk was born in Philadelphia, Pennsylvania on January 20, 1926. Her family later moved to the San Diego area where she attended San Diego State College and met her future husband, David K. Mulliner. She and Dave were married in 1947 and Margaret received her BA from San Diego State in June of 1950. Margaret (aka Peg, Peggy and Peggetha) was a mother and homemaker all her married life, raising four children - Stephen, Bruce (deceased), Donna and Paul. She was an avid reader and worked for a time at the local Public Library. She was also an active member of the SDSC from 1965 until she became too ill to attend meetings and served as its treasurer off and on for 15 years. Many of the shell books from the Mulliners' fine library were donated to the Club by Margaret.

"Peg and Dave were great Baja-files [sic]. They traveled and camped throughout Baja [California] for many years. Margaret would tell how, in their early years together, they traveled everywhere with her on the back of Dave's motorcycle. Later, after we (Jules and I) met them and became friends, we often traveled together to Baja. By then the Mulliners were traveling in their camper. Since Jules and I had no camping gear we all (Dave, Peg, their kids and Jules and me with our two daughters) squashed into the Mulliner's camper. Some of us slept outside and the rest slept in layers inside. Meals were delicious, sometimes fresh fish for breakfast given to us by a fisherman and VERY casual [see Hertz, 1970]. Often we'd all drive in the pickup truck (the camper having been separated during our stay) through the desert to great shell collecting areas - leaving in the dark early mornings and arriving at low tide as the sun woke up. We had many adventures together in Baja, most marvelous - some harrowing - but all wonderful if the shelling was good. Our afternoons would usually be spent sorting and cleaning our treasures and trying to identify our finds - or maybe napping. Then, of course, there were night low tides but that is another story.

"Later on Margaret tried her hand at writing up some of her shelling adventures. [She described the results of her dredging operations with Dave throughout the Gulf of California, at Isla Danzante, Bahía de los Ángeles, and Isla San Marcos (Mulliner, 1996, 1999, 2000).] She became very interested in minute shells and enjoyed sorting them under the microscope and struggling, like the rest of us, with the identifications. Epitoniums were one of her favorite families.

"Margaret died peacefully in her sleep at home on February 13, 2010. She is survived by sons Stephen and Paul, daughter Donna, three sisters and four grandchildren. We'll miss her."

Ithycythara mullinerorum Wiedrick, 2022 (Plates S19a-b)

Medium-sized shell, 7.2 mm high. Slender, elongate-rhomboid in shape. Shell glass white with three protoconch whorls and seven teleoconch whorls. Subtle, fine axial striae and points on ribs less dramatic on final whorl. Aperture elongate, parietal callus denticle small, columellar region absent of microscopic pustules.

Distribution: Known only from the type locality, Bahía de los Ángeles, Baja California, Mexico. Dredged between 30-50 m in sand and rubble.

"Honoring the late conchologists David and Margaret Mulliner, who had shown great determination by dredging...in the Gulf of California....Their motivation to collect and process material from these dredge hauls have been of great benefit to the science of malacology in the region" (Wiedrick, 2022: 36).

Billee Dilworth (1916-2007)

(Figures 10, 58)

Billee Langdon Dilworth Mabry Gerrodette (1917–2007) was an American diver and shell collector active in shell clubs and collecting expeditions during the 1960s–1990s. Billee was the younger sister of Twila Langdon Bratcher-Critchlow, a noted terebrid gastropod specialist with whom she dived and traveled extensively. Billee's early life was spent in Wyoming and Idaho; by the early 1950s she had moved to southern California, settling in La Jolla until her death in 2007. Like her sister, she earned a SCUBA diving certification in 1953, which was one of the first for an American woman. In 1965, her sister Twila and Helen Dushane, a taxonomic specialist and colleague, named an epitoniid gastropod species after her, *Scalia billeeana* (now *Epidendrium billeeanum*), which Billee had collected in the 1960s off Isla Cerralvo, Gulf of California, Mexico.

Billee's knowledge of shells and mollusks was gained largely through diving, collecting, and meeting with other shellers and malacologists in the SDSC and WSM. Billee was a charter member of both and served as president of the former in 1965 (Martin, 1973). She chaired several WSM committees and co-authored talks with her sister at its annual meetings. Billee also volunteered at the SDNHM with other members of the SDSC, rearranging and improving its shell collection (Martin, 1973).

Billee and Twila organized diving and collecting expeditions around the world, often to remote locales where tourism was rare for westerners, especially women. In 1969, they published advice for such excursions in the *Hawaiian Shell News*, the bulletin of the Hawaiian Malacological Society (Bratcher and Dilworth, 1969a, 1969b). This two-part article focused on diving gear, health and safety, shell collecting, specimen handling, and shell storage. Included were directions for using Halizone tablets to purify drinking water, reinforcing pigskin gloves for specimen collecting, and how to use ants to remove left over tissue in recently cleaned shells (temporarily bury them near an ant hill!).

Billee also contributed ten articles to the SDSC's newsletter *The Festivus* from 1972–1985. In one she recalled the thrill of hearing gray whales exhale at night off Baja California, Mexico (Dilworth, 1974a). In another, she recounted the fun of feeling for spiny nerites in a muddy stream on Hiva Oa, an island of the Marquesas Archipelago (Dilworth, 1974b). Billee detailed SCUBA diving at 75 ft off Oahu, Hawaii (Dilworth, 1976), looking for sea slugs among the *Caulerpa* algae served as a side dish in Western Samoa (Dilworth, 1972), and preparing to make chowder out of a southern California giant keyhole limpet when she discovered a pea crab inside (Dilworth, 1977). Billee's collected specimens, housed at several U.S. museums, are a legacy of her many adventures, adventurous disposition, and love of the sea. (Text courtesy of Jann Vendetti.)

Epidendrium billeeanum (DuShane & Bratcher, 1965) (Plates S20a-b)

Originally *Scalina billeana*. Moved to *Epitonium* by DuShane, 1967. Placed in the new genus *Epidendrium* by Gittenberger & Gittenberger, 2005.

Shell covered with yellow periostracum; three to four smooth, glassy nuclear whorls. Six to seven postnuclear whorls. Strong cancellate sculpture of 16-18 raised spiral lines on the last whorl. Shell 12-19 mm in length.

Ectoparasitic on the stony coral *Tubastraea coccinea* Lesson, 1830 (Bertsch & Aguilar Rosas, 2016).

Distribution: Type locality, southwest end of Isla Cerralvo, Gulf of California, ranging south to the Galápagos Islands. The reports of this species from stony corals in the Indo-Pacific are actually records of *Epidendrium aureum* and *Epidendrium sordidum*, species described by Gittenberger & Gittenberger, 2005.

This is the only eponymous species named by the person's sister and a colleague, both of whom also have species named in their honor.

Twila Bratcher (1911-2006)

(Figures 10-11, 55, 58)

Twila Langdon Bratcher-Critchlow was an American conchologist, diver, shell collector, taxonomist, and author whose activity and achievements within malacology spanned the 1950s–1990s (see Bailey, 2007, McLean, 2007, and Cernohorsky, 2007, in *The Festivus* Twila Bratcher Critchlow Memorial Issue). Though not formally trained in biology, Twila became an expert in the marine gastropod family Terebridae and collaborated closely with malacologists Robert Burch (LACM) and Walter Cernohorsky (Auckland Museum, New Zealand) (Bratcher and Burch, 1970; Bratcher & Cernohorsky, 1987). She authored 73 papers on shell collecting, diving, and gastropod biology and taxonomy, and described 35 gastropod species (Groves, 2007). Twila leant her terebrid expertise to A. Myra Keen's *Sea Shells of Tropical West America* published in 1971, and in 1987 at the age of 76 co-authored *Living Terebras of the World* with Walter Cernohorsky. Within Twila's collections were dozens of gastropod species new to science, nearly all of which (over 15,000 shell lots) were donated to the LACM. Malacologists from around the world have honored her with seven valid gastropod eponyms.

Twila moved to Southern California in the early 1950s with the man who would be her husband for 45 years, Ford Bratcher, after spending much of her early life in Wyoming and Idaho. In La Jolla, San Diego, Twila became active in shell collecting (i.e., "shelling"), skin diving, and SCUBA diving. In 1953 she earned one of the first recreational SCUBA certifications for an American woman. Twila continued to dive into her 80s, and in 2019 was posthumously inducted in the Women Divers Hall of Fame (Petuch and Berschauer, 2019).

In the 1960s, she developed and chaired an outreach effort of the SDSC that provided boxes of gastropods and their names in Braille to children attending the Frances Blend School for the Blind in Los Angeles. A Braille-printed article Twila wrote about skin diving and shell collecting called "Raptures of the Deep" was also included in an anthology of stories distributed to all blind children from third to sixth grade in California in 1963 (Bratcher, 1964). Later, Twila created an endowment for invertebrate collections at the Scripps Institution of Oceanography in San Diego, California (Hlebica, 1999), and a malacology curatorial position at the LACM, which was filled in 2014 by Jann Vendetti (also honored herein).

An active research associate at the LACM, Twila also served as Councilor-at-large, Vice President, and President of the WSM during the 1970s (McLean, 2007). Her extensive knowledge of mollusks and their shells earned her the role of shell show judge and invited speaker at shell club meetings in Southern California and beyond (Bratcher, 1982; Funkhouser, 2007). Throughout the 1960s-1980s, Twila and her sister Billee organized expeditions for like-minded divers and shellers, often inviting members of the SDSC, within which they were quite active. These trips explored remote locations in Baja California, Mexico; Cuba; The Marquesas Islands; Western Samoa; Hawaii, Thailand; Micronesia; the Galápagos Islands; and Senegal (Bratcher 1972; Bratcher 1974a; Bratcher 1975; Bratcher and Dilworth, 1974). Twila wrote about these adventures and other subjects in the *Hawaiian Shell News*, the newsletter of the Hawaiian Malacological Society, of which she was also a member. Her articles describe and detail expeditions, diving conditions, collecting methods, biodiversity, and the lives of local people in places that had experienced little foreign tourism. They also reveal a lot about Twila.

For example, Twila wrote a sympathetic account of the prisoner who was her translator and island guide at the penal colony of Tres Marias (or Islas Marías) in Mexico, where she dove and collected in 1962 (Bratcher, 1962). On using a microscope to sort sediment with microgastropods, she remarked with awe that "a spoonful of sand becomes a colorful beach" (Bratcher, 1967). In 1967, she and her sister Billee recommended, pragmatically, to dive in jeans and a dark-colored long-sleeved shirt because they protect one from sunburn, fire coral, and "are less likely to attract sharks" (Bratcher and Dilworth, 1969a). In 1974, Twila proposed a synonymy after scrutinizing shell sculpture in hundreds of terebrid specimens, humbly noting that "future anatomical work may prove otherwise" (Bratcher, 1974). And during several expeditions in the 1970s, Twila described diving with an underwater slate for recording observations, two quart-sized collecting jars, and an 18-inch crowbar for overturning rocks (Bratcher, 1972). She was in her 60s.

Accounts by Twila's friends and colleagues describe her as dedicated, generous, adventurous, and beloved (Funkhouser, 2007; Bailey, 2007). Within the newsletter of the SDSC in 1971, Twila recounts being temporarily

stranded without functioning dive gear in a small dingy with several other divers off the coast of the Galápagos Islands when it began to rain: "We sat in the boat, and it began to sprinkle. Then it poured. Even though we were almost on the equator it was not warm. Our wet suit jackets and jeans for diving kept us from being too uncomfortable but we sat, huddled, trying not to think of the hours we must wait to be picked up. Sheer perpendicular cliffs eliminated the possibility of even trying to scull to shore." Instead of lamenting the situation, Twila said to her diving buddy Ellen Brennan, "Look at the dimples the rain makes on the [ocean] surface. Let's get in and see what it looks like underneath." (Bratcher, 1971: 7). This sense of bold curiosity typified Twila's life. Regarding the pronunciation of scientific names, Twila is said to have stated, "You mispronounce it your way and I'll mispronounce it my way." (Text courtesy of Jann Vendetti.)

Splendrillia bratcherae McLean & Poorman, 1971 (Plate S21)

Shell with glossy surface, pale "flesh"-colored, with a yellow-brown band in the subsutural area. Spiral sculpture absent. Deep, u-shaped sinus, parietal callus a massive pad. Reaches 12.3 mm in length.

Distribution: In the Gulf of California, from south of Isla Tiburón (type locality) to La Paz, Baja California Sur, Mexico.

* *Cymbovula bratcherae* (C. N. Cate, 1973) (Plate S22)

Synonym = *Simnialena rufa* (G.B. Sowerby I, 1833). See Lorenz & Fehse, 2009.

Elongately ovate shell, body whorl rather broadly inflated centrally, subcylindrical, very thin, translucent. Dorsum smooth, highly glossy, essentially without dorsal striae. Most distinctive is a readily visible ridge along the entire length of the columella. Rose-colored shell reaches 15-17 mm in length.

Distribution: Type locality for *C. bratcherae* Pulmo Reef, Baja California Sur. Ranges from southern California to El Rubio, Tumbes, Peru (Paredes & Cardoso, 1998).

Terebra twilae Bouchet, 1983 (Plates S23a-b)

Shell with 14 whorls. Length 21.5 mm, width 4.5 mm. Teleoconch sculpture consists of axial ribs and weak spiral cords. Aperture is narrow, siphonal canal of average length. Color uniformly cream white.

Distribution: Known only from type locality off Ghana, west Africa, on muddy bottom, 17 m, 05º 45' N; 00º 57' E.

Terebra bratcherae Cernohorsky, 1987 (Plate S24)

Shell 9.7-14.1 mm in length; width 20-25% of length. Teleoconch with 8-10¼ weakly convex to almost flat-sides whorls. "Upper spire whorls with a moderately crisp sculpture of arcuate axials and 6-7 spiral threads" (p. 117). Axial and spiral sculpture become obsolete on last two whorls. Small aperture with calloused columella. Cream colored, with nebulous orange-brown axial streaks.

Distribution: Holotype dredged northwest of Rottnest Island, Western Australia, between 183-192 m deep, 31º 44' S; 115º 03' E.

Epifungium twilae (A. Gittenberger & Goud, in A. Gittenberger et al., 2000) (Plates S25a-c and S26)

Originally *Epitonium twilae.* See Gittenberger & Gittenberger, 2005.

Shell very fragile, broad-conical, creamy white, to 17 mm in length. Up to 9 bulbous teleoconch whorls, sculptured with fine, unevenly spaced, more or less obsolete costae and numerous low spiral threads.

Roundish white egg capsules, transparent, closely connected along a mucous thread. There are 342-425 white eggs per capsule.

Found underneath scleractinian fungiid corals in groups of 1-14, accompanied by a few hundred egg capsules.

Specimens of this species had been misidentified by various authors as *Epitonium bullatum* (Sowerby II, 1844) [= *Globiscala bullata* (Sowerby, 1844)]. The holotype of *E. bullatum* has a more globular, less fragile shell, with prominent costae and only about five teleoconch whorls at a length of 19 mm. Gittenberger & Goud's species "is named after Mrs. Twila Bratcher, of Los Angeles, California, USA, who first differentiated the new taxon from *E. bullatum*" (A. Gittenberger et al., 2000: 11).

Distribution: Holotype collected in Indonesia, Sulawesi, off Ujung Pandang, by W. Bone Baku, from 6 m.

Epifungium pseudotwilae A. Gittenberger & E. Gittenberger, 2005 (Plate S26)

Shell fragile, more broadly conical than most other epitoniid shells, with flattened to slightly convex whorls, creamy white; reaching 18.5 mm in height. The protoconch with three and a quarter to three and a half whorls; apart from its smooth apical part, it is sculptured with regularly spaced, very fine, incised, axial lines. The teleoconch has up to eight and a half whorls, separated by a somewhat indented suture; it is sculptured with mostly regularly placed very low costae, The teleoconch is additionally sculptured with numerous, inconspicuous spiral threads, which are usually obsolete on the initial whorls.

This species differs from *Epifungium twilae* in the numbers of costae on the teleoconch whorls, the form of the aperture, and their different habitats. *Epifungium pseudotwilae* is associated with the fungiids *Podabacia crustacea* (Pallas, 1776), *Sandalolitha robusta* (Quelch, 1886), *S. dentata* Quelch, 1884, and *Zoopilus echinatus* Dana, 1846, while *E. twilae* is associated with *Ctenactis crassa* (Dana, 1846), *C. echinata* (Pallas, 1766), and *Herpolitha limax* (Esper, 1792).

Distribution: Type locality, Palau, northeast of Ngeremdiu, Lighthouse reef, fore-reef. Also reported from other sites throughout the Indo-West Pacific, from the Maldives, the Philippines, and Indonesia to Palau.

Hemilienardia twilabratcherae Wiedrick, 2017 (Plate S27)

Moderately small sized shell, 3.7 mm in height, with a distinctive protoconch sculpture. Four protoconch whorls, first whorl smooth, small, elevated, proceeding whorl finely decorated with minute cords, last two whorls with finely set riblets. Final whorl of teleoconch with 14 cords and 12 pronounced ribs. Aperture wide, outer lip with four strong denticles, inner lip with only one at mid-canal.

Distribution: Off Liang Island, Hansa Bay, Madang Province, Papua New Guinea (4° 10.4' S, 144° 52' E), in sand around coral heads at 24m.

"Named after the late malacologist, Twila Bratcher, a great contributor to the science of malacology and who collected the holotype specimen here described" (Wiedrick, 2007: 29).

Conus bratcherae (Petuch & Berschauer, 2019) (Plates S28a-b)

Originally *Darioconus bratcherae.* See Puillandre et al., 2015.

Cylindrical, fusiform shell, reaching 33.6 mm in length. Body and spire whorls pure white, covered by a network of small and large interconnected reddish-brown triangles (with white interiors).

Distribution: Holotype found on sand and rubble bottom, 2 m, off Eilat, Gulf of Eilat, Israel.

Kirstie L. Kaiser

(Figures 10, 12-13)

An internationally experienced diver, expeditioner, and worldwide-traveler, Kirstie L. Kaiser (1949-present) has spent much of her life documenting Recent mollusks, especially micro-species, of the tropical eastern Pacific. An invitation in 1985 to join a research expedition to Isla del Coco, Costa Rica, first sparked her interest in the oceanic islands of the tropical eastern Pacific, particularly the Islas Revillagigedo, Mexico; Île Clipperton, an uninhabited French possession; Isla del Coco, Costa Rica; Isla de Malpelo, Colombia; and the Galápagos Islands, Ecuador (Kirtsie L. Kaiser, pers. comm. 27 March 2021). Kirstie's exploration of these remote islands resulted in her early documentation of their histories, physical environments, and marine fauna, especially mollusks, and provided important bases for studies by later workers of these locations and other remote tropical eastern Pacific sites.

Kirstie was born in Rochester, New York, to Richard Lee Kaiser (1922-1961), a pilot, flight instructor, and owner of a small private airport, and June Northrup Kaiser (1924-2021), a grade-school teacher and amateur pilot who raced in Powder Puff Derbies. While Kirstie was growing up, her family moved from New York to various other U.S. states and Ilo, Peru, to follow Richard Kaiser's career. During her high school years in Phoenix, Arizona, Kirstie switched from an interest in horses to spending hours every day practicing target archery, all of which resulted in her tying state archery records in high school and breaking national records in college. In 1967 she was national intermediate women's champion; in 1968 she took 2nd place in the U.S. Intercollegiate Archery Championships, was a member of the 1967-1969 All-American teams, and was the 1968 Southwest Women's Champion. In 1984 Kirstie served as Director of Protocol of the archery venue for the XXIII Summer Olympiad in Los Angeles, California.

All the while Kirstie was gaining a reputation in the archery world, she was also pursuing education and career goals at Arizona State University, where she received one of the first women's athletic scholarships and went on to earn a Bachelor of Arts degree in education in 1971 and a master's degree in education in 1978. For the next two years she taught in Kyrene Elementary School District (1971-1973) and shortly after for the Glendale Union High School District (1973-1979) in Arizona.

Kirstie married Joseph Richard Johnston (1933-2009) in 1980, a business executive and accomplished amateur sportsman. The couple shared a variety of interests, including outdoor sports such as scuba diving, skiing, field archery, golfing, and traveling the world. Both licensed pilots, they flew their private plane to 49 of the 50 contiguous states. After Joe retired, they took up the Argentine tango and made trips to Buenos Aires together to balance his love of golf and Kirstie's dedication to her marine activities. She and Joe moved in 1994 to Puerto Vallarta, Mexico, where Kirstie frequently hosts fellow malacologists and divers from around the world.

Besides having lived in Ilo, Peru (1959-1961), Amsterdam, The Netherlands (1990-1993), Paris, France (1993-1994), and Puerto Vallarta, Mexico, Kirstie has traveled extensively in Europe and Eastern Europe, Russia, Antarctica, India, Madagascar, Papua New Guinea, Cuba, China, Kenya, South Africa, Botswana, Zambia, and Zimbabwe. She journeyed down the Amazon River in 1997 and 2016; in 2017 she observed two different troops of mountain gorillas in Rwanda, Africa. The diving interests that Kirstie first took up in 1971 have taken her to many parts of the world, including Mexico, the West Indies, Bahamas, Philippines, Solomon Islands, and Cayman Islands. Between 1982 and 2007, she took part in over 30 scientific expeditions, including eight trips to Isla del Coco, Costa Rica (1985-1997), three to the Gulf of California (1990, 1993, 2002), four expeditions each in Panama (1993, 1998, 2000, 2003) and Îsle Clipperton (1994, 1998, 2004-2005, 2007), and other expeditions to the Great Barrier Reef and Coral Sea (1982), the Red Sea (1985), Cuzco, Machu Picchu, Altiplano (1997), Galápagos Islands (1988), Islas Revillagigedo, Mexico (1988, 1994, 1998), Western Australia (1996), Marquesas Islands (1999), Isla de Malpelo, Colombia (1998, 2000), El Salvador (2001), and Fiji (2004).

With over 2,000 hours of underwater collecting and research diving, Kirstie holds open water and advanced diver certifications as well as classification as a Scientific Diver from the Smithsonian Institution (1998-2004). In addition to acquiring an extraordinarily large personal shell collection, she has collected for and donated crabs, fish, sea stars, mollusks, sponges, and other marine specimens not only to the expeditions she has been part of, but also to the SBMNH, the LACM, and the CAS; to the Gobiod Research Institute of Texas A & M University; Natural History Museum of Utah; AMNH in New York City; the Smithsonian Tropical Research Institute in Balboa, Panama; the Zoölogisch Museum in Amsterdam, Netherlands; Muséum national d'Histoire naturelle in Paris, France; Universidad de Costa Rica (Repositorio); and the Charles Darwin Research Station, Galápagos Islands. She is the author or coauthor of over 30 papers in malacological journals, including several in

The Festivus and others in *The Veliger*, *Zootaxa*, *Miscellanea Malacological*, and *Revista de Biología Tropicál*. Her subjects have ranged from descriptions of the marine fauna of the Galápagos Islands and lists of mollusks found in the Gulf of California and Rocas Alijos, Mexico, to new distribution records and biological behaviors of various species of mollusks at Île Clipperton (Kaiser, 2007) and marine locations in Panama, Costa Rica, Colombia, and Mexico. "The Recent Molluscan Marine Fauna of Isla de Malpelo, Colombia," a coauthored 2001 paper with Clayton W. Bryce, and a 2011 coauthored paper in *Zootaxa* (2839: 1-46) on the sponges of Île Clipperton (Van Soest et al., 2011) are representative of her broad and diverse interests.

Kirstie has in the past been a member of the Hawaiian Malacological Society, the SDSC, the CCSC, the AMS, and the WSM (Member-at-Large, 1995-1998, 2005; Secretary, 1990-1991; Vice President, 1992-1993; President, 1994). She has been a research associate at the Amsterdam Zoological Museum (1989-1993) and is currently a research associate at the SBMNH and LACM. Widely respected for her global fieldwork and scientific contributions, she was elected a member of The Society of Women Geographers in 2019.

Osachila kaiserae Zimmerman & Martin, 1999 (Plates S29a-b)

This is a brachyuran crab, a crustacean among all these molluscan eponyms.

“Carapace semioval anteriorly converging posteriorly; anterolateral margins with 4 tripartite teeth separated by short sutures, cusps of teeth low, obtuse, nearly equal; posterolateral margins straight, with 4 subequal obtuse to rectangular teeth, anterior largest, slightly protruding; dorsum uneven but not rough, with triangular pattern of nodulose swellings. Manus of chelipeds with 8 widely spaced rows of protruding subcapitate peglike tubercles” (p. 660). Color of living animals unknown.

Specimens of this species from the Isla del Coco had been in the Allan Hancock Collections (University of Southern California) since 1938 but misidentified as other species. The authors were surprised that it had gone unnoticed for so long, since it was clearly separable from the descriptions of the other brachyuran crabs with which it had been confused.

“The new species is named for Kirstie L. Kaiser, collector and donator to the LACM of many specimens from Cocos Island and other eastern Pacific locations” (Zimmerman & Martin, 1999: 664).

Distribution: Holotype collected off Bahía de Chatham, Isla del Coco, Costa Rica, in 82 m by Kirstie Kaiser. Specimens are known from 57-219 m on sand, rocks, coralline and shell rubble, from various locations around Isla del Coco and from the mouth of the Gulf of Nicoya, Costa Rica.

Condylocardia kaiserae Coan, 2003 (Plates S30a-d)

Oblique-trapezoidal shell reaches 3.1 mm in length. It is much larger posteriorly. The anterior end is sharply rounded, and the posterior end is broadly rounded. Sculpture of 11-14 radial ribs.

Distribution: Type locality east side of Isla Marchena, Galápagos Islands, on rock and coarse sand bottom. Also known from the Islas Revillagigedo, Mexico, and Isla Malpelo, Colombia, from 12-274 m (Coan & Valentich-Scott, 2012).

Scissurella kaiserae Geiger, 2006b (Plate S31)

The small 0.4-0.6 mm shell is trochiform depressed, with an off-white color. The one-whorled protoconch has fine axial sculpture. Teleoconch whorls with 17-20 distinct axial cords, and the interstices are filled with fine irregular growth lines.

Radula rhipidoglossate. Cusp of the triangular rachidian with seven denticles; five lateral teeth.

Distribution: Type locality Baja Alcyon, Isla del Coco, some 500 kilometers off the coast of Costa Rica. Known from 8-62 m along the coast and offshore islands throughout the Panamic Province, from 4º N to 28.5º N, including the southern half of the Gulf of California, Mexico.

Polycera kaiserae Hermosillo & Valdés, 2007a (Plates S32a-b)

This colorful dorid nudibranch has a light to dark pink body covered with white spots. The oral veil processes, pedal corners, branchial plumes, rhinophores, extrabranchial appendages and tail have a navy blue band with white tips. Living animals reach 24 mm in length.

Typical polycerid radular formula of 11 x 2.1.1.0.1.1.2. Feeds on bryozoans.

Distribution: Known only from the type locality, El Morro, Bahía de Banderas, Jalisco-Nayarit, Mexico. Only known from Bahía de Banderas, between 7-30 m.

Periploma kaiserae Valentich-Scott & Coan, 2010 (Plates S33a-d)

Elongate-oval shell to 15 mm in length. Both valves inflated, the right slightly more than the left, with broadly inflated ends. Chondrophore small, rounded.

Distribution: Known only from the type specimen, collected in 11 m on a muddy bottom off Playa El Espino, Usulután, El Salvador.

The genera *Periploma* and *Stirpulina* have formerly often been placed within the order Anomalodesmata. However, Carter et al., 2011, consider them members of the orders Thraciida and Pandorida, respectively.

Conus kaiserae (Tenorio et al., 2012) (Plate S34)

Originally *Dauciconus kaiserae*. See Puillandre et al., 2015.

Maximum length of shell 24.2 mm. Protoconch consists of more than seven whorls, the protoconch consists of two and a half to three whorls. Only the earliest spire whorls are coronate. Whorl tops of the first few whorls are flat in cross section, later whorls become progressively more concave in cross section with the whorl tops of the final 4 whorls becoming distinctly channeled. Coloration consists of two orange to yellow-orange bands, interconnected by regularly spaced longitudinal lines at midbody and at the shoulder angle but not at the anterior end.

Radula tooth of the vermivorous type (see Endean & Rudkin, 1965, Lim, 1969, Nybakken, 1970, Kohn et al., 1999, and Nishi & Kohn, 1999). Apical end of tooth with short barb and a much longer blade covering almost two-thirds of the anterior half of the tooth. Tooth has a distinct waist with a row of serrations visible for the full length of the blade.

Distribution: Type locality, northeast of Isla Manuelita, Isla del Coco, Costa Rica, at 110 m. Probably endemic to Isla del Coco.

"This species is named in honor of Kirstie L. Kaiser of Puerto Vallarta, Mexico, who has actively studied the mollusks of the oceanic islands of the tropical eastern Pacific and has published surveys of the malacofauna of Galápagos Islands, Isla de Malpelo and Clipperton" (Tenorio et al., 2012: 44).

Carole M. Hertz (1932-2025)

(Figures 10, 13, 58)

Carole Hertz was born in New York City, New York in 1932. She received a Bachelor of Arts degree from Queens College, New York City, in 1953 and taught for several years (1953-1956) at elementary schools in New Rochelle, New York, and Teaneck, New Jersey (1956-1957). Following a move with her husband Jules to California in the 1960s, she became interested in shell collecting after finding the shell of an *Astraea undosa* (Wood, 1828) [now = *Megastraea undosa* (Wood, 1828)] at Point Loma, near her home in San Diego, and began assiduously looking through shell books at local libraries. She and Jules joined the SDSC in 1965 and spent the next four decades as energetic members and leaders of the Club.

In addition to serving at various times as librarian, treasurer, secretary, or president, Carole served from 1970-2014 as editor of *The Festivus*, the SDSC's monthly peer-reviewed and highly respected publication. Under her leadership *The Festivus* published significant papers on malacological and conchological subjects by expert amateur club members and numerous recognized malacological authorities. After retiring as editor of *The Festivus* in 2014, Carole continued to write for *The Festivus* and to work as a Museum Associate at the SDNHM, where she was a volunteer for more than 40 years.

Carole published over 200 papers and notes in *The Festivus*, *The Nautilus*, *Venus*, and other malacological journals, and is the author of three longer studies published as supplements in *The Festivus*. With her colleagues at the SDNHM, she illustrated the type specimens of species named by S. Stillman Berry (Hertz, 1984), catalogued the Typhidae (D'Attilio & Hertz, 1988), and reported on the bivalves of San Felipe, Baja California (Gemmell et al., 1987).

Jules Hertz, Carole's husband, took up shell collecting and joined the SDSC with his wife in 1965. He was born in Passaic, New Jersey, and studied chemical engineering at Newark College of Engineering. He and Carole moved to San Diego after Jules was hired by General Dynamics and worked as a manager of materials and processing for over 30 years. He received awards and also held several patents as a result of his work. In addition to serving for over four decades in various SDSC leadership roles, including seven times as president and once each as vice president and recording secretary, he wrote book reviews for *The Festivus* as well as papers on minute mollusk species, shells from Antarctica, collecting at Santa Catalina Island, San Miguel Island, and Mission Bay, and new distribution records. He was joint author with Carole of *Niso attilioi* (Hertz & Hertz, 1982).

The Hertzes collected shells at numerous locations around the world, including the Pacific coast of North America, Mexico, Hawaii, Fiji (see Hertz, 1976), Tonga, Western Samoa, and Australia. They often wrote about the results of their collecting and dredging, especially in the Gulf of California, with their friends and colleagues Margaret and David Mulliner and Carol and Paul Skoglund (e.g., Hertz, 1970; Hertz & Skoglund, 1992; and Skoglund & Mulliner, 1996). Their large collection of eastern Pacific and Panamic shells has been donated to the SBNHM. The contributions of Carole and Jules Hertz to shell collecting and malacology were recognized in 2013 when the SDSC presented them with its Award for Lifetime Contributions to Conchology and Malacology for their many years of work and support for others in the study of mollusks.

Coralliophila caroleae D'Attilio & Myers, 1984 (Plate S35)

Small, biconic shell, between 12.5-19.2 mm. Swollen body whorl with moderately angled shoulder; tapers to an open, short canal. Protoconch with three ridged and beaded whorls. Six postnuclear whorls. Axial sculpture with 9-14 ribs, fading and becoming barely visible on body whorl.

Distribution: Type locality Bohol Straits, between Cebu and Bohol Islands in the Philippines, dredged with bottom nets from 75-100 m.

Petricola hertzana Coan, 1997 (Plates S36a-d)

Ovate shell, reaches 7 mm in length. Anterior end shortest. Shell inflated and thin, with broad beaks. Low radial ribs may or may not be present. Hinge teeth relatively small. Ligament shallow, lacking either lunule or escutcheon. Color varies from cream to dark chocolate brown, in patches or radial bands.

Distribution: Type locality kelp beds, San Pedro, California; ranges from Santa Monica, California, to Bahía Magdalena, Baja California Sur, Mexico, from the intertidal to 27 m. It has been reported under the name *Petricola tellimyalis* (Carpenter, 1864a) from Pleistocene strata at Playa del Rey and Newport Bay, California (Willett, 1937: 390; Kanakoff & Emerson, 1959: 24).

Named for Carole and Jules Hertz.

Cirsotrema hertzae García, 2010 (Plates S37a-b)

Skoglund & Hertz (2010) reported that species previously identified as *Cirsotrema togatum* Hertlein & Strong, 1951, actually comprise a three-species complex. This is one of them.

Shell reaches 39 mm in length. Teleoconch with 10 whorls. First 4 whorls shouldered, rest a only slightly convex. Complicated axial sculpture of ruffled lamellae and sutures. Elongation of axial elements develop into "buttresses" (the common name used by Skoglund & Hertz, 2010), creating a series of large pits; 14 such pits on each of last two whorls. Shell color chalky-white, operculum black with a central nucleus.

Distribution: Type locality in the Gulf of California, Isla Danzante, Baja California Sur, Mexico. This species has been recorded from Isla San Pedro Nolasco, Sonora, Mexico, to Golfo de Chiriquí, Panama, usually in depths between 18-100 m.

"Named for Carole M. Hertz...[who] has published numerous malacological articles and has been the editor of *The Festivus*, the well-known publication of the San Diego Shell Club, since 1976" (García, 2010: 95).

Ithycythara hertzorum Wiedrick, 2022 (Plates S19a, S38)

Small, slender, elongate 5.5 mm shell. "Conical apex, small, erect initial protoconch whorl, strong riblets on the final protoconch whorl, projections at rib intersections of initial teleoconch whorls very low, parietal region indistinct, parietal callus denticle absent, outer lip denticles weak and siphonal canal termination flat" (p. 32).

Distribution: Known only from the type locality, 0.8 km off the mouth of Bahía Huevos, Guanacaste Province, Costa Rica. Type material collected by Patrick I. LaFollette and Don Cadien, from the R/V *Searcher*, in 1972.

Sinezona carolarum Geiger & McLean, 2010 (Plates S39a-c)

Another incredibly small scissurellid illustrated with scanning electron microscopy. In members of the genus *Sinezona* Finlay, 1926, the slit to the foramen is closed at maturity, and the keels of the foramen are not elevated to form a chimney. Adult shells of *Scissurella* d'Orbigny, 1824, have an open foramen.

Trochiform shell reaches 0.54 mm in size. Protoconch with 0.875 whorls, fine axials on outer portion of whorl. Teleoconch with about 1.4 whorls, with distinct axial cords. Open umbilicus, bordered by a moderately strong spiral cord.

Central rachidian tooth of radula triangular, with five denticles on the cusp. Inner marginal teeth with terminal denticle largest; outer marginals are spoon-shaped with numerous denticles on both sides of the cusp.

Distribution: Holotype collected 15-30 m deep, on the east side of Île de Clipperton. Also known from the Islas Tres Marias, Mexico, and Isla del Coco, Costa Rica.

This species was named for Carole Hertz and Carol Skoglund.

Southern Californian researchers have a history of examining the small. For years, a team of volunteers helped Jim McLean at the LACM sort through "grunge," finding tiny shells often overlooked in dredge samples. In a series of papers in *The Tabulata*, Bert Draper published photographs and descriptions of specimens under 10 mm. In Part 8 of his series (Draper, 1974), he illustrated eight species between 0.9-1.4 mm. Although not small by today's standards, they were approaching the limits of micro-photography back then. Members of the SDSC were equally busy "grunging." Using Dave Mulliner's photographs, Jules Hertz published multiple articles titled "Minute Shells" (see the first, J. Hertz, 1976), emphasizing shells collected by club members in the Gulf of California and other localities.

Carol Skoglund (1924-2015)

(Figures 11, 13-14, 55-58)

We cannot improve on the biography/obituary written by Carole Hertz (2015) in *The Festivus*. Moreover, it gives additional insights into the lives of two other of our eponymous honorees, Carole Hertz and Kirstie Kaiser:

"Carol Skoglund was a close friend of mine and of the many who knew her. She was very bright, kind, fun, and humble. She is known throughout the malacological world for her knowledge of Panamic mollusks and her willingness to share information on mollusks and help kindred workers, amateur or professional.

"Carol was born in Long Beach, California, on November 25, 1924 and passed away at age 90 on January 6, 2015. She graduated from Lincoln High School in Los Angeles, California in June 1941. After meeting her future husband, Paul Skoglund, whom she married in October 1942, they relocated to Phoenix, Arizona, for his job, and where she and Paul raised two children, Stan and Christine. Once the children were grown, she decided to complete her education at Phoenix College in Phoenix, Arizona, where she majored in zoology receiving an Associate of Arts Degree in June 1966. She then continued in zoology at Arizona State University in Tempe, Arizona, earning her Bachelor of Science degree in June 1968 and her Master of Science degree in August 1974. During this time she became very interested in mollusks. She was working as a graduate teaching assistant in the Zoology Laboratory at ASU (1968-70) and began collecting intertidally, publishing her first scientific study in 1965 on the *Gastropods of Cholla Bay, Sonora, Mexico*. By 1970, Carol was already publishing in professional journals on aspects of intertidal Panamic mollusks.

"She co-founded (with Beatrice Burch) the Southwestern Malacological Society of which she was president in 1967 and 1989. She also became active in the Western Society of Malacologists as Secretary 1969-1970, Member-at-Large 1975-1976, Treasurer 1977-1979, First Vice President 1980-1981 and President 1981-1982. It was at about this time that Jules and I became fast friends with Carol and Paul. We were all at the 1975 AMU-WSM meeting at San Diego State University and at the next WSM conference at SDSU in 1981 at which Carol was elected president of the organization.

"As a result of her collecting which brought in many intertidal and mid-tide shells, the Skoglunds started deep-water collecting with a dredge that Paul designed....With her collection growing quickly, including considerable duplicate material, Carol decided to start a retail mail-order shell business *Panamic Specimen Shells*, which she ran successfully from 1974-1987....This business also helped defray expenses of their travels while collecting in many areas of México, Ecuador, Costa Rica and Panama.

"The Skoglunds were very generous and invited us beginners to collect in Sonora, Mexico, where they had a little cabin on Cholla Bay. It was great fun. We hadn't collected there and Carol showed us areas that were new to us. There's nothing like being out in a low tide late at night with just a lantern and a bucket, trying to find your way back to a dark shore.

"We soon met many of Carol's friends, all 'shell nuts' who collected intertidally and/or by dredging and diving. Carol, Kirstie Kaiser, Jules and I traveled together so often we called ourselves 'The Three Musketeers and D'Artagnan.' Every trip was a new adventure, with Carol knowing the areas, the particular beaches, and what we might find there. It was great fun collecting and identifying our new acquisitions. Information gleaned from all these collectors was considerable and Carol felt that this information needed to be shared.

"By the year 1990, Carol decided that it was important that there be an update to Keen's (1971) historic volume on the molluscan fauna of the Panamic Province....Her first two supplements were published on the Opisthobranchia followed by the Bivalvia....Her final two supplements [were] published in 2001 on Bivalvia and Polyplacophora and in 2002 on the Gastropoda....[Skoglund, 2001; Skoglund, 2002].

"In 2010, Carol, a Research Associate at the SBNHM, donated her world-class Panamic mollusk collection of over 50,000 mostly self-collected specimens to the SBNHM. Her passing is a great loss to many. She is survived by her daughter Christine Aye; son Stan Skoglund and his wife Gail; four grandchildren, Andy Kye and his wife Theresa, Jeremy Aye and his partner, Lisle Richards, Erica Skoglund and Keith Skoglund, three great grandchildren, extended family and friends, and her beloved dog Lulu" (Hertz, 2015: 74-76).

Epitonium skoglundae DuShane, 1974 (Plate S40)

China-white shell, 5 mm in length, sturdy, with distinct rounded contour; one and a half nuclear whorls and five subsequent whorls. Axial costae (25-32) continuous from whorl to whorl, curved to follow the contour of the whorl.

Distribution: Known only from type specimens collected at Fort Amador, Panama, mid-tide level among gravel, by Carol Skoglund.

In her review of the Panamic-Galapagan epitoniids, DuShane (1974: 6) highlighted the importance of citizen scientists, writing, "Astonishingly, amateur collectors have provided more and better specimens than the museums. Apparently, the work of Keen (1958, 1971) has spurred collectors to become more discriminating in their selection of specimens and more discerning in their observations."

Crassinella skoglundae Coan, 1979 (Plates S41a-f)

Moderately inflated shell, length to 7 mm. Dorsal margin slopes strongly on both sides of beaks; posterior end longer; anterior end rounded sharply, and posterior end subtruncate. Sculpture of rounded commarginal ribs. Exterior color cream to medium brown, with some darker brown radial bands.

Distribution: Holotype collected by Carol and Paul Skoglund at La Cruz, Bahía de Banderas, Nayarit, Mexico, on mud bottom, between 7.5-15 m. Known from Sayulita, Nayarit, Mexico, to Bahía Tamarindo, Guanacaste, Costa Rica, in depths to 28 m.

The genus is known from the Cretaceous. Primitive features retained by members include a byssus in the adult and the anteroventral inhalant current.

Neoterebra carolae (Bratcher, 1979) (Plate S42)

Originally *Terebra carolae*. See Fedosov et al., 2020.

Moderately large shell, to 60 mm in length. Color dull brownish-beige with darker brown markings. Whorl outline flat; protoconch with one and a half smooth mamillate whorls; axial sculpture of 14 ribs on penultimate whorl. Aperture long, semi-quadrate. Recurved columella with two widely spaced, weak plications.

Distribution: Type locality Bahía Santa María, off Hughes Point, Isla Santa Margarita, Baja California Sur, Mexico, on shell bottom, at 54 m. All known locations off the Pacific coast of Baja California Sur, north to Isla Cedros, Mexico.

Ischnochiton carolianus Ferreira, 1984 (Plates S43a-c)

Very small chitons (largest specimen 8.5 mm long). Lateral areas well defined with small, convex, round granules in quincunx; central areas pitted in quincunx. Small imbricated girdle scales with 10-12 riblets.

Distribution: Holotype dredged from 100 m, San Carlos (5 km south of San Antonio Point), Guaymas, Sonora, Mexico. Paratypes from Isla Coronado, Bahía de los Ángeles, Baja California, Mexico. Also reported from Punta Ballandra, La Paz, Baja California Sur, and Mazatlán, Sinoloa, Mexico, from the intertidal (Reyes-Gómez, 2016).

Lepidozona skoglundorum (Ferreira, 1986) (Plates S44a-c)

Original generic placement in *Ischnochiton*. See Kaas & Van Belle, 1990, and Reyes-Gómez, 2016 for change.

"The species is named after Carol and Paul Skoglund, Phoenix, Arizona, who have generously provided these and many other specimens for study" (Ferreira, 1986: 451). Ferreira's original wrong genitive ending, "*skoglundi*," is herein corrected following the ICZN rules on Latin possessive endings.

Very small, yellowish white chitons, 2.4-4.8 mm long. Shell wide, ovate; valves not beaked, carinate; tegmentum dull and sculptureless. Girdle with imbrical, small scales, with round spherules on upper surface and riblets on side.

Distribution: Type locality off Playa Novillero, Nayarit, Mexico; dredged from 8-15 m. Also reported from Puerto Peñasco, Sonora, Mexico (Reyes-Gómez, 2016).

Cotonopsis skoglundae Jung, 1989 (Plate S45)

Fusiform, elongate high spire, length 36.9 mm. Whorls straight going to convex, shallow suture, no shoulder on spire whorls. Present, well-developed axial and spiral sculpture on early teleoconch whorls. No axial sculpture on late whorls. But there is well-developed spiral sculpture. Body whorl not inflated. Over five strongly developed teeth on inner surface of outer lip; edge of outer lip rounded. Aperture less than one-half total shell length.

Distribution: Known only from the type locality off Isla Danzante, Gulf of California, Mexico, dredged between 122-183 m.

Murexsul skoglundae (Myers et al., 1993) (Plate S46)

Originally *Muricopsis skoglundae*. See Houart et al., 2019, and Houart & Hendrickx, 2020.

Fusiform high spired shell, to 48.8 mm in length. Weakly defined suture. Eight teleoconch whorls. Four major spiral cords, three on body whorls, one on canal, terminating in long, recurved, open lamellose spines. Color cream to light tan, with an indistinct brown band between the second and third major cords. Spines suffused with pale rose; aperture white.

Distribution: Known only from the type locality, just south of Isla Danzante, Gulf of California, in 30-45 m of water.

Since collecting the first specimens in 1981, Carol Skoglund had been convinced this was a new species.

Typhina carolskoglundae (Houart & Hertz, 2006) (Plate S47)

Originally *Typhisopsis carolskuglundae*. See Houart, Buge & Zuccon, 2021: 144).

Heavy shell, up to 30.9 mm in length, with a high spire. Rounded protoconch with 2.7 whorls; teleoconch with up to five or six broad, strongly shouldered whorls. Newest three teleoconch whorls consist of four strong, broad, rounded varices, each varix with a broad, flat, long, inwardly pointing triangular flat spine at adapical extremity. Protoconch color off-white; teleoconch color white to cream with brown on shoulder spines and anal tubes.

Distribution: Type locality Playas del Coco, Guanacaste, Costa Rica, mud bottom, between 24-37 m. Known from Bahía San Carlos, Sonora, Mexico, to Isla Venado, Panama, and the Galápagos Islands, from the intertidal to 74 m.

Caecum skoglundae Pizzini et al., 2007 (Plate S48)

Shell a slightly arched tube, smooth and glossy, 2.88 mm in length. Apex much smaller in diameter. Microsculpture very fine growth striae, visible only under strong microscopic enlargement. Aperture simple, perfectly rounded. Color evenly whitish; periostracum thin and yellowish brown.

Distribution: Type locality Punta Chame, Panama Bay, Panama. Also reported from Cuastecomate and off Barra de Navidad, Jalisco, Mexico. Dredged from unknown subtidal depths by Carol Skoglund.

Sinezona carolarum Geiger & McLean, 2010 (Plates S39a-c)

See *Sinezona carolarum* above, under Carole Hertz.

Cirsotrema skoglundae Garcia, 2010 (Plates S37a and S49)

Widely tabulated shell, reaching 16.2 mm in length. Axial sculpture of approximately 25 ruffled axial lamellae on early whorls. Lamellae wider than interspaces, each one incrementally adding lamellae laterally on later whorls, eventually filling in the interspaces, creating beehive pattern of pits as crests of ruffles meet next axial element.

Specimens of this species were originally considered *Cirsotrema togatum*; Skoglund & Hertz (2010) called this form "wedding cake." It is distinguished from "buttress," or *C. hertzae* by its strongly tabulated profile, beehive pattern of pits, the thin, sharp basal cord, and small size.

Distribution: Type locality off Punta la Gringa, Bahía de los Ángeles, Gulf of California, Mexico. Also known from Costa Rica and Panama; dredged between 10-75 m.

Zacatrophon skoglundae Houart, 2010 (Plate S50)

This remarkable shell reaches 72 mm in length. Creamy white or tan. Suture deeply excavated, strongly impressed. Teleoconch with 8-11 lamellar ribs, producing short or long, flat, guttered or open, spine-like projections at shoulder. Large, broad aperture, rounded, with adapical portion starting at base of preceding whorl.

Distribution: Type specimen brought in by shrimpers from San Juanico, Pacific coast of Baja California Sur (west of Loreto), Mexico. Also known from the Gulf of California, three miles southeast of Punta San Antonio, Sonora, and from near Loreto, Baja California Sur, Mexico. Known to occur between 60-90 m.

Periploma skoglundae Valentich-Scott & Coan, 2010 (Plates S51a-f)

Shell ovate-elongate, to 12 mm in length. Right valve more inflated than left. Anterior end broadly to sharply rounded; posterior end truncate, with broad, deep radial sulcus, more prominent in right valve. Chondrophore moderately small, narrow, anteriorly directed.

Distribution: Holotype from Punta Chamela, Jalisco, Mexico. Small longitudinal range, known from Punta Raza, Nayarit, to Bahía Cuastecomate, Jalisco, Mexico, mud bottoms between 2-33 m.

"Named in honor of Carol Skoglund of Phoenix, Arizona, who has continually advanced our understanding of the Panamic Mollusca for the past four decades" (Valentich-Scott & Coan, 2010: 65).

Conus skoglundae (Tenorio et al., 2012) (Plate S52)

Originally *Gradiconus skoglundae*. See Puillandre et al., 2015.

The shells are small and somewhat narrow, from 17.9-26.3 mm in length. Narrowly conical shape with moderately elevated conical spire. First few whorls scalariform, remaining not. Sides slightly convex. Coloration consists of scattered spiral rows of spots along with occasional larger blotches. Color markings range from light to dark brown.

Distribution: Type locality Bahía los Frailes, Baja California Sur, Mexico, from 45.7-60.4 m. Also known from Bahía de los Muertos; also in the Cape Region of Baja California Sur, Mexico.

“This species is name[d] in honor of Carol Skoglund, Phoenix, Arizona, USA, who has collected and studied the marine mollusks throughout the tropical eastern Pacific for more than 50 years” (Tenorio et al., 2012: 65).

Nora Foster

(Figures 15-16)

Oceanographer, zoologist, and specialist in the taxonomy of Alaskan mollusks, Nora Rakestraw Foster (1947- present) resides in Fairbanks, Alaska, where from 1980-1997 she was Coordinator of the Aquatic Collection at the University of Alaska Museum (today's University of Alaska Museum of the North). Now retired from her museum role, Foster operates NRF Taxonomic Services, whose projects include identification of marine invertebrate specimens, analysis of benthic samples, interpretation of shelled fauna in kitchen midden sites, and related investigations. In addition to several journal papers and reports for federal, state of Alaska, out-of-state, and local organizations, she is the author of *Intertidal Bivalves: A Guide to the Common Marine Bivalves of Alaska* (Foster, 1991).

Nora Foster was born in White Salmon, Klickitat County, Washington, into a family with a strong interest in everything outdoors, including hiking, swimming, camping, or just exploring. Her father, Dr. Lawrence Rakestraw (1912-1992), was an expert on forest and conservation history who taught at Michigan Technological University (MTU) in Houghton, Michigan, where Nora grew up. Her mother, Mary Watson Rakestraw (1914-2004), helped to edit and sometimes coauthored her husband's publications on forest histories and enjoyed cooking, sewing, and studying literature. Nora's older brother James Rakestraw (1945- present) became an engineer and expert on storm water management.

Nora first visited Alaska in 1965 when she and her mother accompanied her father to Fairbanks, where he was to teach a summer course at the University of Alaska (hereafter cited as UA; today the University of Alaska Fairbanks). Nora fell in love with Alaska and made a vow to return. After attending MTU for two years, she purchased a one-way plane ticket to Fairbanks in 1967 and enrolled at UA, graduating with a Bachelor of Science degree in 1969. She completed a Master of Science degree at UA in 1979 with a thesis titled "A synopsis of the marine bivalves and shelled prosobranch gastropods in Alaskan waters." In 1970 she married Frank Charles Foster (1941-2011), whom she met while they were both students at the university. He was a U.S. Marine veteran who, after graduating from UA, taught school in Barrow, Alaska, and later worked at the wastewater treatment plant in Fairbanks. Nora and Frank were founding members in 1995 of the Interior Alaska Land Trust, for which Nora served as president in 2004 and as a board member until 2005. She has also been a member and president (1995) of the Western Society of Malacologists, served on the board of the Fairbanks Drama Association, and been active with the Chena Ridge Friends Meeting. She and her husband Frank had one child, a daughter named Louise Mary Charlotte Foster, born in 1988.

Nora became Coordinator of the Aquatic Collection at the University of Alaska Museum (UAMN) in 1980. She served in that position until retiring in 1997. As part of and often in addition to carrying out her responsibilities for the UA Museum, she was regularly involved in a number of significant studies of Alaska's invertebrate population. Following the *Exxon Valdez* oil spill in Prince William Sound in 1989, she was the principal investigator for an ensuing restoration project and the lead author of the project's final report (Foster, 2004). She has also published on the biodiversity of Prince William Sound, and on the distribution of selected native and invasive bivalve species (Smith et al., 2005).

Other studies in which Nora has participated include conducting a 2006-2007 Arctic Ocean Diversity grant project at UA for the cataloging, storing, and photographing of specimens and notes from the work of George E. MacGinitie (1889-1989) on the invertebrates of Point Barrow, Alaska, during the 1950s. During 2017 she represented her company, NRF Taxonomic Services, in the Unalaska Sea Project, a study funded by the National Science Foundation for investigating the previously unrecorded presence of sea ice-loving seals in Alaska's Aleutian Islands.

In addition to technical reports such as those described above, Nora has authored or coauthored papers on the biogeography of epibenthic assemblages in the Beaufort Sea, paleoenvironments of the former Gulf of Alaska shoreline which today is inland of the Bering Glacier Margin, cephalopod remains from a Cuvier's beaked whale, mollusks in the northeastern Chukchi Sea, range extensions of sacoglossan and nudibranch mollusks, and a cytogenetic study of a crayfish species. She coauthored an ethnohistorical paper (Etnier et al., 2016) describing the early native Alutiiq peoples' diets, which included cod, harbor seals, puffins, and a mix of intertidal invertebrates such as mussels, butter clams, and periwinkles.

After 50 years of studying the mollusks and other invertebrates of Alaska, Nora Foster describes herself today as semi-retired. Until spring of 2020 she had been a volunteer and regular host of the "Afternoon Concert" program with the local radio station KUAC in Fairbanks. She began working at the station in 2000 when her husband Frank was also a volunteer host. Still actively involved as a contract taxonomist, she says recent projects like identifying stream insects for water quality management are what keep her going and still in touch with the Alaskan outdoors (Nora Foster, pers. comm. 15 January 2021).

Scabrotrophon norafosterae Houart et al., 2019 (Plates S53a-b)

Slender shell, up to 27.3 mm in length; lanceolate, weakly spinose, lightly built; subsutural ramp moderately broad, weakly sloping, weakly convex or straight. Shell color entirely white. Spire high, acute, with six to seven weakly convex, strongly shouldered, spinose teleoconch whorls. Axial sculpture of teleoconch whorls consisting of low, weak, thin lamellae, variable in strength and number, decreasing in number abapically, from more than 21 to 13. Spiral sculpture of high, rounded, narrow, squamous, primary, secondary, and tertiary cords. Aperture moderately large, ovate; columellar lip narrow, smooth, rim adherent.

Distribution: Type material from south of Attu, Near Islands, Aleutian Islands, Alaska. Other specimens known from various locations throughout the Aleutian Islands, Alaska, from 166-263 m.

María Martha Reguero Reza

(Figures 17, 19)

María Martha Reguero Reza was born in Rancho Santa Delfina, a small country community located in Acámbaro, Guanajuato, Mexico. Martha Reguero received her bachelor's, master's, and doctoral degrees in biology at the Faculty of Sciences of the National Autonomous University of Mexico (UNAM). At the end of her studies in 1994, she was awarded an Honorable Mention, a University Merit Diploma and a Gabino Barreda Medal, which are given to students whose professional or degree exams are of exceptional quality and with the highest average qualification in each of the faculties and schools within UNAM.

Since 1986, Martha has been a member of the academic staff of the Institute of Marine Sciences and Limnology at UNAM. She is currently responsible for the Malacology Laboratory and curator of the "Dr. Antonio García-Cubas Malacological Collection," developing projects oriented to the knowledge of recent marine and brackish mollusks, publishing scientific articles, taxonomic catalogs, field guides and book chapters in national and international publications. She has participated in various oceanographic campaigns, has taught courses in her specialty area and has served on more than 60 occasions as director, synodal, or member of tutelary committees in bachelor's, master's and doctoral theses.

In 1985 Martha was honored by professionals from Mexico by being asked to preside over the Mexican Society of Malacology, A.C. (now the Malacology Society of Mexico, A.C.) and, in 1991, she was invited to occupy the presidency of the recently constituted Congress Organizing Committee Latin Americans of Malacology (now the Latin American Association of Malacology), positions she held until 1997. She organized four National and two Latin American Meetings during her tenure. She is currently a member of the Permanent Advisory Council of both scientific associations. Due to her academic career, Dr. Reguero has been part of internal councils, ruling commissions, evaluators and editorial committees, collaborating in the academic evaluations of manuscripts and research projects. Similarly, the National Council of Science and Technology of Mexico has distinguished her as a member of the National System of Researchers and the National Autonomous University of Mexico has considered her within the Program of Bonuses for the Performance of Academic

Personnel. Martha was recently (2 October 2023) made Honorary President, Congreso Latinoamericano de Malacología. (Information and text courtesy of Martha Reguero.)

Kurtiella regueroae Valentich-Scott in Coan & Valentich-Scott, 2012 (Plates S54a-d)

Subquadrate shell to 3.8 mm. Thin, moderately inflated, with narrow, pointed beaks. Anterior end flaring, broadly rounded. Posterior end narrowly rounded. Silky thin, translucent to light tan periostracum.

Distribution: Type locality off Bahía San Carlos, Sonora, Mexico, dredged from 15-30 m. Known from the northern Gulf of California (Puertecitos, Baja California and Puerto Peñasco, Sonora) south to Bahía Santiago, Colima, Mexico.

"Named in honor of María Martha Reguero Reza of the Universidad Nacional Autónoma de México, Instituto de Ciencias del Mar y Limnología, for her contributions to our understanding of the marine mollusks of México and encouragement for students in the field" (Coan & Valentich-Scott, 2012: 515).

Edna Naranjo García

(Figures 18-19)

Edna Naranjo García was born in Mexico City, Mexico, and grew up in the *colonia* Mixcoac among fruit trees, ornamental plants, pets and various farm animals to feed the family. It was probably there that her interest in nature was formed. This was strengthened later during high school in her biology class, where her teacher, Blanca Romo de Roldán, encouraged her enthusiasm for the natural world.

Edna received her Licenciatura (bachelor's degree) in biology at the Facultad de Ciencias, Universidad Nacional Autónoma de México, and her master's and doctorate at the University of Arizona, Tucson, Arizona, studying with a national grant from CONACyT. During her Licenciatura, she had studied the life cycles of parasites and their molluscan hosts. She decided to dedicate her future research to continental freshwater, and terrestrial mollusks. She began working in the Colección Nacional de Moluscos, Instituto de Biología, UNAM, in 1988, and is currently its curator. This collection contains more than 8,500 lots of marine, freshwater, and terrestrial mollusks.

Working with Christopher Appleton, Edna described diverse muscles associated with the shell of *Physella acuta* (Draparnaud, 1805), a widely distributed sinistral freshwater snail. They proposed that this musculature is responsible for the unique ability of physids to rapidly flick their shells from side to side—a reaction that frequently enables them to escape predation.

Edna García has published some 50 scientific articles in journals and as book chapters, naming 28 new species. She is especially proud of the huge Paleocene species *Pleurocera gigantica* Vega et al., 2019, measuring 9.5 cm tall, and the beautiful *Semiconchula custepecana* Naranjo-García et al., 2000. *Semiconchula breedlovei* Naranjo-García, 2003, is in danger of extinction. Notable also are the Sonoran desert snails she named, *Sonorella cananea*, Naranjo-García, 1988a, *Sonorella seri* Naranjo-García, 1988b, and *Sonorella aguafriensis* Naranjo-García & Miller, 1986, because of their capabilities of surviving extreme desert conditions.

An active teacher, Edna has taught in the Colegio de Ciencias y Humanidades and within the Facultad de Ciencias of UNAM. She has directed or served as a committee member for theses of Licenciatura, master's and doctorate students. Edna is a Research Associate with the Carnegie Museum. Edna was recently named (2 October 2023), along with Martha Reguero, Honorary President, Congreso Latinoamericano de Malacología. (Information and text courtesy of Edna Naranjo.)

Bunnya naranjoae Miller, 1987 (Plates S55a-b)

A slug-like land snail with thin, fragile, depressed vitriniform shell, overlapped all around by a papillose fold of the mantle, too small to contain entirely the retracted animal. Shell light brown colored, with two and three-fourths rounded whorls, rapidly increasing in size. Shell diameter 18 mm, height 11.3 mm.

The reproductive system is characterized by three bilobed dart sacs and three saccular mucus glands arranged around the vagina near the genital orifice. Epiphallus coiled tightly around the vas deferens, and the short-ducted spermatheca has a globular appendix at its apex.

Distribution: Type locality 16 miles south of El Chante, Sierra de Manantlan, Jalisco, Mexico. It ranges along the tropical areas of the western slope of the Sierra Madre Occidental from the vicinity of Mazatlán in the north to the Sierra de Manantlan in southwest Jalisco, Mexico.

Baker (1942) described the genus *Bunnya* and its type species *B. bernardinae* H. B. Baker, 1942, from a single specimen collected on the wall of the old monastery at El Desierto de los Leones at the western outskirts of Mexico City. That species he named in honor of his wife.

Sonorella naranjoae Gilbertson & Van Devender, 2019 (Plates S56a-b).

This moderate-sized *Sonorella* reached 19.4 mm in diameter and 12.2 mm in height, with 4.6 whorls. It has a depressed heliciform, narrowly umbilicate shell. Its genitalia are short overall. The male system is unique in having a small, cylindrical verge that exhibits an expanded, ring-like tip bearing a terminal, conical papilla.

Distribution: Type locality Arroyo Cañon del Agua, 19.6 km northwest of Cucurpe, Municipio Santa Ana, Sonora, Mexico, 940 m elevation.

There are two different groups of *Sonorella* in Sonora, based on their distribution and ecology. Desert species, such as *Sonorella rothi* Naranjo-García, 1988b, occur some 46-76 km south-southwest of Caborca, in the Lower Colorado Valley subdivision of the Sonoran Desert. The non-desert taxa occur in the Sky Island mountain ranges in the Madrean Archipelago on the eastern slope of the Sierra Madre Occidental. Animals of *S. naranjoae* were found in a shaded, rocky canyon in leaf litter away from the immediate flood zone. The permanent stream in the bottom of the canyon is lined with a riparian deciduous gallery forest dominated by Fremont cottonwood (*Populus fremontii* S. Watson) and Goodding's black willow (*Salix gooddingii* C. R. Ball).

Sandra V. Millen

(Figure 20)

Born in 1945 in Victoria, Vancouver Island, British Columbia, Canada, Sandra grew up bouncing from coast to coast because her father was a career naval officer. But for a couple years during her high school days, he was stationed inland near Montreal, where she came to realize she missed—and needed–the sea.

Back on the Pacific, Sandra earned a Bachelor of Science degree at the University of Victoria, where one of the teaching assistants—Gordon Robilliard—kept the marine tanks stocked with invertebrates including lots of intriguing nudibranchs. Five years later, while married and raising her daughter Janna, plus teaching school part-time, she started a master's program at Simon Fraser University, Burnaby, British Columbia, Canada.

Sandra's life-long fascination with the shell-less mollusks took flight during a summer course at Friday Harbor taught by Sir Charles Maurice Yonge (1899-1986) and Robert Fernald (1914-1983), with Thomas E. Thompson (1933-1990) in the lab next door. She published her first paper on *Olea hansineensis* Agersborg, 1923, and wrote her thesis on the ecology of *Doris* (*Archidoris*) *montereyensis* Cooper, 1863.

In 1975 Sandra took a position at the University of British Columbia, Vancouver, Canada, where she taught comparative invertebrate anatomy and eventually comparative vertebrate anatomy. Over a 35-year career, her class sizes grew from 70 students per semester to almost 300, obviously limiting her time for research. Nevertheless, she published 23 papers on opisthobranchs and went scuba diving with numerous research colleagues on expeditions from Alaska to Tierra del Fuego, as well as the Caribbean, Philippines, and Australia.

Sandra is married to Sven Donaldson, a biologist-turned-journalist. Together they raised Janna and two boys, Scott and Jaime. Sandra's hobbies include breeding and training dogs, riding horses, and voracious reading. In 2011 she retired to Nanaimo, on Vancouver Island, where she continues to raise dogs, read extensively, and cultivate dahlias on a near-industrial scale.

Loy millenae (Martynov, 1994) (Plates S57a-b)

Originally *Proloy millenae*. See Martynov et al., 2011, and Martynov & Schrödl, 2011.

Rare 3 mm long nudibranch. Posterior narrow notal notch, in which lie three non-ramified gills subventrally. Wide and flattened penis. Radular formula 38 x 6-7.1.1.0.1.1.6-7. Remarkable second laterals which are forked apically and long, knife-shaped further laterals. Unknown prey, probably feeding on fleshy, soft-bodied animals (not bryozoans like species of *Corambe*). Reported to be a basal clade to *Corambe*, adapted to living on soft bottoms.

Distribution: Type locality Sea of Japan, northwest Pacific.

Tenellia millenae (Hermosillo & Valdés, 2007b) (Plates S58a-b)

Originally *Cuthona millenae*. See Cella et al., 2016.

The living animal 5 mm in length. Elongate and narrow body with a long and pointed posterior end. The pedal corners are wide and rounded. The oral tentacles are about two thirds the size of the rhinophores. The rhinophores are smooth, tapering slightly to rounded tips. The club-shaped cerata are relatively large compared to the size of the animal and have pointed apices. The background color of the body is orange with darker orange and yellow spots. The cerata are blotchy pale orange, with apical pale blue bands and bright orange pointed cnidosacs.

Radular formula 42 × 0.1.0. The rachidian tooth bears a smooth central cusp with four to five smooth denticles on each side of the central cusp.

Distribution: Holotype collected at Los Arcos, Bahía de Banderas, Jalisco-Nayarit, Mexico, under a rock at 19 m deep. Also known from Playa Real, NE Punta Roble, Guanacaste Province, Costa Rica, in 5 m of water.

Unidentia sandramillenae Korshunova et al., 2019 (Plates S59a-b)

Elongate body 7 mm in length preserved. Rhinophores similar in size to oral tentacles, smooth. Cerata finger-shaped to fusiform, placed on several distinctly elongate elevations with ceratal clusters along dorsal edges. Apices of cerata gradually pointed, with elongate cnidosac. Ground color and cerata whitish with violet hue, purple middorsal line. Oral tentacles covered in purple pigment nearly half its length; subapical purple rings on cerata.

Radular formula 25 × 0.1.0. Rachidian tooth with up to eight distinct denticles.

Distribution: Holotype collected in 5-10 m at Tulamben, Bali Island, Indonesia. Also known from the Sunshine Coast, Australia, and Dauin, Negros Oriental, the Philippines.

“In honour of prominent nudibranch researcher, Sandra Millen (The University of British Columbia), who for almost 50 years has conducted fine taxonomic studies, including separation of the new family, Unidentiidae, together with Alicia Hermosillo” (Korshunova et al., 2019: 59).

Cuthonella sandrae Korshunova et al., 2020b (Plate S60)

Body moderately wide, broad foot and tail, 4 mm in length. Oral tentacles similar in size to the smooth to slightly wrinkled rhinophores. Dorsal papillae elongate, thick, arranged in continuous rows. Background color semitransparent white with purple-bluish areas. Digestive gland diverticula in the cerata are violet-purple. Ceratal tips with dispersed white pigment and bluish hue. Rhinophores semi-transparent with sparse white pigment at the top.

Masticatory processes of jaws covered with a single row of distinct denticles. Radula formula 12 × 0.1.0. Central tooth elongate with a strongly protracted, pointed non-compressed cusp with up to 8 lateral denticles.

This species from the Kuril Islands, Russia, is a sister species to *Cuthonella punicea* (Millen, 1986), previously described by Sandra Millen from British Columbia. They are similar in their reddish-purple coloration, but with significant genetic and morphological differences. Indeed, molecular analysis revealed considerable differences between *C. sandrae* and any other species of the genus *Cuthonella*, including the externally similar *C. punicea*. These two species differ in the branching of the digestive glands and radular patterns.

Distribution: Known only from the holotype specimen, collected at 14 m depth, from Klyuv Cape, Matua Island, Kuril Islands, Russia, northwest Pacific.

Judith Terry Smith

(Figures 21, 23, 25, 55-56, 58)

Judy Smith's interests include molluscan paleobiology, travel, keeping up with family and friends, writing, and genealogical research leading to published photobooks. She is married to Jim Smith, a retired U.S. Geological Survey geological mapper, with whom she shares three children, Natalie Eleanor Smith (1972 - 2019), Allegra Victoria Goodman (1973-preesent) and Jamie Smith (1976-present). There are three grandchildren, Graham Christopher Goodman (17), Ava Casey Smith (13) and Charlotte Jane Smith (10).

Born in New York City to parents Jackson Gordon Terry and Martha Helen Shoemaker, Judy spent much time with her grandparents in northeastern Pennsylvania because her father travelled extensively for work. There she played with stones and swam in the Susquehanna River before the family moved to Houston, Texas, Kenilworth, New Jersey, and Sydney, Australia, where she saw kangaroos, koalas, and a platypus at the Taronga Park Zoo and enjoyed the area's many beaches and hiking trails.

She did two years of high school in Sydney, where she received a New South Wales Leaving Certificate and two terms at Sydney University, two years at Wyoming Seminary in Pennsylvania, and four years at Barnard College in New York City, where she majored in geology. She completed graduate school in geology at Stanford University, where she was advised by Dr. A. Myra Keen, who taught courses in malacology, paleontology, and collection management. She worked in Palo Alto, California, for 33 years, including the USGS, research in Tertiary marine mollusks, and conducted fund raising for 10 years for the Stanford School of Earth Sciences..

From 2000 to spring 2024 the Smiths lived in the Washington, D.C. area, where Jim worked for the Foreign Disaster Assistance Program in the U.S. Agency for International Development. Judy served as a research associate in Paleobiology at the Smithsonian's U.S. National Museum of Natural History, where she did research on Tertiary marine mollusks of Baja California, the ancient Gulf of California and the Tertiary Caribbean Province. She was also a trustee of the Paleontological Research Institution of Ithaca, New York for six years. The Smiths retired in spring 2024 to Wilkes-Barre, PA, near their children and family home by the river. In retirement Judy is completing one last fossil paper and books about highlights of her life, special friends, and genealogical research. She urges you to come and visit if you travel to eastern Pennsylvania. (Information and text courtesy of Judy Terry Smith.)

† *Protobusycon judithae* Saul, 1988 (Plate S61)

Pyriform shell with low, evenly tapered spire, and low rounded nodes on shoulder, holotype 47 mm in length. Spire profile concave, flank broadly convexly rounded from shoulder to whorl base. Base of whorl with shallow spiral band, suture overlapping shoulder. Anterior siphon of moderate length. Well-developed fasciole bent at angle of about 30º to columella. Overall sculpture graded sets of fine spiral ribs crossing growth lines to produce finely but roughly textured surface. Specimens from near the type locality form a growth series. Smaller specimens have a relatively higher spire, more prominent collabral ribs. From youth to maturity the suture progressively overlaps more of the posterior angulation.

Distribution: Type locality confluence of Silver and Panoche Creek, Fresno County, California, basal Lodo Formation, Thanetian Paleocene.

Liocerithium judithae Keen, 1971 (Plates S62-a-c)

Relatively slender shell, to about 25 mm in length. Shell smooth except for cancellate early whorls and, on later whorls, regularly spaced, deeply incised spiral grooves. Color olive green to dark gray. Upper two or three spiral cords lighter colored to white, marked with regularly spaced squarish black dots.

The radula is illustrated here for the first time with scanning electron micrographs, showing the entire ribbon and the denticles on the central rachidian and lateral teeth.

Distribution: Type locality Isla Ángel de la Guarda, Gulf of California, Mexico. Reported south to at least Mazatlán, Sinaloa, Mexico, and on the outer Baja California Sur Pacific coast from Bahía Magdalena.

† *Ameranella terrysmithae* (Hickman, 1980) (Plate S63)

Originally "*Fusitriton*" *terrysmithae*. See Beu, 1988.

Five moderately inflated whorls on the 36.5 mm long shell. Suture impressed and sinuous. Prominent varices; spiral sculpture of flat-topped straps; axial sculpture of 13-14 coarse ribs that form prominent rounded nodes where they intersect major spiral straps. "It is probable that the species represents a new genus, although sufficient material is not available for adequate characterization of a new genus" (Hickman, 1980: 47); a few years later, Beu (1988) named that new genus *Ameranella*.

Distribution: Known only from the upper part of the middle member of the Oligocene Keasey Formation, a deep-water siltstone/mudstone deposit located in the upper Nehalem River Basin of northwestern Oregon.

† *Gyrineum judithae* Zinsmeister, 1983 (Plates S64, R-U)

Originally *Gyrineum judithi*. See Beu, 1988, for the correction of the erroneous genitive termination.

Moderately compressed shell, 30.5 mm in height. Spire consisting of six slightly flattened convex whorls. Varices develop every 180º on early whorls, slightly offset on later whorls. Sculpture consisting of eight rounded spiral cords crossed by 18-20 axial ribs. Prominent nodes developed at the intersection of spiral and axial elements produce a beaded appearance.

Distribution: Known only from the type specimen collected from a glauconitic sandstone lens 805 m above the base of the Paleocene Simi Conglomerate, Simi Valley, Ventura County, California, in light gray concretions with abundant oyster debris, University of California, Riverside, locality 6899.

"This species of *Gyrineum* is named in honor of Judy Terry Smith for her monographic study of the Cymatiidae from the eastern Pacific" (Zinsmeister, 1983: 1296).

"The nearshore marine sandy facies of the lower part of the Santa Susana Formation in the Simi Hills, Ventura County, California contains the most diverse late Paleocene ('provincial Martinez stage') molluscan faunas from the West Coast of North America" (Zinsmeister, 1983: 1282). The sequence is exposed in the Simi Hills from Santa Susana westward to Thousand Oaks. From this exposure, Zinsmeister (1983) also named *Parasyrinx hickmani* [sic], *Nucula kennedyi* and *Pitar addicotti*. Noteworthy is that George L. Kennedy named the eponymous *Barnea saulae*, and Warren O. Addicott the eponymous *Cancellaria keenae*.

† *Calyptraphorus terrysmithae* Perrilliat, 2013 (Plate S65)

Large shell, to 57.8 mm in height. Protoconch not preserved; teleoconch with seven subfusiform rounded whorls. First whorls showing steeply concave ramps terminating anteriorly in a narrow and round border just above the suture. Last whorl rounded, having a short concave shoulder and steeply convex to straight anterior ramp, narrowing abruptly into an anterior canal.

Distribution: Type locality Mesa San Carlos region of the Paleocene Sepultura Formation, Baja California, Mexico.

† *Lyropecten terrysmithae* Powell et al., 2020 (Plates S66a-b)

The shell is equivalve and lacks ledges, has beaks that do not project dorsal above the hinge line, non-rectangular auricles, and looped lamellar growth lines. The interior of the shell shows well-defined ribs. It has a proportionately shorter hinge line and a shell that extends much further inward from the shell margin than similar central California Neogene *Lyropecten*. Shell height 42.0-92.5 mm, length 42.6-95.4 mm.

Distribution: Type locality, Stockdale Mountain 7.5' Quadrangle, Cholame Hills, between Indian Valley and Portuguese Canyon, Salinas Valley, Monterey County, California. Monterey Formation, Santa Margarita Formation, overlapping the middle and upper Miocene.

† *Eocypraea judithsmithae* Groves & Squires, 2023c (Plates S262a-b)˅

Inflated-pyriform shell, 24.8 to 26.7 mm in length. Constricted anteriorly, spire completely covered, dorsum highly arched. Aperture slightly s-shaped, curves towards columella posteriorly. Denticulation semi-coarse, outer lip with 18 teeth, inner lip with at least 13 teeth. Smooth, wide fossula.

Distribution: Type locality, Llajas Formation, upper lower Eocene, Devil Canyon, southwestern Santa Susana Mountains, Los Angeles County, California. Also reported from the Eocene Domengine Formation, in Fresno County, California.

˅Note: This species was described after the authors had already finished the species figures' plates, hence the number is not in the expected sequence after Figure S66.

Carole S. Hickman

(Figures 22-23, 54)

A major authority on the diversity of the structure and functional morphology of living and fossil organisms, Carole Jean Stentz Hickman (1942-present) is Emerita Professor in the Department of Integrative Biology at the University of California at Berkely, as well as Curator of Invertebrates in the UC Museum of Paleontology. Her research and publications have covered a broad range of subjects, with emphasis on the relationships among form, function, and construction in the evolutionary history of marine organisms, especially mollusks.

Carole Jean Stentz was born in LaSalle, LaSalle County, Illinois, to John and Agnes (Cox) Stentz. As a young girl she was encouraged by her parents and teachers to study art but instead collected leaves and butterflies because she was fascinated by and wanted to understand the origin and purpose of their beautiful patterns. Determined to learn more about patterns in nature, she completed a Bachelor of Arts degree with High Honors in geology at Oberlin College, Oberlin, Ohio, in 1964, the same year she married fellow Oberlin graduate student and later leading plant ecologist and taxonomist, James C. Hickman (1941-1993). They divorced in 1984 and had no children.

Carole next went on to earn a Master of Arts degree in geology from the University of Oregon, Eugene, Oregon, in 1968. In 1975 she received a Ph.D. degree in geology at Stanford University, where she was among the last graduate students to be mentored by noted paleontologist and malacologist A. Myra Keen (1905-1986). From 1966-1967 Carole taught invertebrate paleontology at the University of Oregon and from 1970-1977 was an adjunct associate at Swarthmore College, Swarthmore, Pennsylvania. When she began her career at UCB in 1978 as an assistant professor, she was the first woman faculty member in the department of paleontology. She advanced to the rank of associate professor in 1981 and became a full professor in 1985.

Structural patterns in mollusks have long been a major focus of Carole's research and publications. She has focused particularly on the gastropod radula, larval shell, and suspension feeding devices to analyze how form, function, and construction (material and constructional rules) interact to generate varied and often repetitive structure in living and fossil mollusks, especially trochacean gastropods. Her more than 100 publications treat a variety of subjects, including the evolution and function of the gastropod radula, repeated patterns of microsculpture on gastropod larval shells, molluscan phylogeny, analysis of form and function in fossils, radular

patterns and ecology of deep-sea limpets, the stratigraphy and paleontology of the Galápagos Islands, as well as systematic revisions and book chapters on various molluscan superfamilies and families. She is the author or coauthor of 11 family group names, 9 genera, and 78 species of Recent and fossil mollusks.

Carole's research has taken her around the globe, from California's Channel Islands to the Galápagos Islands (see the description in Lois Pitt's biography, above), Hawaii, New Zealand, French Polynesia, Italy, and four sabbaticals in Australia. While such journeys nearly always involved scientific research, she has also found ways to personalize her travel experiences. A strong advocate for greater recognition of women as scientists, in 2013 she carried the flag of the Society of Women Geographers, of which she is a member, with her to the Tjörnes Seacliff Shellbeds of northern Iceland as part of the Society's tradition, dating back to 1932, of sending its flag along with important expeditions. Years earlier, while working in the Australian outback during the 1970s, she wore a fake mustache as a means of warding off strangers who, thinking they needed to rescue a woman stranded in the wilderness, frequently interrupted Carole's field work. Her deception proved effective: the interruptions ceased. Thirty-seven years later, in 2019, Carole donned the exact same mustache as part of the Bearded Lady Project, a documentary film and photographic undertaking for which female UCB paleontologists wore glued-on beards to confront the stereotype that all paleontologists are males (Figure 54).

Along with her teaching responsibilities, research, and publications, Carole is a past or current member of numerous professional organizations, including The Paleontological Society, Society of Women Geographers, WSM, American Geophysical Union, and Society of Economic Paleontologists and Mineralogists (now the Society for Sedimentary Geology). She is an Honorary Life Member of the AMS and has served as president of organizations including the AMS (1991), Institute of Malacology (200-2003), the Berkeley chapter of Sigma XI (2001-2002), American Microscopial Society (2006), and the California Malacozoological Society. She is an elected Fellow of CAS, the American Association for the Advancement of Science, the Geological Society of America, and the Paleontological Society. She was the recipient in 1994 of a Research Professorship from the Miller Institute for Basic Research in Science at UCB, and in 2003 she received the Gilbert Harris Award from the PRI. She has also been honored by having the gastropod genus *Carolesia* Güller & Zelaya, 2014, and eight species of mollusks named after her. In addition to serving as associate editor for *Geological Society of America Bulletin* (1987-1989) and *Evolution* (1990-1992), she has been on the editorial boards of malacological journals including *The Veliger* (1979-2004), *Malacologia* (2000-current), and *American Malacological Bulletin* (current). Her many extracurricular activities have included river and sea kayaking, wilderness backpacking, gardening, cooking, reading, art, film, opera, chamber music, and membership in museums.

Though Carole formally retired from UCB in 2009, she has remained part of the university through her roles as Emerita Professor and Curator of the UC Museum of Paleontology. She continues to research and publish and currently has two monographic works in preparation. She also enjoys watching over the careers of the many successful master's and Ph.D. degree students she has mentored throughout her teaching career. (Including information and text courtesy of Carole Hickman.)

Carolesia Güller & Zelaya, 2014 (Plate S67)

Characterized by a bipectinate ctenidium with short afferent membrane, isolated appendices in the left side of the neck, and the rachidian and the first lateral teeth reduced to their base. Type species *Carolesia blakei* (Clench & Aguayo, 1938), occurring in Argentina.

† *Parasyrinx hickmanae* Zinsmeister, 1983 (Plates S64, V-W)

Originally wrong genitive ending, *Parasyrinx hickmani* Zinsmeister, 1983; herein corrected following the ICZN rules on Latin possessive endings.

Subpagodaform 16 mm shell with moderately elevated conical spire of five whorls. Anterior keel smooth, rounded, keel on body whorl more strongly developed than on spire. Surface ornamented with 20-25 spiral threads which are more strongly developed on keep. Posterior sinus rounded, symmetrical with apex centrally located on shoulder; aperture subquadrate.

Distribution: Type locality University of California, Riverside, locality 6668, west side of Meier Canyon, Simi Valley, Ventura County, California, 364 m above base of Paleocene Simi Conglomerate.

"This species of turrid is named for Carol [sic] Hickman in recognition of her work on the Middle Tertiary Turridae of the Pacific Northwest" (Zinsmeister, 1983: 1300).

Margarites hickmanae McLean, 1984 (Plates S68a-b)

Cream-colored shell under thin, pale brown, shiny periostracum. Height 10.1 mm, diameter 12.2 mm. Protoconch smooth with pointed tip, five teleoconch whorls. Last whorl broadly inflated, aperture quite oblique. Spiral sculpture of fine, microscopic, incised lines; axial sculpture of fine growth lines.

"Lateral teeth of radula 7 pairs, overhanging tips long and tapered, tips rounded, both edges finely denticulate" (McLean, 1984: 234).

Distribution: Type locality 99 m on sand and shell bottom, Petrel Bank (near Semisopochnoi Island, Rat Islands, Aleutian Islands, Alaska). Collected by the U.S. Fisheries Commission R/V *Albatross* on 5 June 1906.

In this paper, James McLean also named species in honor of Barry Roth, Frank R. Bernard, and Eugene V. Coan, themselves authors of eponyms included in this article.

† *Bathybembix hickmanae* Moore, 1984 (Plate S69, plate numbers 10-12, 18)

A thin-shelled, moderately large trochid (to 42 mm in length) with five whorls. Body whorl and whorls of the spire each with two spiral cords separated by an almost vertical angulation.

Distribution: Type locality uppermost part of the early Miocene Lincoln Creek Formation (LACM 5842), near Knappton, Pacific County, southwestern Washington.

This is an eponym honor given by another eponym honoree.

Choristella hickmanae McLean, 1992 (Plate S70)

Shell spire height relatively low. Height is 6.5 mm, diameter 9 mm. Shell wall extremely thin, maximum thickness of broken lip 0.1 mm. Specimens examined all had damaged shells, protoconch and earliest teleoconch missing. Remaining three and a half whorls rounded, smooth, with a deeply impressed suture. Broad, deep umbilicus, with a sharp, steeply descending carination. No axial sculpture.

Radula typical for the genus. Rachidian tooth has a weakly projecting shaft, with a small, clearly distinct, overhanging cusp.

Distribution: Type locality, and only known records, Northern Cascadia Abyssal Plain, base of continental slope, 172 km west of Strait of Juan de Fuca, Washington, 2176 m, gray silty clay bottom.

Species of the family Choristellidae occur in continental shelf to abyssal depths. They live in spent egg cases of sharks and rays, upon which they feed. Although there is no record of this species' association with these egg cases, the extremely thin shell indicates that protection within an elasmobranch egg case would be important to its survival.

† *Astraea hickmanae* Kiel & Bandel, 2002 (Plate S71, plate numbers 10-11)

A low-spired shell, 9 mm high and 15 mm wide, with four whorls denticulate at the upper suture. Broad spines on the periphery of the body whorl. Aperture round with a small notch in the outer lip, formed by the broad spines. Broadly dented umbilical margin.

Distribution: Type locality Late Cretaceous sediments of the Puimanyons Olisthostrom near Torallola in northern Spain, in the southern Pyrenees Mountains (Kiel & Bandel, 2001).

† *Turrinosyrinx hickmanae* Kiel, 2006 (Plate S72)

Sculpture of fine axial ribs on subsutural ramp of early whorls;13–14 spiral cords on periphery and basal slope; protoconch with rhomboid pattern on last whorl. Last whorl of protoconch with strong rhomboid pattern, width approximately 500 mm. Teleoconch fusiform, at least four whorls; subsutural ramp of the whorls sculptured by fine axial ribs on the early whorls, these ribs disappear later; periphery and basal slope sculptured by 13–14 spirals. Holotype 2.9 mm high, paratype 2.5 mm high.

Distribution: Type locality Oligocene Lincoln Creek Formation, gravel bar on the east bank of the Canyon River, Grays Harbor County, Washington (LACMIP locality 17746).

† *Leptomaria hickmanae* Harasewych et al., 2009 (Plate S73)

Pleurotomariid with cyrtoconoid shape, strongly convex whorls, well rounded periphery, very broadly ovate (almost circular) aperture. Base inflated, lacking an umbilicus. Spiral sculpture dominant, with about 15-18 low, narrow cords slightly broader than intervening spaces between suture and selenizone, and 9-11 between selenizone and periphery. Large shell, maximum diameter 90.2 mm, height 81 mm.

Distribution: Type locality Upper Cretaceous, Maastrichtian, Lopez de Bertodano Formation, Seymour Island, Antarctic Peninsula. Stratigraphic occurrence at 855 m.

Propeleda hickmanae Valentich-Scott et al., 2020 (Plates S74a-e)

Shell club-shaped, very elongate, moderately inflated; length to 13 mm. Rostrum very long, moderately narrow, gently curved; posterodorsal margin moderately incurved; sculpture of fine commarginal striae ventrally, moderate commarginal ribs anteriorly and near umbones, with broad transverse ribs on rostrum. Hinge with about 24 anterior, about 40 posterior teeth.

Distribution: Type locality off Valparaiso, Chile, 485 m. Distribution from Punta Aguja, Peru, to off Valparaíso, Chile, 485-1,895 m.

† *Eocypraea*(?) *carolehickmanae* Groves & Squires, 2023a (Figures S261a-b)*

Heavy, pyriform shell, reaching 49.8 mm in length, with highly inflated columella. Spire involute, low and eroded. Narrow elongate aperture and reduced dentition on the inner lip. The species is most similar to *Eocypraea louellae* Groves, 1990. However, this new species is considerably larger and slightly older. In fact, it is possibly the earliest known eocypraeid from the Western Hemisphere.

Distribution: This species is known only from the type locality, Osburger Gulch Sandstone Member, Hornbrook Formation, Late Cretaceous, Bellinger Hill, southeast of Jacksonville, Jackson County, Oregon (LACMIP Locality 27288).

*Note: This species was described after we had already finished the species figures' plates, hence the number is not in the expected sequence after Figure S74.

Jann E. Vendetti

(Figure 23)

Jann became interested in marine invertebrates from a young age and developed a fondness for the tide pool fauna along the rocky coast of southern Maine. She graduated from Colgate University, Hamilton, New York, in 2001 with a Bachelor of Arts in Biology and Geology. For her graduate work she studied fossil and living buccinid gastropods at the University of California, Berkeley, with Carole Hickman, one of Jim McLean's collaborators and a fellow graduate student of A. Myra Keen. A postdoctoral fellowship brought her to Los Angeles, where her research interests have included sacoglossan sea slug gastropods (with Patrick J. Krug of

California State University, Los Angeles) and the invasive land snail species *Theba pisana* (Müller, 1774) and *Otala lactea* (Müller, 1774) in southern California.

She holds the Twila Bratcher Endowed Chair in Malacological Research, and since 2020 Jann has been the Associate Curator of Malacology at Natural History Museum of Los Angeles County, where she occupies Jim McLean's former office. Jann is a past WSM president and a current Southern California Unified Malacologists (SCUM) member. She also mentors biology students from Glendale Community College and a post-baccalaureate researcher who is part of the NSF-funded Understanding Nature and Los Angeles Biodiversity (UNLAB) program. She was instrumental in organizing the Urban Nature Research Center (UNRC) at the museum with other curators. Jann's publications include new species descriptions (Krug et al., 2016), and a statistical analysis of the history of gender representation in eponyms (Vendetti, 2022).

Jann and her husband Gene Kwon have two daughters, eleven-year-old Corinne and eight-year-old Nadia Vendetti-Kwon.

Polybranchia jannae Medrano et al., 2018 (Plates S75a-b)

The cerata of this subtly beautiful little sacoglossan are covered by unique white or yellow lines resembling a cobweb. The animal's color is translucent golden yellow to light brown with numerous small orange and purple spots throughout the dorsum. Rhinophores translucent with several white papillae and small orange and purple patches. Length 10 mm.

Radula with 24-26 teeth. Leading tooth with two rows of 12-14 blunt denticles on the basal surface. Penial and reproductive system morphology unknown; both specimens examined in the original description had been castrated by parasitic copepods.

Distribution: Type locality Yabob, Madang Province, Papua New Guinea. Also known from Luzon Island, the Philippines, and Indonesia and Japan.

"Named in honour of Dr. Jann E. Vendetti, Curator of Malacology at the LACM, an inspiring malacologist and role model to all women in science" (Medrano et al., 2018: 18).

LouElla R. Saul (1927-2021)

(Figures 24-25)

LouElla (Lou) Rankin Saul passed away on 21 June 2021 at age 93. She was born on 28 July 1927, in Lennox, Los Angeles County, California, to Robert J. (a railway postal clerk) and Sylvia R. Rankin (a teacher). She had a younger brother, Dean E. Rankin (a dentist) and sister, Johnette S. Rankin. LouElla earned a Bachelor of Science degree in Music in 1947 and a master's in Geology in 1959, both from UCLA. Her master's thesis was on the paleontology of the Late Cretaceous (Senonian) Chico Formation in Butte County, northern California. Unfortunately, whilst taking geology courses she was strictly forbidden to take the field-oriented classes because of her gender. Undismayed, and with the assistance of her husband and geologist Richard B. Saul, she completed a brilliant thesis, which included plenty of fieldwork. They were married in 1949 and raised two sons, Richard B. Saul II and Robert L. Saul.

LouElla was a sweet person and a brilliant paleontologist who was always happy to share her knowledge with beginners and seasoned veterans alike. She was Curator of Invertebrate Paleontology and Recent invertebrates at UCLA from 1965 to 1985 when the UCLA collections were transferred to the LACM, and she became first Collection Manager of LACMIP. Unfortunately, she was a victim of a series of layoffs from the museum in 1993. Undaunted, she continued on as a Research Associate in IP until she was physically unable to visit the museum.

LouElla's presence at UCLA was fortuitous for the significant advancement of molluscan paleontology. Her mentor and friend at UCLA was Willis ("Parky") Popenoe, professor of paleontology, who initiated a method that relied on his own large collections of fossils, which were stored and well-curated by him and his mentoree LouElla. This method relied on careful collecting, recording of precise geographic and stratigraphic position, and accurate identifications. Furthermore, Parky and LouElla perfected the technique of selecting a number of

specimens to represent each major formation in which they occurred and carefully cleaned the hinges of the bivalves and the apertures of the gastropods. These careful cleaning techniques, eventually perfected by LouElla, clearly showed information about critically important morphologic details and allowed for a much better basis for the systematic placement of taxa. Combined with detailed biostratigaphic information, they could more accurately show lineages of species and their evolutionary trends.

LouElla was a member of the WSM, California Malacozoological Society, Geological Society of America, Society of Economic Paleontologists and Mineralogists, Sigma Xi, CCSC, and Southern California Unified Malacologists. In 2004 she received the prestigious Gilbert D. Harris Award from the Paleontological Research Institution in recognition of her excellence in contributions to systematic paleontology. The Western Society of Malacologists bestowed LouElla with the 2010 WSM Award of Honor in recognition of her outstanding accomplishments in paleomalacology. LouElla published over 100 papers and meeting abstracts on Cretaceous and Paleogene mollusks primarily from California and Baja California, Mexico. She described or co-authored 280 molluscan taxa.

LouElla's late husband Richard had often referred to "Lou" as his favorite paleontologist. She is sorely missed by those of us who cherished our time with her (Groves & Squires, 2023b).

† *Saulella* Zinsmeister, 1983 (Plate S76)

Absence of a resilifer separates it from the Mactridae and Periplomatidae. Cardinal teeth similar to those of the Tellinidae but the absence of lateral teeth is not typical of the family. The feature distinguishing *Saulella* from other tellinids is the prominent undulating concentric sculpture.

Type species *Tellina undulifera* Gabb, 1869. Prior to Zinsmeister, it had been suggested (Stewart, 1930) that the species probably represented a genus distinct from *Tellina*.

Distribution: Found in the Paleocene deposits of Simi Hills, Ventura County, California.

† *Louella* Cooper & Leanza, 2017 (Plate S77)

Moderately large, elongate-subovate. Insignificant subterminal umbones and convex anterior margin. Respiratory margin obliquely subtruncate, long posterodorsal margin straight and shallowly sunken. Flanks ornamented with 15 conspicuous, curved oblique costae, with regularly placed, crowded, small nodes.

Type species *Trigonia fitchi* Packard, 1921.

Distribution of type species: Known from the Turonian Stage, Late Cretaceous (~93.8-89.8 million years ago), in northern California, near Redding, Shasta County.

† *Meekia louella* Popenoe in Saul & Popenoe, 1962 (Plate S78)

Shell small, 14.8 mm in length, 11.5 mm in height. Plump, inflated, smooth; beaks low, slightly less than one-third the shell length from anterior end. Anterior dorsal margin strongly convex, without siphonal gape. Anterior margin shallowly concave, with a pronounced but short and round-pointed rostrum. Sculpture of fine, closely set concentric growth lines.

Distribution: Type locality near Clover Creek, Redding area, Shasta County, California, Cretaceous Lower Senonian. Also found in clasts in conglomerate in the Panoche Group of the Diablo Range.

"This species is dedicated by W. P. Popenoe to the co-author of this paper, Mrs. LouElla Saul" (Saul & Popenoe, 1962: 299). It is herein considered a noun in apposition, hence no genitive termination is required nor warranted.

It is an interesting side note that the genus *Meekia* Gabb, 1864, was named in honor of Fielding Bradford Meek, who participated with William M. Gabb in the first comprehensive geological and paleontological surveys of California, conducted under the guidance of Josiah Dwight Whitney, first State Geologist of California. Mount

Whitney, the tallest mountain in the contiguous United States (and less than 150 km from Badwater, Death Valley, the lowest spot in the U.S.), was named for him.

† *Crassatella saulae* Dailey & Popenoe, 1966 (Plate S79)

Massive shell, 83 mm in length, with a height of 49 mm. Compressed-convex in cross section, irregularly elongate-subelliptical in lateral plan. Anterior end rounded regularly, posterior extremity bluntly truncate. Beaks low, flattish, prosogyrate, about one-third the length of the shell from its anterior end. Lunule markedly depressed, short, deep, about one-half as long as the anterodorsal margin. Dentition lucinaid.

Distribution: Locally abundant in the Upper Cretaceous Jalama Formation, Santa Barbara, County, California, its type locality.

† *Toxoceratoides saulae* Murphy, 1975 (Plate S80)

A medium-sized ammonite (greatest diameter of shaft 3.6 cm), known only from a partial shaft and early hook. The late part of the shaft is ornamented with fine, sharp ribs in groups of one or two alternating with coarse, broader trituberculate ribs. This species is larger than any *Toxoceratoides* known from Europe and differs from all other species known from California in its very low prorsiradiate inclination of the ribs.

Distribution: Type locality Lower Chickabally Mudstone in the Ono Quadrangle, southwest of Redding, Shasta County, California. The specimen was found in the middle part of the *Shasticrioceras poniente* range zone (Lower Cretaceous, Barremian Stage) in the Roaring River Road section of Middle Creek.

† *Galeodea louella* (Squires & Advocate, 1986) (Plate S81)

Originally *Phalium louella*. See Squires, 2019.

Ovate globular shell, about 25 mm in length; spire about 20% of height. Protoconch missing, teleoconch with at least four angulate whorls covered with closely spaced fine threads. Body whorl with three evenly spaced carinae. Carina along shoulder of body whorl with about 16 spinose nodes.

Distribution: Type locality early Eocene “Capay Stage” portion of the Maniobra Formation from the thin bed about 57 m above the base of the formation, Orocopia Mountains, Riverside County, California. Also known from the Bateque Formation, eastern San Ignacio area, Baja California Sur, Mexico.

The species name is herein considered a noun in apposition, hence no genitive termination.

† *Ranella louellae* Beu, 1988 (Plate S82)

Very prominently sculptured shell of five to nine narrowly crested, widely spaced spiral cords. Interspaces crowded with fine spiral threads of several orders, with at least four secondary threads in each interspace. Varices high and narrow, hollowed abaperturally and buttressed by spiral cords, which are only slightly raised where they cross outer surfaces (varices lack nodules).

Distribution: Type locality hill slope on south side of road, south side of Panoche Creek, 1.2 km east of junction with Silver Creek, Tumey Hills, Fresno County, California. From Late Paleocene basal Lodo Formation.

† *Eocypraea (Eocypraea) louellae* Groves, 1990 (Plate S83)

Highly inflated shell, 15.5 mm in length, 12.3 mm in width, and 9.7 mm in height. Constricted anteriorly, spire partially covered. Dorsum highly arched. Aperture slightly S-shaped, denticulation coarse with smooth interstices. Outer lip with two teeth.

Distribution: Type locality Putah Creek area of Thompson Canyon, Yolo County, northern California. Upper Cretaceous (Turonian), Yolo Formation.

"This species is named for LouElla R. Saul in recognition of her numerous important contributions to Cretaceous and Tertiary molluscan paleontology" (Groves, 1990: 282).

† *Barnea saulae* Kennedy, 1993 (Plate S84)

Thin, fragile shell reaching 5 cm in length. Elongate, not truncate, anterior pedal gape approximately one-third of overall length. External sculpture formed by intersecting concentric ridges and radial ribs that are most prominent on central part of disc.

Distribution: Type locality hills north of Oak Run, approximately 11 km northeast of Millville, east of Redding, Shasta County, California. Upper Cretaceous, lower Coniacian, Redding Formation. Also known from the Stantonian, in strata between Basin Hollow and Clover Creeks.

This is one of the oldest species in the genus.

† *Linearia louellasaulae* Squires & Goedert, 1994a (Plate S85)

A minute, circular-ovate *Linearia*, up to 3 mm high. Beaks small, slightly anterior of center; anterior end rounded, posterior end truncate. Sculpture of closely spaced, thin concentric ribs crossed by numerous fine radial ribs, except on umbonal area. Posterodorsal slope with different curvature than rest of valve and with approximately seven serrated ribs. Right-valve hinge with two cardinals separated from each other by deep and narrow socket, anterior cardinal slender and obliquely directed downward; posterior cardinal shorter, thicker, and directed nearly vertically downward. Left-valve hinge not observable.

Distribution: Type locality at 680 m, exposed in roadcut on NE side of logging road, Larch Mountain, Thurston County, Washington. Crescent Formation, middle-early Eocene, "Capay" stage.

† *Stirpulina saulae* Stallwood, 1995 (Plate S86)

Elongate, inflated juvenile valves, about 12 mm in length. Siphonal sheath elliptical in cross section and noticeably smaller than shell sheath, sheaths joining with a marked inflection. Anterior corona close to anterior end of juvenile valves.

Distribution: Type locality in Ladd Formation of the Santa Ana Mountains, Orange County, California. Late Turonian Stage of the Upper Cretaceous, approximately 90 million years ago.

† *Trocotaulax saulae* Kiel & Aranda-Manteca, 2002 (Plate S87)

Turriform shell, 18 mm high. Straight-sides whorls, body sculptured with 14 axial ribs and three strong spiral cords, intersections with the axials knobby, one smooth basal keel. Base roundish, sculptured with five to six spirals.

Distribution: Known only from the type locality at Punta Banda, southern shore of Bahía de Todos Santos, Baja California, a Cretaceous fauna of late Campanian to early Maastrichtian age. Found in the brackish intertidal region above the 60-100 cm thick beds of *Coralliochama orcutti* White, 1885 (see also Saul, 1970, and Bertsch, 2021).

† *Angulathilda saulae* (Kaim, 2004) (Plate S88)

Originally *Carinathilda saulae*. See Gründel & Nützel, 2013.

Broadly cone-shaped shell 1.84 mm high, with three teleoconch whorls. Protoconch highly medioaxial, completely immersed in the teleoconch. Teleoconch starts with two spiral ribs, lower rib becoming strong keel on second teleoconch whorls. Spiral ribs crossed by 95-100 axial ribs per whorl, with blunt nodes at the intersections.

Distribution: Type locality in the *Saynoceras verrucosum* (d'Orbigny, 1841: 191-193) horizon at Wąwal, 2 km east of Tomaszów Mazowiecki, southern Poland, late Valanginian (Early Cretaceous).

† *Pyropsis louellae* Squires, 2011 (Plate S89)

Shell with conical spire, total height 38.6 mm. Ramp long, flat, and smooth or with very weak spiral ribs. Teleoconch with about four whorls, completely covered with numerous wavy spiral riblets. Last whorl bicarinate.

Distribution: Type locality Redding Formation, Member V, Old Cow Creek, Shasta County, California, upper Coniacian or lower Santonian strata of Upper Cretaceous.

† *Protocypraea louellasaulae* (Groves et al., 2011) (Plates S90a-b)

Originally *Bernaya* (*Protocypraea*) *louellasaulae* (Groves et al., 2011). See Lorenz, 2017.

Shell with deep anterior and posterior canals, spire of medium height, fossula concave, and smooth posterior terminal ridges extending to margins. Shell length 17.2 mm; maximum width of shell 10.8 mm, slightly posterior of center. Dentition coarse to medium with smooth interstices; columellar lip with 11 teeth, labral lip with 15 teeth. Aperture fairly wide and straight, curved posteriorly toward columella, widening anteriorly.

Distribution: Type locality near 533 m elevation, at bottom of eastern tributary to Fremont Canyon, Santa Ana Mountains, Orange County, California; Schulz Ranch Member of Williams Formation, middle Campanian, Cretaceous.

† *Polinices saulae* Perrilliat, 2013 (Plate S91, plate numbers 33-36)

Pyriform shell, 25.7 mm in height. Protoconch not preserved, teleoconch with five whorls, last whorl globose. Sculpture of minute spiral costellae. Broad umbilicus completely covered by callus.

Distribution: Type locality Mesa San Carlos region of the Paleocene Sepultura Formation, Baja California, Mexico.

† *Tessarolax louellae* Squires in Saul & Squires, 2015 (Plate S92)

Shell fragile and thin, up to 88 mm high and 56 mm wide. Teleoconch of six whorls. Entire last whorl covered with numerous microscopic and very closely spaced spiral threads between carinae and prominent spiral rib. Outer lip extended into four narrow canaliculate digitations.

LouElla liked to call the characteristic appendages of species of *Tessarolax* Gabb, 1864, "Outriggers," in reference to the long digitations reminiscent of the lateral supports on outrigger canoes.

Saul & Squires (2015: 60) present a detailed analysis of the form and function of *Tessarolax* shell structures, their life history and behavior, and habitat preference.

The protoconch of fossil *Tessarolax* is similar to that of modern aporrhaids, with three smooth whorls. Since modern aporrhaid species are considered to have planktotrophic development resulting in their wide geographic distribution, it can be inferred from the wide paleogeographic distribution of *Tessarolax* species that they also had planktotrophic development.

In growing from immature to mature, shell shape changes in *Tessarolax* include lengthening of the long, curved digitations and the development of a number of thick calluses on the inner lip of the aperture. These features supported the shell above the substrate, inhibiting burrowing in soft sediment or clamping to a hard substrate. Moreover, the outer lip anterior digitation has a callus pad at the substrate contact point; the digitation then curves upward distally from this “sled runner,” preventing its digging into the surface over which it could slide. It most likely crawled over and grazed across the top of the sediment, consuming diatoms, decaying algae, and detritus, similar to modern aporrhaids.

Tessarolax species probably lived on soft sediment bottoms, deep enough to avoid strong current and below disturbance by wave action. Species of *Tessarolax* have commonly been found occurring with *Dentalium* shells. Modern scaphopods mostly live offshore, away from areas of rigorous wave action.

Distribution: Type locality Phipps Point, Hornby Island, Vancouver Island, British Columbia, Canada, middle late Campanian, Cretaceous.

A. Myra Keen (1905-1986)

(Figures 4, 26-28, 55-58)

Stanford University professor Angeline Myra Keen was often referred to as "the First Lady of Malacology" because of her exemplary scientific standards and diverse expertise regarding mollusks. An expert on the systematics of Cenozoic mollusks, she published numerous papers and several books on a wide range of malacological subjects, including the still-standard reference work *Sea Shells of Tropical West America* (1958, 1971). She has been honored with three genera, 31 valid fossil and recent species and one subspecies of mollusks, and one species of Foraminifera.

Myra Keen (as she was known, or A. Myra Keen as she went by in later years) was born in Colorado Springs, Colorado, the only child of homesteading, farming and cattle-ranching parents of modest means. She entered Colorado College on a scholarship with the goal of becoming a naturalist. Not liking the idea of dissecting animals for research, she changed her major to psychology and received a Bachelor of Arts degree in that subject in 1930. She later went on to earn a master's degree in psychology from Stanford University in 1931 and a Ph.D. in psychology from UCB in 1934. She published at least one paper related to her psychology training (Keen, 1932).

Having begun to collect seashells while at Berkeley and unable to find employment in psychology, Myra volunteered at Stanford University in 1934 as an assistant to the well-known conchologist Ida S. Oldroyd (1856-1940). She also came under the tutelage of Stanford paleontologist Hubert G. Schenck (1897-1960), eventually auditing his paleontology and stratigraphy classes and soon collaborating with Schenck on research and publishing projects. She was officially hired in 1937 by Stanford University as Curator of Paleontology (a role created just for her). She became an Assistant Professor in 1954, Associate Professor in 1960, and a full Professor in 1965. In addition to her research, Myra taught courses in advanced paleontology, biological oceanography, and curatorial methods. After retiring as Professor Emeritus at Stanford University in 1970, she continued to teach until 1972. James H. McLean (1936-2016), Eugene V. Coan, Judith Terry Smith, and Carole S. Hickman completed their Ph.D. degrees at Stanford University under her guidance.

Although Myra thought of herself as primarily an invertebrate paleontologist, she was widely known for her work in malacology. When Japan's Emperor Hirohito (1901-1989), an accomplished shell collector, visited the United States in 1975, he specifically requested a meeting with Myra (to whom he had once sent shells for identification) and spent a half hour with her discussing their common interests. A first-rate scholar, Myra published nine books and 75 papers in scientific journals on fossil and recent mollusks and related subjects. She produced the first edition of her classic, most influential work, *Sea Shells of Tropical West America*, after Harry J. Bauer (1883-1960) a wealthy Pasadena, California, shell collector prompted her to write a book on west coast tropical marine mollusks and put up money for the project. After unsuccessfully trying instead to organize a group of graduate students to produce such a book, Myra reluctantly ended up writing the work herself.

Myra Keen's professional and personal qualities won her broad respect among other scientists. She served as President of the AMU (1948) and the WSM (1970). She was a Guggenheim Fellow as well as a Fellow of the CAS, the Geological Society of America, and the Paleontological Society. She also chaired the Nomenclature Committee of the Society for Systematic Zoology and served on the editorial boards of several scientific

publications. She named three families, seven subfamilies, seven genera, five subgenera, two subspecies, and 69 species of marine mollusks.

Never married, Myra was a lover of classical music, a skilled photographer, Biblical scholar, pacifist, ardent feminist, and wildlife conservationist. She lived a frugal life, eschewing alcohol, cigarettes, and other indulgences, and in her later years was active in the Religious Society of Friends, or Quakers. Despite failing eyesight, arthritis, and eventually cancer in her later years, she continued researching and writing as well as reviewing works by others up to a few weeks before her death at the age of 80. Her extensive collection of fossils and Recent mollusks was bequeathed to the CAS.

Myrakeenini Harry, 1985 (Plate S95)

A tribe within the subfamily Lophinae (family Ostreidae), encompassing the genera *Anomiostrea* Habe & Kosuge, 1966, and *Myrakeena* Harry, 1985.

"Lophine with only ostreine chomata and lacking hyote clasper spines; shells white; with circular flange around anus, drawn into finger-like appendage on outer margin" (Coan & Valentich Scott, 2012: 245).

Keenaea Habe, 1951 (Plates S93a-b)

Thin shell, with discrepant sculpture. Low, rounded, crowded rings on anterior and central slopes; ribs on posterior slope higher, with wider interspaces and commarginal lirae.

Type species *Cardium samarangae* Makimaya, 1934, = *C. modestum* A. Adams & Reeve, 1850.

Distribution: The genus is recorded as far back as the Oligocene. A living species reported from the eastern Pacific, *Keenaea centifilosa* (Carpenter, 1864a), ranges from Portlock Bank, Alaska, to Punta Rompiente, Baja California Sur, Mexico.

Keenocardium Kafanov, 1974 (Plates S94a-b)

Ribs rounded, not tubercular, evident on posterior slope.

Distribution: The genus has been reported as early as the Oligocene. Type species *Cardium californiense* Deshayes, 1839, occurring in the Chukchi Sea and northern Pacific.

Myrakeena Harry, 1985 (Plate S95)

Both valves inflated and plicate, beaks small, ligament long, with small round chomata on both sides of ligament. Cemented by half or less of left valve.

Distribution: Type species *Ostrea angelica* Rochebrune, 1895, with the type locality at Bahía de los Ángeles (collected by Leon Diguet, a natural and cultural historian who worked for the French copper mine El Bolero, at Santa Rosalía, Baja California Sur). This species occurs at Rocas Alijos, Pacific coast of Baja California Sur, and from Estero Morua, Sonora, northern head of the Gulf of California, Mexico, south to Bahía Santa Elena, Guanacastse Province, Costa Rica. It has been reported from the late Miocene and Pliocene of California (Squires et al., 2006) and the Pliocene of Baja California, Mexico (Coan & Valentich-Scott, 2012).

Mytilisepta keenae (Nomura, 1936) (Plates S96a, plate numbers 1-5, and S96b, plate number 16)

Originally *Septifer keeni* [sic]. See Taki & Oyama, 1954, which also corrected the erroneous genitive termination of original spelling.

Strongly convex shell, oblong, ovate-triangular, narrowed and beaked in front, broadening behind, base slightly convex in the middle. Umbilical ridge very sharp and prominent, basal area steeply inclined and narrower than the dorsal area. Color blackish brown.

Distribution: Type locality Siogama Bay, Japan. Widely distributed throughout Japan, ranging along both the Pacific and Japan Sea coast of Japan from northern Honsyû to southern Kyûsyû. Also reported as a fossil at Yokosuka, in the Kwanto region, Miura Peninsula, Japan (Taki & Oyama, 1954).

"Having received kind advice from Dr. M. Keen of the Stanford University, and also specimens of *Septifer bifurcatus* Conrad from San Diego, California, the writer made a comparative study of '*Septifer bifurcates*' of Japanese authors (stored in the Saitô Hô-on Kai Museum), with the American species. Consequently, it was found that the American and Japanese forms are quite distinct, as already suggested to the writer privately by Dr. M. Keen in a letter dated, May 10, 1936. Thus, the Japanese form is named *S. keeni* sp. nov., in honor of Dr. M. Keen" (Nomura, 1936: 205).

* *Alvania keenae* Gordon, 1939 (Plate S97)

Synonym = *Onoba carpenteri* (Weinkauff, 1885). Fide James H. McLean and WoRMS.

One and a half turbinate nuclear whorls. Postnuclear whorls well-rounded, almost inflated, with narrow, rounded, elevated axial ribs, about one-third to one-fourth as wide as the spaces separating them.

Distribution: Type localities Neah Bay, Clallam County, Salish Sea, Washington (*O. carpenteri*), and from beach drift among boulders, Moss Beach, San Mateo County, California, collected by Dr. A. Myra Keen (*A. keenae*). Specimens that were collected from the San Diego area are in the LACM .

† *Anomalina keenae* Martin, 1943 (Plate S98)

Foraminiferan reaching 0.34 mm in maximum diameter, thickness 0.15 mm. "Test more convex ventrally than dorsally; wall calcareous, smooth, hyaline, coarsely perforate; periphery bluntly angled to almost rounded, not keeled, very slightly lobulate along last few chambers only; little more than one whorl visible dorsally, earliest chambers concealed under large, slightly raised plug of clear shell material; only last whorl of 12-13 chambers visible on ventral side; dorsal sutures strongly curved, limbate, flush to raised on earlier chambers; ventral sutures curved, limbate, flush, meeting at umbilicus in large plug of clear shell material flush with shell surface; aperture a lipped slit across periphery at base of smooth apertural face of last chamber, extending to dorsal side along spiral suture of law few chambers" (p. 29).

Distribution: Type locality Paleocene Lodo Formation, Lodo Gulch, Panoche Quadrangle, Fresno County, California.

Glycymeris keenae Willett, 1944 (Plates S99a-b)

Trigonal shell reached 10 mm in length. Beaks prosogyrate, anterior and posterior ends rounded. Narrow hinge, sharply curved dorsally. Commarginal sculpture present, radial sculpture not evident.

Distribution: Type locality Forrester Island, southeastern Alaska, dredged by George Willett in 55 m of water.

* *Ocenebra keenae* Bormann, 1946 (Plate S100)

Synonym = *Paciocinebrina barbarensis* (Gabb, 1865). See Houart et al., 2019.

Small shell, 19.2 mm maximum length, with moderately acute spire. Ribs bladelike, with variable overall sculpture. Color of shell brown, often banded with white or buff.

There are two forms along the coast. A larger, shallow water form ranges from Point Pinos, Monterey County, California, to Punta Rompiente, Baja California Sur. Between Monterey to Santa Barbara shells tend to exhibit long, projecting spines at rib intersections, whereas south of this range they primarily have rounded shoulders. A smaller, deep-water form has been reported from Big Sur, Monterey County, to the outer California Channel Islands, and reappearing farther south in the upwelling regions of cold water along northern Baja California.

Distribution: Type locality of *Ocenebra keenae* is White Point, San Pedro, Los Angeles County, California, intertidal (Bormann, 1946). Type locality of *Paciocinebrina barbarensis* is Santa Catalina Island, Los Angeles County, 73 m (Gabb, 1865).

Houart et al., 2019, established the synonymy: "Due to the similarities in spiral morphology, *Ocenebra keenae* Bormann, 1946, is here regarded as a junior synonym. Until further samples of these forms are collected, and a molecular analysis is conducted, this interpretation remains speculative" (p. 210).

Rissoina keenae A.G. Smith & Gordon, 1948 (Plate S101)

Elongate-conic small shell, length 2.8 mm. Subdiaphanous, milk white color. Two smooth nuclear whorls, four postnuclear whorls strongly rounded. Axial threads become more numerous and prominent in later whorls.

Distribution: Type locality 9-14 m off Point Pinos, Monterey Bay, Monterey County, California.

This paper begins with an excellent history of shell collecting in the Monterey Bay's region. Because of the significance of Indigenous land and resource use and conservation, the authors' comments warrant inclusion. "The first historical record...so far discovered is contained in Father Peña's account of the Perez expedition in the *Santiago* in 1774. Apparently shells in Monterey were in demand by the Indians of the northwest coast for inlay work and other purposes and explorers of that day, knowing this, supplied themselves with abalones and other Monterey shells for trade with them" (A. G. Smith & Gordon, 1948: 147). The journal of Jacinto Caamaño, who accompanied Perez, recounts how the natives "told us we ought to arrange that in Spain the meat [from the abalone] be not extracted by heating the shells, as this process damaged the enamel, but that it should be done with a knife" (ibid., pp. 147-148). Smith and Gordon discuss various sailing expeditions and collections made during the 19th century, including Nuttall's 1835 collections, and those of Captain Kellett, the German botanist Karl Theodor Hartweg, and the zoologists James G. Cooper, William H. Dall, and Harold Heath. S. Stillman Berry spent six weeks making dredge hauls around Monterey and Pacific Grove.

Allyn G. Smith began collecting in Monterey Bay and its environs in the summer of 1910 under the expert tutelage of Professor Josiah Keep, of Mills College [now = Mills College at Northeastern University, Oakland, Alameda County, California], who gave talks and led field trips for interested local collectors. Professor Keep's "shock of white hair, his ruddy complexion, and his booming laugh are well remembered by all who were fortunate enough to attend his classes during the period. In all probability, he accomplished more in developing a knowledge and appreciation of the remarkable marine-shell fauna of Monterey Bay than any other individual.

"One of the molluscan groups for which Monterey Bay is a center consists of the sea-slugs, or nudibranchs, of which there are many species. Cooper listed only 4 genera and 4 species in 1870, but in 1906 Dr. F. M. MacFarland of Stanford University increased this to 16 genera and 20 species in a paper devoted to an account of these beautiful animals (MacFarland, 1906)."

They ended this historical introduction with a note on the decreased abundance of shells, writing, "While shore collecting is undoubtedly far from what it must have been in the days of Dall, Canfield, and Cooper, it is still a good collecting area if one knows where to go. Gone, however, are the windrows of shells from many of the favorite beaches, which have long since been cleaned of the better and rarer specimens by collectors and the

frequent summer visitors who come for a day or a vacation at the seashore. No longer is it possible to collect two hundred species in two weeks, as Dall did in 1866" (above quotes from Smith & Gordon, 1948: 152).

Tresus keenae (Kuroda & Habe, 1950) (Plates S102a-b)

Originally *Schizothaerus keenae*. See Oyama, 1973. Previously misidentified as the eastern Pacific *Tresus nuttallii* (Conrad, 1837) by Yokoyama (1922). *Tresus nuttallii* is actually an eastern Pacific species which ranges from Kodiak Island, Alaska, to Bahía Magdalena, Baja California Sur (Coan et al., 2000).

Tresus keenae has a typical mactrid-shaped shell, reaching 126.2 mm in length. Prominent concentric radial striae, covered with brown periostracum.

Distribution: Recent distribution from Japan and South Korea, in muddy sand from the low tide mark to 60 m. Also reported from the upper Pleistocene Imba Formation, southern Kanto area, Chiba Prefecture, Japan.

It is a well-known and tasty part of Japanese cuisine, eaten whole or prepared as sushi or sashimi. Common name is the Japanese horse clam, or *mirugai*.

Teinostoma myrae Pilsbry & Olsson, 1952 (Plates S103a-c)

In apical view, the spire shows two and a half whorls, with a distinct suture forming a spiral figure about one-fourth the diameter of the 1.55 mm shell. Upper surface is flattened and on the last whorl it is sculptured with numerous subpunctate impressed spirals. Columella broadly concave, with distinctly defined axial callus.

Distribution: Known only from the type locality, Bucaru, Los Santos Peninsula, Los Santos Province, Panama.

Ensis myrae Berry, 1953 (Plates S104a-f)

Slender shell, very concave dorsally, reaches 85 mm in length. Umbones terminal, truncate. Berry (1953: 399) states that the "[e]xterior of shell mostly with a somewhat silky sheen due to the numerous fine growth-striate underlying the thin shining Sayal Brown to Mikado Brown periostracum; in adult shells the periostracum is usually rubbed away in a blade-shaped swatch extending from the beaks to the posterior margin, this area being white except for some ruddy or purplish coloring, especially along the edges of the area and in the incremental rest-marks, where the Deep Rose Pink or Vinaceous tinting of the interior may shine through."

Distribution: Type locality San Pedro Bay, Los Angeles County, California, mainly cast up by storms in the vicinity of Terminal Island. Known distribution from Monterey Bay, California, to Punta San Pablo, Baja California Sur, Mexico, on sandy mud of bays and protected foreshores, from 5-25 m. Also known as a fossil from the Pliocene in California (Hertlein & Grant, 1972).

† *Angaria keenae* von der Osten, 1957 (Plate S105)

Shell stout, conical, with three or four convex whorls. Sculpture of 17 evenly spaced spiral rows of hollow spines. On body whorl strong rows of spines more prominent. About 15 mm in total height.

Distribution: Type locality Taguarumo member of the Lower Cretaceous Barranguín Formation, on the islands north of Bahía Santa Fé, eastern Venezuela.

Stephopoma myrakeenae Olsson & McGinty, 1958 (Plates S106a-b)

Solitary vermetid, or with two or more individuals loosely intertwined in loose clusters. When solitary, shell is an erect, open spiral coil, a circular to roughly four-sided tube. Characteristic small protoconch is a small,

fat, planorbid coil of about one whorl, initial portion smooth on the dorsal side, the rest of the surface covered with coarse granules of pustules. Concave operculum chitinous, and with chitinous bristles.

Distribution: Type locality, beach drift from Isla Bocas and Colon, Colon Province, Caribbean coast of Panama.

**Chione (Nioche) keenae* Soot-Ryen, 1957 (Plate S107)

Junior synonym of *Tawera elliptica* (Lamarck, 1818), see Valentich-Scott, Coan & Zelaya, 2020: 327.

Small, white shell, to 6.5 mm. Ovate, rounded anterior and posterior margins, umbones before the middle. Fine radial striate are crossed by irregular concentric lines, especially distinct in the posterior. Hinge with a high, elongate anterior cardinal, a grooved, strong middle cardinal, and a slender long posterior cardinal in the left valve.

Distribution: Type locality Bajo Vettor Pisani, Golfo Corcovado, Chile, on coarse, clean sand, 8 m.

"I have dedicated this small, pretty species to Dr. A. Myra Keen, whose fine studies of the venerids have cleared up the confusing systematics of the family" (Soot-Ryen, 1959: 57).

† *Eocypraea*? (*Apiocypraea*?) *keenae* Woodring, 1959 (Plate S108)

Elongate-oval large shell, moderately inflated, involute, thin-shelled. Outer lip moderately wide, its inner edge bearing about 37 teeth, which extend about a third of the distance across the lip. Inner lip bearing a deep indentation adjoining terminal ridge, followed by two short oblique teeth and a shallow indentation. Height (not quite complete) 115 mm.

This species is unlikely in the genus *Eocypraea* Cossmann, 1903, as it is much younger than the last true *Eocypraea*, hence the question mark after the genus name.

Distribution: Type locality, middle part of Miocene Gatun formation, Gatun Third Locks excavation, damaged specimen found by T. F. Thompson.

* *Yoldia keenae* Wagner, 1959 (Plate S109)

Synonym = *Yoldia hyperborea* (Gould, 1841) See Coan et al., 2000.

Subovate shell, to 50 mm in length, anterior end the longer and broader, smoothly rounded. Umbones small, not prominent, scarcely projecting above the dorsal margin of the shell. Surface of shell with fine but distinct concentric lines of growth; periostracum yellowish brown, glossy.

Distribution: Type locality Delta municipality, Frasier River Valley, near Vancouver, British Columbia, Canada. Sunnyside Formation, Pleistocene. Type specimens were small, 3.5-7 mm in length.

Yoldia hyperborea has a Pan-Arctic distribution. In the eastern Pacific it ranges from the Beaufort Sea, Alaska, to San Diego, California. Western Pacific records include the Siberian Arctic, Kamchatka Peninsula and the Sea of Okhotsk south to the Sakhalin Islands and northern Japan. In the north Atlantic it occurs south to Iceland, Greenland, and Norway.

All members of the genus *Yoldia* Möller, 1842, are "active burrowers, rapidly moving through the substrate or using the bifurcated foot to move the unburied animal" (Bernard, 1979: 19).

Dolichupis myrae (Campbell, 1961) (Plate S110)

Originally *Trivia myrae* Campbell, 1961. Placed in the genus *Circumscapula* Cate, 1979, that genus is now considered a synonym of *Dolichupis* Iredale, 1930 (see Fehse, 2002).

Minute shell to 4.8 mm. Ovately globular, with the right side and the ends margined. Dorsal sulcus shallow, crossed by a few ribs; ribs narrow and sharp, interspaces minutely granular. Color dark purplish brown.

Distribution: Holotype specimen trawled off Loreto, Baja California Sur, Mexico, in the channel between Loreto and Isla Carmen, on the Ariel Expedition (September 1960), approximately 45 m deep. Found throughout the Gulf of California, from Puertecitos, Baja California, and Puerto Peñasco, Sonora, to Rancho Buenavista, Baja California Sur, Mexico to about 145 m deep.

"This new species of *Trivia* is named in honor of Dr. Myra Keen for her participation in the Ariel Expedition during which time this species was discovered, and for the many hours that she has devoted in helping me with problems regarding mollusks" (Campbell, 1961: 25).

Halistrepta myrae (Rogers, 1962) (Plate S111)

Originally *Periploma myrae*. See Bernard, 1989.

Subequilateral, subovate shell, length to 30 mm. Right valve inflated, left valve compressed. Sculpture of irregular low commarginal ribs or discontinuous undulations. Prominent rostrum. Narrow, small chondrophore projects ventrally.

Distribution: Holotype collected between 27-45 m deep in the channel between Loreto and Isla Carmen, Baja California Sur, on the same Ariel Expedition that collected *Dolichupis myrae* (Campbell, 1961). Known distribution from the central Gulf of California to Manzanillo, Colima, Mexico, between 16-90 m depth.

* *Glyphostoma myrakeenae* Olsson, 1964 (Plates S112a-b)

Synonym = *Glyphostoma neglecta* (Hinds, 1843). See Keen, 1971: 745.

Glyphostoma neglecta is a high-spired, slender turrid, reaching 10-16 mm in length. Concave shoulder with irregular lines of growth, with broad axial ribs fading on the base and crossed by narrow, raised spiral cords. Color yellowish brown, banded with darker brown on the base, or splotched with darker brown in the spaces between the axial ribs.

Distribution: Ranges from the head of the Gulf of California, Mexico to Santa Elena Peninsula, Ecuador, the type locality of Olsson's synonymized species. From 20-50 m.

* *Transenpitar keenae* Fischer-Piette & Testud, 1967 (Plates S113a-b)

Synonym = *Transenpitar americana* (Doello-Jurado in Carcelles & Williamson, 1951). See Rios, 1985: 263.

Subequilateral, oval shell, to 85 mm. Umbones prosogyrate. Sculptured with closely concentric riblets. External ligament with submarginal nymph. Pallial sinus trigonal. Color white to yellowish with brown radial bands.

Distribution: Occurs on sandy mud and gravel bottoms, 18-105 m, from Brazil to Argentina. Original references not seen; information from Rios (1985).

Mitromorpha keenae (Emerson & Radwin, 1969) (Plates S114a-b)

Originally *Mitrolumna keenae*. See Kilburn, 1986.

Biconical shell reaches 18 mm in length. Numerous spiral incised lines on a buff-colored shell, with chestnut-brown maculations between the spiral incised lines which do not cross them.

Radula has typical toxoglossate dentition with a packet of 16 dart-like teeth, each about 10µm long.

Distribution: Type locality near Tagus Cove, Isabella Island, Galápagos Islands, dredged in 75-100 m.

Cinclidotyphis myrae DuShane, 1969 (Plates S115a-b)

The 19-20.4 mm long shell is broadly fusiform. High spire, consisting of one and one-half convex nuclear whorls and four convex postnuclear whorls. In the shoulder region, midway between each two consecutive varices, a short, open, dorsally facing anal siphonal tube is formed. Four varices per whorl, each a rounded fold which extends above shoulder to join preceding varix; tubes folded back. Varices with prominent spiral and axial sculpture producing a beaded effect at the junction, about 22 spiral cords on the last whorl.

Distribution: Type locality among rocks near a sand beach, Bahía Tenacatita, Jalisco, Mexico. Known distribution ranges slightly north to San Blas, Nayarit, Mexico.

† *Typhis keenae* Gertman, 1969 (Plates S116a-b)

Shell 14-16 mm in length. Protoconch smooth, rounded, with one and one-half whorls. Five postnuclear whorls, each with four flaring varices bearing four crenulations. Apical crenulation forms a spine at the top of the varix; tubes midway between varices. Aperture ovate, pointed anteriorly and surrounded by a raised rim.

Distribution: Type locality upper lower Miocene Chipola Formation, east bank of Chipola River, above Farley Creek, Calhoun County, northwest Florida.

Anatoma keenae (McLean, 1970b) (Plate S117)

Originally *Scissurella keenae*. See Geiger, 2012: 942-948 and Geiger, 2019.

Fragile, globose shell with rounded whorls. Nucleus with one and a half smooth, unsculptured, glossy whorls, with deeply impressed sutures. Teleoconch with three and a half whorls. The fine, evenly spaced axial ridges remain stronger than the fine spiral ribs apparent on the final two whorls. Umbilicus deep, narrow; aperture circular. Height 2.0 mm, diameter 2.0 mm.

Distribution: Type locality off northwest side of Isla Ángel de la Guarda, Gulf of California, Mexico; dredged by R/V *Velero III*, from 84 m, on 20 March 1937. Ranges southward in the Gulf of California to Inner Gorda Bank, off Cabo San Lucas, Baja California Sur, Mexico, on mud bottoms from 73-183 m.

Monoplex keenae (Beu, 1970) (Plates S118a-c)

Originally *Septa* (*Monoplex*) *parthenopea keenae*. Moved to *Cymatium* (*Monoplex*) *parthenopeum keenae* (see Keen, 1971: 505). Considered full species, *Cymatium keenae* (see Beu, 1998: 113-114). Present generic assignment by Beu, 2010.

Shell reaches 133.8 mm in height. Spiral sculpture of broad, comparatively low cords, two on early spire whorls and up to seven on later whorls. Axial sculpture of many low, comparatively closely spaced, weak costae that are more distinct between the spiral cords and form numerous low, closely spaced nodules on the cords. Shell color cream to light brown, with darker brown axial lines. Yellow brown periostracum heavy, fibrous, almost woolly, with numerous relatively very closely spaced, fringed, high, thin axial blades.

Distribution: Type locality Academy Bay, Galápagos Islands. Records from Bahía Magdalena, Baja California Sur, from shrimp trawlers off Guaymas, Sonora, Mexico, and south to the Galápagos, from low intertidal to 100 m. Reported from Bahía Antofagaste, northern Chile, some 22º latitude south of the Galápagos Islands, during El Niño conditions (Ashton et al., 2008).

† *Cancellaria keenae* Addicott, 1970 (Plate S119, plate figures 1-4, 18, 19)

Rugose, fusiform, high spired shell, with convex whorls and deeply impressed suture. Body whorl sculptured by eight raised axial folds or varices separated by interspaces about twice as wide. Spiral sculpture of about 15 rounded primary cords, alternating with secondary spirals on lower three-quarters of body whorl.

Distribution: Type locality middle Miocene "Temblor" Stage, lower part of Round Mountain Silt, Kern River area, Kern County, California.

Dermomurex myrakeenae (Emerson & D'Attilio, 1970) (Plates S120a-d)

Originally *Aspella myrakeenae*. See E. H. Vokes, 1975: 128-129.

Broadly fusiform shell, with a high and acute spire, consisting of one and one-half translucent convex nuclear whorls and six or seven convex postnuclear whorls. Body whorl with four heavy, ropelike varices and one or two intervarical costae. Spiral sculpture six moderately heavy cords on the body. Aperture ovate, with a weak anal sulcus. Inner surface of outer apertural lip bears six low denticles. Columellar lip smooth, with a prominent, sharp, angular projection at the entrance to the canal. Shell color pale brown, broken up into spiral lines by the white coloration of the spiral cords. Periostracum transparent tan; shell length to 21-25 mm.

Radula with five cusps on central tooth and one lateral tooth.

Distribution: Type locality under rocks in the intertidal zone, Bahía de Banderas, Nayarit, Mexico; holotype collected by Joseph and Helen DuShane, January 1969. Distribution from La Paz, Baja California Sur, Mexico, to Islas Perlas, Panama (Shasky, 1996).

Calliostoma keenae McLean, 1970a (Plate 121)

Whorls and periphery rounded, spiral cording un-beaded until the fourth whorl. Final whorl with numerous raised, finely beaded spiral cords. Imperforate base with about 12 low, weakly beaded cords. Color drab brown or yellow brown with brown flammules. Holotype 14.9 mm in height.

McLean divided the Panamic species of *Calliostoma* into two groups by depth of occurrence. One group occurs in rocky sublittoral zones to offshore shallow bottoms to depths of 40 m. The other group, to which this species belongs, is dredged only at depths of 55 m and deeper.

Distribution: Type locality 58 Fathom Bank, 12 miles off Laguna Beach, Orange County, California, from 106-110 m. Originally collected from the R/V *Velero IV*, 12 February 1949. Occurs south to Isla Cedros, Baja California, and in the Gulf of California from Bahía de los Ángeles, Mexico (Skoglund & Koch, 1993), to San Jaime Bank off Cabo San Lucas, Mexico. Also known from Bahía Sulphur, Isla Clarion, Islas Revillagigedo. Depth range between 55-119 m.

Favartia keenae (E. H. Vokes, 1970) (Plates S122a-b)

Originally *Murexiella keenae*. Synonymized with *Murexiella humilis* (Broderip in Broderip & Sowerby I, 1833) by Radwin & D'Attilio, 1976, but reinstated as a full species by Poorman, 1980. The genus *Murexiella* Clench & Pérez Farfante, 1945, is a synonym of *Favartia* Jousseaume, 1880 (see Merle et al., 2011: 59, 156).

Adult teleoconch with six whorls. Postnuclear growth begins with eight varices per whorl but decreases to six in the fully adult stage. The leading edge of each varix is heavy and highly fimbriated. Spiral ornamentation of

two strong cords on all whorls except the last, which has six and an additional two on the siphonal canal. Where spiral cords cross varices there are small, recurved, fimbriate spines produced. Aperture oval, outer lip strongly recurved. Shell length 34.3 mm.

Distribution: Type locality under intertidal rocks at Playa Venado, Panama Bay, Panama. Has been dredged more than 3500 km northward on the west Mexican coast from Mazatlán, Sinaloa, on small rock and gravel bottoms off rocky headlands in 20-30 m of water.

"It gives me great pleasure to name this species in honor of Dr. Myra Keen, who has done so much for the study of West American Mollusca in general and the writer in particular" (Vokes, 1970: 328).

Glyphostoma myrae Shasky, 1971 (Plate S123)

Entire external surface of shell, except the nucleus, is studded with microscopic granules. Shell with two and a half to three nuclear whorls, eight and a half to nine body whorls. Adult whorls with elevated axial ribs, 11 on the body whorl, progressively diminishing in number adapically. Outer lip crenulate, varicose, flaring, and with seven to eight denticles; columellar lip with eight plicae. Color yellowish-white with a yellowish-brown subsutural band on all the whorls below the nucleus. Shell length 13 mm.

Distribution: Type locality off Isla Jicarita, Panama, from 46 m. Also known from off Puerto Utria, Colombia. Recorded depth range between 37-59 m.

Callucina keenae Chavan, 1971 (Plate 124)

Proposed as a replacement name for *Lucina radians* Conrad, 1841, which is a junior homonym of *L. radians* Bory de St. Vincent, 1824. For generic placement, see Glover & Taylor, 2008.

Shell outline circular to slightly oblique-oval. Sculpture of closely spaced, regular commarginal lamellae, sometimes with a hint of faint radial ribs on the central posterior part of the outer shell surface. Umbones prominent as are the growth halts. Margin denticulate within. Color white with pale yellow tinges. Size to 23 mm.

Distribution: Type locality near Magnolia, Natural Well, Duplin County, North Carolina, Pliocene deposits. Modern records from the western Atlantic range from North Carolina to Brazil, from the shallow subtidal to 183 m.

**Primovula myrakeenae* Azuma & Cate, 1971 (Plates S125a-b)

Synonym = *Dentiovula azumai* (Cate, 1970). See Lorenz & Fehse, 2009.

Ovate, thinly formed, sub-translucent shell. Terminals well produced, dorsum roundly inflated centrally, with numerous, very distinct transversely incised striate. Color bright red or a deep, rich honey-yellow to yellow-brown. Shell length to 9.7 mm.

Distribution: Type localities 1-2 km off Kirimezaki Kii Peninsula, Japan (*D. azumai*), and off Nada, Kii Peninsula, Japan (*P. myrakeenae*), in 36-91 m.

Petaloconchus keenae Hadfield & Kay, in Hadfield et al., 1972 (Plate S126)

Diameter of shell whorls up to 10 mm, apertural diameter 5 mm. Early whorls of teleoconch forming a conical coil on the substratum, later whorls emergent and projecting several centimeters above the substratum. Cream, red-brown, or dark purple. Sculpture of axial ribs crossed by obsolete striae.

Head, foot, tentacles, and mantle of animal pigmented with dark purple to rosy-brown, sprinkled with white dots and yellow splotches.

Egg mass consists of ovoid capsules, each about 2 mm in length, suspended in the mantle cavity by a slender stalk attached to the shell. There are 17-30 eggs in each capsule, each measuring about 217 µ in diameter with a large amount of nurse yolk. Hatching veliger larvae have shells of two and a half to three whorls, the largest measuring 0.7 x 0.45 mm.

Distribution: Type locality Kaheka (near Koloa), Kauai, Hawaii, on intertidal boulders. *Petaloconchus keenae* is the most common vermetid in the Hawaiian Islands, occurring in the intertidal and subtidal.

Littorina keenae Rosewater, 1978 (Plates S127a-c)

Because of a case of double primary homonymy, Rosewater proposed *Littorina keenae* as a replacement name for *Litorina planaxis* Philippi, 1847, non *Littorina planaxis* G. B. Sowerby II, 1844, and for *Littorina patula* Gould, 1849, non *Littorina patula* Thorpe, 1844.

"Shell smooth, with fine spiral grooves (often eroded); conspicuous white stripe within base of brown aperture; flattened parietal area (smoothly eroded by animal) adjacent to columella; length to 23 mm; shell color black or brown with irregular white flecks, but often eroded; penis with two (rarely one or three) large mammilliform penial glands; multispiral pallial oviduct with enlarged, septate jelly gland" (Reid, 2007).

The capsules in its gelatinous, free egg mass are 400µm in diameter, each containing a single egg.

Feeds on black lichens and epi- and endolithic microalgae.

Distribution: One of the four most common Pacific Coast *Littorina*, its distribution is from Puget Sound, Washington, to Bahía Magdalena, Baja California Sur, Mexico (McLean, 1978).

† *Protocardia keenae* Singh & Rai, 1980 (Plate S128, plate figures 1a-b)

Well-inflated shell, shell outline sub-ovate to sub-quadrangular. Length exceeds the height and maximum inflation is in the umbonal region. Umbones more or less mesial, contiguous, prosogyrous and salient. Surface sculpture consists of concentric fine, evenly and closely spaced threads; radials consist of ten fine ribs restricted to the posterior area where they are crossed by growth lines. Length 12-22 mm.

Distribution: Type locality Bed No. 23, upper member of Bela Formation, Bela Island, Gulf of Kutch, Gujarat, State of Gujarat, India. Distributed throughout the upper and lower beds of the Callovian and Bathonian Jurassic Bela Formation.

* *Nucula keenae* Bernard, 1983a (Plate S129, plate figure 2)

Synonym = *Nucula carlottensis* Dall, 1897. See Valentich-Scott, 1998

Very inflated, small trigonal shell, length to 10 mm. Distinct commarginal ribs and radial striae. Umbones prominent. Inner ventral shell margin deeply crenulate. Periostracum yellow to dark brown, silky.

Distribution: Type locality of *N. carlottensis* off Queen Charlotte Islands, British Columbia. Type locality of *N. keenae* the Cascadia Plain off Oregon, in 2000 m. The species ranges from the Queen Charlotte Islands to Acapulco, Guerrero, Mexico, from 104 to 2000 m.

Tritonicula myrakeenae (Bertsch & Mozqueira Osuna, 1986) (Plates S130a-b)

Originally *Tritonia myrakeenae*. See Korshunov & Martynov, 2020, erecting the new genus *Tritonicula*.

Body color a pale dirty, orange-brown. One to four distinct white patches occur on the dorsum. Oral veil with four to seven processes; up to nine gill plumes distributed along the edge of the notum. Length to 17 mm.

Distribution: Type locality intertidal zone, rocky reef at southeast end of Isla Cedros, Baja California, Mexico. Ranges northward to Santa Barbara, California. Also reported from Costa Rica (Behrens & Hermosillo, 2005) and Panama (Camacho-García et al., 2005).

"This new species is named in honor of the distinguished malacologist, Dr. A. Myra Keen (1905-1986), colleague and friend, who included nudibranchs in *Sea Shells of Tropical West America*, second edition (this was the first major review of all known nudibranchs and other opisthobranchs from the Panamic marine faunal province). Her persistent scholarship and encouragement of research has helped us to know (and hopefully to protect) the mollusks of western North America" (Bertsch & Mozqueira Osuna, 1986: 48-49).

* *Petaloconchus myrakeenae* Absalão & Rios, 1987 (Plate S131)

Synonym = *Petaloconchus varians* (d'Orbigny, 1839). See Breves et al., 2022.

Irregularly coiled tube, reaching 50 mm in length and 0.4 mm in greatest diameter. Three main prominent longitudinal ribs, with countless transverse ridges resembling coarse growth lines. Operculum concave and corneous, with two to three coils.

Typical vermetid taenioglossate radula.

May appear solitary or in groups of a few individuals. Mesolittoral zone attached to rocks or shells of *Crassostrea rhizophorae* (Guilding, 1828).

Distribution: Type locality Ponta de Itaipu, Rio de Janeiro, Brazil.

† *Niveotectura myrakeenae* Lindberg & Marincovich, 1988 (Plate S132)

High profile shell, with length/height ratio approximately 1:1. Apex central, all slopes straight or slightly convex. Radial sculpture about 28 primary and secondary riblets, concentric sculpture of weaker cords that produce pustules when intersecting the radial riblets. Shell length 21.3 mm, aperture diameter about 25 mm.

Distribution: Known only from the type locality, Yakagata Formation (Miocene or Pliocene age) east of White River Glacier, northeastern Gulf of Alaska.

† *Integricardium keenae* Marincovich, 1993 (Plate S133)

Inflated shell, inequilateral, with elliptical posterior outline. Broadly rounded anterior end with a distinctly elevated umbo located about one-third of shell length from anterior end. Exterior smooth except for fine incremental lines and broad, obsolete radial costae on posterior one-third. Length 19.5 mm.

Distribution: Type locality outcrop on 30 m high bluffs along the Colville River in the vicinity of Ocean Point, North Slope County, Alaska, about 45 km from the Arctic Ocean. Youngest exposure of the Prince Creek Formation, Danian in age (from about 63-66 million years ago, just after the Cretaceous-Paleogene extinction event).

† *Nemocardium keenae* Le Renard, 1994 (Plate S134, plate numbers 9-10)

This species name was proposed as a replacement name for *Cardium semistriatum* Deshayes, 1824, non Bean in Young & Bird, 1828: 226.

The subequilateral shell is 40 mm in length, very swollen, heart-shaped. Rounded anteriorly and posteriorly, subtruncate on the posterior side. Umbones large, salient, oblique and opposing. The exterior surface is divided into two unequal parts. The largest, which is anterior, is completely smooth, although showing traces of incremental, very fine striae radiating outwards from the lower umbo to the shell's lip. The posterior forms a sort of large bodice ("*grand corselet*"). (Description based on Deshayes 1824: 174.)

Description: Type locality Paleogene Paris Basin, north-central France.

† *Chattonia trigonata keenae* Chavan, 1939 (Plate S135)

Originally incorrect genitive termination *Chattonia trigonata keeni* Chavan, 1939; herein corrected following the ICZN rules of Latin possessive endings for eponyms.

Shells of the genus *Chattonia* Marwick, 1929, were originally described from Chatton, New Zealand, as being hatchet-shaped, with prominent beaks, broadly truncated posterior end, with a sculpture of regular concentric grooves. The left hinge with two narrow, divergent, anterior cardinal teeth, right hinge with strong, long, curved cardinal tooth.

When Chavan erected the subspecies (based on suggestions by Myra Keen), he primarily wrote how it differs from *Chattonia trigonata* (Lamarck, 1818). *Chattonia trigonata keenae* is more equilateral, transverse, and expanded. The A_1 anterior lamella is more salient and more detached from the edge. The ornamentation is generally finer and more regular. He noted that the anterior side is very regularly rounded.

Distribution: Type locality in Eocene Lutetian strata, at Saffré, Loire-Atlantique, France. Known from various sites throughout the Paris Basin formation, including Chaumont, Grignon, and Mouchy.

Katherine Van Winkle Palmer (1895-1982)

(Figures 29-33)

Renowned Paleogene paleontologist Katherine Van Winkle Palmer was a leading authority on Cenozoic mollusks, a foremost geologist, and one of the most respected female scientists of her era. The author of hundreds of species of fossil and Recent invertebrates, she did field work on freshwater and marine Mollusca in several parts of the world, including Washington state, the southeastern U.S., Cuba, Panama, the Gulf of Mexico, and New Zealand (Brice, 2020). As the second Director of the Paleontological Research Institution (PRI) in Ithaca, New York, from 1952 until her retirement in 1978, she oversaw expansion of PRI's physical facilities and promoted significant growth in its donor base, specimen collections, and scientific publications. In 1973 Palmer was the first female to receive paleontology's highest honor, the Paleontological Society Medal, for her work on Tertiary [i.e., Paleogene] Mollusca. Among numerous other honors and awards, she was a Fellow of the Geological Society of America (1935), a recipient of the WSM Award (1974), and President (1959-1960) and Honorary Life Member of the AMU.

Katherine Evangeline Hilton Van Winkle was the only child of Mary Edith Hilton (1864-1908), a nurse, and Jacob Outwater Van Winkle (1863-1934), a physician. As a young girl, Katherine shared in her father's love of nature and joined him in hunting for fossils in the vicinity of Oakville, Washington, where she was born and grew up. By the time she was ready for college, Palmer knew she wanted to study geology. The first female from her high school to attend college, she enrolled at the University of Washington, where she was a laboratory assistant to well-known paleontologist Charles E. Weaver (1880-1958). After receiving a Bachelor of Science degree from University of Washington in 1918 (with a thesis on the Oligocene fossils of the Chehalis Valley in Washington) and an endorsement from Weaver, Palmer received a Goldwyn Smith Fellowship to attend Cornell University to study under Paleogene expert Gilbert D. Harris (1864-1952), at that time the only professor in Cornell's geology department who would accept women as students (Brice, 1996). Once at Cornell, Palmer assisted Harris in researching fossils of the U.S. Coastal Plain and was coauthor with him of a paper on Tertiary mollusks of the East Coast of America (Van Winkle & Harris, 1919). She completed her Ph.D. degree at Cornell University in 1925 with a highly admired dissertation on what were then called veneracean lamellibranchs, or Venus clams.

While at Cornell, Palmer met and in 1921 married Ephraim L. Palmer (1888-1970), a professor of Rural Education and Nature Study at the university. They had two sons, Laurence Van Winkle Palmer, born in 1923, and Richard Robin Palmer, born in 1930. An invalid for most of his life, Laurence suffered from a bacterial infection from birth. Sadly, he passed away in 1947 at the age of 17. Katherine and Ephraim Palmer supported each other in their careers, and she at times received appointments for nature studies related to his work at Cornell University and Utah Agricultural College (Caster, 1983).

When G. D. Harris retired from Cornell University in 1932, he founded PRI, with the assistance of Katherine Palmer and others, in Ithaca, New York, to house his own large collection of books and fossils and to

promote paleontological studies. As a founding member and life trustee, Palmer served on the board of PRI and assisted in overseeing the institution's collections. She succeeded Harris as director of PRI in April 1952 when he retired due to ill health. In addition to increasing PRI's collections and publications during her directorship, Palmer campaigned for larger facilities, finally succeeding in 1968 in moving PRI's headquarters to Ithaca's West Hill, across Cayuga Lake and opposite Cornell University (Allmon, 2007). Palmer was also editor for PRI's two major journals, *Bulletins of American Paleontology* and *Paleontographica Americana*, as well as numerous PRI pamphlets, guidebooks, and books. Though she retired as director in 1978, she continued as emeritus director of PRI until her death in 1982 (Caster, 1983).

The majority of Palmer's publications appeared in scientific journals on subjects including, for example, foraminifera from Cuba and Costa Rica, the Cenozoic and Recent Veneridae of eastern America, gastropods of Alabama's Claiborne Formation, the Eocene fauna of Washington, Neocene Spondyli of the southern United States and tropical America, and the geology and paleontology of Ecuador. Two longer works, *Catalogue of the Paleocene and Eocene Mollusca of the Southern and Eastern United States* (Palmer and Brann, 1965-1966) and *Type Specimens of Marine Mollusca Described by P. P. Carpenter from the West Coast* (Palmer, 1958) are still considered important resources. She also wrote remembrances of deceased colleagues and on non-paleontological subjects such as England's famous family of naturalists the Sowerbys, an unpublished poem by Timothy Abbott Conrad, flightless birds of New Zealand, tales of ancient whales, shell collecting and clubs in America, and the joys of fossil-finding. In 1925 she authored *Honne, the Spirit of the Chehalis: The Indian Interpretation of the Origin of People and Animals*, a collection of Salish stories based on the beliefs of Native American people in her home state of Washington.

In addition to honors and awards already mentioned, Palmer was a Fellow of the Geological Society of America (1935), which dedicated GSA Special Paper 184 to her in 1976. She was also a Fellow of the American Association for the Advancement of Science, an honorary member of the Society of Economic Paleontologists and Mineralogists (now named the Society for Sedimentary Geology), and a member or fellow of leading geological and paleontological associations around the world. On April 6-7, 1978, a two-day symposium at Tulane University was held in honor of Palmer's many contributions to paleontology. The event was organized by noted paleomalacologists Harold and Emily Vokes and included Palmer receiving an honorary doctorate from Tulane. The PRI has bestowed the Katherine Palmer Award for amateur contributions to paleontology each year since 1993.

Katherine Palmer died on 12 September 1982, after several years of deteriorating health. From 1980 on she required numerous hospital stays as well as expensive nursing care at home. Her finances became such that she sold her vast collection of natural history books (for a generous amount) to noted conchologist Richard Petit (1931-2013) during 1980-1981 (Allmon, 2007). Shortly before her death she published *The Paleontological Research Institution—Fifty Years: 1932-1982* (Palmer, 1982), the first history of the PRI and a lasting memorial to her impressive 64-year career in science.

† *Katherinella* Tegland, 1929 (Plates S136a-f)

Originally named as a subgenus, Stenzel et al., 1957, raised *Katherinella* to full generic status, which was later confirmed by Moore, 1963, and Garvie, 2013.

The type species designated by Tegland is *Callocallista arnoldi* Weaver, 1916. Tegland (1929: 281) wrote, “The hinge structure of *P. arnoldi* differs strikingly from that of any other genus or subgenus in the Veneridae which has so far been studied from the Tertiary of North America. The number and position of the teeth, the lunule, sometimes circumscribed by an incised line and always slightly protuberant along the central line, the pallial sinus long and pointed, general outline of shell and type of beak, seem to place the species in the genus *Pitaria*” (Tegland, 1929: 281).

Tegland (1929) also placed her previously named Recent *Pitaria ida* Tegland, 1928b, into *Katherinella*.

Distribution: Type locality Bainbridge Island (from Restoration Point northward to the Country Club Landing), Washington, Blakeley Formation, upper Oligocene. The genus has subsequently been reported in middle Miocene to upper Pliocene sites in Texas.

A note on the life of Nellie May Tegland (1887-1931) is appropriate. She lived in Tacoma, Washington, for a great portion of her life, receiving her bachelor’s and master’s degrees from the University of Washington.

Sadly, she died in Tacoma, Washington, just a few months after receiving her doctorate degree from the UCB. The Ph.D. thesis of this pioneering female paleontologist was published posthumously (Tegland, 1933). Tegland (1928a) also published a note on *Thyasira disjuncta* Gabb, 1866 [= synonym of *Conchocele bisecta* (Conrad, 1849]. See Coan et al., 2000 and a major monograph on the cassid genus *Galeodea* Link, 1807, in the Oligocene of Washington (Tegland, 1931).

† *Kathpalmeria* Ross, 1965 (Plates S137a-b)

Type species by original designation, *Kathpalmeria georgiana* Ross, 1965.

"Sessile barnacles having six compartments with sold wall and solid, wholly calcareous, basis. The rostrum, laterals, and carinolaterals lack (?) or possess diminutive radii, the sutural edges of which are dentate. The wall plates are moderately folded, the re-entrants forming buttresses on the inner shell surface. Internally, the buttresses and intervening spaces are strong to slightly ribbed. The scutum is sulcate externally and bears a strongly developed articular ridge, but no adductor ridge" (Ross, 1965: 61). Height to 14.3 mm.

Distribution: The type specimens of this barnacle were collected by G. D. Harris, J. Houack, and K. V. W. Palmer, October 1946, approximately 22 miles (35 kilometers) southeast of Augusta on the Savannah River, at Shell Bluff Landing, Burke County, Georgia. From the Barnwell Formation of Eocene (Jacksonian) age.

† *Kapalmerella* Allmon, 2005 (Plates S138)

Replacement name for *Palmerella* Allmon, 1996 (Gastropoda: Turritellidae), a homonym of *Palmerella* Cameron, 1908 (Insecta: Hymenoptera). Type species by original designation *Turritella mortoni* Conrad, 1830.

Small to very large turritellids with 10-25 whorls. Profile of adult whorls round to basally carinate.

Distribution: Known to occur in lower Paleocene to upper Eocene strata throughout the U.S. Gulf and Atlantic coastal plain.

* † *Scapharca vanwinkleae* Sheldon & Maury in Maury, 1925 (Plate S139)

Synonym = *Anadora paraensis* (White, 1887). Originally *Arca paraensis* White, 1887. See Lopes de Simone & Mezzalira, 1994. White also used the name *paraensis* in naming four other species of bivalves in four different genera and a species of gastropod.

The specimen described by Sheldon & Maury in Maury, 1925, consisted only of the right valve, small, quadrate, and delicate, 14 mm in length and 12 mm in height. Valve with 26 ribs, ornamented with fine, distinct beads. White's complete specimen was a bit larger (16 mm x 14 mm), with 30 radiating ribs, each bearing a row of minute nodules.

Distribution: Both specimens were collected from the Pirabas Formation in Pará Province, Brazil, near the Oligocene-Miocene boundary.

† *Palliolum vanwinkleae* (Clark, 1925) (Plate S140)

Originally *Pecten vanwinkleae* Clark, 1925. See Durham, 1944:138.

Shell rather small (14 mm in length, 13 mm in height), thin, moderately convex. Apical angle a little less than 90º, dorsal slopes nearly straight, ventral edge very arcuate. Hinge margin about half the width of the shell. Surface of shell sculptured by very fine radiating striae which can be seen only by aid of a lens, and by fairly prominent, broad, concentric undulations which are very distinct near beaks. Distinct line of depression separating posterior ear from main surface of shell. Surface of anterior ear noticeably concave, sculptured by eight or nine closely spaced radial striae or ribs. Left valve unknown.

Distribution: Type locality lower Oligocene beds along Porter Creek, about three quarters of a mile (~1 km) from Porter, Grays Harbor County, southwestern Washington. Collected by Harold Hannibal.

* † *Antigona palmerae* H. K. Hodson in F. Hodson et al., 1927 (Plates S141a-f)

Synonym = *Ventricolaria harrisiana* (Olsson, 1922). See Woodring, 1982.

All of the specimens observed by Hodson et al., 1927, were more or less distorted or broken. The moderately inflated shells they described were posteriorly produced and ornamented with rather close-set, sharp, concentric recurved lamellae. Long, narrow, cordate lunule. Jung (1965: 464-465) and Woodring (1982: 681-682) provide more extensive descriptions.

Distribution: This species has been reported from the early to late Miocene from formations in Florida, Costa Rica, Panama, and Venezuela.

† *Sphenotus palmerae* Caster, 1930 (Plate S142)

Medium-sized shell, sphenotoid in outline. A much-elevated ridge along the umbonal fold is unique. This carina is much more strongly developed than in the usual *Sphenotus*. The carina is lower on the left valve than on the right, hence the post-umbonal area of the left valve is somewhat larger than that of the right. Surface concentrically striate both on the anterior and posterior umbonal regions.

Distribution: Type locality 100 feet above the road level at Glades, York County, Pennsylvania, in the Conewango Formation at the Devonian-Mississippian boundary.

† *Pandora vanwinkleae* Tegland, 1933 (Plates S143a-b)

Thin, medium-sized shell, with nacreous inner layer, 37 mm in length, 27 mm in height. Left valve concave, right valve convex. Posterior dorsal margin straight; anterior dorsal margin slightly concave. Anterior wing of left valve makes a 45º angle with margin and is marked off with incised line. Regions between the wings of both valves globose and ornamented with raised radiating lines. Distinct concentric, radial growth lines over entire surface.

Distribution: Type locality Point Restoration, Bainbridge Island, Kitsap County, Washington, Blakeley Formation, upper Oligocene.

"Named in honor of Dr. Katherine Van Winkle Palmer of Cornell University, formerly instructor in paleontology in the University of Washington" (Tegland, 1933: 113). This monograph was published posthumously (see entry for *Katherinella*, above).

† *Smilotrochus palmerae* (Wells, 1933) (Plates S144a-b)

Originally *Blagrovia palmerae* Wells, 1933. See Vaughan & Wells, 1943: 185.

This fossil stony coral is a member of the Order Scleractinia. It reaches 10 mm in height, with the calice diameter 6.5 x 9.5 mm. The simple corallum is attached by a very small base, or free in adult stages, cornute or conical in shape, slightly compressed. Calice deep, septa in four complete cycles.

Distribution: Type locality Pawpaw beds of the middle Washita on Sycamore Creek, Fort Worth, Tarrant County, Texas. Upper Albian, Cretaceous, about 113-110 million years ago.

Although Wells (1933: 125-126) did not explain the etymology of this species, it seems reasonable to assume he named it for Katherine Palmer, considering their affiliations with the PRI. They both received their Ph.D. degrees under the guidance of Professor Gilbert D. Harris.

† *Dosinia palmerae* Olsson, 1931 (Plates S145a-c)

See Lopes de Simone & Mezzalira (1994: 90) for the status of *Dosinidia*, which Olsson (1931) had originally used as a subgenus.

Thin, moderately convex shell, subcircular in outline. Beaks small, curved forward. Sculpture consists of fairly coarse, concentric, smooth bands or ribbons, averaging nearly a millimeter wide on the middle of the disk. Length 34 mm, height 33 mm.

Distribution: Type locality Heath Formation (upper Oligocene), basal Caleto Mero shales of Calero Mero, Peru.

† *Pseudorthoceras palmerae* Flower & Caster, 1935 (Plate S146)

The root of the genus name of this nautiloid, *orthoceras*, means straight horn, referring to its conical shell.

Conch orthoceraconic, the apical end slightly curved. Cyrtochoanitic siphuncle central or subcentral. Sutures transverse. Living chamber with a length of 53 mm, equal to two and a half times the dorso-ventral diameter at the last septum.

Distribution: Type locality Panama horizon, Venango Stage, upper Devonian, Reynolds Quarry, Erie County, Pennsylvania.

† *Jonesia palmerae* (Coryell & Fields, 1937) (Plate S147)

Originally *Luvula palmerae* Coryell & Fields, 1937. See Swain, 1974: 25.

An ostracod; thin-shelled carapace with a length of 0.5 mm. Straight dorsal margin, ventral margin concave in the anterior half and distinctly convex in the posterior, curving upwards to the posterior ventral acumination. Inner lamella is broad along the anterior end and the posterior ventral area. Radial pore canals numerous anteriorly, less frequent in other areas.

Distribution: Type locality Gatun Formation in Panama.

The small bivalved Ostracoda, commonly called “seed shrimps,” are one of the most successful groups of crustaceans. There are about 30,000 described living species. Dating from the Ordovician, their 65,000 fossil species form the best record of any arthropod group (Brusca et al., 2016: 798). The vast majority of fossil ostracods are represented only by calcified shells. Rare examples with preserved appendages and other soft parts provide exceptional insights into their evolutionary history. For instance, the Cypridocopina ostracods, another suborder of Pocopida, have some of the longest sperm in the animal kingdom, sometimes reaching a greater length than the male that produced them. Recent discoveries have shown that giant ostracod sperm is a feature deeply rooted in the evolutionary record of this non-marine freshwater group. Matzke-Krasz et al. (2014) report finding giant sperm from the early Miocene (17 million years ago), in layers of bat coprolites from the Riversleigh’s Bitesantennary Site, Lawn Hill National Park, northwest Queensland, Australia. The oldest record (Wang et al., 2020), however, belongs to specimens of giant sperm found in the Hukawng Valley, Kachin Province, Myanmar, upper Albian-lower Cenomanian, mid-Cretaceous, dated to 100 million years ago.

† *Macrocallista palmerae* Caster, 1938 (Plates S148a-d)

Jocelyn Sessa of the ANSP has suggested that the dentition appears to be more characteristic of *Dosinia* (pers. comm. 12 July 2022). If further research makes such a generic change necessary, then Caster’s 1938 species would become a homonym of *Dosinia palmerae* Olsson, 1931, and would need a replacement name.

Large, thick, heavy shell, subglobose. Beaks low and anteriorly directed; postumbonal slope with a broad, almost indiscernible concavity; posterior upper margin abruptly geniculated. Surface sculptured with concentric growth which tends to become rugose and fasciculate on mature shells. Hinge plate massive, bearing three large

cardinal teeth in the left valve, the posterior of which is long, narrow, and oblique. Central tooth large, nearly vertical, and fused above to a thin, weak, anterior cardinal tooth. Only large fragments of this species were found. Estimated height about 65 mm, length approximately 40 mm.

Distribution: Type locality middle Eocene (Lutetian) Quimbriz Formation along the Lucolo River, Angola. The reported fossil material of Angola has its highest diversity of taxa in the Cretaceous (Mateus et al., 2019).

The genus *Macrocallista* was named by Meek (1876: 179). Further information about him can be found under *Meekia louella*.

† *Brachyspirifer palmerae* Caster, 1939 (Plates S149a-c)

An articulated brachiopod, with a hinge between the two shell halves. Medium-sized shells; hinge line greatest width of shell. Outline of shell essentially transversely triangular. Valves moderately inflated; each side bears 17 or 18 plications which rise as rounded ridges above the common surface, separated by narrow subangular interspaces about one-half as wide as the plicae.

Distribution: Type locality north side of the small village of Floresta, on the automobile road between Santa Rosa and Corrales, western Departamento de Boyaca, Colombia. Floresta Series, Devonian.

The brachiopods ("lamp shells") are solitary, benthic, lophorate marine animals. They have a rich fossil record dating back some 550 million years. There are more than 15,000 extinct species recorded, but only about 400 Recent species (Brusca et al., 2016).

† *Cardium palmerae* Harbison, 1944 (Plate S150)

Inflated shell, 45 mm in length, height 44 m. Sculptured with about 32 low rounded ribs separated by shallow intervals half the width of the ribs. Known from an internal cast.

Distribution: Type locality, Santee-Cooper Canal, 17 miles northwest of Moncks Corner, Berkeley County, South Carolina, Eocene Santee Limestone.

† *Cerithiopsis palmerae* Durham, 1944 (Plate S151)

Conical, moderately small shell, 9.8 mm high. About eight or nine whorls; early whorls straight-sided, later whorls rounded. Whorls with about 20 faint longitudinal ribs especially prominent on the greatest convexity of the whorl. Penultimate whorl with eight spiral ribs. Short anterior canal.

Distribution: Type locality Port Blakeley area, Bainbridge Island, Kitsap County, Washington, Oligocene. The fauna of this area had been previously reported on by Tegland (1929).

† *Crommium palmerae* Clark in Clark & Durham, 1946 (Plate S152)

Subglobular shell, 16.8 mm high, with about six gently convex whorls. Low spire; sutures depressed. Surface smooth; aperture ovate. Inner lip covered by a thin callus, extending anteriorly to and partially covering the subperforate umbilicus.

Distribution: Type locality ~1.5 km east of Loma del Viento, near Carmen, Bolivar, Colombia. El Carmen district of Colombia, Zone A, middle Eocene. Durham (1949), Dusenbury (1949), and Hedberg (1949) provide additional information for the Colombian *Hannatoma* fauna of the Eocene Carbonera Formation.

† *Paracytheridea palmerae* Stephenson, 1946 (Plates S153a-b)

This ostracod has an elongate triangular, carapace in side view, highest at anterocardinal angle. Dorsal margin nearly straight, ventral margin very weakly convex. Each valve bears a strong ala which terminates in an irregular, sculptured, pointed ventral spine. Hinge structure of right valve consists of slightly raised, faintly notched terminal dentitions at the cardinal angles; the left valve hinge with weak, notched sockets joined by a faintly crenulate bar.

Distribution: Type locality Colorado River at Smithville, Bastrop County, central Texas (southeast of Austin), Weches Formation, Claiborne Eocene.

† *Divalinga palmerae* Chavan, 1951 (Plate S154)

Shell with dense sculpture of weakly accented chevrons. Right valve illustrated by Chavan definitely a non-adult.

Distribution: Type locality d'Amblainville, Lutétien Eocene, Paris Basin.

† *Barbatia palmerae* Richards in Richards & Palmer, 1953 (Plate S155)

Elliptical shell in lateral view. Beak slightly elevated and with a posterior alation. Sculpture of radiating ribs which are wider than their interspaces, each rib bearing a series of nodes. There are a few irregularly spaced concentric growth lines.

Distribution: Type locality on road to metal pit 2.9 miles (4.6 km) south of the north limits of the town of Gulf Hammock, Levy County, Florida. Inglis member of Moodys Branch Formation, Eocene.

† *Chrysallida palmerae* Bartsch, 1955 (Plate S156)

Elongate-oval small shell (2.3 mm in length), cream-yellow in color. Nuclear whorls are deeply obliquely immersed in the first postnuclear turn. Postnuclear whorls slightly rounded and marked by very strong, 14-17 retractively slanting axial ribs. Four equally strong and equally spaced spiral cords mark the whorls. Oval aperture, oblique columella somewhat reflected basally with a strong fold at its insertion.

Distribution: Type locality North St. Petersburg, Pinellas County, Florida, Pliocene.

The speciose pyramidellids, with over 10,000 named species, are a group in need of major revision (LaFollette, 2012).

† *Mormula palmerae* Bartsch, 1955 (Plate S157)

Shell elongate-turrited, 7.5 mm in length. Early whorls are decollated, those remaining are slightly rounded and crossed by 12-17 very stout, protractively slanting axial ribs. At irregular intervals some of the ribs are thickened to form a varix. Suture strongly impressed and rendered wavy by the summit of the axial ribs.

Distribution: Type locality North St. Petersburg, Pinellas County, Florida, Pliocene.

† *Barbatia uxorispalmeri* Stenzel & Krause in Stenzel et al., 1957 (Plate S158)

Shell to 40 mm long, elongate, moderately to strongly inflated. Umbones anterior. Sculpture consists of numerous radial ribs covering the entire disk. Ribs rounded in cross section; where growth lines cross them, they are beaded; the nine ribs on the anterior end are slightly larger, and their interspaces are as wide or wider than the ribs.

Distribution: Type locality Stone City Bluff, Burleson County, Texas, in the Viesca member of the Weches Formation; also known from the Wheelock member of the Cook Mountain Formation. Claiborne group, middle Eocene.

This is another example of the genial trait of reciprocity among taxonomists. Earlier, Katherine Palmer had honored Stenzel by naming the bivalve *Echinochilus stenzeli* Palmer in Harris & Palmer, 1947. The species name *uxorispalmeri* is correct Latin, meaning "of Palmer's wife."

† *Altrix palmerae* (Olsson, 1964) (Plate S159)

Originally *Puncturella palmerae* Olsson, 1964. See Sohl, 1992: 420, and McLean & Geiger, 1998: 12, for placement within the genus *Altrix* Palmer, 1942.

Large, conical shell, greater basal diameter 27.2 mm, height 15.1 mm. Eccentric apex perforated by a small entire egg-shaped foramen. Posterior slope is the longer, with its profile forming nearly a straight line. External surface sculptured with about 18 primary radial riblets. Radial riblets crossed by closely spaced, circular cords, their points of intersection forming elongated coarse nodes.

Distribution: Type locality Esmeraldas beds of Onzole Formation, Quebrada Camarones, Punta Gorda, Ecuador, lower Pliocene.

† *Belemnosella palmerae* Allen, 1968 (Plate S160)

Sheath and phragmocone typical of the genus of this shelled sepiid cephalopod. Proostracum missing as is the tip of the rostrum. Rostrum long, tapers evenly and curves very slightly dorsally. The dorsal shield reaches its maximum width slightly anterior to the greatest width of the ventral callus and from that point tapers anteriorly. The anterior tapered portion of the dorsal shield is approximately 25% of the total length of the shell. Known only from a single specimen. Length 27 mm; estimated greatest width 7.5 mm.

Distribution: Type locality Red River below Montgomery Landing, Grant Parish, Louisiana, upper Eocene, Moodys Branch Formation, Jackson Group.

† *Meiocardia palmerae* Nicol, 1968 (Plate S161)

Shell subtrapezoidal in outline, largest specimen 25.7 mm high, 26.8 mm long. Anterior side arcuate, ventral margin gently rounded and sloping posteriorly, posterior side subtruncate, dorsal margin anterior to the beaks rounded. Posterior adductor muscle scar larger than anterior.

Distribution: Type locality east of old U.S. Highway 441 at Zuber, Marion County, Florida. Crystal River Formation, Ocala Group, late Eocene. Also reported from other sites in Alachua County.

† *Typhis palmerae* Gertman, 1969 (Plates S162a-b)

Shell small, 4.6 mm high. Protoconch of four and one-half smooth, polished, conical whorls; five post-nuclear whorls; four varices per whorl. Flange very weakly crenulated by three faint folds, the posteriormost fold at the shoulder forming a small spine; inter-apertural area smooth, of only one part; tubes nearer to succeeding than to preceding varices, pointing abaxially, apically, and abaperturally. Anterior canal closed, narrow, long, slightly deflected to the right.

Distribution: Type locality Texas BEG no. 113-T-19, one-half mile northeast of Wheeler Springs School, Houston County, Texas. Weches Formation, early middle Eocene. Also known from 14 specimens in the Wautubbee Formation, Mississippi.

This species from the middle Eocene beds of Texas and Mississippi is the oldest known typhine in the New World, and as such, is marked by a multi-whorled protoconch, which seems to be a typical "primitive" character in the Muricidae.

This paper is remarkable for its number of female eponyms. Gertman also included new species descriptions of *Typhis keenae*, *T. vokesae,* and *T. carmenae*. The latter species was named for María del Carmen Perrilliat, who later named *Vexillum palmerae*.

† *Hystrivasum palmerae* (Hollister, 1971) (Plate S163)

Originally *Vasum* (*Hystrivasum*) *palmerae* Hollister, 1971. See Petuch, 2004: 198-199.

Shell heavy, biconic, round-shouldered, heavily spirally smoothly ribbed. About 11 whorls (gerontic) with about five whorls missing. Height of incomplete shell 104 mm.

Distribution: Type locality Spoil bank, E. Side Kissimmee River canal, 2 mi. SE of U.S. Corps of Engineers Structure 65-D, Highlands County Florida. Pinecrest member, Tamiami Formation, late Miocene to early Pliocene.

† *Vexillum palmerae* (Perrilliat, 1973) (Plates S164a-c)

Originally *Uromitra palmerae* Perrilliat, 1973. Davoli (2000) considers *Uromitra* Bellardi, 1887, a subgenus of *Vexillum* Röding, 1798.

Small globose shell, reaching 6.4 mm in height. Nucleus with one and a half whorls; four and a half body whorls, with a convex profile. Axial ornamentation of 13-14 rounded, narrow ribs per whorl. Spiral ornamentation of fine threads which pass on top of the ribs. Small aperture; outer lip smooth along its interior border, labial columella with three distinct folds. It differs from *Vexillum vokesae* (Perrilliat, 1973), described in the same paper, in that this species is more slender, suture I is distinct, and the ribs are rounded; in *V. vokesae* the ribs are angular and the spiral threads are much wider.

Distribution: Cuenca Salina del Istmo, southeast Mexico, Formación Agueguexquite, upper middle Miocene.

In addition to these two species of *Vexillum*, this famed Mexican paleontologist also named other eponymous species honoring WSM women members: *Calyptraphorus terrysmithae* Perrilliat, 2013, and *Polinices saulae* Perrilliat, 2013.

† *Cadulus* (*Gadila*) *palmerae* Hodgkinson, 1974 (Plates S165a-b)

A small and slender scaphopod, shell reaching 4.94 m in length, inflation near the middle. Posterior orifice round and simple, aperture slightly elongated dorsoventrally and oblique to shell axis.

Distribution: Type locality south bank of the Brazos River, near the bridges of Texas 21 and the Southern Pacific railroad (now = Union Pacific Railroad), 11.4 miles (18 km) west of the courthouse in Bryan, Brazos County, southeast Texas.

† *Apiotoma palmerae* Dockery, 1977 (Plate S166)

Shell with high spire and long neck, 36 mm in height. Teleoconch with eight whorls; spiral threads below shoulder prominent and broadly spaced. Granulose sculpture on the posterior slope and a relatively strong band of subsutural nodes. Lower portion of inner lip with slight callus.

Distribution: Type locality Town Creek, Hinds County, Mississippi. Claiborne, Moodys Branch Formation, lower Jackson, Eocene.

† *Felaniella palmerae* Dockery, 1980 (Plate S167)

Moderately inflated, quadrate outline, exterior with fine growth lines. Height to 9.7 mm, length 10.2 mm. Nymph below the marginal ligament groove. Hinge with a strongly oblique and narrow fourth just below the nymph and a prominent bifid two that is vertical below the beak.

Distribution: Type locality Riverside Park, ravine along valley wall of the Pearl River flood plain and behind the old Riverside swimming pool, Hinds County, Mississippi. Also known from the east bank of the Chickasawhay River, below a hunting lodge, Clarke County, Mississippi. Moodys Branch Formation, Eocene.

† *Acrilla palmerae* MacNeil in MacNeil & Dockery, 1984 (Plate S168)

Moderately inflated shell, 11.3 mm long, 3.8 mm wide. Whorls rounded with a concave subsutural slope. Protoconch unknown, first two or three postnuclear whorls smooth, sculptured whorls with low, nearly vertical axial riblets with moderately broad bases, concave sides, and a blunt narrow crest. Outer lip thin, inner lip weakly detached below to form a weak umbilical chink; parietal callus thin.

Distribution: Type locality bed of Lime Creek, about 0.8 miles (~1 northwest of Cleary, Rankin County, Mississippi. Mint Spring Member of the Marianna Limestone, Vicksburg Group, lower Oligocene.

When the senior author (Stearns MacNeil) retired in 1965, Emily Vokes suggested that his manuscript be entrusted for completion to David Dockery, then a graduate student at Tulane University, New Orleans, Louisiana.

† *Vetidrillia palmerae* MacNeil in MacNeil & Dockery, 1984 (Plate S169)

Shell moderately slender and medium small, 11 mm high, 4.5 mm wide. Axial and weak radial sculpture; strong anal sinus; weak but well-defined short canal and no stromboid notch in the outer lip.

Distribution: Type locality Brown's Cave, east bluff of Leaf River, one-half mile (~ 1 km) above the bridge on Bay Springs-Raleigh Road, Smith County, Mississippi. Also known from the bed of Lime Creek in Rankin County. Mint Spring Member of the Marianna Limestone, Vicksburg Group, Lower Oligocene.

† *Lithophaga palmerae* Krumm & Jones, 1993 (Plates S170a-b)

The shell of "Palmer's Date Mussel" measures 10-75 mm in length and from 5-25 mm high. Its shape is thin, elongate, subcylindrical, with a surface sculpture of concentric growth lines that become deeply incised posteriorly. Anterior margin blunt and not extended beyond umbones.

Lithophaga palmerae bored into living and nonliving portions of the scleractinian *Astrocoenia* cf. *incrustans* (Duncan, 1873). Boreholes circular in cross section, lined on all sides, up to three times longer than the shell. The boreholes are concentrically lined with layers of calcium carbonate, also demonstrating rotation. The bivalve's shells were almost never preserved, known almost exclusively from internal and external molds.

Distribution: Type locality Haile Quarries, west of Gainesville, near the town of Newberry, Alachula County, Florida. Numerous specimens of this species have been found throughout the Ocala Limestone in northwest peninsular Florida; Jackson Stage, Upper Eocene.

Before her death in 1982, Katherine Palmer had been working on a monograph of the Mollusca from the Eocene Ocala Limestone of Florida. Her preliminary notes and fossil collection were transferred to the FMNH in 1987. She had intended to describe a new species of *Lithophaga* based on specimens in her collection. Krumm & Jones (1993) appropriately named this material in Katherine Palmer's honor.

† *Dentalium palmerae* Garvie, 1996 (Plate S171)

Over 150 specimens or fragments of this scaphopod were examined, the longest 23.4 mm, with a maximum diameter of 2.1 mm. Shell with 10 or 12 sharp longitudinal ribs at the apex. Larger specimens may show up to four intermediate ribs. Entire pattern becomes obsolete and smooth with increasing age.

Distribution: Type locality bluff on west side of Ridge Creek (known locally as Reed's Creek), about 888 m south of Missouri, Kansas and Texas railroad (now = Union Pacific Railroad) trestle and county road bridge, between Smithville and Upton, Bastrop County, Texas. Marquez Member of the Reklaw Formation, Claibornian, Eocene.

† *Profundiconus palmerae* (Hendricks & Portell, 2008) (Plate S172)

Originally *Conus palmerae* Hendricks & Portell, 2008. See Tucker & Tenorio, 2009.

Teleoconch whorls stepped; spire angle of early whorls typically obtuse relative to later whorls. Shoulder sharply angulate, smooth. Early postnuclear whorls smooth. Up to 65 mm in length.

Distribution: Type locality lower member of the upper Eocene Jacksonian Ocala Limestone (formerly Inglis Formation), Gulf Hammock 02, Levy County, Florida.

† *Hysteroconcha rosea vanwinkleae* (Olsson, 1922) (Plates S173a-d)

Originally *Pitaria vanwinkleae* Olsson, 1922. See Woodring, 1982: 687.

Elongate, depressed shell, 41.5 mm in length, 32 mm in height. Anterior extremity broadly rounded, posterior more acute. Small lunule, lanceolate and defined by an impressed line. Escutcheon long and very narrow. Surface sculptured with narrow, closely spaced and reflected ribs.

Distribution: Type locality Hill No. 3, Banana River, Limón Province, Costa Rica, middle Miocene. Also known from Miocene deposits in Venezuela and from the Gatun Formation, Panama Canal.

Axel Olsson named this species in honor of his fellow graduate student, Miss Katherine Van Winkle, who at the time was working on a monograph of the American species of Veneridae.

† *Turritella carinata palmerae* Bowles, 1939 (Plates S174a-c)

The revolving lirae of its apical sculpture very prominently persists onto the adult whorls. Shell length 29 mm, greatest diameter 9.5 mm.

Distribution: Type locality Lisbon Landing, Alabama River, Monroe County, Alabama. Claiborne Group, Jackson Group, middle Eocene.

† *Pteria limula vanwinkleae* Harris in Harris & Palmer, 1946 (Plate S175)

Line of demarcation between ear and main shells is generally well shown, and beak tips are clearly defined.

Distribution: Type locality Sabine River, Mississippi. Moodys Branch Formation, Jackson Eocene. Also known from Gibson Landing on the Ouachita River, and Montgomery, Louisiana.

Gilbert Harris was the director of Katherine Palmer's Ph.D. thesis at Cornell University, Ithaca, New York.

ADDENDA

In addition to the preceding species, we discuss below four additional species with the eponym *palmerae* in order to clarify their relationship to Katherine V. W. Palmer.

Named for another Palmer

Pyrgiscus palmerae (Aguayo & Jaume, 1936) (Plate S176a)

Originally *Turbonilla* (*Pyrgiscus*) *palmerae* Aguayo & Jaume, 1936. With no explanation, De Jong & Coomans (1988: 128) synonymized this species with *Chemnitzia krebsii* (Mörch, 1875). Although this has been uncritically followed (see WoRMS and Odé, 1996), Patrick I. LaFollette made a careful analysis of all the descriptions and illustrations in the literature, and wrote, "I'm confident that *Pyrgiscus palmerae* (Aguayo & Jaume, 1936) is not a junior synonym of *Chemnitzia krebsii* (Mörch, 1875), not even close" (Patrick I. LaFollette, pers comm. 8 July 2022). His reasoning is followed here.

Shell small, less than 6 mm; smooth, brilliant, with a honey to caramel coloration. Two sinistral nuclear whorls, followed by 10 dextral postnuclear whorls. Last whorl large, with a wide curvature. Deeply impressed suture. Aperture elongate, sharply pointed posteriorly, rounded at the base. Outer lip simple. Columella slightly curved with a strong fold in the parietal angle. Axial sculpture formed by linear depressions which do not reach the suture, leaving between them spaces or ribs wider than the depressions. Spiral sculpture a series of small, parallel, round or oval depressions situated in the sunken axial lines.

Distribution: Type locality La Chorrera, Havana, Cuba.

"It is an honor for us to dedicate this peculiar species to one of its discoverers, the paleontologist Mrs. D. K. Palmer, whose brilliant works on the fossil foraminiferans of Cuba have many times honored the pages of this journal" (Aguayo & Jaume, 1936: 121; English translation by HB).

This paper by Aguayo & Jaume, 1936, demonstrates a highly rewarding scientific collaboration between U.S. and Cuban scientists. Not only was Dorothy K. Palmer collecting and living in Cuba, her colleagues Carlos Aguayo and Miguel Jaume visited various researchers and their museum collections in the U.S.: Paul Bartsch and Harold Rehder (USNM), Henry A. Pilsbry (ANSP), and William J. Clench (MCZ, Harvard).

† *Cymatosyrinx palmerae* Palmer in Harris & Palmer, 1947 (Plate S176b)

This species was not named for Katherine V. W. Palmer, but by Katherine for her friend and colleague Dorothy Bryant Kemper Palmer (1897-1947).

Shell with ten ribs per whorl. No spiral lines and no subsutural collar. Retral sinus broad and very shallow. Growth lines visible only where the smooth surface has been decorticated. Length of shell 9.5 mm.

Distribution: Known only from the single specimen from the type locality of Danville, Bienville Parish, Louisiana, on the Ouachita River, PRI Site no. 1969. Jackson Eocene.

The Gastropoda section of Harris & Palmer (1947) was written by Katherine Palmer. In this work she named numerous species, including *Cymatosyrinx palmerae*, but she did not give the etymology for this species. However, based on external and internal evidence we can conclude that Katherine Palmer named this species to honor her friend and colleague Dorothy K. Palmer. Katherine Palmer also wrote the obituary for Dorothy (Palmer, 1948), and Dorothy Palmer's works are cited in the Harris & Palmer (1947) paper.

Uncertain eponymy

† *Pereiraea palmerae* Abbass, 1967

† *Turritella palmerae* Abbass, 1977

The eponymy of the above two species is completely unknown. We have been unable to find any nexus between Katherine or Dorothy Palmer, Houssein Abbass, Egypt, and Cornell University, neither in their professional activities nor in citations in their papers. Adding to this mystery is that *Turritella palmerae* Abbass, 1977, is a primary homonym (see ICZN Article 57.2) of *Turritella carinata palmerae* Bowles, 1939. Regardless of its eponymy, it probably needs a replacement name.

Emily H. Vokes

(Figures 34-37, 58)

American malacologist and paleontologist Emily Hoskins Vokes (1930-present) is a long-recognized expert on the Muricidae and the author or coauthor of numerous papers on Recent and fossil mollusks. She taught for many years at Tulane University, New Orleans, Louisiana, with her husband Harold Earnest Vokes (1908-1998), with whom she helped to found the journal *Tulane Studies in Geology and Paleontology* and for which she served for many years as editor.

Emily Vokes was born in Monroe, Louisiana, but grew up in New Orleans after her family moved there when she was eight years old. She spent her summers with her grandmother in a rural part of Pennsylvania where she played in the woods and learned to enjoy the natural world. She began her college career at Newcomb College (now closed), a female undergraduate college of Tulane University in New Orleans. Unclear about what she wanted to study, she dropped out of the college but continued to work in Newcomb's Biophysics Lab, where her job included collecting the Geology Department's Geiger counters in need of repair. After discovering she had an interest in geology, Emily re-enrolled in 1955 and transferred to Tulane University because Newcomb College did not allow women to graduate with a degree in geology. The following year she met Harold E. Vokes, who recently had come to Tulane to serve as chairman of the Geology Department. Harold hired Emily, by then a full-time geology student, as a part-time curator of the fossil collection of the Geology Department. They married in March 1959. Emily graduated from Tulane with a Bachelor of Science degree with honors in 1960 and two years later completed a Master of Science degree. In 1967 she completed the first doctoral degree awarded in paleontology at Tulane University. Her dissertation was titled "The Cenozoic Muricidae of the Western Atlantic Region" and served as the foundation of her lifetime research.

After receiving her doctorate, Emily worked from 1969 as a part-time instructor at Tulane University until 1973 when she became a full-time associate professor in the Geology Department. She became the successor for Harold, who had taken mandatory retirement at age 65 that year. Emily was promoted to the rank of full professor in 1981 and held that position until retiring as Professor Emerita in 1996. During her career at Tulane, Emily also served either at the University or at Newcomb College as acting chairman and chairman of the Geology Department (Tulane, 1974-1982), acting dean (Newcomb College, 1987-1989), acting chairman of the Geology Department (Tulane University, 1989), and president of the Tulane Chapter of Sigma Xi (1989-1990).

When not engaged in teaching or carrying out other responsibilities at Tulane, Emily and Harold Vokes traveled as often as they could, sometimes because they just wanted to go somewhere new, but most often for the purpose of research or collecting (see Walker, 2001). Harold served as malacologist for the 1964 R/V *Anton Bruun* Indian Ocean Expedition, and Emily followed as malacologist for the 10th R/V *Anton Bruun* cruise to the Caribbean Sea. In 1971 the couple took sabbatical leaves from Tulane University to become visiting professors at Universidade Federal do Rio Grande do Sul in Brazil. Emily and Harold also started a summer field camp for Tulane students at the Instituto de Technológico de Monterrey in Mexico, where they both regularly taught for the first six weeks of summer and then collected fossil and Recent mollusks throughout other parts of Mexico. For 14 years during Christmas breaks at Tulane, the Vokeses also drove 2,500 miles from their home in New Orleans to Mérida in Yucatan, Mexico, to visit friends and to explore for mollusks. From 1976-1986 they made annual three-week trips to the Dominican Republic to survey fossil deposits, and in 1968 they drove from New Orleans to Costa Rica to collect fossils from the Moin Formation and then on to Panama to collect in the Gatun Formation. Emily apparently took on the role of chauffeuse when she had to during these trips. In Ecuador, she amazed others with her ability to zoom over the country's rocky, unpaved roads without a map, compass, or signposts to guide

her. Other trips included every U.S. state, almost every Canadian province, most of Central and South America, China, parts of Africa and Europe, and Antarctica. By 1995, the last year of their collecting, they had collected at 1,545 sites worldwide, with specimens in the Tulane collection filling 72 yards of cabinet space.

Amid their teaching, traveling, and collecting, both Emily and Harold Vokes produced an impressive number of scientific publications. Harold authored 144 books and articles under his own name, and Emily published 147 works of her own. At Tulane University they helped to found the highly respected journal *Tulane Studies in Geology and Paleontology*, for which Emily served as Associate Editor during 1970-1986 and as Editor from 1986 until her retirement. Emily contributed well over 60 papers of her own to the journal as well as several more as coauthor with Harold. Besides writing papers for *Tulane Studies*, she also published on fossil and Recent Mollusca in *The Veliger*, *The Nautilus*, *Bulletins of American Paleontology*, *American Conchologist*, and similar journals. One of her most ambitious publications was "Cenozoic Muricidae of the Western Atlantic," a series that appeared in *Tulane Studies in Geology and Paleontology* in twelve parts from 1963 to 1997.

Emily Vokes retired from Tulane University in 1996 (Dockery, 1996). Shortly after, she and Harold sold their home in New Orleans and moved to Ponchatoula, Louisiana, where Emily opened an antique shop specializing in miniature animals and collectibles. Although Harold retired in 1973, he continued to teach, research, and publish for many years after. He passed away on September 16, 1998, at the age of 90. Emily has continued her interests in malacology and paleontology, travel, and her connection to Tulane University. In 2010 she was part of a University-sponsored trip to South Africa, where she participated in a tree-planting program in Soweto. As recently as 2019 she published on the etymology of the Latin word *varix* (meaning an enlargement) and its historical uses in malacology (Vokes, 2019).

The contributions of Emily and Harold Vokes to education and science continue to be widely recognized. Tulane University currently gives the Emily Vokes Faculty Service Award each year. Since 2014 the University has also bestowed the title of Vokes Geology Professor to an outstanding faculty member in honor of Emily and Harold Vokes's contributions to the study of geology. The FMNH, where Emily and Harold were Visiting Curators in 1980, annually awards the Drs. Emily H. and Harold E. Vokes Grants-in-Aid for Invertebrate Paleontology Collection-Based Research for students to use the Museum's collections for paleontological research.

* *Evokesia* Radwin & D'Attilio, 1972 (Plate S177)

Synonym = *Pascula* Dall, 1908. See E. H. Vokes, 1984: 215.

Dall designated *Pascula citrica* (Dall, 1908) as the type of his new genus. That species is endemic to Easter Island. *Sistrum rufonotatum* Carpenter, 1864b, was named the type species of *Evokesia*.

Shell small, 15.5 mm high, 6.5 mm wide, with nodular surface. Aperture with a projecting margin, feebly lirate within the outer lip when adult, constricted in front at the beginning of the canal. Operculum purpuroid, lozenge-shaped, with a raised border on the inside face.

Distribution: Species of this genus have been reported from Barbados, west Atlantic, and from the tropical eastern Pacific, from Bahía Magdalena, Baja California Sur, Mexico, throughout the Gulf of California, south to the Galápagos Islands and Easter Island.

† *Vokesinotus* Petuch, 1988 (Plate S178)

Type species *Coralliophila lepidota* Dall, 1890.

Fusiform shells, average size for subfamily Ocenebrinae, with protracted spires. Shells with calcite outer layer and aragonite inner layer. Body whorls and spires ornamented with 7 or 8 large, wing-like varices, often recurved in forward direction. Ovate apertures, large in proportion to shell size.

Distribution: Type locality in Pleistocene marls of Caloosahatchee and Shell Creek, Caloosahatchee Formation, Florida. *Vokesinotus* "first appears in the Zanclian Pliocene Yorktown and Buckingham Formations..., and survived until the Illinoian Glacial Stage of the Pleistocene, when the last Floridian (Bermont Formation) species became extinct" (Petuch, 1988: 58), approximately 2.588 to 0.781 million years ago.

Vokesimurex Petuch, 1994 (Plate S179)

Type species *Murex messorius* G. B. Sowerby II, 1841, a Recent Caribbean species.

Shells with globose, rounded body whorls, and elevated spires. All whorls with three large, thickened varices and one to three elongated intervarical ribs. Varices often ornamented with one to six prominent, long spines. Body whorls and spires usually ornamented with numerous large spiral cords. Siphonal canals characteristically very long, narrow, often with one or more spines.

Distribution: Numerous fossil species known from Pliocene strata, Florida to Brazil. Recent species occur throughout the tropical western Atlantic and eastern Pacific. For example, *Vokesimurex tricornis* (Berry, 1960) is found offshore to depths of 35-75 m, from Isla Cedros, Baja California, Mexico, and from the central Gulf of California to Costa Rica.

Pteropurpura vokesae Emerson, 1964 (Plates S180a-b)

William K. Emerson named this species as a replacement name for *Murex rhyssus* Dall, 1919 [non *Murex rhyssus* Tate, 1888].

This trivaricate species has a purpuroid operculum. Shell angulate-fusiform, with a high spire. Seven or eight weakly shouldered postnuclear whorls, protoconch not known. Body whorl with three erect, fimbriate, winglike varices, backswept at their margins. Spiral sculpture consists of 10 primary cords on the body and canal. Aperture ovate, outer lip not denticulate and the columellar lip is essentially smooth. Length to 70 mm.

Shell color uniformly yellow or brown-ochre. Aperture porcelaneous white.

Distribution: Type locality of Dall's (1919: 332) original specimen San Pedro, Los Angeles County, California, collected by Mrs. I. S. Oldroyd. Known distribution from Santa Rosa Island, California Channel Islands, California, to Bahía San Bartolomé, Baja California, Mexico (Radwin & D'Attilio, 1976: 125).

"Mrs. Emily H. Vokes of Tulane University has kindly informed me that Dall's taxon is preoccupied by *Murex* (*Pteronotus*) *rhysus* [sic] Tate (1888), a fossil from the Tertiary of Australia....I take pleasure in renaming *Murex* (*Alipurpura*) *rhyssus* Dall (1919) in honor of Mrs. Vokes, who is an avid student of the Muriacea" (Emerson, 1964: 5).

† *Pterotyphis vokesae* Gertman, 1969 (Plates S181a-b)

Shell small, 13.5 mm high, 6.5 mm in diameter. Protoconch smooth, rounded, with two and one-half whorls. Five postnuclear whorls, three narrow, convex varices per whorl. Tubes within the varices pointing apically and abaperturally. Spiral ornamentation of moderately strong primary ribs, with secondary and tertiary ribs between each. Aperture ovate, pointed anteriorly, surrounded by a raised rim with a sinuous outer margin.

Distribution: Type locality Tenmile Creek, about 1½ miles (2.4 km) west of the Chipola River, Calhoun County, Florida. Chipola Formation, upper lower Miocene.

† *Axelella vokesae* (Petit, 1970) (Plate S182)

Originally *Olssonella vokesae* Petit, 1970. See Petit, 1988: 130. *Axelella* is a replacement name for *Olsonella* Petit, 1970, preoccupied by *Olsonella* Glibert & Van de Poel, 1967. Both genera were named in honor of Axel A. Olsson.

Smooth protoconch. Postnuclear whorls moderately convex, with impressed suture. Sculpture of strong, rounded, axial ribs; 10 on the body whorl crossed by about 16 evenly spaced spiral cords. Aperture semi-lunate, well-rounded outer lip, about nine lirations inside. Columellar pillar straight, with two plaits of equal size. Height 8.4 mm, diameter 4.6 mm.

Distribution: Type locality "Silverdale Beds," Onslow County marl pit, on south side of Webb Creek, near Silverdale, Onslow County, North Carolina. Early Miocene. Holotype collected by Emily H. Vokes.

† *Plesiotriton vokesae* (Allen, 1970) (Plate S183)

Originally *Colubraria vokesae* Allen, 1970. See Beu & Maxwell, 1987: 28-29.

Shell has about 5 whorls, slender with elongate body whorl. Nucleus with three whorls. Adult sculpture consists of close set, narrow axial ribs crossed by flat spirals. Spaces between spirals crowded by microscopic threads that cross the axial ribs and varices. Varices narrow but strong, occurring every two-thirds whorl. Varix at aperture set behind outer lip. Aperture narrow, one-half total shell height. Height 5 mm, width 2 mm.

Distribution: Type locality Red River below Montgomery Landing, Grand Parish, Louisiana. Moodys Branch Formation, Jackson Group, upper Eocene.

† *Hystrivasum vokesae* (Hollister, 1971) (Plate S163) [with *Hystrivasum palmerae* (Hollister, 1971); see above]

Originally *Vasum* (*Hystrivasum*) *vokesae* Hollister, 1971. See Petuch, 2004: 194, 196.

Biconic, heavy shell, with angular shoulder at four-tenths the height from the apex. Axial sculpture of constricted growth lines form about 12 flat axial ribs extending from the shoulder to the anterior end. Three graduated plicae on the columella, the stronger posterior. Height of incomplete shell 90 mm, width 69 mm.

Distribution: Type locality Spoil Bank, east side of the Kissimmee River canal, Highlands County, Florida. Pinecrest Member, Tamiami Formation, late Miocene/early Pliocene.

† *Cerithium vokesorum* S. E. Hoerle, 1972 (Plate S184)

Shell slender, tapering, consisting of ten or eleven slightly rounded whorls and a nucleus of two or more whorls. Axial riblets unevenly spaced, extending from suture to suture, usually eight or nine to a turn, every fourth or fifth one a little heavier. Small beads may be formed where the three primary flat spirals cross the axial riblets. Three raised, heavy, smooth cords encircling the base. Aperture small, ovate-rounded with a shallow posterior sinus. Inner lip with callus and small subsutural fold. Outer lip with varix and projecting edge, deeply jagged within to correspond with primary spirals. The greatest variability is found in the strength of the primary spiral ribs, which at times are so weak that no beading is discernible and the axial riblets appear almost smooth. Reaches 22 mm in length.

Distribution: Type locality Farley Creek at abandoned mill about one quarter mile west of bridge of Florida Highway 275, Calhoun County, Florida. Chipola Formation, Florida; upper lower Miocene.

"The writer takes great pleasure in naming this new species *Cerithium vokesorum* in honor of Dr. Harold E. and Mrs. Emily H. Vokes whose untiring patience, constant encouragement and invaluable assistance have made this paper possible" (S. E. Hoerle, 1972: 5).

† *Neritopsis vokesorum* R. C. Hoerle, 1972 (Plate S185)

Shell heavy, globose. Nucleus of about one and one-half smooth whorls; three and one-half rapidly enlarging post-nuclear whorls in adult. Seventeen to nineteen finely beaded, narrow, spiral cords cover the entire shell. Wide interspaces between spiral ribs, ornamented by scabrous incrementals. Aperture circular; outer lip sharp, crenulated by spiral ribs, thickened interiorly and with numerous short lirations. Inner lip heavily calloused with an elongated excavation in central area. Shell height 14.0 mm, diameter 12.8 mm.

Distribution: Type locality east bank of Chipola River, about 1000 feet above Four Mile Creek, Calhoun County, Florida. Chipola Formation, Florida; upper lower Miocene.

† *Vexillum vokesae* (Perrilliat, 1973) (Plate S164a) [with *Vexillum palmerae* (Perrilliat, 1973); see above]

Originally *Uromitra vokesae* Perrilliat, 1973. Davoli (2000) considers *Uromitra* Bellardi, 1887, a subgenus of *Vexillum* Röding, 1798.

Small, delicate shell, 6.2 mm high, 2.1 mm wide. Smooth and globose nucleus with one and a half turns. Four and a half postnuclear whorls with convex profile. In the early whorls axial ribs are round, and in the following turns they are elevated and lightly; 14-16 ribs in the last whorls. Interspaces are almost double the width of the ribs. Spiral sculpture consists of 8-16 fine threads per whorl. External lip smooth on the outside, but with five to six interior lirae. Columellar lip with three equally sized folds. (From the Spanish, HB)

Distribution: Type locality Santa Rosa, Veracruz, Mexico; middle Miocene.

† *Limatula* (*Limatulella*) *emilyae* Glibert & van de Poel, 1973 (Plate S186)

The placement of this species within the genera *Limatula*, *Limatulella* or *Limaria* needs determination.

Shell elongate oval, narrow, subrectangular, very oblique, moderately convex. Anterior dorsal border very short. Posterior dorsal border two and a half times longer than the anterior border. Ventral border short and highly convex. Thirteen to 14 roughly rectangular radial ribs, separated by distinctly concave spaces. Shell probably about 10 mm.

Distribution: Type locality Well No. 2, about 235 m depth, at the base of the Upper Eisden Limestone, Belgium. Middle late Damian, Paleocene.

† *Gastrochaena emilyana* H. E. Vokes, 1976 (Plate S187)

Shell broadly gaping anteroventrally, elongate, subovate in outline with an almost straight dorsal profile and a broadly convex ventral one. Umbo situated posterior to the anterior third of the length of the valve, slightly projecting. Valve surface anterior and ventral to the posteroventral furrow marked by narrow, concentric growth rugae separated by microscopically fine grooves. The posterior end relatively high and sharply delimited from the rest of the valve. Broadly convex anterior and ventral margins that makes the height of the valve of the fossil species equal to almost one-half of its total length. Shell measures 23.1 mm in length, 11.3 mm in height.

Distribution: Type locality Tenmile Creek, basal beds at power line crossing about one mile west of the Chipola River, Calhoun County, Florida. Chipola Formation of upper lower Miocene (Burdigalian).

† *Hemicytherura vokesae* Kontrovitz, 1978 (Plate S188)

This Pleistocene ostracod is distinguished by its elongate rectangular shape, prominent sinuous horizontal ridges, and distinct cross-ridges. Valve lengths range from 0.44-0.47 mm; heights from 0.23-0.24 mm.

Distribution: Type locality North New River Canal spoil banks, one mile south of South Bay, near Belle Glade, Palm Beach County, Florida. Bermont Formation, middle Pleistocene.

† *Haynespongia vokesae* Rigby, 1981 (Plates S189a-c)

Even for those who are poriferan taxonomists, sponge taxonomy and identification of species have always been difficult. With fossils, internal anatomical structures present another level of difficulty. Descriptions of species involve a language unto itself! This species is unique among the eponyms, being the only poriferan honoring the women we are considering. It is a “glass sponge,” a member of the Hexactinellida. These organisms are long-lived, usually vase- or tube-shaped, primarily deep-water sponges, with about 700 described species (Brusca et al., 2016: 221).

"This Eocene sponge, as reconstructed from numerous available fragments, consists of an irregular anastomosing, tubular, leaf-like mass, from which extend numerous cylindrical hollow, simple or branching tubes up to 25 mm in diameter with lateral osculae. Surface smooth or with weak mounds or annulations around osculae. Skeletal net euretoid with primary framework at gastral margin, with spicular nodes 0.25 to 0.30 mm apart and strongly swollen in outer part of wall where synapticulae also most common. Primary canals show diplorhysis in cribrospongid arrangement although distinct alignment is ill defined. Aporhysal chambers 0.40 to 0.55 mm in diameter and separated by 0.4 to 0.7 mm of net, connected to exterior by apodiarhysae 0.15 to 0.20 mm in diameter. Latter canals occur between epirhysal chambers that are 0.20 to 0.35 mm in diameter and separated by 0.4 to 0.5 mm of skeletal net" (from Rigby, 1981; 132-134, text slightly modified).

Distribution: Type locality outcrops near Mt. Olive, Wayne and Duplin Counties in east-central North Carolina. Eocene Castle Hayne Limestone. This formation has yielded one of the most varied and best-preserved sponge faunas known from Tertiary (Paleogene) rocks of North America, equaled among known Tertiary faunas only by the Eocene fauna of Western Australia and the Miocene fauna of Algeria. It occurs in two outcrops, the southerly, main one from Castle Hayne itself, and a northerly site southwest of Dudley, south of Goldsboro, Wayne County, North Carolina. Finks et al., 2011, provide detailed descriptions and analyses of the morphology, paleoenvironment, and paleoecology of this sponge species.

† *Oliva vokesorum* Drez, 1981 (Plate S190)

Shell of medium size, subcylindrical to cylindrical in outline, the maximum diameter falling about one-sixth of the distance from the posterior suture. Nine to ten whorls in adult specimens, including a four-whorl naticoid nucleus. The transition to the teleoconch whorls occurs rather abruptly over one-fourth of a whorl, characterized by a rapid lateral flattening with a deepening and widening of the suture. Teleoconch whorls with a ribbon of callus, flat in outline and approaching the preceding suture. Suture deep and wide, with a small overhanging ribbon of callus. Aperture generally narrow, widening gradually anteriorly. Six to nine strong single lirae on the columella, weaker posteriorly. Siphonal notch deep and narrow, with subparallel sides.

Height ranges from 27.3-32.3 mm, diameter 10.8-12.4 mm.

Distribution: Type locality Tenmile Creek, about l½ miles west of Chipola River, Calhoun County, Florida. Chipola Formation, Florida; upper lower Miocene.

Aspella vokesiana Houart, 1983 (Plates S191a-b)

High spired lanceolate shell; 14 mm in height, 6.1 mm wide. Covered with an axially striate flat white intritacalx (see D'Attilio & Radwin, 1971). Seven flattened post-nuclear whorls, axial sculpture consisting of two major lateral varices. Ovate aperture with a completely adherent smooth columellar lip. Erect outer lip with five almost imperceptible denticles on its inner surface.

Distribution: Type locality Tulear, Madagascar, out slope of big reef, 36 m deep.

"It is a great pleasure for me to name this new species in honor of the leading authority on this family: Dr. Emily H. Vokes" (Houart, 1983: 31).

† *Trossulasalpinx vokesae* Petuch, 1986 (Plates S192a-c)

Shell fusiform, with high protracted spire. Body whorl and spire whorls ornamented with 15-20 strong, vertical ribs, intersected by 12-15 equally strong spiral ribs. Large beads at junction of vertical and spiral rib. Aperture small, oval; inner edge of lip with 8-10 large, rounded teeth. Height between 15-22 mm.

Distribution: Type locality near SW 146th Avenue and Bird Road, western Miami, Miami-Dade County, Florida. Buckingham Member, Tamiami Formation, late Miocene/early Pliocene. Radiometrically dated at 3.7 million years ago (Bender, 1972).

Beginning in August 1983, dredging and excavation projects for artificial lakes and housing in the western metropolitan area of Miami uncovered large quantities of highly fossiliferous sediments from depths of

approximately 15-20 m. This material was deposited as a Pliocene coral reef. *Trossulasalpinx vokesae* occurred in the highest zone (*Millepora-Trochita* Zone), a high energy, wave surge reef crest exposed at low tide (see reconstruction by Petuch, his Fig. 3). In this shallow region, *T. vokesae* probably lived under and among coral rubble and fed upon small sessile bivalves and barnacles (see Petuch, 1986, fig. 5).

Naquetia vokesae (Houart, 1986) (Plates 193a-c)

Originally *Chicoreus triquiter* [sic] *vokesae* Houart, 1986. See Houart, Moe & Chen, 2021, for generic change and elevation to full species.

High-spired shell, with two rounded, smooth nuclear whorls and nine elongate postnuclear whorls. Body whorl bearing three low rounded varices. Axial sculpture consists of three to five low ridges crossed by 12-15 spiral cords, each flanked by fine spiral threads. Aperture roundly ovate, columellar lip smooth, outer lip slightly denticulate.

Distribution: Type locality southeast Nacala Bay, northern Republic of Mozambique, dredged from gravelly bottom with sparse *Cynodocea* seagrass cover, from 9 m depth. Known from the western Indian Ocean and probably the Philippines.

Emily Vokes had alerted Roland Houart to the species-specific differences between the shapes of the protoconchs of *Naquetia triqueter* (Born, 1778) and *N. vokesae*.

† *Lindapterys vokesae* Petuch, 1987 (Plate S194)

General morphology as for the genus; six axial ribs between varices; five tiny labial denticles; outer edge of lip flaring but narrow.

Distribution: Type locality Tenmile Creek, Calhoun County, Florida. Chipola Formation, upper lower Miocene of northern Florida.

* *Chicoreus emilyae* Petuch, 1987 (Plates S195a-b)

Synonym = *Chicoreus florifer* (Reeve, 1846). See Vokes, 1990: 32.

Rotund, inflated shell, reaches 90 mm in total length. High spire, with two nuclear whorls and seven convex postnuclear whorls. Wide across shoulder; three varices per whorl with one heavily knobbed axial rib between varices. Varix with six flattened, highly frondose and branching spines.

Shell is white, pinkish or sometimes rust or dark brown. Interior of aperture can be suffused with pink or vivid purple (Radwin & D'Attilio, 1976: 38).

Distribution: Western Atlantic and Caribbean, from Cape Hatteras, North Carolina, to the northern Gulf of Mexico, Cuba and the Bahamas.

† *Mariasalpinx emilyae* Petuch, 1988 (Plate S196)

Shells fusiform, with elevated, tabulate spire. Inflated body whorl. Shells sculptured with fine, undulating vertical ribs that are intersected by numerous deeply incised spiral sulci.

Distribution: Type locality Chancellor Point, St. Mary's County, Maryland, which is in a Miocene coastal sandstone in the St. Mary's Formation.

Type species for the genus *Mariasalpinx* Petuch, 1988.

† *Calotrophon emilyae* Petuch, 1988 (Plate S197)

Elongate, fusiform shell, elevated, scalariform spire. Whorls with eight rib-like varices. Varices culminate in sharp-angled knob at shoulder. Body whorl ornamented with eight large spiral cords. Shell length 11-19 mm.

Distribution: Type locality Mule Pen Quarry, East Naples, Collier County, Florida, approximately 20 m depth; collected with reef corals. Buckingham Member, Tamiami Formation, late Miocene/early Pliocene.

† *Scalaspira vokesae* Petuch, 1988 (Plate S198)

Fusiform shell with scalariform spire and elongated siphonal canal. Body whorl ornamented with six large, equally spaced spiral cords which are intersected by numerous vertical, equally spaced ribs.

Distribution: Type locality Little Cove Point Formation, Calvert County, Maryland. Serravalllian Stage, Miocene.

† *Trichotropis vokesae* Pitt & Pitt, 1989 (Plate S199)

Shell thin, 24 mm high, 18.9 mm in diameter. Protoconch with about one and one-half whorls; teleoconch with four straight-sided whorls. Spiral sculpture of two sharp carinae (keel-shaped ridges), one at the periphery and one near the base. Axial sculpture of seven to nine irregular ribs extending from suture to suture, decreasing in number on later whorls, disappearing on last two whorls. Wide, somewhat triangular aperture. Root of genus name, *tropis*, is Greek for "keel."

Distribution: Type locality Quebrada Camarones, cut bank on east side of canyon, east of the village of Camarones, 20 km (by road) east of bridge over Río Esmeraldas, Esmeraldas Province, Ecuador. Esmeraldas beds, Onzole Formation, Pliocene.

Note that the junior author of this species, Lois Pitt, is herself a WSM member with several eponyms named in her honor.

† *Loxacypraea emilyae* (Dolin, 1991) (Plates S200a-b)

Originally *Cypraeorbis emilyae* Dolin, 1991. See Dolin, 2015: 17.

Large bulbous shell, somewhat egg-shaped; aperture following axis, weakly parasigmoidal; siphonal canal deep, elongate, in the shape of a long neck; each of the tips pearled. Columellar teeth (23 in number) extending into aperture about 3 mm on columella area; 27 labral teeth calloused, on adapical two-thirds extending abaxially across basal side of outer lip. On non-corroded portion of shell, perceptible color pattern consisting of a creamy callus dotted by little blotches and, dorsally, an orange cloud of points irregularly disposed, sometimes agglomerated in large spots. Shell 43 mm in length, maximum diameter 28.7 mm.

Distribution: Type locality east bank Chipola River, about 1/3 mile above mouth of Farley Creek, Calhoun County, Florida. Chipola Formation, upper lower Miocene.

† *Trajana emilyae* Petuch, 1994 (Plates S201a-b)

Extremely elongated shell, cerithiform, 17 mm in length. Scalariform spire; spire whorls with 10 large axial ribs, body whorl with four axial ribs which disappear on the last part of the whorl. Body whorl with 12 coarse spiral ribs. Intersection of spiral and axial ribs produces a large, elongated bead. Thickened varix on lip.

Distribution: Type locality Lakes of the Meadows dig, 147th and Bird Road, Miami, Dade County, Florida. Pinecrest Member, Tamiami Formation, late Miocene/early Pliocene.

† *Vokesinotus emilyae* Petuch, 1994 (Plate S202)

Stocky shell, wide across shoulder, inflated body whorl. Spire moderately developed; siphonal canal long, narrow. Body whorl with 18 fine, scaly spiral cords; whorls with eight low, rounded axial ribs. Inner edge of lip with six narrow teeth. Length 19 mm.

Distribution: Type locality in North New River Canal, 5 miles (8 km) south of South Bay, Palm Beach County. Loxahatchee fauna, Bermont Formation, Aftonian Pleistocene.

† *Siphonaliopsis vokesae* Le Renard, 1995 (Plate S203)

Le Renard distinguished the genus *Siphonaliopsis* from *Siphopsis* (both named by him in this 1995 paper) by its protoconch, a stronger sculpture, slightly oblique spiral striations on the straight axial sides, more or less strong and lumpy, but still thick and as wide as the spaces between them. (From the French, HB)

Distribution: All specimens from the Paris Basin Paleogene, France.

E. H. Vokes (1971: 32) noted the homonymy of *Fusus clathratus* Lamarck, 1803, with *Fusus clathratus* Linnaeus, 1767. Le Renard proposed *Siphonaliopsis vokesae* as a replacement name for Lamarck's species.

† *"Trophon" vokesae* Brunet, 1997 (Plate S204)

Shell muriciform, higher than wide, subtriangular aperture. Spire low, with whorls wider than high and slightly oblique. Strong undulating lamellar processes, ten in number on last whorl. Height 50 mm, width 38.5 mm; aperture length 25 mm.

"This species has spiral ornamentation rather similar to *Xanthocorus* Fischer, 1884, but with strong varices in the manner of the genus *Trophon* Montfort, 1810" (Brunet, 1997: 81).

Griffin & Pastorino (2005: 299) stated that '''*Trophon*' *broggii* Brunet, 1997 and '*Trophon*' *vokesae* Brunet, 1997,...are probably a conspecific muricid belonging in an entirely different group. The types show short, strong shells with regularly spaced axial lamellae and strongly developed spiral ornamentation of primary and secondary cords. The spiral ornamentation lacks the 'pitted' appearance present in those species of Trophon in which spirals are developed. Furthermore, some specimens develop a conspicuous labral spine, a feature that definitely removes them from the Trophoninae."

Distribution: Type locality Punta Pardela, Valdés Peninsula, Chubut Province, Argentina. Entrerriense Formation, upper Miocene.

† *Massyla emilyvokesae* (Landau & Petit, 1997) (Plate S205)

Originally *Cancellaria emilyvokesae* Landau & Petit, 1997. See Hemmen, 2007, and Landau et al., 2012.

Protoconch eroded, about two volutions. Four teleoconch whorls, well-rounded, with deeply impressed suture. Shell fusiform, solid, with a high spire. Spiral sculpture of numerous fine, evenly spaced cords. Axial sculpture consisting of rounded ribs, becoming obsolete on body whorl, where they are gradually replaced by broad, strong axial ribs. Columella with three folds.

Distribution: Type locality series of arroyos about 500 meters south of "Casa Cantaure," which is 14 km (by road) west of Pueblo Nuevo, Paraguané Province, Falcón, Venezuela. Cantaure Formation, lower Miocene.

Siratus vokesorum (García, 1999) (Plates S206a-d)

Originally *Chicoreus vokesorum* García, 1999. See Merle et al., 2011.

Delicate, exquisite shell, 32 mm in length; siphonal canal 17 mm long; width of last whorl 10.5 mm. Protoconch of two and a half whorls; four and a half teleoconch whorls. Spiral ornamentation on first two teleoconch whorls of four strong cords, increasing to about 12 on body whorl, diminishing in strength. About 10 strong axial ribs on first two teleoconch whorls. On third whorl spinose ribs become varices, ornamented with two adapically recurved spines. Last whorl with three well developed varices, each with three recurved, adapically projecting spines. Ovate aperture, smooth columella. Siphonal canal long, about 54% of total shell length; strongly recurved dorsally. Shell white, with a narrow, diffused brownish-red band at shoulder.

Distribution: Type locality off San Salvador Island, Bahama Islands, dredged alive from 273 m. Also known from Lee Stocking Islands, central Bahamas, 46 m depth.

"Named for Dr. Emily H. Vokes and Dr. Harold E. Vokes in recognition of their life-long devotion to the study of the Muricidae and Bivalvia respectively and their unselfish will to help amateur conchologists" (García, 1999: 60).

† *Favia vokesae* Budd & Johnson, 1999 (Plates S207a-c)

Encrusting colonial scleractinian; closely spaced, moderate-sized calices with one to two centers and four complete septal cycles. Massive hemispherical colony shape, permanently attached, small in size (colony length 2-3 cm, height 1-2 cm). Plocoid colony form with predominantly intramural budding. New buds form in multiple directions, by equal bifurcation. Calices with single or double centers, elliptical or polygonal in shape, with a minimum diameter of 3.5-4 mm. Septa unequal in thickness; four complete septal cycles become thinner with each cycle.

Distribution: Type locality Río Cana, Cercado Formation, Dominican Republic. Upper Miocene. *Favia vokesae* ranges in age from late Miocene to late Pliocene. Outside the Dominican Republic, it is known from the upper Pliocene Moin Formation of Limon, Costa Rica, and the upper Pliocene of Unda core (Bahamas Drilling Project).

"Named after Emily Vokes (Department of Geology, Tulane University), who collected several colonies of this species during her expeditions to the northern Dominican Republic" (Budd & Johnson, 1999: 41). The genus name means "honeycomb."

Favia vokesae is morphologically similar to *F. tulsidasi* López-Pérez, 2012, an early Pliocene species from the San Marcos Formation, Puerto de la Lancha, Isla Carmen, Gulf of California. The eastern Pacific species is distinguished by its septothecal wall, smaller single center corallites and fewer septa.

Favia vokesae and *F. maoadentrensis* Budd & Johnson, 1999, belong to a distinctly different group from other *Favia*, defined by two unambiguous apomorphies, high numbers of septal cycles and absent paliform lobes. These two clades of *Favia* Blainville, 1820, most likely represent different genera or subgenera (Budd & Johnson, 1999: 33). The genus *Favia* is paraphyletic and in need of revision.

The first record of *Favia* is in the Cretaceous of the Tethys (Vaughan & Wells, 1943). In the eastern Pacific, the genus appears in the middle Eocene of California (Durham, 1942) and in the early Miocene of Chiapas (Frost & Langenheim, 1974).

Chicoreus vokesae Macsotay & Campos, 2001 (Plate S208; plate 4, figures 8-9)

Note: This species is an invalid junior homonym of *Chicoreus triqueter vokesae* Houart, 1986. Further research by muricid experts is needed to give this species a valid name.

Protoconch with two and a half whorls, smooth and convex, rose colored. Postnuclear whorls with four well defined spiral cords and 11 convex axial ribs. After the second postnuclear whorl varices appear, three per whorls, ornamented with three hollow spines. Between the primary spirals numerous secondary and tertiary spirals

are intercalated. The varices and external lip of the last whorl have a very prominent spine. Oval aperture, with paired lirae at the base of the spines. Smooth interior lip. Shell color white to clear cream, except for the interspaces of the primary cords which are a dark brown. (From the Spanish, HB)

Distribution: Northeast Venezuela, in waters with low currents, on the Margarita Platform and on the southern shore of the Gulf of Cariaco. Known from depths of 1-53 m.

Enixotrophon emilyae (Pastorino, 2002) (Plates S209a-c)

Originally *Trophon emilyae* Pastorino, 2002. See Engl, 2012.

Shell small in size (up to 16 mm), slender, fusiform, very thin, translucid. Protoconch of one and a half whorls, teleoconch of five moderately convex whorls. Axial sculpture of regular, thin, gentle varices; spiral sculpture of four very weak cords in the first whorls, then obsolete. Anterior siphonal canal very long, twisted, narrow.

Rachiglossan radula with very closely packed teeth. Rachidian tooth twice as wide as high; central cusp very thin; lateral cusps shorter but same thickness as central cusp. Lateral teeth large, with a thick attached portion.

Distribution: Type locality at R/V *Eltanin* Station 1343, northwestern Amundsen Sea, Antarctica, 54º 50' S; 29º 50' W. Dredged from 567-604 m depth. Reported depths range from 549-1153 m.

“This shell is dedicated to Dr. Emily Vokes, of Tulane University, New Orleans, Louisiana, (now retired), who helped me with my first steps on *Trophon*” (Pastorino, 2002: 354).

Eupleura vokesorum Herbert, 2005 (Plate S210)

Trigonal shell, maximum height to 50 mm; teleoconch with eight or nine whorls; protoconch of two and a half rounded, glossy whorls. Cords at varix form sharp spines that extend beyond varix margin. Shoulder spine elongate, straight, with abapical orientation. Short, sharply and abaperturally recurved body spines. Shell color solid maroon.

Herbert & Paul (2008) document the predatory behavior and shell drilling by the Caribbean congener *Eupleura sulcidentata* Dall, 1890.

Distribution: Type locality Guaymas, Sonora, Mexico. Known as a Recent species from San Felipe, Baja California, Mexico, to Punta Aji, Valle de Cauca Department, Colombia. Confirmed fossil occurrence from Pliocene deposits in the Puntarena Province of Costa Rica.

† *Argenthina emilyae* Herbert & Del Río, 2005 (Plate S211)

Shells small, biconic, up to 23 mm in length. Subsutural regin on spire whorls wide, sloping, slightly convex. Axial ornamentation consisting of 12-14 lamellose ribs per whorl, becoming two to four varices with from none to two intervarical ribs on ultimate whorl. Varices massive, rounded, of uniform thickness over length of body whorl. Spiral ornamentation consisting of seven scabrous primary cords on body whorl, intercalated by one to three thinner secondaries. Aperture semicircular, approximately one third of shell height. Columella smooth.

Distribution: Type locality Argentina Highway 3, between Campo M. Behr and Astra, north of Comodora Rivadavia, Argentina. Miocene.

Timbellus emilyae (Espinosa et al., 2007) (Plate S212)

Originally *Pterynotus emilyae* Espinosa et al., 2007. See García, 2013, and Espinosa & Ortea, 2016: 175.

Small shell, 5.4-6.9 mm long, delicate appearance. Protoconch with one turn, rounded and relatively large. Teleoconch with three and a half whorls, adorned with three wide lamellar axial varices per whorl, of a fragile consistency. (From the Spanish, HB)

Distribution: Type locality bottom sediments (30-35 m deep) near Cueva de Pipo, María la Gorda, Guanahacabibes, Cuba.

"*Nombrada en honor de la Dra. Emily H. Vokes, de la Universidad de Tulane, Nueva Orleans, como reconocimiento a sus numerosos y valiosos aportes al conocimiento de los Murícidos del Atlántico Occidental Tropical*" (Espinosa et al., 2007: 77). "Named in honor of Dra. Emily H. Vokes, of the University of Tulane, New Orleans, in recognition of her numerous and significant contributions to the knowledge of the muricids of the tropical west Atlantic" (From the Spanish, HB).

† *Metrarabdotos vokesorum* Cheetham et al., 2007 (Plate S213)

This bryozoan has a bilaminate, rigidly erect colony with slender, narrow strap-like branches, arising from a small encrusting base. Ordinary autozooids almost three times as long as wide, with very finely tuberculate frontal shield. Ordinary avicularia paired, very rarely single, very slightly unequal, usually proximally placed and proximally and inwardly directed. Special avicularia as much as 5.4 times as long as ordinary avicularia. Maternal zooids ovicell-bearing, with crescentic orifice approximately three times as wide as that of ordinary autozooid.

Distribution: Type locality Rio Gurabo, Dominican Republic. Gurabo Formation, early Pliocene. Also found from Pliocene-Pleistocene deposits in the Gatun and Cayo Agua Formations, Panama, and the Moin Formation in Costa Rica.

Emily and Harold Vokes supplied specimens from Tulane University localities in the Dominican Republic.

This is the only species of Bryozoa (formerly Ectoprocta) named for one of the women we are considering.

† *Epitonium vokesae* Schmelz & Portell, 2007 (Plate S214)

Small turriculate shell, maximum height 4.3 mm, maximum width 1.6 mm. Three smooth, glossy bulbous protoconch whorls, five and a half moderately convex teleoconch whorls. Eight to nine slightly raised, blade-like sinuous costae on body whorl; not jointed at suture with costae on preceding whorl.

Distribution: Type locality Tenmile Creek (Tulane University locality TU 951), Calhoun County, Florida. Chipola Formation, lower to upper Miocene portion of the Alum Bluff Group.

In this paper, Schmelz & Portell also named *Epitonium hoerleae*, honoring Shirley Hoerle, who years previously had named *Cerithium vokesorum* (see above) honoring Emily and Harold Vokes.

† *Lobatus vokesae* Landau et al., 2008 (Plates S215a-b)

Large, very solid shell, reaching 270 mm high. Protoconch not known; seven teleoconch whorls preserved. Sculpture on early teleoconch whorls of small rounded tubercles, immediately above abapical suture, crossed by numerous fine spiral threads. Broad, flattened, primary spiral cords only clearly developed on mid-portion of last whorl. Outer lip not thickened, greatly expanded, its adapical end extended above height of apex.

Distribution: Type locality Rio Cana, Dominican Republic, Cercado Formation, late Miocene. Also known from the Gurabo Formation, base of the Pliocene.

† *Neoteron emilyvokesae* Landau & Marques da Silva, 2010 (Plate S216)

Robust shell with 6-7 broad elevated axial ribs, 17.4 mm high. Protoconch somewhat worn, but probably of two to two and a half smooth whorls. Five teleoconch whorls, roundly angled, with shoulder below mid-whorl. Last whorl very strongly constricted at base by a deep trough separating last whorl from siphonal fasciole. Aperture ovate; outer lip greatly thickened by a broad labral varix, weakly wing-like adapically, with 10 denticles of irregular size just within it.

Distribution: Type locality Cañon de las Calderas,Cubagua Island, Nueva Esparta State, Venezuela. Araya Formation, Cubagua Group, lower Pliocene.

The only Recent species of this genus is the eastern Pacific *Neoteron ariel* (Pilsbry & Lowe, 1932). It has been reported from Corinto, Nicaragua (type locality), south of Quepos, Puntarenas Province, Costa Rica, and Gobernadora Island, Panama.

Illustrations and information on the taxonomic placement of this genus may be found in Almasi, 2018, and Eichhorst, 2018.

† *Cymatiella vokesorum* Beu, 2010 (Plate S217)

Shell to about 17 mm high, with a moderately tall, straight-sided spire, moderately well-inflated whorl and short, straight open anterior siphonal canal. Protoconch small, low-turbiniform, of 2.2 strongly inflated whorls. Teleoconch sculpture of low, rounded spiral cords with interspaces each approximately equal to the width of one cord. Aperture evenly oval, with weakly flared lips; interior of outer life with seven short, narrow transverse ridges or two rows of very short ridges separated by narrow smooth one parallel to lip margin. Inner lip with four to six low narrow transverse ridges on columellar area.

Distribution: Type locality road cut 8.6 km west of plaza at San Cristobal, on road to Bani, south Dominican Republic, from unnamed middle Miocene formation. Recorded only from late early Miocene to late Miocene rocks of Trinidad and the Dominican Republic.

“It is a great pleasure to name this species in honor of Emeritus Professors Emily and Harold Vokes, after their retirement from Tulane University and the lamented death of Harold. Emily and Harold collected a considerable proportion of the material studied here, including the type material of *Cymatiella vokesorum* n. sp., and the advanced state of knowledge of tropical American Cenozoic molluscan paleontology results to a large degree from their collecting and publishing vigor. They provided generous help and guidance, as well as huge collections of valuable specimens, to an entire generation of students (in the broadest sense) of American paleontology, and their influence and friendliness have made an enormous, unique contribution to the science” (Beu, 2010: 210).

† *Mimachlamys vokesorum* Waller, 2011 (Plate S218)

Shell with 22 or 23 simple, broad trigonal ribs much broader than interspaces and bearing small distally concave scales; secondary costae appearing in late ontogeny along bases of lateral ribs facing center of shell; posterior auricles much smaller than anterior and with posterior auricular margins forming obtuse angle of ~140º with dorsal margin. Height 52.1 mm, 50 mm long.

Mimachlamys vokesorum differs from *M. blowi* Waller, 2011, in having trigonal ribs that are broader relative to interspaces, a more flaring, prosocline shape, posterior auricular margins forming a more obtuse angle with the dorsal margin and secondary costae in late ontogeny adjacent to lateral ribs.

Distribution: Type locality road cut 5 km south of bridge at Guayubín, on road to Sabaneta, northern Dominican Republic. "Mao Adentro Limestone," Mao Formation, Miocene.

The greatest species diversity of *Mimachlamys* in present-day oceans is in the western Pacific and Indian Oceans, there being only one species, *M. varia* (Linnaeus, 1758), occurring in the warm-temperate to cool-temperate regions of the eastern Atlantic.

† *Eupilumnus* (?) *vokesae* Luque in Luque et al., 2020 (Plate S219)

Dorsal carapace of this brachyuran crab covered with small granules; branchial ridge absent. Rostrum more than twice the width of the orbits, short, bilobate, deeply sulcate, V-shaped, with two well-developed conical and acute spines projecting forwards, and with two pairs of accessory lateral spines along the lateral margins of rostrum. Dactylus and pollex of right cheliped bearing two rows each of well-developed acute spines. Length 13.4-22.5 mm, width 20.2-32.1 mm; ratios of length-width vary between the holotype and the paratype.

Distribution: Type locality near Nuevo Teapa, Vera Cruz, Mexico, in newly exposed outcrops along the highway towards Coatzacoalcos. Agueguexquite Formation, upper Miocene. Specimens collected by Emily Vokes in 1963.

The authors were unsure about the generic placement of this species, unlike any fossil crab species previously known from the Americas. It is unclear if the fossils here studied preserve the sternum, as the ventral sides are still covered with matrix and are not available for preparation at the moment. Furthermore, they are decorticated to different extents, which hinders the interpretation of the dorsal ornamentation and make direct comparison problematic. Moreover, phylogenetic studies have found that *Eupilumnus* is not a monophyletic genus and that the genus is in need of a revision. Due to the incompleteness of their fossil material, the authors have tentatively included the new species within *Eupilumnus*, although it is quite possible that it belongs to a similar extant genus, or even to its own new genus.

† *Zonaria vokesae* Groves & Landau, 2021 (Plate S220)

Zonaria species of medium to large size, 52 m long, 28.9 mm wide, 20.5 high. Relatively low dorsum, 17 columellar teeth, three anterior teeth running halfway across fossula, posterior teeth elongated, running over columellar peristome, not over venter, broad labrum, 24 labral teeth almost restricted to inner edge.

Distribution: Type locality Arroyo Hondo, Río Yaque del Norte, Dominican Republic. Baitoa Formation, lower–middle Miocene.

“Named after Emily H. Vokes of Tulane University (retired), valued friend to both authors, in recognition of her enormous contributions to Caribbean Neogene paleontology” (Groves & Landau, 2021: 54).

† *Lyropecten colinensis vokesae* J. T. Smith, 1991 (Plates S221a-d)

Valve outlines circular to slightly longer than high. Left valve flatter than more convex right valve. Beaks project slightly beyond hinge line. Auricles subequal, costate, and lirate, anterior auricle having about three coarse radials. Moderately deep byssal notch. Right valves with 10-11 ribs sculptured by moderately coarse to coarse costae crossed by lirae. Left valves with nine ribs. Type specimen 6.5 cm high, 7.2 cm long. Largest specimen seen was 9 cm high.

Distribution: Type locality 2.9 km west of Los Quemados in roadcut on the Los Quemados-Sabaneta road, 0.3 km west of bridge over Río Gurabo, Dominican Republic. Gurabo Formation, early Pliocene. Also reported within the Tertiary Caribbean Province from Panama.

Ellen J. Moore (1925-2017)

(Figure 38)

Highly respected Tertiary paleontologist Ellen J. Moore was 13 years old when, during a local geology field trip near Portland, Oregon, she collected her first fossil. The experience was life-changing for Moore: She never got over the exciting pleasure of finding and studying the ancient remnants of once-living organisms (Moore, 2000). Following the discovery of that first fossil, Moore went on to a noteworthy 37-year career as a research geologist for the U.S. Geological Survey and a lifetime of researching the Tertiary marine mollusks of Washington, Oregon, California, and Baja California, Mexico. She described 27 new molluscan taxa and authored nearly 40 scientific papers, several of which are still considered important paleontological resources (Smith and

Wilson, 2017). In 2002 the Geological Society of America dedicated its Cordilleran Section in her honor, and in 2008 the Western Society of Malacologists awarded Moore an Honorary Life Membership in recognition of her lifetime contributions to the study of Tertiary mollusks of the Pacific coast region.

Born and raised in Portland, Oregon, Ellen James was the middle child of three children of Mildred (Partridge) and Thomas William James. After graduating from high school, Moore enrolled at Oregon State College (now Oregon State University), where noted paleontologist Earl L. Packard (1913-1980), who had led the field trip when Moore found her initiatory fossil, was one of her teachers. She received a Bachelor of Arts degree from Oregon State College in 1946. After working briefly for the Army Corps of Engineers and feeling a need to advance herself with additional studies, Moore enrolled at the University of Oregon. She completed a Master of Science degree in paleontology in 1950 with a thesis titled "A New Miocene Marine Invertebrate Fauna from Coos Bay, Oregon." That same year she accepted a position as a research geologist at the USGS headquarters at the USNM in Washington, D.C. She worked as assistant to Wendell P. Woodring (1891-1983), a leading expert on Caribbean and Central American fossils. Woodring became her mentor and a lifelong friend (Smith and Wilson, 2017; see also her memorial to Woodring in Moore, 1992).

While still working at the USNM in 1952, Moore married a fellow USGS geologist, but the marriage did not last. During 1953-1954, she briefly pursued doctoral studies at Johns Hopkins University but eventually decided to focus on her career at the USGS. A National Science Foundation Visiting Scientist grant in 1958 allowed her to work at the Academy of Natural Sciences of Philadelphia, where she tracked down and catalogued many of the type specimens described by Timothy A. Conrad (1803-1877), which had been lost or misplaced for nearly a century (Moore, 1962). In 1959 Moore transferred, at her request, to USGS headquarters in Menlo Park, California. The following year, in 1960, she married George W. Moore (1928-2007), also a USGS geologist and authority on tectonics of the Pacific coast. He and Ellen had two children, a daughter (Leslie) and son (Geoffrey).

When George Moore was reassigned to the Marine Geology Branch of the USGS during the mid-1960s, he and Ellen moved to San Diego, California. Ellen consulted on science programs with her children's local school district, was associate curator of the Department of Invertebrate Paleontology at the SDNMH, served on its editorial board, and acted as curatorial advisor for the Deep Sea Drilling Project at Scripps Institution of Oceanography (Smith and Wilson, 2017). In 1968, she published "Fossil Mollusks of San Diego County," a detailed survey of the region's then known fossil mollusks according to their geologic age (Moore, 1968).

After Ellen and George Moore moved back to Menlo Park, she continued researching Tertiary marine mollusks while also serving as Assistant Branch Chief of the USGS's Paleontology and Stratigraphy Branch from 1979 to 1982. It was during this period that she began publishing a multi-year series of influential chapters (1983-2003) on "Tertiary Marine Pelecypods of California and Baja California" (*U.S. Geological Survey Professional Paper* 128, Chapters A-G), each of which described the fossil record of different molluscan families. Other of Moore's more significant papers were on the Miocene and Oligocene faunas of Astoria, the Neogene fossils of the Pittsburg Bluff and Lincoln Creek formations (Kennedy, 2009), and other aspects of the Cenozoic paleontology and geology of Oregon, Washington, and the Pacific coast.

After 37 years with the USGS, Ellen Moore retired in 1987 with the title of Honorary Scientist Emerita. She and George, who had also retired from the USGS, moved to Corvallis, Oregon, where they stayed active in geology and took part in community events. Ellen was a Courtesy Research Associate from 1987-2003 in the Department of Geosciences at Oregon State University, where George was a Courtesy Professor of Geology. Following George's death from a car accident in 2007 (Moore, 2008), Ellen moved to Palm Springs, California, to be closer to her son, Geoffrey Moore. She passed away in Palm Springs on 9 July 2017.

† *Tegula ellenae* Addicott, 1966 (Plate S223)

Moderately large, 23.8 mm high, 23.7 mm wide. Conical, thick shell, with four or more whorls. Whorls of spire sculptured by five or six noded spiral cords. Impressed, subtabulate suture. Body whorl gently convex, sculptured by six or seven strongly noded spiral cords. Strong columellar tooth.

Distribution: Type locality 300 to 400 feet north of north side of Devils Punch Bowl headland, Yaquina quadrangle, Oregon. Astoria Formation, middle Miocene.

"*Tegula ellenae* is named for Ellen J. Moore in recognition of her paleontologic studies of the Astoria Formation" (Addicott, 1966: 637).

† *Lysonia mooreae* Marincovich, 1983 (Plate S224)

Shell ovate in outline, 14.9 mm long, 10 mm high, with a short and slightly truncated posterior end. Straight to slightly convex dorsal margin. Fine radial costellae made up of microscopic beads.

Distribution: Type locality one meter above base of measured stratigraphic section at Cape Tachilni, western end of the Alaskan Peninsula. Miocene, Tachilni Formation.

† *Fulgoraria ellenmooreae* Squires & Goedert, 1994b (Plate S225)

This striking volutid, gorgeous in its simplicity, measures up to 112 mm in height. Fusiform, moderately high spired, body whorl about 82% of shell height. Protoconch one and a half whorls, large, rounded, low and smooth. Teleoconch with about five whorls. Penultimate and body whorl almost smooth except for faint spiral lines.

Distribution: Type locality base of low cliff and beach terrace on south shore of Strait of Juan de Fuca, approximately 770 m west of mouth of Murdock Creek, Callam County, Washington. Physte Formation, middle Oligocene. Known from various early to late Oligocene locations in northwestern Washington, including the Blakeley, Makah, and Lincoln Creek formation.

Edith R. Rex (1894-1981)

Edith Robinson Rex was born 25 July 1894 in Cohocton, Cohocton County, New York, one of four children of George Francis Rex (a.k.a. Frank George Rex) (1870-1923) and Edith M. Rex (née Robinson) (1872-1894) (Anonymous, 2023). She grew up living most of her early life with grandparents on her mother's side of the family in Dansville, Livingston County, New York (United States, 1900, Anonymous, 1907, United States, 1910, United States, 1915). Edith attended New York's Hornell High School, whose 1913 yearbook, in reporting on recent graduates, noted everyone missed her "good stories" and stated she was currently teaching school in Fremont, New York (Hornell, 1913: 35). In 1948, years after she had graduated from Hornell and suggesting her strong ties to the school, Edith published a story (title and subject undiscoverable) in the school's newsletter, *The Volcano*. It was also during her high school years that she began a pen-pal correspondence with a student in Germany. Their letter exchanges lasted until post-WWII complications ended their communication in 1949 (Anonymous, 1949b).

Following graduation from Hornell High School, Edith dedicated herself to attaining a career in teaching and librarianship. Besides teaching at the normal school in Fremont from 1913 to at least 1915 (United States, 1915), she completed a Teacher-Librarian Certificate at Genesco State Normal School in 1916, attended Syracuse University Library School from October to December 1918, and in 1919 became an Assistant at the Carnegie Library of Pittsburg (Carnegie, 1921, United States, 1920). She graduated with honors in 1927 with a B.S. degree in household economics from Carnegie Institute (Anonymous, 1927a, Anonymous, 1927b).

After moving to southern California in the early 1930s, Edith became a teacher and librarian with the Long Beach Unified School District (United States, 1930). In 1935 she moved to Santa Catalina Island, where she served as librarian at the District's Avalon K-12 School. After 16 years at the Avalon school, she settled in Long Beach, California, where as librarian at Lakewood Junior High School she organized summer seashell exhibits by young collectors at the local Bayshore Branch Library (Anonymous, 1953b). At Lakewood she also founded a student shell club in which students made one or two monthly collecting trips to the shore and by the end of the school year were expected to have a collection of at least 100 shells, each arranged according to its proper malacological classification. In a 1951 newspaper article, Rex expressed great pride in the work of an earlier club student, the future malacologist Gale G. Sphon (1934-1995), who by his junior year in high school had amassed a large collection of shells and planned to study marine life as a career (Anonymous, 1951b). Sphon was later a member with Edith of the Long Beach Shell Club and referred to her in the years following as a “very dear friend” (Sphon, 1976: 64).

Edith's own interest in shells began during her years on Santa Catalina Island. By 1951 she had a personal collection of some 2,000 shells, 500 of which she had collected locally (Anonymous, 1951a). As a member of the Long Beach Shell Club, she attended its annual Christmas party in 1948 (Anonymous, 1948) and other years. The

guest list for the club's 1951 Christmas party included, besides Edith, Howard R. Hill and George P. Kanakoff of the Los Angeles County Museum, well-known shell-collectors and authors John Q. and Rose Burch, collector-authors Mary and Ralph Bormann, *The Shell Book* author Julia Rogers, and Edith's former student Gale Sphon (Anonymous, 1951a). She was also a member of the WSM from its founding until 1971 (her last year on the WSM membership list).

As an active, supportive member of the Long Beach League of Women Voters, Edith often hosted group discussions on local political issues during the 1960s at her residence on 273 Euclid Avenue, Long Beach, California (Christensen, 1965, Anonymous, 1966, Houser, 1968). Despite an apparently active social life (Anonymous, 1942, Anonymous, 1949a, Anonymous, 1953a), Edith never married. She passed away 13 January 1981 in Los Angeles, California, survived by a sister and two brothers (Anonymous, 2023).

Subcancilla edithrexae Sphon, 1976 (Plate S226)

Shell reaches 22 mm in length. Attentuate spire, acute angle; aperture narrow, slightly more than half the shell length. Raised brown ribs about one-quarter to one-half the width of the white interspaces.

Radular formula 1.1.1. Triangular-shaped rachidian wider than high, with six cusps, the center four being of equal size, the outer ones being one-third as large. Laterals with 11 cusps, the two outer ones mere denticles. Lateral tooth plate rectangular in shape, with slight curve to outer portion.

Distribution: Type locality Punta Alfaro, Isabela Island, Galápagos Islands, Ecuador, in 3-6 m of water.

"I take great honor of naming this species in honor of a very dear friend, Miss Edith Rex" (Sphon, 1976: 64).

The author of this species, Gale G. Sphon, also has a Mitridae shell named in his honor, *Neotiara sphoni* (Shasky & Campbell, 1964), an olive *Olivella sphoni* J. Q. Burch & G. B. Campbell, 1963, and a nudibranch, *Felimida sphoni* (Ev. Marcus, 1971). One should not forget the eponymous species honoring Gale's female cat, *Doris tanya* Ev. Marcus, 1971.

Thelma Crow

(Figure 57)

Conchologist Thelma Crow (1907- ?) was a well-known local figure in the California shell-collecting community during the 1960s and into the 1980s. In addition to beach collecting and dredging for marine shells, she traded with other collectors or paid local fishermen for specimens they brought up in their nets. She also sold parts of her collection from time to time or donated shells to museums in California and elsewhere. Although her name (often misspelled as Thelma "Crowe") appears in the records of various malacological organizations and shell club rosters or among data in museum and private collections, biographical information about Thelma Crow is scarce and limited to a few discoverable records related to her conchological activities.

Shells from Thelma Crow appear frequently in numerous private collections, especially those of southern California collectors including S.S. Berry (1887-1984), Tom Burch (1918-2018), John Q. Burch (1894-1974), and Jean Wilkins (1910-1971), each of whom collected or exchanged shells with Crow. The most available records of Crow's collecting activities are preserved in the acquisition lists of the museums to which she (or others who acquired her shells) donated or sold specimens. These institutions include the MCZ, with 39 marine specimens; the LACM, with 113 lots including 746 specimens of marine and a few terrestrial species (Lindsey Groves, pers. comm. 28 January 2020); the SBMNH, with 83 marine specimens; and the DMNH, with 4,795 specimens (including 215 terrestrial and freshwater examples) from Crow. The great number of specimens at the DMNH are a result of Crow's acquaintance with R. Tucker Abbott (1919-1995), from 1969-1971 in charge of the Museum's malacology department. Although Crow apparently sold large parts of her collection to the Delaware Museum in 1973 and 1974, she also at times received Museum publications or copies of Abbott's classic book *American Seashells* in exchange for her shells (Alex Kittle, DMNH, pers. comm. 3 January 2020).

Acquisition data at the museums with Thelma Crow's material show that the vast majority of her shell collecting was done in California and in Mexico as early as 1959 and continuing into the 1970s. The acquisition database at LACM lists Crow as donating shells collected during 1960-1972 from 135 stations (= unique localities

and dates) between Monterey, California, and south to Baja California, Sonora, and Nayarit, Mexico, as well as her finding land snails in Texas (Patrick I. LaFollette, LACM, pers. comm. 11 July 2019). All of the specimens from Crow at the MCZ were also collected in California and Baja California, Mexico. Several entries in the SBMNH and DMNH databases show other collecting. locations (e.g., France, Australia, New Zealand, Canada, the Galápagos, Madagascar, Tennessee, Florida, Alaska, Oregon, Washington) as well, but further investigation is needed to show that Crow actually collected in these places herself. It is most likely that she acquired the majority (if not all) of her specimens from beyond California and Mexico through her extensive trading or by purchase (Henry Chaney, SBMNH, pers. comm. 6 January 2020; Chaney knew Crow and helped to acquire some of her collection for the SBMNH).

Records at museums with her shells indicate that although Crow collected on her own at times, she was often accompanied, especially in Mexico, by other collectors. She collected during 1960 and 1961 with her brother, Paul Watkins, at Redondo Beach, California, and Bahía Todos Santos and San Felipe, Baja California; Crow also collected in Baja California, Mexico, with southern California collector Jean Wilkins and California conchologist Tom Burch. Not all of Crow's shells came from beach collecting, trading, or purchases. She dredged for shells while collecting in California and Mexico, and she was known to acquire shells from local fishermen like Ralph Hazard (1916-2003) of Santa Barbara. Hazard, in fact, provided Crow with the specimen that James H. McLean, Curator of Malacology at the LACM, later described as *Boreotrophon hazardi* McLean, 1996.

In addition to her shell collecting activities, Thelma Crow was a regular member of several conchological and malacological organizations. Annual organization reports show that she attended the yearly meeting of the American Malacological Union, Pacific Division, in Goleta, California, in 1961; exhibited "World Wide Shells" at the second annual meeting of the Western Society of Malacologists (WSM) in Pacific Grove in 1969; and attended the third (1970, Stanford) and fifth (1972, Redlands) annual meetings of the WSM (Patrick I. LaFollette, NHMLAC, pers. comm. 13 July 2019). She also belonged to the Conchological Club of Southern California (CCSC) during 1960 and 1961 (listed as "Thelma Crowe" [sic] in the club newsletter for those years), and in 1962. John Q. Burch (1894-1974), the long-time newsletter editor for the CCSC, listed Thelma Crow in his privately printed 1962 *Directory of Conchologists* as a collector of worldwide shells, interested in trading, and living at that time in Los Angeles. Crow later moved to Mentone, San Bernardino County, California, and was for many years a regular attendee at meetings of the Yucaipa Shell Club in nearby Yucaipa, donating door prizes for club meetings (Yucaipa, 1970).

The misspellings related to Thelma Crow's membership listings in the Conchological Club of Southern California and SDSC newsletters likely originated from her own sometimes indecipherable handwriting and frequent poor spelling. The label she sent with a specimen of *Hiatella arctica* (Linnaeus, 1767) to Harvard's Museum of Comparative Zoology, for instance, lists the 1961 collection site as "Gavaolia Park," while another label for a *Kellia laperousi* (Deshayes, 1839) specimen cites "Gavaotea Park"—both locations being misspellings for Gaviota State Park near Santa Barbara, California. Other examples abound. According to Henry Chaney at the SBMNH (pers. comm. 2 August 2019), collectors and curators are widely acquainted with (and to an extent amused by) the habitually errant spellings on Crow's specimen labels. She was listed under "New Members" in the San Diego Shell Club's July 1975 issue of *The Festivus* as "Thelma Crowe" and described as residing in "Port Heuneme," that is, Port Hueneme, Ventura County, California.

Perhaps the most revealing source of personal information about Thelma Crow is a handwritten letter, now at the SBMNH and dated 26 January 1983. The apparently unsent letter is from Crow to "Bob Foster," that is, Robert Alan Foster (1938-2002), a commercial horticulturist and part owner of Abbey Specimen Shells in Santa Barbara. The letter concerns Crow's offer to sell Foster two of her choicest sets of "Calif." shells, with 300 kinds in each set, and including what she says is a "good" *Fusinus barbarensis* [= *Barbarofusus barbarensis* (Trask, 1855)], a fossil. Crow states that she usually asks $500 for a set of shells including about 100 bivalves but adds that she is willing to take $350 per set because she needs money for a forthcoming operation. Crow also says that she is hoping to sell most of her large collection because besides not having room enough for all of it, she has no one where she lives to talk to about shells. In a postscript at the end of the letter, she adds, "no trading, just money." She apologizes for the "messes" in the letter, explaining that she is "getting shakky. Im 76 yrs old" [sic]. The letter includes Crow's phone number, which indicates she was living in Port Hueneme at the time she wrote it.

Records regarding Crow's having been married have proven undiscoverable.

Thelma Crow left no published works, and nothing of her later life appears to have been recorded in sources these authors could find. She was an avid participant in and noteworthy contributor to the shell-collecting communities of her time. Her life and collecting activities are no doubt worthy of further investigation.

Paciocinebrina thelmacrowae Houart et al., 2019 (Plates S227a-c)

Shell extremely small for genus, length 10.7 mm, width 5.5 mm, elongate, rhomboid in shape. Spire tall, acute, shoulder tabulate, sculpture clathrate, cords strong, suture impressed, final whorl inflated, rotund, siphonal canal narrow, long. Color white, subsutural ramp orangish-brown, darker near suture. Protoconch worn, broken, teleoconch whorl profile rotund, cords thick, robust, tightly spaced, overriding ribs, slightly projecting at periphery. Sculpture highly scabrous, subsutural ramp tabulate, slightly angulate, final whorl inflated. Spiral sculpture of robust cords, highly scabrous, especially at intersection of ribs. Aperture ovately broad, large sized, perimeter thick on posterior end, thinning, sharp on outer anterior region, one extremely faint denticle near anterior end of aperture.

Distribution: Type material off Isla Todos Santos, near Ensenada, Baja California, dredged by Thelma Crow & Paul Watkins, 1961, 18–45 m.

Ruth Greenberg (1915-2008)

(Figures 39, 58)

Ruth C. Greenberg was a sculptor and expert basket weaver who for over two decades operated the Tidepool Gallery in Malibu, Los Angeles, California. The shop sold art, crafts, specimen shells, and objects related to the sea. It was famous among shell collectors, malacologists, and the general public for its vast collection of common-to-rare specimen and commercially available seashells. Ruth was a knowledgeable, enthusiastic conchologist who traveled around the world to collect shells. Her Tidepool Gallery, a veritable museum of shells, inspired beginning and experienced shell collectors alike.

Born Ruth Cooperman in Minneapolis, Minnesota, she was the daughter of Ben Cooperman (1880-1922), a cigar salesman, and his wife Ann (1882-1980), a receptionist. She studied to be a medical technician at the University of Minnesota, but after graduating pursued a career as an artist. Her work focused on wood and stone sculpture and was included in two Walker Art Center sculpture exhibitions during the 1940s. In 1935 she married Mayer C. Greenberg ((1904-1974), with whom she had two sons, Daniel and Philip. Ruth and Mayer divorced in the mid-1960s.

After moving with Mayer to Los Angeles in 1947, Ruth was forced to give up sculpture because of serious back problems. She began producing works in oil paint, woodcut, pen and ink, fabric, and other media, becoming increasingly well-known and active in local art groups. She and Mayer were among the early founders of the Egg and the Eye gallery, which later became the Los Angeles Craft and Folk Art Museum.

In 1969 Ruth Greenberg and her then ex-sister-in-law Jan Greenberg opened a small oceanfront shop called the Tidepool Gallery, in Malibu, California. The shop eventually grew to house one of the largest collections of specimen and commercial shells on the West Coast. Nearly half of its inventory was composed of shells of every size and description, though there was also plenty of ocean-related art made by Ruth or others whose works she and her sister-in-law admired. Although the Tidepool Gallery offered shells priced as high as $6,000, Ruth also stocked everyday specimens for less affluent collectors and to promote visitors' interest in shells. She encouraged children, many of whom were used to hearing "Do not touch," to examine the shells by stocking basketfuls marked "Do touch." She once told an interviewer that "The kid who comes in with 25 cents to buy a shell for his mother is just as important to us as the collectors" (Nelson, 2008).

An inveterate beach comber, Ruth traveled the world collecting shells, sometimes paddling to get ashore some Pacific island or at one time going out to sea with the head of a Japanese fishing fleet. In the 1970s she bought a second home in Trinidad, Humboldt County, California, where she combed the adjacent beaches for shells and came to be generally considered a local. Widely known and recognized as an enthusiastic shell expert, she served during 1981 as president of the Conchologists of America.

Ruth closed the Tidepool Gallery in 1991. Long interested in indigenous cultures, she also collected Native American baskets and rattles. In her 70s, she began weaving small baskets made from grasses she collected in the wild. Several of her baskets are in museum collections today, including the Smithsonian in Washington, D.C., and Reed College in Oregon, where the Ruth C. Greenberg Chair in American Indian Studies was established in her honor and where her son Daniel is an alumnus and board of trustees member.

Ruth Greenberg died at the age of 93 on October 18, 2008, at her home in West Los Angeles. In addition to her reputation as an accomplished artist and shell enthusiast, she is remembered by friends and family as a versatile, accomplished cook and, as her son Daniel described her, among the 'nastiest Scrabble players who ever walked this earth' (quoted in Nelson, 2008).

* *Phenacovolva greenbergae* Cate, 1974 (Plate S228)

Synonym = *Quasisimnia hirasei* (Pilsbry, 1913). See Lorenz & Fehse, 2009.

The only species named for Ruth Greenberg turns out to be a synonym.

Shell 30.4 mm long, 11 mm wide. Author Crawford Cate describes the shell as somewhat thin, translucent, spindle-shaped, with a central transverse angle. Terminals tapering evenly, almost pointed, reflected and striated. Smooth dorsum. Color whitish-beige overlain by a rich golden-beige. Columella rounded, basic whitish beige; terminal canals and tips darker orange-beige.

Distribution: Type locality Province of Tosa, Japan (Pilsbry, 1913). Cate's specimens are from off Taohsiung, SE Taiwan, East China Sea. Trawled from 80 meters, 1971.

Dorothy Janowsky

(Figure 40)

Dorothy (Dottie) Ann Janowsky (1942-present) was a commercial turtle raiser and amateur shell collector. Born Dorothy Ann Merenda in Brooklyn, New York, she was the daughter of Joseph J. Merenda (1912-2011), a veterinarian, and Dorothy Antoinette (Tedtsen) Merenda (1911-1988). Dorothy Ann had one brother, Joseph. After she married Robert (Bob) H. Janowsky (1942-2025), the couple owned and operated Janowsky's Mal de Mer Enterprises, a Brooklyn, New York, specimen shell and book business. Familiar faces at shell shows and meetings of conchological and malacological groups during the 1970s and 1980s, they were founding members in 1972 of the Conchologists of America. Robert, who earlier published articles in the New York Shell Club journal and had several molluscan species named for him, was a recipient of the Conchologists of America's Neptunea Award in 2015.

Like her husband, Dorothy was active for many years in several shell collecting and malacological organizations, including Conchologists of America (secretary and treasurer 1972-1973); the New York Shell Club (vice president 1979); Broward Shell Club; Hawaiian Malacological Society; Australian Malacological Society; New Zealand Shell Club; and the California Malacological Society. Dorothy's shell collection of some 2,200 lots included worldwide marine shells, especially Cypraeidae, Muricidae, and Volutidae. She traveled to Guadeloupe and Martinique in the Caribbean (1969, 1970-1972) and Eleuthera in the Bahamas (1971).

After Dorothy and Robert Janowsky divorced, he moved to Florida, where he remarried and operated MdM Shells, Stones & Books in Wellington, Florida, with his second wife, Ju Ying. Dorothy moved to Las Vegas, Nevada, where for several years she owned and operated Aqua Shells, a commercial specimen shell business.

* *Favartia dorothyae* Emerson & D'Attilio, 1979 (Plates S229a-b)

Synonym = *Favartia salmonea* (Melvill & Standen, 1899). See Houart et al., 2010.

Dorothy's only eponymous species turned out to be a synonym of an earlier-named species.

Broadly fusiform shell, high spired; one and one-half nuclear whorls and six moderately convex postnuclear whorls. Body whorl with six prominent, widely spaced varices. Spiral sculpture consists of five major cords, from the shoulder margin to the base of the body. Aperture ovate to subcircular, outer lip minutely crenulate. Length to 21 mm. Shell color fleshly pinkish-orange, darkest on the varices.

Distribution: Type locality (*F. salmonea*) Torres Straits, between New Guinea and northern Australia; *F. dorothyae* from tangle nets, 30 m, off Punta Engaño, Mactan Island, Philippines. Also known from Zanzibar and Mozambique, East Africa, Mauritius, and Queensland, eastern Australia.

Constance E. Boone (1917-1999)

(Figures 41-43, 58)

Constance (Mrs. Hollis Q.) Boone was born 3 December 1917 in Runge, Texas. She graduated from the University of Texas with a degree in Journalism and worked as a newspaperwoman for a number of years. She and Hollis had two sons, Chris and Nick. One day in the early 1960's, one of her sons came home from school and informed her that he needed to make a collection for a science class project. They decided on a shell collection, and Connie's lifelong passion for malacology began. As a young mother she would often go night fishing on the piers in Galveston and Corpus Christi or shelling alone all over the Texas Coast.

In 1969 Connie was a co-founder of the Houston Conchology Society, and at different times was elected president, vice president, and secretary. She served almost regularly from 1967 to 1999 as editor or co-editor of the Society's journal, *The Texas Conchologist*. She volunteered for many years at the Malacology Department of the Houston Museum of Natural Science. She worked with and learned from the Curator of Malacology, Thomas E. Pulley, becoming the department curator after his death in 1985. She served in that role for the next ten years. Connie had been very involved in the Northwest Gulf of Mexico Survey that the Museum sponsored in the late 1960's, cataloguing thousands of lots of shells, securing major donations for the Museum, and directing the first installation of the Strake Hall of Malacology.

A self-taught shell expert, Connie is remembered as a generous, energetic, and dedicated collector who traveled to Australia, South Africa, South America, the Philippines, Puerto Rico, the Solomon Islands, and a variety of other locations to find shells. According to one of her fellow collectors, “She loved traveling and seeing new things. Wherever she went she found shells and everything else. Either it was the shells themselves, or she found related things or she found things that interested her....In Hong Kong she had heard about a research station in a very remote place. She engaged a taxi with a driver that didn’t really speak English and wasn’t sure where they were going. They left early in the morning and returned late in the afternoon. Connie was thrilled at how nice they had been and how she was able to purchase publications from them....In London she found shell prints and Christmas ornaments” (Virginia Joiner, in Wise, 2000: 7).

Active in the American Malacological Union (now the American Malacological Society), Connie was chosen as the Society’s president (1994), vice president, and secretary. Serving as president at the 1994 Houston meeting, she gave a pioneering presentation entitled “Women in Malacology.”

When she was 75 years old, Connie’s ultimate passion for pleurotomariid slit-shells was fulfilled by diving in a two-person submersible with Jerry Harasewych in the Bahamas, collecting living specimens of the species *Entemnotrochus adansonianus* (Crosse & Fischer, 1861). A few years later she went on a shelling trip to Broome, Australia, when a blood clot took her life on 14 September 1999. Her ashes were sprinkled on an Australian beach.

The Houston Conchological Society established the Constance E. Boone Grants to Malacology award in Connie’s memory, and the American Malacological Society hosts an annual competition for the Constance Boone Award for Best Student Presentation to honor her service to American malacology.

Boonea Robertson, 1978 (Plates S230a-b)

Type species *Boonea seminuda* (C. B. Adams, 1839).

Small, ectoparasitic gastropods. Named based on species-specific differences in structure and position of the spermatophores of six east North American odostomioid species. The spermatophores of *Boonea seminuda* (C. B. Adams, 1839), *B. bisuturalis* (Say, 1822) and *B. impressa* (Say, 1822) are stuck in the mantle cavity; those of *Fargoa dianthophila* (Wells & Wells, 1961), *F. bushiana* (Bartsch, 1909) and *F. bartschi* (Winkley, 1909) are attached to the shell in a constant position.

Robertson (1978: 364) distinguished species of *Boonea* from those of *Fargoa* Bartsch, 1955, by a number of characteristics. *Boonea* has an adult shell >4 mm long; front end of foot is truncate, female (genital?) pore on neck; spermatophore small, stalked but not tubular, stuck in mantle cavity; spermatozoan head in a lax spiral. In contrast, *Fargoa* has a shell <4 mm long; front end of foot is medially cleft; female (genital?) pore posterolateral to right side of mentum; spermatophore large, tubular towards unattached end, attached to last whorl of shell; spermatozoan head linear or ovately triangular.

Robertson & Mau-Lastovicka (1979) describe the ectoparasitic behavior of these two genera. The effects of the parasitism of *Boonea impressa* on the oyster *Crassostrea virginica* (Gmelin, 1791) are well documented (White et al., 1984, and Wilson et al., 1988).

Distribution: This genus contains about a dozen marine species, most occurring in eastern North America.

Booneostrea Harry, 1985 (Plates S231a-d)

Type by original designation *Booneostrea subucula* (Jousseaume in Lamy, 1925), not *Booneostrea cucullina* (Deshayes, 1863) sensu Harry, 1985. See Huber, 2010 (fide WoRMS).

Thin, fragile shells, up to 25 mm high; variously shaped but usually elongate oval dorsoventrally; the beaks are not prominent; the right valve is flat to slightly convex, and the left valve is very inflated.

Distribution: Type locality for Jousseaume's material Djibouti (Gulf of Aden).

* *Hydrobia booneae* Morrison, 1973 (Plate S232)

Synonym = *Texadina barretti* (Morrison, 1965). See Rosenberg et al., 2009. Note that *H. booneae* is unaccepted because it is an unnecessary new name for *Odostomia barretti* Morrison, 1965, non *Odostomia barreti* Morlet, 1885).

Shell minute, 2.1 mm high, 1.0 mm wide; imperforate, ovate-conic, vitreous, of about five and a half whorls. After first two whorls, suture impression disappears, with extreme flattening of whorls. Sculpture smooth, glossy, with minute growth striae only that slant forward at suture.

Distribution: Type locality algae-covered mud bottom in about one foot of water in the northeast corner of Heron Bay, Hancock County, Mississippi, and occurs west to Texas.

Janet R. Voight

(Figure 44)

Janet Voight is Associate Curator of Zoology at the Field Museum, Chicago. She is a specialist in cephalopod mollusks, especially octopuses, and investigates undersea wood-boring mollusks in the Xylophagaininae and their echinoderm predators in the genus *Xyloplax* (Thiel, 2012). She was previously a research assistant at the University of Iowa Hospitals (1979-1982) and later a teaching assistant at the University of Arizona (1982-1990).

Janet, who grew up in Davenport, Scott County, Iowa, was the first person in her immediate family to attend college. After completing a Bachelor of Science degree at Iowa State University in 1977, she went on to earn her Ph.D. degree in the department of ecology and evolutionary biology at the University of Arizona in 1990. She joined the Department of Zoology at the Field Museum that same year and received appointment to her present position as Associate Curator in 1996. Janet has been the recipient of numerous grants and awards and has published well over fifty peer-reviewed papers on wood-boring clams (Pholadidae), deep-sea octopuses, and results of hydrothermal vent research. Most of her research has involved underwater exploration in deep-sea manned submersibles like the *Alvin* at Woods Hole Oceanographic Institution and before that the DSV *Johnson Sea Link* in Florida (Thiel, 2012). A pioneer during the early 2000s in researching ocean-floor experimental and

natural wood falls, she has described 20 new wood-boring clam species (e.g., Voight, 2008) and discovered the first-known deep-sea flatworms (see the eponymous *Oligocladus voightae* Quiroga et al., 2006).

Lucernaria janetae Collins & Daly, 2005 (Plate S233)

In November 2003, a camera towed by the R/V *Atlantis* serendipitously captured footage of a spectacular field of stauromedusan "stalked jellyfish" near 8º 37' North on the East Pacific Rise. Two subsequent dives in the DSV *Alvin* allowed animals to be collected and examined. The organisms represent the first species of *Lucernaria* O. F. Müller, 1776, described from the Pacific Ocean.

Exceptionally large, cream-colored stauromedusan with 8 adradial clusters of about 100 tentacles. Although adults lack primary tentacles, small juveniles may bear small, ovate primary tentacles. Goblet-shaped calyx up to 100 mm wide, and 50 mm deep, equal in height to the peduncle. Gonads lanceolate, extending from base of calyx to base of arms.

Distribution: Type locality East Pacific Rise, 2538 m deep; 8º 36.745' N; 104º 12.740 W. Additional specimens nearby from 2553 m depth. It was the dominant macrofauna where it occurred.

Stauromedusans comprise about 50 known species.

Anatoma janetae Geiger, 2006a (Plates S234a-b)

Shell medium size (to 3.8 mm), trochiform biconical, shell very thin, fragile, white. Protoconch of 0.75 whorls, flocculent sculpture with spiral orientation. Teleoconch I of 0.66–0.75 whorls, with strong spiral cord in position of selenizone, approximately 32 distinct, raised axial cords forming nodules at intersection with axial cord. Teleoconch II of at least 2.25 whorls. Umbilicus open, moderately wide, continuously sloping with base; weak funiculus in paratype. Selenizone at periphery, keels moderately elevated, thin; slit open. Aperture rounded. Operculum thin, round, multispiral, with central nucleus, most likely covering aperture. Cephalic tentacles papillate, at base with optic stalk, no pigment in usual region of eye. Four papillate epipodial tentacles on either side, no cephalic lappet.

Radula rhipidoglossate, n + 5 + 1 + 5 + n. Rachidian tooth trapezoid with serrated cusp, denticles parallel to row, central one largest, two to three on each side. Lateral teeth one to four similar, decreasing in size from lateral teeth one to four, number of denticles decreasing from three to four to two on outer surface of cusp. Lateral tooth five elongated enlarged, cusp with strong median denticle, three inner denticles larger than the second to third outer denticles. Inner marginal teeth similar to lateral tooth five, but two prominent outer denticles, two small inner denticles; outer marginal teeth spoon-shaped to flattened.

Distribution: Type locality East Pacific Rise, North Pacific Ocean, DSV *Alvin* (Dive 3941), 12° 42.702' N, 103° 54.452'W, 2574 m depth. Other specimens collected from East Pacific Rise, DSV *Alvin* (Dive 3925), 8° 37.101' N, 104° 12.168' W, and Baby Bare Seamount, Cascadia Basin, USA, 47.710°N, 127.786°W, from 2567-2606 m deep.

Oligocladus voightae Quiroga et al., 2006 (Plates S235a-c)

A deep sea polyclad, reaches 12 mm in length and 10 mm wide. Oval body shape, margins without folds except for the ones forming the tentacles. Mouth anterior to the brain. A very conspicuous sucker is located right in the center of the ventral surface, posterior to the pharynx. Eyes few and minute, scattered on the tentacles. Seminal vesicle connected posteriorly to an auxiliary storage vesicle containing a basophilic substance (possibly sperm). Auxilliary storage vesicle extends dorsally over the seminal vesicle. Posterior anal pore in main median branch of the intestine.

Preserved animals have a milky white dorsal surface with ovaries appearing as dark brown spots that form a radial pattern. White intestinal branches are visible through the epidermis. The ventral surface is white.

Distribution: Type locality Escanaba Trough, 20 m N of Marker 6X on Central Hill, North Pacific Ocean (41° 00.272'N 127° 29.679'W) from 3232 m depth. Specimens were collected by Dr. Janet R. Voight of the Field Museum, Chicago, Illinois, from oak and fir wood blocks that had been deployed in 2002. Recovery was in August 2004 by the DVS *Alvin* (R/V *Atlantis*). Details regarding deployment and recovery of the wood blocks and associated fauna can be found in Voight (2005).

Xyloplax janetae Mah, 2006 (Plates S236a-b)

This asteroid is another deep sea bathyal-abyssal (deeper than 2500 m) and "ridge" species. Since the 1977 discovery of hydrothermal vents at the Galápagos Rift and their associated fauna (Corliss et al., 1979), explorations by submersibles have revealed fascinating biological lifestyles deep in the ocean. These incredible ecosystems are helping to rethink our understanding of the origin of life on earth (Martin et al., 2008). Chemosynthetic symbiotic bacteria form the basis for these non-photosynthetic ecosystems. Among the first invertebrate organisms found at this site were dense populations of a giant worm and a giant clam.

Riftia pachyptila Jones, 1980 (Annelida: Polychaeta: Sedentaria: Sabellida: Siboglinidae), is a giant white tube worm with a bright red plume (Jones, 1981). In less than two years, the animal can reach nearly 2 m in length. Their growth rates are not only the fastest reported to date for any deep sea organism, but they may be the fastest rates of growth for any marine invertebrate (Lutz et al., 1994). The adult worm has no mouth nor digestive tract; the larvae have a mouth and gut, but the mouth closes over and the gut wall swells up so that all space in the gut is lost. The red coloration in the plume comes from the dense amount of blood hemoglobin occurring there. The hemoglobin picks up a toxic gas called hydrogen sulfide which was released by the vent. Endosymbiotic bacteria then break down the hydrogen sulfide to sulphur, releasing energy used by both the bacteria and the worm to produce proteins, carbohydrates, and other food stuff. Chemical components in the blood of *Riftia* prevent sulfide poisoning (Powell & Somero, 1983).

Turneroconcha magnifica (Boss & Turner, 1980), originally *Calyptogena magnifica* Boss & Turner, 1980 (see Krylova & Sahling, 2020, for the establishment of this monotypic genus *Turneroconcha*) can reach sizes of over 260 mm in length. In contrast to *Riftia*, it is found in areas with very low flow of vent water. The animals have short siphons which do not extend beyond the valves and a large iridescent-pink protrusible foot. They gain exposure to hydrogen sulfide by inserting their well-vascularized foot into cracks that contain the flow. Vent water is usually not detected around their gills; sulfide uptake is probably through the foot, and oxygen and inorganic carbon are obtained through their gills (Fisher et al., 1988).

Moving on to other deep sea ecosystems, "falls" support another unique combination of organisms. Among "whale falls," endosymbiotic bacteria continue to play a role. The genus *Osedax* Rouse, Goffredi & Vrijenhoek, 2004, was described based on two species discovered in January 2002 on the bones of a gray whale carcass at 2891 m depth in Monterey Bay, California (Goffredi et al., 2004). These worms lack a digestive tract and mouth. The genus differs from other Siboglinidae (such as *Riftia*) by lacking the discrete trophosome which houses the symbiotic bacteria. Instead, *Osedax* possess a bulbous posterior ovisac covered by a sheath of green-colored tissue that branches into a vascularized "root" system and invades the bone marrow. Microscopic and molecular analyses of this sheath revealed bacteriocytes containing large rod-shaped bacteria of the microbial order Oceanospirillales, known for heterotrophic degradation of complex organic compounds. Further analyses revealed that the endosymbionts are responsible for the nutrition of this worm. This heterotrophic symbiosis differs markedly from the chemolitho-autotrophic symbioses found in other deep-sea annelids and mollusks that rely on sulfide- or methane-oxidizing bacterial endosymbionts (Rouse et al., 2004). However, the molecular mechanisms and cells responsible for bone digestion and nutrient uptake are still unclear (Miyamoto et al., 2017). Originally known only from whale falls in Monterey Bay, members of the genus have been found in the North Atlantic (Glover et al., 2005), on non-whale vertebrate "falls" (Rouse et al., 2011), and in the fossil record on Cretaceous marine reptile deadfalls of plesiosaurs and cheloniid turtles (Danise & Higgs, 2015). Additionally, there are now over two dozen known species (Vrijenhoek et al., 2009, Rouse et al., 2018).

Returning now to "wood fall" species (see comments on the flatworm *Oligocladus voightae* above), the asteroid *Xyloplax voightae* is a very small deep sea organism that has a different relationship with bacteria. It seems to feed on the bacteria growing on the decaying fallen wood material or the products of wood decay. It might even absorb nutrients directly across its skin surface (Mah, 2008). Very little is known about the biology of these animals; there are only rare collecting records of the three named species in *Xyloplax* Baker, Rowe & Clark, 1986.

Xyloplax voightae has a small body, shaped like a flattened or umbrella-shaped disc, dorsoventrally flattened. Body discoidal, but subdivided into five discrete regions, each in turn subdivided interradially. Each segment with an identical number of tube feet and adambulacral spines. The aboral (upper) surface is covered with flat plates arranged in concentric rings and there are short marginal spines projecting from the periphery. Abactinal disk plates flattened, irregularly round, overlapping, varied in size. Tube feet round, bulbous. Internally the water vascular system consists of two super-oral rings and no radial canals. There is no stomach, gut or anus and it is thought that the velum (membrane) that covers the oral (lower) surface is equivalent to an everted stomach. There are five pairs of gonads, each associated with a fluid-filled sac. Females reach 8.5 mm in diameter; males 4.0 mm.

This genus exhibits a substantial morphological departure from the "typical" Asteroidea, and is considered a sister taxon to all of them (e.g., see Nichols, 1986, Janies & Mooi, 1998, Janies et al., 2011, Linchangco et al., 2017, and Mah, 2022 for taxonomic discussions).

Distribution: Type locality Gorda Ridge, northeast Pacific, on margin of hydrothermal vent field in basalt talus with sediment, sieved from water in recovery box of oak and fir wood blocks that were deployed July 28, 2002. 42º 145.258" N, 126º 42.572" W. Retrieved by Marymegan Daly, inside the DSV *Alvin*, August 31, 2004, 2701 m deep.

Paronesimoides voightae Larsen, 2007 (Plate S237)

Rostrum lacking on this amphipod. Eyes absent. Lateral cephalic lobe prominent and acute, subantennular sinus concave. Body smooth, without posterior dorsal carinations. Epimeron 1 anterior margin tapering in posteroventral direction. Epimeron two subrectangular, corners rounded, anterior margin slightly concave. Epimeron three larger, trapezoid, with large posterior sinus and small posteroventral tooth. Urosomite one without depression. Antenna two with large spiniform process on article three. Coxa one posteroventral margin almost completely covered by coxa two. Telson distal margin smoothly rounded. Largest female 5.3 mm in length; largest male 4.7 mm.

Distribution: Type locality near Wuzza Bare Mount, Juan de Fuca Ridge, 47°47.09' N 127°41.443' E. Depth 2656 m. Larsen examined the amphipod fauna from experimental wood deployments on the Juan de Fuca Ridge. All specimens were taken at least 50 m from the vents themselves by the submersible DSV *Alvin*, deployed from the R/V *Atlantis* under grant #DEB-0103690 to Dr. J. Voight.

Apomatus voightae Kupriyanova & Nishi, 2010 (Plate S238)

Tube of this serpulid annelid up to 3.5 mm wide with lumen of up to 3.3 mm diameter. White opaque, circular in cross section, with smooth surface, circular in internal cross-section, with slight circular collar-like rings, but without flaring peristomes. Median keels absent. It differs from all other *Apomatus* spp. and from all known serpulid species by very unusual flat and ribbon-like branchial radioles. Another very unusual feature of *A. voightae* is the presence of *Apomatus* chaetae in the collar chaetae bundle. Normally in this genus *Apomatus*-type chaetae are absent among collar chaetae but are present in abundance starting from the 3rd chaetiger. In fact, this appears to be the first serpulid ever recorded with *Apomatus* chaetae in the collar bundle.

Distribution: Type locality Patton-Murray Seamounts, Gulf of Alaska, 54º 23-33' N; 150º 18-31' W. Reported from depths of 484-669 m.

Dillwynella voightae Kunze, 2011 (Plates S239a-b)

An elegant and simply whorled shell. Protoconch 390 µm maximum diameter, 0.5 whorls. Teleoconch 2.7 whorls, rather thin and fine, color pure white. Shell 5.8 mm in diameter and 4.8 mm high. Teleoconch smooth except for prosocline growth lines covering all the whorls. Umbilicus a narrow chink, demarcated by inner lip, distinct, elongated, oval, and deep. Aperture moderately D-shaped. Multispiral operculum, yellow, partly brownish, translucent at outer edge.

Radula relatively long in relation to animal's size, 3.5 mm, but narrow, 300 µm. Formula n.5.1.5.n. Central tooth wide, with shaft reduced to a low ridge. Marginal teeth slender, zigzag in shape, elongated and simple, with smooth edge, strongly hooked at tip. Lateral teeth longer than broad, unicuspid tip strongly hooked.

Lignivorous; gut contents consisted of wood fibers. Other species of the genus also live on sunken wood, with the exception of *Dillwynella haptricola* Marshall, 1988, which lives on sunken algal holdfasts.

Distribution: Type locality Gulf of Mexico, off Louisiana, 27º 44.09' N; 91º 14.49' W, on a natural wood fall (in contrast to the experimental wood deployments on which several species listed above were found), 610 m deep. Specimens collected by Janet Voight, using the grab of the DSV *Johnson-Sea Link I*, operating from the R/V *Seward Johnson*.

Echinocletodes voightae George & Müller, 2013 (Plate S240)

A microscopic copepod. Holotype "female body very long and slender, cylindrical, with slight lateral depression. Length including furcus approximately 1869 µm. Whole body densely covered with fine, bristle-like spinules. Cephalothorax reaching about 1/5 of body length (excluding furcus), with several pairs of sensilla. Posterior margin of cephalothorax, free thoracic somites and both components of genital double somite with row of long spinules. Rostrum very small and narrow, with 2 sensilla basally and long, straight tube pore at its tip. All body somites, except telson, exhibit on dorsal and lateral surface triangular-shaped thorn-like spikes each carrying a sensillum laterally. Last thoracic and first abdominal somite fused, forming genital double somite; site of fusion indicated by row of long spinules and 3 pairs of thorn-like spikes. Penultimate abdominal somite carrying 8 thorn-like spikes. Telson approximately square, not reaching combined length of preceding somites. Anal operculum with spinules, flanked by 2 sensilla." (George & Müller, 2013: 103).

Distribution: Type locality Gorda Ridge, Escanaba Trough, Northeast Pacific Ocean, 41° 00.016'N, 127° 29.685'W, at a depth of 3232 m. The type material was collected from oak and fir blocks deployed at Escanaba Trough on 25 July 2002 and recovered 25 months later on 30 August 2004. For detailed sampling and sample treatment information see Voight (2007).

Anne Joffe

(Figure 45)

Anne Joffe was raised in the Boston area and attended Mt. Ida College, where she received her degree in microbiology. She worked for the Centers for Disease Control in both Massachusetts and Maine in that field.

Moving to Sanibel Island, Florida in the early 70's, Anne became very active in her hobby of seashell collecting and drew upon her biology background to get into the science of them. She was an active member of the Council of the American Malacological Union, serving as Treasurer for many years. She also served on the Board of the Conchologists of America, first as the Grants Chair, next as the Trophy Chair, and as President as well. She is still active on the Board as the Convention Coordinator.

Closer to home, Anne was active in the formation of the BMSM, serving twice as President of the Board, and creating the annual Under the Sea Fund-Raising event. Anne also served as the President of the Sanibel-Captiva Chamber of commerce for many years. She has led shelling trips around the world for both the museum and the Sanibel Captiva Shell Club where she has served as President off and on for over 40 years. For well over 20 years, she was the Chair of the annual Sanibel Shell Show. Upon her retirement, the club honored her with a trophy, now given at the show, the Anne Joffe Superstar Award.

She owns and still operates She Sells Sea Shells on the island, a unique shell and gift shop, now celebrating 47 years as an island business. Sadly, both her shop and the BMSM were severely damaged during Hurricane Ida (January 2023), but both have since reopened, although under limited conditions.

Anne has been a judge for well over 40 years for many shell shows in the country and is one of the few capable of judging both the artistic and scientific categories. She also is the author of three books, two on *Shellcrafting*, and *In Memoriam*, a tribute to shell friends who are no longer with us, and has co-authored several books with CShells 3, a company formed with Harlan Wittkopf and S. Peter Dance. Together they have co-authored several small books on the shells of southwest Florida.

† *Bathrotomaria annejoffeae* Harasewych & Kiel, 2007 (Plate S241)

Large trochiform shell, up to 130 mm in length. Surface sculpture of spiral cords and threads, commonly cancellate at intersection with collabral threads. The whorl profile is angulate and non-tuberculate, with a broad ramp and a second carina or angulation, just overlapped on the spire.

Distribution: Type locality Zakaraha, near Toliara, southwestern Madagascar, 6-7 m below surface on plateau cut by river. Oxfordian, Upper Jurassic. *Bathrotomaria* Cox, 1956, was among the most diverse and widespread of the pleurotomariid genera throughout the Middle and Upper Jurassic and Cretaceous.

Parviturbo annejoffeae Rubio et al. in Rubio et al., 2015 (Plate S242)

Very small turbiniform shell, 1.43 mm in diameter, 1.35 mm in height. Teleoconch with 2 3/4 whorls; ornamentation of strong cords, equidistant axial threads which cover the interspaces between cords, and microgranules. Cords have a triangular profile, forming keeps with a sharp edge.

Distribution: Type locality Pigeon Point Beach, Patrick County, Tobago; sublittoral, mid-surf zone, in sand bottom.

"The specific name is after Anne Joffe of Sanibel, FL, USA in recognition of her abiding support and leadership of the American Malacological Society and Conchologists of America" (Rubio et al., 2015: 203).

Paula M. Mikkelsen

(Figure 46)

Paula M. Mikkelsen is a systematic malacologist, with emphasis on marine bivalves, shelled opisthobranchs, and regional molluscan diversity of the eastern U.S., especially the Florida Keys. She holds a B.S. degree from Bates College (1976) and a Ph.D. from Florida Institute of Technology (1994). She served as museum curator at Harbor Branch Oceanographic Institution, DMNH, and the AMNH, and was Associate Director for Science and Publications Editor at PRI. She also served as President (2006-2007) of the American Malacological Society (where she is now an Honorary Life Member). During her career, Paula mentored graduate students at New York University and Florida Institute of Technology, interacted with many societies and shell clubs, taught a field course on marine invertebrates for Cornell University at Shoals Marine Laboratory, designed museum exhibits, and published over 90 journal articles and books. She is also considered an authority on pearls and perliculture. Paula retired in 2015 and now lives in Maine. She continues to be active in malacology, completing manuscripts, participating in several grants, and serving as copy editor for *Journal of Paleontology* and production editor for the journal *Malacologia*. She is a Research Associate at the Field Museum of Natural History, Chicago, Illinois, and PRI.

Pontoniopsides paulae (Gore, 1981) (Plate S243)

Originally *Pontoniopsis paulae* Gore, 1981. See Bruce, 2005.

A small, short, heavy-bodied smooth pontoniine shrimp, 3.2 mm, with a short acute rostrum, and a massive major second cheliped bearing a distinct subdistal medial groove, which appears as if ventrally located when cheliped is seen in lateral view. Carapace smooth, shining, without grooves or ornamentation; rostrum compressed, toothless, faintly carinate, acutely triangular in dorsal view, produced into spinelike point, narrower than eye width, falling short of distal margin of basal antennular segment; adrostral depressions absent; orbital margin distinctly concave, shallowly excavate into frontal margin, basal margin underlying ophthalmic peduncles.

The single male was collected from the ventral surface of the spatangoid echinoid *Meoma ventricosa* (Lamarck, 1816) and is apparently commensal with this species.

Distribution: Presently known only from the type-locality, Carysfort Reef, off Key Largo, Monroe County, Florida.

Coccopigya mikkelsenae McLean & Harasewych, 1995 (Plates S244a-b)

Shell thin, not eroded, white under thick periostracum bearing long hairs. Shell height low. All slopes are straight to slightly convex. Outline in dorsal view elongate-oval, sides nearly parallel; aperture not planar, sides raised slightly relative to ends. Apex slightly posterior to center, slightly below level of highest point of shell, protoconch extending posteriorly. Honeycomb protoconch sculpture, nearly rectangular net pattern. Tip of protoconch immersed in posterior slope of shell. Sculpture of irregular concentric growth lines and faint radial striae, and scattered, radially aligned pits. Radial and concentric sculpture of equal prominence. Length to 6.9 mm, width 4.8, and height 2.0 mm.

Animal lacking pigmented eyes, penis branching off base of right tentacle, tip of penis with single, tapering lobe.

Rachidian tooth of radula with broad upper edge and a small, pointed cusp emerging upwards. Three laterals with one to four secondary cusps on outer edge. Pluricuspid broad, with large main cusp and inner and outer secondary cusps. Marginals similar in size.

Distribution: Type locality off Chateau Belair Bay, St. Vincent, Lesser Antilles (13°10.5'N, 61°15.5'W), 421 m, on wood. Type material collected by John E. Miller with the DSV *Johnson-Sea-Link II*, 23 April 1989.

"We are pleased to name this species after Paula Mikkelsen of the Harbor Branch Oceanographic Museum, Fort Pierce, Florida, who brought the material to our attention" (McLean & Harasewych, 1995: 15-16).

Amerycina mikkelsenae Valentich-Scott in Coan & Valentich-Scott, 2012 (Plates S245a-b)

A moderately compressed, subovate to subquadrate shell; anterior end longer. Narrow, pointed umbones. Anterior and posterior ends broadly rounded; sculpture of dense, fine to heavy, irregular commarginal ribs, fine radial striae in most. Both left and right valves with one small cardinal tooth each. Length to 3 mm.

Distribution: Type locality east side "Porites Reef," Bahía Chatham, Isla del Coco, Costa Rica. Species known to occur from Isla Danzante, Baja California Sur, and Bahía San Carlos, Sonora, in the Gulf of California to Isla La Plata, Manabí, Ecuador.

Collonista mikkelsenae (Huang et al., 2016) (Plate S246)

Originally *Homalopoma mikkelsenae* Huang et al., 2016. See Poppe et al., 2023: 97.

Shell general turbiniform shape, 2.3 mm in diameter. Two protoconch whorls, smooth and creamy white in color, contrasting strongly with the darker colored shell. Teleoconch with about four whorls. On the body whorl are six primary spiral cords. Above these, a quite flat shoulder, decorated with three secondary spiral cords that are in fact rows of rounded beads. Variable color patterns; ribs usually covered with a pattern of equally-spaced reddish dots.

Distribution: Type locality Cordova, Mactan Island, Philippine Islands. Known from the southern Philippine Islands to the Solomon Sea, 140-411 m on gravel bottoms.

"Named after Paula Mikkelsen. In the context of shell collecting the last author was in collaboration with Paula more than 40 years ago. Later, Paula became Curator of Malacology at the AMNH and made her way as an important professional malacologist. She published...in 2007 the important "Seashells of Southern Florida" in collaboration with Rüdiger Bieler. [It] became THE standard work on bivalves of that area. It is with much pleasure that we name this cute *Homalopoma* in honor of Paula Mikkelsen" (Huang et al., 2016: 22).

Lamprohaminoea mikkelsenae Oskars & Malaquias, 2020 (Plates S247a-d)

Animal background color whitish-green translucent, with small solid yellow to orange and dark purple dots distributed randomly throughout the body. Yellow or orange blotches sometimes rimmed with white pigment

on cephalic shield and mantle. Cephalic shield deeply bilobed. Shell oval, smooth, whitish translucent, narrow aperture tapering apically. Animal can reach 15 mm in length, shell to about 10 mm.

Semicircular jaws; rods with denticulate edges.

Radular formula 34-37 x 8-9.1.1.1.8-9. Tricuspid rachidian with broad, sharp cusps; central cusps may have small denticles along lateral sides. Lateral teeth hook-shaped, smooth.

Gizzard plates with 17-21 narrow curved ridges.

Distribution: Type locality Pirotan Island, Gulf of Kutch, Gujarat, India (22º 37' N; 69º 58' E). Occurs throughout the tropical Indian Ocean and western Pacific, from southern Madagascar to the Philippines and Papua New Guinea.

Members of the genus *Lamprohaminoea* Habe, 1952, are characterized by bright colors, possibly signaling the presence of distasteful secondary metabolites. This species can be distinguished from all others in the genus by the small solid orange and purple dots, randomly arranged on a greenish-whitish background. DNA sequencing revealed that *L. mikkelsenae* is the sister species to the type of the genus, *L. cymbalum* (Quoy & Gaimard, 1833). Although both have a greenish background color, *L. mikkelsenae* is distinguished by the presence of purple dots. Formerly reported as *Haminoea cymbalum*, the type species is widely distributed across the Indian and western and central Pacific Oceans, from Mozambique to Hawaii (see Bertsch & Johnson, 1981: 18, and Gosliner et al., 2018: 350).

Yolanda Camacho-García

(Figure 47)

In response to our request for a short biography, Yolanda wrote the following account:

"I am Costa Rican, a first-generation college graduate whose single mother's encouragement, love, and support helped me to fulfill my dream of becoming a marine biologist. I remember being 7 years old, in third grade, and allowed to go to bed late only on Monday night. On that special day of the week, I sat with my family in front of the TV to watch documentaries of the famous French oceanographer Jacques Cousteau. I vividly remember enjoying his adventures to the point where I'd spend weekends playing in my garden, researching every nook and cranny of the 'seascape' with a big aluminum milk can strapped to my back as my air tank, an old rope as a regulator, and my mother's vintage sunglasses as my mask. I have always wanted to explore and learn about marine life.

"In 1988, I enrolled at Universidad Nacional (UNA), located in Heredia, and during the last year of my bachelor's degree I had the opportunity to assist a scientist for 7 months who was studying dolphins at Isla del Coco. During my visit to this remote tropical island, I had the most amazing exposure to sea creatures I could ever imagine. Those days were full of adventures, hard work, and daily in-place animal behavior lessons. During stormy days, when we could not be at sea monitoring the feeding behavior of dolphins, I turned my attention to the intertidal rocky shore mollusks of Wafer Bay and my love for these animals emerged.

"Soon after I graduated from college, I started working as a Curator at the National Biodiversity Institute (INBio), where I worked for 9 years. I was in charge of conducting an inventory of bivalves, shell-less heterobranchs and cephalopods as well as training parataxonomists. During those years I had the great opportunity to meet and work with some of the best-known malacologists in the field such as the late James McLean, Eugene Coan, Serge Gofas, Terrence Gosliner, and Ángel Valdés, among many others. While collecting mollusks on both the Pacific and Caribbean coasts of Costa Rica, little by little my curiosity for sea slugs increased and I was fascinated by their brilliant colors and patterns and extravagant array of shapes and sizes. In 2000, I went to San Francisco State University to work on my master's degree under the supervision of Terry and Ángel with a scholarship from CAS. For my thesis, I worked on the first systematics revision of the genus *Jorunna,* a nudibranch dorid. During my master's and the following years of my doctorate (at the University of Costa Rica), I gained a wide range of field experience with sea slugs as part of international expeditions to Panama, Portugal, France, Monaco, the Philippines, Vanuatu, and Madagascar.

"A couple years after finishing my master's and returning to INBio, our department was shut down (in 2004). Fortunately, I was able to broker the donation of the entire Malacology collection to UCR, where I also started working as a curator. I have been working as a professor at the Biology School at the University of Costa Rica since 2005, as curator of mollusks at the Zoology Museum, and as a researcher at three research centers, one of them the Center for Marine Research and Limnology (CIMAR). I teach several subjects at the University of Costa Rica, such as Malacology, Scientific Illustration, Biosystematics and Taxonomy, General Biology and a Seminar in Sea Slugs" (Yolanda Camacho-García, pers. comm. 25 August 2022).

The nembrothine nudibranch *Tyrannodoris nikolasi* (Pola et al., 2014), was named after her son Nikolás Butvill-Camacho.

Camachoaglaja Zamora-Silva & Malaquias, 2017 (Plates S248a-c)

Living animals of species within this cephalaspidean genus range up to 10 mm in length. Elongate, blunt, flat body; cephalic and posterior shields nearly equal in length. Anterior edge of cephalic shield bilobed. Two asymmetrical caudal lobes. Reduced parapodia. Shell spoon-shaped with outward pointed fringes of protoconch; well-defined acuminated whorl.

Distribution: Type locality of type species (originally) *Chelidonura africana* Pruvot-Fol, 1953, Tenerife Island, Canary Islands, Spain (neotype designation by Martínez et al., 2002).

"This genus is named after Yolanda Camacho-García for her studies [see Camacho-García et al., 2014] on the phylogeny of Aglajidae gastropods and for being the first to reveal the existence of this clade of exclusively Atlantic species" (Zamora-Silva & Malaquias, 2017: 38). Seven species are recognized within this genus.

Agra yola Erwin, 2000 (Plate S249)

Unique among the eponyms is this species of carabid ground beetle. Head and pronotum are markedly punctate. Antennae markedly long for the genus, with an elongate and robust scape (shaft). Mouthparts, antennae, forepart of the head, tibia, tarsomeres, coxas, and femoral apex testaceous. Base of head and neck, femoral base and venter piceous (glossy brownish black in color). Elytra with deep blue metallic sheen. Length 12.43 mm, 3.38 mm wide.

Distribution: Known only from female holotype, collected 9 km south of Santa Cecilia, Estación Pitilla, Guanacaste Province, Costa Rica, 700 m.

This species was found as part of the INBio project of Costa Rica, for which Yolanda Camacho-García is the Curator of Mollusca. In this paper, Erwin named another beetle *Lebia inbio*, in honor of the project. There have been several dozen insects given the epithet "*inbio*." The nudibranch *Trapania inbiotica* Camacho-García & Ortea, 2000, was named after INBio and the people of Costa Rica ("Ticos").

Volvarina yolandae Espinosa & Ortea, 2000 (Plates S250a-b)

Smooth and brilliant shell, elongate, fusiform. Short, but distinct spire. Protoconch large, globose and protruding; the fourth and last whorl occupies nearly 86% of the body length. Aperture almost as long as the last whorl. Columella with four unequal folds, the central two greater than the other two. Basic shell color rose brown, with five dark orange-brown bands on the last whorl. Shell 6.4 mm long, 2.5 mm wide.

Animal color white with red splotches on the anterior of the foot, the tentacles, and the siphon.

Radula with 39-44 rows of teeth, each tooth with 16-21 cusps of varying size.

Distribution: Type locality Manzanillo, Limon Province, Caribbean coast of Costa Rica.

Eubranchus yolandae Hermosillo & Valdés, 2007b (Plates S251a-b)

Translucent gray-white body with pale blue areas along the sides below the cerata. Head with two paired triangular orange patches between the rhinophores and oral tentacles. Cerata long, wine red, with distal orange band and white tip. Smooth rhinophores with a distal orange band and lighter tip. Reaches 8 mm in length.

Distribution: Type locality Los Arcos, Bahía de Banderas, Jalisco-Nayarit, Mexico, 17 m deep. Also known from Loreto, Baja California Sur, Mexico (Behrens et al., 2022).

Sabrina Medrano

(Figure 48)

Sabrina Medrano (1986-present) is currently a wildlife biologist with a southern California environmental consulting company. She was born in Whittier, California, where she grew up. After graduating from Glen A. Wilson High School, she earned an Associate of Science degree in mathematics and science at Riverside City College (2004-2009), followed by completion of a Bachelor of Science degree in zoology (2013) and a Master of Science degree in biology (2017) from California State Polytechnic University in Pomona (hereafter Cal Poly Pomona). She has been an adjunct professor at Citrus College in Glendora, California, as well as a lecturer at Cal Poly Pomona.

Sabrina's interest in marine science began when she was an undergraduate assistant in the biology lab of Professor Ángel Valdés at Cal Poly Pomona. Once exposed to Valdés' well-known passion for sea slugs, she became fascinated with Heterobranchia and marine science in general. She has coauthored a molecular and morphological study of *Polybranchia* Pease, 1860 (Medrano et al., 2018) and a guide to heterobranch sea slugs from Bocas del Toro, Panama (Goodheart et al., 2016). The latter paper increased the known distribution of heterobranch sea slugs in the Bocas del Toro region from 19 to 82, with at least one or more discussed species being possibly new to science.

Of Mexican-American descent, Sabrina is a first-generation college graduate and the first in her family to pursue a career in science. She is also a certified SCUBA diver and skilled photographer, abilities she finds valuable in her own research and for assisting other workers in the field. (Biographical information courtesy of Sabrina Medrano, pers. comm. 28 July 2019.)

Microglyphis sabrinae Valdés, 2019 (Plate S253)

Shell to 2.9 mm. Body whorl large occupying most of shell length. Aperture about 9/10 of shell length, narrowing progressively towards apex, posterior end narrow. Spire short, with two whorls; columella thickened with basal fold; surface with faint punctuated spiral grooves.

Distribution: Type locality Aleutian Trench, Alaska (54º 18.056' N; 157º 12.107' W), 4809 m deep.

Jennifer B. McCarthy

(Figure 48)

Jennifer B. McCarthy is a graduate of California State Polytechnic University, Pomona, where she completed a Bachelor of Science degree in 2014 and Master of Science degree in 2017. Her master's degree thesis was on the systematics and taxonomy of the bivalved sea slug family Juliidae, also the subject of a presentation titled "The Slug within the Bivalve: Reconciliation of Shell-Based Taxonomy and Molecular Data in Juliidae (Heterobranchia: Sacoglossa)" that she gave at the annual meeting of the Western Society of Malacologists at California State University, Fullerton, in 2015. She has been a Ph.D. student in the Department of Integrative Biology at the UCB since 2017. Also in 2017, she joined the Patel Lab of the University of Chicago's Marine Biological Laboratory, in Woods Hole, Massachusetts, where her interest is in investigating the combinatorial control of Hox genes in gammarid amphipod limb specification.

Jennifer is a coauthor of three journal publications (Goodheart et al., 2016, Valdés et al., 2017, and McCarthy et al., 2017) which resulted in the naming of species such as *Placida barackobamai* McCarthy et al., 2017, and *P. kevinleei* McCarthy et al., 2017.

Bogasonia jennyae Valdés, 2019 (Plate S252)

Elongate, fragile, umbilicate shell, reaches 3.8 mm in length. Spire elevate with three whorls; body whorl large, about three-fourths of shell length. Columella slightly thickened; surface smooth except for two conspicuous keels.

Radula with unicuspid rachidian tooth.

Distribution: Type locality west of Point Croley, southeast side of Kuiu Island, Aleutian Islands, Alaska (56º 06.00' N; 134º 48.53' W), from 346 m depth. Also known from Agattu Island, 112 m. Dr. Valdés named this and the preceding species in honor of his graduate students for their "help photographing specimens and gathering specimen data" (Valdés, 2019: 249, 262).

Alicia Hermosillo-McKowen

(Figure 49)

Alicia Hermosillo-McKowen has always been fascinated by the ocean and loved any documentary about it. She started diving in the 1990s. Most of her first dives were in the Pacific coast of Mexico, where the visibility is iffy. Once her diving skills got better, Alicia got interested in the smaller animals. When she saw her first nudibranch, *Chromolaichma sedna* (Ev. Marcus & E.R. Marcus, 1967), something clicked, and she just had to find more of those beautiful creatures. She became an avid diver and macro-photographer and began traveling to other oceans. As she describes, "I could not believe my eyes on my first dive in the Indo-Pacific. The diversity of shapes, sizes and colors was beyond my wishes. And the field guides, the books with pictures, names and descriptions made the experience even better" (A. Hermosillo-McKowen, pers. comm. 23 July 2022).

When Alicia returned to Mexico, she found there were some books about nudibranchs of the Eastern Pacific, but soon she was discovering species that were not in them. She had the opportunity to dive (figuratively and literally) into the topic and decided to go to graduate school for a degree in marine biology.

From 2002 to 2006 she worked on her Ph.D. thesis at Universidad de Guadalajara researching the ecology of nudibranchs of Bahia de Banderas (where the touristic town of Puerto Vallarta is located). Her skills using digital photography greatly increased, and recording the findings became easier and easier.

During the years that followed Alicia published in and collaborated on books and field guides, scientific and general public articles, and gave talks to interested divers and photographers. She found many species that were unknown, that she has since named, including eponymous species described herein for Kirstie Kaiser, Sandra Millen, and Yolanda Camacho-Garcia. In turn, she has had three species named in her honor. (Biographical information courtesy of Alicia Hermosillo-McKowen).

Goniodoridella mexicorum (Gosliner & Bertsch, 2004) (Plate S254)

Originally *Okenia mexicorum* Gosliner & Bertsch, 2004. See Paz-Sedano et al., 2024: 7.

Small animals, 5-8 mm in length, with a moderately wide and ovoid body. Body color is translucent white with an extensive opaque white patch on the center part of the notum that extends from the level of the rhinophores to the posterior end of the foot. There are brick red pigmented areas external to this white patch that extend along the notal margin and are also present on the eight to ten pairs of lateral papillae. There is a single,

elongate medial papilla at the posterior end of a long, elevated medial ridge, located immediately anterior to the gill. The uniformly white rhinophores have 7-9 simple lamellae. There is a mottled brick red pigment on the surfaces of the five to six unipinnate gill branches.

Radula formula is 15 x 1.1.0.1.1.

Distribution: Type locality is Mismaloya, Bahía de Banderas, Jalisco, Mexico. Also known from Ensenada de los Muertos, Baja California Sur, and from Cuevitas, Bahía de los Ángeles, Baja California, Mexico. This latter site is a new record, a northern range extension based on a one cm long individual photographed by Craig Hoover on 10 January 2020 subtidally in 15 feet of water.

This species was named in honor of Alicia Hermosillo and Orso Angulo-Campillo. The masculine plural ending is used for eponyms honoring a woman and a man, in this case "of the Mexicans" Alicia and Orso.

Discodoris aliciae Dayrat, 2005 (Plate S255)

This dirty-looking, cryptic dorid reaches 45 mm in length. Body color dull orange to yellow, covered with dark gray-brown complexly-branched papillae. Ventral surface of notum margin light yellow-orange with brown spots.

Radular formula 38 x 42.0.42; smooth upright cusps.

Distribution: Type locality inside a cave, El Morro, Bahía de Banderas, Nayarit, Mexico, 23 m deep. Known south to Panama, between depths of 8-24 m.

Curiously, this species was originally named without a generic designation. The author was experimenting with an "epithet-based" nomenclature.

Oxynoe aliciae Krug et al., 2018 (Plates S256a-c)

Two large green parapodia, with off-white papillae and blue spots, enclose the shell. Shell variable in shape, some specimens with a narrow and elongate shell, but others with shorter and wider shells more typical in shape for the genus. Animal reaches 28 mm in length.

All specimens had eight teeth in the ascending radular limb, but tooth count in the descending limb ranged from 8–22 teeth. Length of active tooth ranged from 128–183 μm; teeth uncurved, with lower L:D ratio (3.6 ± 0.2 s.d.) typical for *Caulerpa sertularioides*-type algal consumers. Some denticles worn or broken off near tips. Ascus 50 μm long, containing one transitional tooth and rod-like pre-radular tooth articulated with radular ribbon.

Penis short, with circular body ~500 μm in radius in a 13 mm long specimen. Penis tip short, ~200 μm long, adorned with three papillae.

Development mode is planktotrophic, with mean egg diameter <73 μm (Goddard and Hermosillo, 2008). No extra-capsular yolk is present; one embryo per capsule.

This species feeds on the toxic green alga *Caulerpa scalpelliformis* and secretes a milky substance when disturbed (Behrens et al., 2022: 38).

Distribution: Type locality Puerto Escondido, Oaxaca, Mexico. Also known from Bahía Magdalena, Baja California, southern Gulf of California, and along the Mexican Pacific south to Panama and the Galápagos Islands.

Oxynoe panamensis Pilsbry & Olsson, 1943, had been applied to eastern Pacific specimens, but it was introduced based on material collected from the Caribbean; therefore, the new name *Oxynoe aliciae* was introduced for eastern Pacific specimens. The Caribbean species, based only on an empty shell, should be considered a *nomen dubium* (Krug et al., 2018: 996).

Unidentia aliciae Korshunova et al., 2019 (Plate S257)

The body is elongate, holotype 7.2 mm in length preserved. Distinct notal edge absent. Smooth rhinophores similar in size to oral tentacles. The cerata are finger-shaped to fusiform, placed on seven to nine elongate distinct elevations with ceratal clusters along dorsal edges. The anal opening is placed on the right side below second large ceratal clusters and can be described as pleuroproctic towards acleioproctic position. The reproductive openings lateral, below first anterior cluster of papillae.

The ground color is creamy-yellowish with distinct white and purple markings. The digestive branches in the cerata are light creamy to pinkish. There are long white bands on the ceratal tops with opaque white scattered specks and a conspicuous violet subapical ceratal band of cerata and conspicuous violet subapical ceratal band. A tear-drop shaped violet marking is prominent on the oral surface of the head. There is an interrupted thin violet middorsal line, initiating behind the rhinophores and terminating at the tip of the tail. The oral tentacles bear thick violet pigment in the basal half and are densely covered by opaque white pigment in the distal half.

The jaws are broadly triangular, masticatory borders with blunted denticles. Radular formula is 30 × 0.1.0. The central tooth with up to 6 to distinct denticles. The central cusp smooth, distinctly widened in the middle and rapidly narrowed towards the tip.

Feeds on hydrozoans of the genus *Corydendrium* Beneden, 1844.

Distribution: Type locality artificial reefs at Chalok Baym, Koh Tao Islands, Thailand, 7 m deep. Also known from the Australian Gold Coast.

Karin Fletcher

(Figure 50)

Karin Fletcher was born in Virginia in the 1960s. She graduated from college with a Bachelor of Arts degree in poetry writing, spent a year in art school, composed, recorded, and traded industrial music in cassette form with other like-minded underground musicians, moved to Seattle in her mid-20s, and got a tattoo of Medusa. She learned to scuba dive in 2006 which is also when she first learned there were molluscs called nudibranchs. Because Karin couldn't find any recent data about nudibranch diversity and abundance in the Salish Sea, Washington, in 2009 she started gathering that data and continues to do so. Karin began collecting nudibranch specimens in 2012, some of them for students affiliated with the CAS, which led to the reinstatement of *Acanthodoris atrogriseata* O'Donoghue 1927. Other specimens went to researchers elsewhere, and she began international collaborations on nudibranch papers in 2016 with colleagues from Russia, Sweden, Norway, the United Kingdom, Japan, Thailand, and Brazil, continuing to do so today. Her results have included describing the new aeolid species *Zelentia willowsi* (Korshunova et al., 2018) and *Pacifia amica* (Korshunova et al., 2017); describing several new *Cadlina* species, including *C. sylviaearleae* (Korshunova et al., 2020a); and establishing (in Korshunova et al., 2020b) the generic identity of *Cuthonella punicea* (Millen, 1986). She has also contributed data to a recent publication about the diversity of marine invertebrates in the waters of Galiano Island, British Columbia. Karin is a coauthor of the recently published *Nudibranchs & Sea Slugs of the Eastern Pacific* (Behrens et al., 2022), an update of *Eastern Pacific Nudibranchs: A Guide to Opisthobranchs from Alaska to Central America* (Behrens & Hermosillo, 2005)

Myja karin Martynov et al., 2019 (Plates S258a-b)

This remarkably cryptic aeolid nudibranch is found among the polyps of its prey hydroid, *Pennaria*. It has a very elongate body, and is about 12 mm in length alive. Smooth rhinophores approximately one and a half times longer than the oral tentacles. Dorsal papillae cylindrical to spindle-shaped, forming nine or ten ceratal rows along dorsal edges. Apices of papillae form moderate oval swellings. Ground color translucent gray. Ceratal tops dull reddish, apices with white spot.

Radula uniserial, with a formula of 17 x 0.1.0. Central tooth narrowly triangular with very sharp top and up to 30 small denticles, irregular in size, often hard to delineate with very distinct dorsal denticle furrows and fine rib-like structures.

Egg mass a convoluted ribbon. Veligers are planktonic, with turbospiral shell.

Distribution: Type locality Osezaki, Shizuoka Prefecture, Honshu, Japan, 7-15 m deep. Occurs along the central parts of the Pacific coast of the main Japanese Island of Honshu.

"In honour of Karin Fletcher (Port Orchard, Washington), who has made considerable recent efforts in uncovering hidden diversity and understanding of the nudibranch fauna of the NE Pacific" (Martynov et al., 2019: 98). The species name is herein considered a noun in apposition, not requiring the genitive ending.

Rose D'Attilio (1914-1994)

(Figures 51, 56, 58)

Rose's husband Anthony D'Attilio (1909-1997), born in southern Italy, immigrated to the US as a young boy of three years old. His interest and talent led him to study drawing and painting. In 1934 he began a course in creative design (studying mural painting) at the Beaux Arts Institute of Design and "married Rose Hartman, who became his life-long companion. Their marriage produced two children, Sandra and Lawrence, and eventually seven grandchildren and two great-grandchildren" (Hertz, 1998). In 1938 Rose sent Tony some shells from Florida where she was on vacation, sparking their lifelong interest in mollusks. They lived in New York, where Anthony was a designer with Harriton Glass Works. They were both active members of the New York Shell Club. William Emerson wrote (1998), "Tony D'Attilio was a good friend and a valued colleague. When I arrived at the American Museum of Natural History fresh out of Berkeley in October of 1955, Tony and his wife, Rose, went out of their way to introduce me to the intricacies of the Big Apple and to make me feel most welcome."

When Tony retired from the glass business, "he and Rose decided to relocate to California. While living briefly in Laguna Beach with their daughter Sandra, Tony was offered a part-time position at the SDNHM as assistant in the Department of Marine Invertebrates, at the request of its then curator Dr. George E. Radwin. The D'Attilios soon moved to San Diego where Tony, at 60 years of age, began another new career!" (Hertz, 1998). She and Tony quickly became integral members of the west coast malacology community, active in the events of the WSM and the SDSC. Rose collected shells and fossils because she enjoyed their beauty. She also worked part -time as a treasured employee for many years at the La Jolla Cave and Shell Shop. At SDSC functions Rose could often be seen enjoying the music and interpreting it in her own special way.

When she died in 1994, Tony moved to Laguna Beach, Orange County, California, to live with his daughter Sandra and her family. He was left bereft for his cherished wife and inseparable companion. He considered her "My Rose" (D'Attilio & Myers, 1985).

Favartia rosamiae D'Attilio & Myers, 1985 (Plates S259a-b)

Moderately broad, fusiform shell, reaching 17.7 mm in length. Elongate spire; five to six postnuclear whorls. Four varices on body whorl, five on penultimate whorl. Thick varices on body whorl, beginning at suture above shoulder and descending anteriorly to the canal. Spiral sculpture consists of six strong cords terminating in spines. Color variable, creamy white to tan with broad brown or red bands exteriorly.

Long, narrow radula, with about 110 rows of teeth. Rachidian tooth with five strongly projecting, stocky short cusps; the central cusp extends above the rachidian plate.

Distribution: Type locality Cebu, Bohol Straits, Philippine Islands, 75-100 m deep. Known also from Okinawa, Japan.

The etymology for this species was especially personal: "This species is named for Rose D'Attilio, wife of the senior author, who first introduced him to seashells by sending him a box of shells from Florida in 1938. The Italian 'rosa mia', which means my Rose, is Latinized into the genitive form ending" (D'Attilio & Myers, 1985: 60).

Joyce Gemmell (1924-2023)

(Figures 52-53)

Joyce was born on 17 May 1924 to a third generation of Wisconsin dairy farmers. During her remarkable life, she was an artist, field biologist, historian, horticulturist, and conchologist. Her first interaction with plants was at 10 years old when she had to mow the front lawn of their home in southern California. Reminiscing in a 2001 brief autobiography, she wrote, "The only thing I liked about it was the smell."

In 1950 Joyce married Bill Gemmell in Levittown, New York, and after about three years they moved to Paradise, in northern California. The next decade was their "apple education years" (Gemmell, 2001). They had purchased a ten-acre piece of property with a sixty-year-old apple orchard on it. Bill operated a land surveying business, while they both worked on their own orchard, and she did custom pruning for others. They helped establish a local marketing co-op, built a packing shed, and operated a small market to sell the fruit.

When Bill sold his business, he and Joyce retired to San Felipe, Baja California, Mexico, in 1964, establishing their home in the trailer park Club de Pesca. Bill became a fisherman, and Joyce started to collect shells. She came to San Diego in the mid-1960s and met SDSC member Ruth Purdy, a collector and dealer, who advised Joyce on setting up a scientific shell collection and introduced her to other collectors in San Diego and southern California. For the next eleven years, Joyce explored the diverse collecting areas around San Felipe, with occasional forays to Puertecitos and San Luis Gonzaga. The Gemmell's trailer became a stopping-off place for shell collectors, scientists, and people interested in natural history of all kinds. Using old map cabinets (from Bill's former career) and cardboard trays, Joyce set up her new collection and kept accurate collecting records on file cards. They explored the tide pools around San Felipe in their quest for sea shells, often adventuring across the middle of the desert to an unpopulated beach for collecting in Bill's dune buggy and Dave Mulliner's truck. Many longtime SDSC members have fond memories of visits to Joyce and Bill's home in San Felipe and smile on recalling early morning wild rides with Bill or Joyce at the wheel of the dune buggy as it barreled through the desert to catch a low tide at some remote beach (preceding information obtained from various *Festivus* articles, especially Gemmell et al., 1987).

During the late 1960s, local shell-collector Ellen Brennan organized a trip for members of the Los Angeles-based Conchological Club of Southern California. From 27-29 June 1968 they trawled at 16 stations in the vicinity of Consag Rock, approximately 20 miles offshore from San Felipe, recording 217 species of mollusks (DuShane & Brennan, 1969). Members of the expedition included Twila Bratcher, Ellen Brennan, Don Cadien, Billee Dilworth, Joseph and Helen DuShane, William and Joyce Gemmell, Roy Poorman, William E. Viney, and Erwin and Gertrude Wahrenbrock. Note that four of the lady participants have been honored with eponyms!

When author Hans Bertsch had the honor of visiting with Joyce in her El Cajon hospice shortly before she passed away, he asked her about San Felipe. She enthusiastically responded, "I can't tell you how much fun we had!" (Joyce Gemmell, pers. comm. 13 September 2023).

When Joyce and Bill Gemmell returned in 1976 to San Diego to live, the future of her shell collection became a matter of concern. Joyce, Barbara Myers, and Carole Hertz discussed a project on the Gemmell collection. Then Curator of Marine Invertebrates at the SDNHM, Hans Bertsch, invited them to use space within his department to house and study the collection, and encouraged Anthony D'Attilio to assist them. Their research resulted in the publication of numerous articles in *The Festivus* between 1970-2001, as well as publication of their jointly-authored work, "A faunal study of the bivalves of San Felipe and environs, Gulf of California: From the Gemmell Collection (1965-1976)."

While working at the SDNHM, Joyce continued with her passion for plants. In describing the presence of the introduced garden snail *Otala lactea* (Müller, 1774) in San Diego County, Carole Hertz (1985) wrote, "Joyce Gemmell, Department associate and vegetable gardening instructor at Foothills Adult Education Center, brought the clump of 'decorated' buckwheat to the San Diego County Department of Agriculture, Weights and Measures. Study of their published records showed that *Otala lactea* has been in the county for some time." The results were a marvelous nexus of malacology and botany!

In her later years of "retirement," Joyce was an active participant and mentor for the Master Gardener Association. An article in the *San Diego Union-Tribune* describes her efforts with a community garden in El Cajon: "Growing up during the Great Depression, Joyce Gemmell would help her mother pick tomatoes in the family's garden. Now 85 years old, Gemmell carries on the tradition by cultivating corn, squash and other produce for her own table and to give away to others, including donations to the Santee Food Bank.

"But instead of growing plants in a home garden, Gemmell, who earned a master gardener certification from the University of California Cooperative Extension, is one of dozens of people who use a community garden on the grounds of Santee's Edgemoor Hospital. In recent years Gemmell, an El Cajon resident, has lived in a mobile home or an apartment, where she hasn't had enough space for a garden" (Clock, 2009).

Ever the scientist, Joyce was also one of the experts available to answer questions at the February 2012 Day of Celebrating Community Gardens in El Cajon. A few years later Joyce carefully recorded the daylight length and high and low temperatures in El Cajon for a year to see what effects these had on tomato growth (Gemmell & Lazaneo, 2017).

Sadly, Joyce's husband Bill passed away in March 1988, at the age of 93. A long-lived shell expert and horticulturist, Joyce Gemmell passed away at the age of 99 on 22 September 2023. Her collection and papers are housed in the SDNHM.

Solen gemmellae Cosel, 1992 (Plates S260a-d)

Originally, wrong genitive ending, *Solen gemmelli* Cosel, 1992; herein corrected following the ICZN rules on Latin possessive endings. First illustrated as *Solen* new species A in Gemmell et al., 1987.

Long, thin, translucent shell, reaching 63 mm in length; somewhat variable in outline, slightly curved to occasionally straight. Exterior smooth, with faint growth lines. Valves entirely white without coloration, periostracum light yellowish green.

Distribution: Type locality San Felipe, Baja California, between Playa Alicia and El Paraiso, Mexico. Known from El Golfo de Santa Clara near the head of the Gulf of California, to Guaymas, Sonora. It appears to be a Gulf of California endemic.

The species is found on sand bars, from the intertidal zone to 90 m deep.

A special announcement of this eponym was appropriately published in *The Festivus* (Hertz, 1993).

Conclusion

> "Women have always been anomalies in science. A common streak of boldness and self-confidence, determination, preparedness, resilience, and fierce independence run through many of their stories. The ability to achieve in science is not the monopoly of any gender, race, or nation. Adversity can be an opportunity as well as an impediment" (Hickman, 2022).

Rather than acknowledging innovation and discovery in its gender bias, science has all too often followed society's cultural norms. Expectations of roles and persisting stereotypes have created impediments to women, people of color, and members of under-represented groups. Today we are seeing the changes that have been long overdue. The recent Bearded Lady Project spurred dozens of paleontologists–all of them women–to glue on beards (Figure 54), challenging the traditional face of science (Looy & Duijnstee, 2019).

In this paper we have presented the accomplishments and honors given to women scientists, all of them past or present members of the Western Society of Malacologists. Each is a professional in her own way—some are housewives, others are professors, museum curators, investigators, or owners of shell shops. All have shown the value of diversity and inclusiveness in the scientific endeavor. We congratulate them again, and we hope that our work will serve as an encouragement to recognize that doing science is part of the universality of the human endeavor.

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Eponymous WSM Women, People Figure Explanations 1-58

Figure 1. Elsie Chace as a young lady; no date. Photo courtesy of Roger Chace (†30 December 2021), her grandson.

Figure 2. Elsie and Emery Chace, with Ida Shepard Oldroyd; Palo Alto, California, 1933. Photo from the archives of the SDSC.

Figure 3. Elsie Chace; AMU-PD meeting; San Diego, California, June 1965. Photo by Eugene V. Coan.

Figure 4. Crawford and Jean Cate, A. Myra Keen, and Elsie M. Chace; AMU-PD Meeting, San Diego, California, 1965. Photo by Eugene V. Coan.

Figure 5. Jean Cate; Conchologists of America Meeting, San Diego, California, June 1989. Photo by David K. Mulliner.

Figure 6. Helen DuShane; WSM meeting, Pacific Grove, California, July 1973. Photo by James H. McLean.

Figure 7. Beatrice L. Burch; WSM meeting, Santa Barbara, California, August 1985. Photo by James H. McLean.

Figure 8. Lois and Bill Pitt; undated family photo.

Figure 9. David K. and Margaret F. Mulliner; "Beachcombers' Ball," SDSC, 16 September 1978. Photo from SDSC archives.

Figure 10. Twila Bratcher, Carole M. Hertz, Kirstie L. Kaiser, and Billee Dilworth. Undated photo in the SDSC archives; possibly 1987 WSM meeting, San Diego, California.

Figure 11. Twila Bratcher and Carol C. Skoglund; SDSC auction, April 1991. Photo by David K. Mulliner.

Figure 12. Kirstie Kaiser underwater at Île de Clipperton, tropical eastern Pacific, April 2007. Photo by Alicia Hermosillo.

Figure 13. Carole M. Hertz, Carol Skoglund, and Kirstie Kaiser; at the home of Jules and Carole M. Hertz, San Diego, California, July 1998. Photo courtesy Kirstie Kaiser.

Figure 14. Carol Skoglund; SDSC auction, April 1991. Photo by David K. Mulliner.

Figure 15. Nora Foster and James H. McLean; WSM meeting, San Diego, California, 29 June 2010. Photo by Hans Bertsch.

Figure 16. Nora Foster and Adriana Ivette Cadena; Dalton Highway, Alaska, 18 July 2016. Photo by Hans Bertsch.

Figure 17. Martha Reguero, María Moreno, and Jazmin Ortigosa; WSM meeting, Santa Cruz, California, 26 June 2012. Photo by Hans Bertsch.

Figure 18. Edna Naranjo-García collecting in Oaxaca, Mexico, 2008. Photo by Leticia Huidobro (courtesy of Edna Naranjo-García).

Figure 19. At the Ice-Breaker (Rompehielos), RENAMAC XV Meeting of the Sociedad de Malacología de México, A.C. Held at Mérida, Yucatán, México, October 2019. From left to right: Hans Bertsch, Esteban Félix Pico, Martha Reguero, Luis José Rangel, Silvia Arias García, Jackelina Gamboa Aguilar, Edna Naranjo, and María Teresa Olivera Carrasco. (Photo HB collection).

Figure 20. Sandra Millen and Michael D. Miller; Bahía de los Ángeles, Baja California, February 1999. Photo by Hans Bertsch.

Figure 21. Judith Terry Smith at work in the "Roost," a converted chicken coop in northeast Pennsylvania, 2022. Photo courtesy Judith Terry Smith.

Figure 22. Carole Hickman studying ammonite *Pachydiscus catarinae* mold, Late Cretaceous Rosario Formation, in hillside behind campus of CET-MAR, El Sauzal, Baja California, Mexico. WSM field trip, June 2001. Photo by Hans Bertsch.

Figure 23. Carole Hickman, Jann E. Vendetti, Corinne (with butterflies) and Nadia Vendetti-Kwon, Gene Kwon, and Judith Terry Smith; banquet WSM meeting, Los Angeles, California, 22 June 2017. Photo by Hans Bertsch.

Figure 24. LouElla R. Saul; LACM Invertebrate Paleontology, North Grand Avenue offsite facility, Los Angeles, California, 2007. Photo by Harry F. Filkorn.

Figure 52. Joyce Gemmell and Jules Hertz; San Felipe, May 1975. Photo SDSC archives.

Figure 53. Joyce Gemmell examining a shell, Department of Marine Invertebrates, SDNHM, March 1979. Photo by George A. Hanselman.

Figure 54. Carole S. Hickman; "Bearded Lady Project," University of California, Berkeley, Department of Paleontology, August 2019. Photo Robert Sanders, UCB press release, 15 August 2019.

Figure 55. Group photo of First Annual Meeting of WSM, Asilomar, Pacific Grove, California, 1968, and guide to individuals. Eponymous-honored women in the photo are Twila Bratcher, Beatrice Burch, Jean Cate, Elsie Chace, Helen DuShane, A. Myra Keen, Lois Pitt, Carol Skoglund, and Judith Terry (Smith).

Figure 56. Group photo of Second Annual Meeting of WSM, Asilomar, Pacific Grove, California, 1969, and guide to individuals. Women in the photo with eponymous species are Beatrice Burch, Jean Cate, Rose D'Attilio, Helen DuShane, A. Myra Keen, Lois Pitt, Carol Skoglund, and Judith Terry (Smith).

Figure 57. Group photo of Fifth Annual Meeting of WSM, University of Redlands, California, 1972, and guide to individuals. Women in the photo with eponymous species are Beatrice Burch, Thelma Crow, Helen DuShane, A. Myra Keen, Lois Pitt, and Carol Skoglund.

Figure 58. Joint meeting WSM and AMU, San Diego, California, June 1975, and guide to individuals. Present in the photo are 14 eponymous honorees: Constance Boone, Beatrice Burch, Twila Bratcher, Jean Cate, Rose D'Atillio, Billee Dilworth, Helen DuShane, Ruth Greenberg, Carole Hertz, A. Myra Keen, Lois Pitt, Carol Skoglund, Judith Terry Smith, and Emily Vokes.

Eponymous WSM Women, Species Plate Explanations S1-S262

Plate S1a. *Monadenia chaceana* Berry, 1940, apertural view. Collected by Allyn G. Smith, banks of Shasta River, 2-3 miles from mouth, Siskiyou County, CA, 11 September 1934. Photo by Barry Roth.

Plate S1b. *Monadenia chaceana* Berry, 1940, umbilical, basal view. Photo by Barry Roth.

Plate S2a. Apertural view, holotype (LACM 1062) of *Micrarionta chacei* Willett, 1940 [= *Herpeteros chaceorum* (Willett, 1940)]. Collected by G. Willett, 9 miles north of Ensenada, Baja California, 22 February 1937. Photo by Lindsey T. Groves.

Plate S2b. Umbilical view of *Micrarionta chacei* Willett, 1940, holotype (LACM 1062). Photo by Lindsey T. Groves.

Plate S3a. *Chrysallida elsiae*, Willett, 1948, holotype (LACMIP 1071). Original Plate 4, Figure 3.

Plate S3b. Information on *Chrysallida elsiae* Willett, 1948, from the working notebooks of James H. McLean. Image courtesy of Lindsey T. Groves.

Plate S4. * *Pusula elsiae* Howard & Sphon, 1960 [= *Pseudopusula californiana* (Gray, 1827)]. Original illustrations, Plate 7, Figure 1 (holotype SDNHM 45924), Figures 2-3 (paratypes), Figure 4 (hypotype).

Plate S5a. *Ischnochiton chaceorum* Kaas & Van Belle, 1990, paratype (VB 2803a). Figure 75.

Plate S5b. *Ischnochiton chaceorum* Kaas & Van Belle, 1990. Specimen possibly part of the original material collected at Cholla Bay, Puerto Peñasco, Sonora, Mexico, by Emery P. Chace, February 1957. Photo by Roger N. Clark.

Plate S6. *Zoila jeaniana* Cate, 1968, holotype (WAM 1320-67). From original Plate 24, Figure 13.

Plate S7. *Mitromica jeancateae* (Sphon, 1969), apertural and dorsal views of holotype (LACM 1202). Photos by Eddie Hardy.

Plate S8. *Pseudosimnia jeanae* (Cate, 1973), apertural and dorsal views of holotype (LACM 1187). Photos by Eddie Hardy.

Plate S9a. * *Terebra dushanae* Campbell, 1964 [= *Terebra bridgesi* Dall, 1908], apertural and dorsal views of paratype 46 (LACM 1208). Photos by Eddie Hardy.

Plate S9b. * *Terebra dushanae* Campbell, 1964, apertural and dorsal views of paratype 52 (LACM 1208). Photos by Eddie Hardy.

Plate S9c. *Terebra bridgesi* Dall, 1908, specimen identification by Campbell (1964). Photos by Eddie Hardy.

Plate S10. *Thelecythara dushanae* McLean & Poorman, 1971, apertural and dorsal views of holotype (LACM 1534). Photos by Eddie Hardy.

Plate S11a. *Nassarina helenae* Keen, 1971, apertural view of holotype (CASIZ 64766). Photo courtesy of Elizabeth Kools, California Academy of Sciences.

Plate S11b. *Nassarina helenae* Keen, 1971, dorsal view of holotype (CASIZ 64766). Photo courtesy of Elizabeth Kools, California Academy of Sciences.

Plate S12. *Opalia dushaneae* García, 2004, apertural and dorsal views of holotype. Photo by D. Brabant, collections of MNHM, Paris.

Plate S13. *Claviscala dushaneae* Brown, 2019, holotype. Photo by Leonard G. Brown.

Plate S14. *Opalia burchorum* DuShane, 1988, apertural view of holotype (BPBM 8974). Original Figure 5.

Plate S15a. *Vexillum burchorum* Salisbury, 2011, apertural view of holotype (ASNP 424114). Photo by Paul Calloman.

Plate S15b. *Vexillum burchorum* Salisbury, 2011, dorsal view of holotype (ASNP 424114). Photo by Paul Calloman.

Plate S16a. *Mitrella loisae* Pitt & Kohl, 1979, northern form (holotype, CASIZ 66839) from Costa Rica, and southern form (paratype) from Peru. Original Figures 2 and 3.

Plate S16b. *Mitrella loisae* Pitt & Kohl, 1979, apertural view of holotype (CASIZ 66839). Photo courtesy of Elizabeth Kools, California Academy of Sciences.

Plate S16c. *Mitrella loisae* Pitt & Kohl, 1979, abapertural view of holotype (CASIZ 66839). Photo courtesy of Elizabeth Kools California Academy of Sciences.

Plate S17. † *Torquifer pittorum* Roth, 1981, spire, abapertural, lateral, apertural, and oblique views of holotype (CASIZ 60375). Original Plate 1, Figures 1-4, 6.

Plate S18a. † *Pseudozonaria pittorum* (Groves, 1997), ventral view of holotype (LACMIP 12432). Photo by Lindsey T. Groves.

Plate S18b. † *Pseudozonaria pittorum* (Groves, 1997), dorsal view of holotype (LACMIP 12432). Photo by Lindsey T. Groves.

Plate S19a. *Ithycythara mullinerorum* Wiedrick, 2022, holotype (LACM 3775), Figures 3I-L, and *Ithycythara hertzorum* Wiedrick, 2022, holotype (LACM 3773). Original Figures 3A-D.

Plate S19b. *Ithycythara mullinerorum* Wiedrick, 2022, apertural view of holotype (LACM 3775). Photo by Shawn Wiedrick.

Plate S20a. *Epidendrium billeeanum* (DuShane & Bratcher, 1965), living animal with egg mass on prey scleractinian *Tubastraea*. In situ photo by Hans Bertsch, Las Arenas, Baja California Sur, Mexico.

Plate S20b. *Epidendrium billeeanum* (DuShane & Bratcher, 1965), drawings of radular teeth. Original Figures 3a-b.

Plate S21. *Splendrillia bratcherae* McLean & Poorman, 1971, apertural and dorsal views of holotype (LACM 1502). Photos by Eddie Hardy.

Plate S22. * *Cymbovula bratcherae* (Cate, 1973), [= *Simnialena rufa* (G. B. Sowerby I, 1833), views of Cate holotype (LACM 1610). Photos by Paul Calloman.

Plate S23a. *Terebra twilae* Bouchet, 1983, apertural view of holotype. Original Figure 35.

Plate S23b. *Terebra twilae* Bouchet, 1983, drawing of protoconch and first teleoconch whorls. Original Figure 8.

Plate S24. *Terebra bratcherae* Cernohorsky, 1987, apertural and dorsal photos of holotype (Australian Museum, Sydney, C-149460) and two paratypes (Western Australian Museum, Perth, 365-86). Original Figures 27-30.

Plate S25a. *Epifungium twilae* (A. Gittenberger & Goud, in A. Gittenberger et al., 2000), aperture and dorsal photos of holotype, (NNM 59104). Original Figures 32-33.

Plate S25b. *Epifungium twilae* (A. Gittenberger & Goud, in A. Gittenberger et al., 2000), SEM of nuclear and first body whorls. Original Figure 28.

Plate S25c. *Epifungium twilae* (A. Gittenberger & Goud, in A. Gittenberger et al., 2000), SEM image of teleoconch whorl sculpture. Original Figure 19, scale line equals 0.1 mm.

Plate S26. *Epifungium pseudotwilae* Gittenberger & Gittenberger, 2005, apertural views of holotype (RMNH 95190) and paratype, Original Figures 90-91, and *Epifungium twilae* (A. Gittenberger & Goud, in A. Gittenberger et al., 2000), apertural views of paratype and holotype, Original Figures 88-89. Scale bar equals 1 cm.

Plate S27. *Hemilienardia twilabratcherae* Wiedrick, 2017, apertural view of holotype (LACM 3375). Photo by Shawn Wiedrick.

Plate S28a. *Conus bratcherae* (Petuch & Berschauer, 2019), apertural view of holotype (LACM 3730). Photo by David Berschauer.

Plate S28b. *Conus bratcherae* (Petuch & Berschauer, 2019), dorsal view of holotype (LACM 3730). Photo by David Berschauer.

Plate S29a. *Osachila kaiserae* Zimmerman & Martin, 1999, holotype specimen (LACM 91-143.5). Photo by Adam Wall.

Plate S29b. *Osachila kaiserae* Zimmerman & Martin, 1999, original drawings of right cheliped and left fifth periopod. Original Figure 6.

Plate S30a. *Condylocardia kaiserae* Coan, 2003, external left valve, paratype (LACM 2929). Photo by Paul Valentich-Scott.

Plate S30b. *Condylocardia kaiserae* Coan, 2003, internal left valve, paratype (LACM 2929). Photo by Paul Valentich-Scott.

Plate S30c. *Condylocardia kaiserae* Coan, 2003, external right valve, paratype (LACM 2929). Photo by Paul Valentich-Scott.

Plate S30d. *Condylocardia kaiserae* Coan, 2003, internal right valve, paratype (LACM 2929). Photo by Paul Valentich-Scott.

Plate S31. *Scissurella kaiserae* Geiger, 2006, shell (scale bar equals 500 µm) and protoconch (scale bar equals 100 µm) of holotype (SBMNH 348769). Original Figure 1.

Plate S32a. *Polycera kaiserae* Hermosillo & Valdés, 2007a, living animal. Photo by Alicia Hermosillo.

Plate S32b. *Polycera kaiserae* Hermosillo & Valdés, 2007a, radular teeth, jaws, and penis of paratype (LACM 1850). Original Figure 3.

Plate S33a. *Periploma kaiserae* Valentich-Scott & Coan, 2010, external left valve, holotype SBMNH 149599. Photo by Paul Valentich-Scott.

Plate S33b. *Periploma kaiserae* Valentich-Scott & Coan, 2010, interior left valve, holotype SBMNH 149599. Photo by Paul Valentich-Scott.

Plate S33c. *Periploma kaiserae* Valentich-Scott & Coan, 2010, exterior right valve, holotype SBMNH 149599. Photo by Paul Valentich-Scott.

Plate S33d. *Periploma kaiserae* Valentich-Scott & Coan, 2010, interior right valve, holotype SBMHN 149599. Photo by Paul Valentich-Scott.

Plate S34. *Conus kaiserae* (Tenorio et al., 2012), apertural view of holotype (SBMNH 98005). Photo courtesy of Henry Chaney.

Plate S35. *Coralliophila caroleae* D'Attilio & Myers, 1984, apertural and dorsal views of holotype (SDNHM 79505). Photos by Bob Abela.

Plate S36a. *Petricola hertzana* Coan, 1997, exterior left valve, holotype (SBMNH 143007). Photo by Paul Valentich-Scott.

Plate S36b. *Petricola hertzana* Coan, 1997, interior left valve, holotype (SBMNH 143007). Photo by Paul Valentich-Scott.

Plate S36c. *Petricola hertzana* Coan, 1997, exterior right valve, holotype (SBMNH 143007). Photo by Paul Valentich-Scott.

Plate S36d. *Petricola hertzana* Coan, 1997, interior right valve, holotype (SBMNH 143007). Photo by Paul Valentich-Scott.

Plate S37a. *Cirsostrema hertzae* García, 2010, holotype (SBMNH 149427), Original Figures 6-7, 10 & 18), and *Cirsostrema skoglundae* García, 2010, holotype (SBMNH 194430), Original Figures 11-14, 19. *C. skoglundae* photos by Patricia Sadeghian.

Plate S37b. *Cirsostrema hertzae* García, 2010, various views of specimens identified as "Buttress." From Skoglund & Hertz, 2010: Figures 6-10.

Plate S38. *Ithycythara hertzorum* Wiedrick, 2022, holotype (LACM 3773). Photo by Shawn Wiedrick.

Plate S39a. *Sinezona carolarum* Geiger & McLean, 2010, holotype (SBMNH 83703). Scale bar shell equals 500µm, scale bar protoconch equals 100 µm. Original Figure 5.

Plate S39b. *Sinezona carolarum* Geiger & McLean, 2010, paratype specimens (Kirstie Kaiser Collection 210001, 8, and SBMNH 83707 & 83705). Scale bar for shells equals 500 µm; scale bar for protoconchs equals 100 µm. Original Figure 6.

Plate S39c. *Sinezona carolarum* Geiger & McLean, 2010, paratype radula (SBMNH 83705). Scale bar for entire radula equals 100 µm, scale bar for enlarged view of teeth elements is 10 µm. Original Figure 8.

Plate S40. *Epitonium skoglundae* DuShane, 1974, holotype (LACM 1612). Photo by Eddie Hardy.

Plate S41a. *Crassinella skoglundae* Coan, 1979, external left valve, holotype (SBMNH 141596). Photo by Paul Valentich-Scott.

Plate S41b. *Crassinella skoglundae* Coan, 1979, left valve hinge, holotype (SBMNH 141596). Photo by Paul Valentich-Scott.

Plate S41c. *Crassinella skoglundae* Coan, 1979, exterior right valve, holotype (SBMNH 141596). Photo by Paul Valentich-Scott.

Plate S41d. *Crassinella skoglundae* Coan, 1979, right valve hinge, holotype (SBMNH 141596). Photo by Paul Valentich-Scott.

Plate S41e. *Crassinella skoglundae* Coan, 1979, dorsal view, holotype (SBMNH 141596). Photo by Paul Valentich-Scott.

Plate S41f. *Crassinella skoglundae* Coan, 1979, prodissoconch, holotype (SBMNH 141596). Photo by Paul Valentich-Scott.

Plate S42. *Neoterebra carolae* (Bratcher, 1979), apertural and dorsal views of holotype (LACM 1178). Photos by Eddie Hardy.

Plate S43a. *Ischnochiton carolinus* Ferreira, 1984, dorsal and side views of holotype (CAS 035074). Figures 1 and 2.

Plate S43b. *Ischnochiton carolinus* Ferreira, 1984, drawings of shell, girdle scales and radular teeth. Images from Kaas & Belle, 1990: Figure 74 (based on Ferreira, 1984: Figures 1-6).

Plate S43c. *Ischnochiton carolinus* Ferreira, 1984. Photo by Roger C. Clark.

Plate S44a. *Lepidozona skoglundorum* (Ferreira, 1986), SEM of paratype (CAS 060251), another paratype inside dead clam shell (CAS 059842), and upper surface of girdle scales, paratype (CAS 060251). Original Figures 3-5.

Plate S44b. *Lepidozona skoglundorum* (Ferreira, 1986), drawings of dorsal surface scales (A) and undersurface scales (B) of holotype (CAS 059841) girdle elements. Original Figure 1.

Plate S44c. *Lepidozona skoglundorum* (Ferreira, 1986), drawings of plates and radular teeth. From Kaas & Belle, 1990: Figure 18 (based in part on Ferreira, 1986: Figures 1-5).

Plate S45. *Cotonopsis skoglundae* Jung, 1989, apertural, lateral and dorsal views of paratype (LACM 2195). Photos by Eddie Hardy.

Plate S46. *Murexsul skoglundae* (Myers et al., 1993), apertural view with operculum and dorsal view. Photos by Bob Abela.

Plate S47. *Typhina carolskoglundae* (Houart & Hertz, 2006), dorsal and apertural views, holotype (SDNHM 90773). Photos by Bob Abela.

Plate S48. *Caecum skoglundae* Pizzini et al., 2007, whole shell and close-up images, holotype (LACM 3063). SEM images by Daniel Geiger. Original Figure 1.

Plate S49. *Cirsostrema skoglundae* García, 2010, various views of specimens identified as “Wedding Cake.” From Skoglund & Hertz, 2010: Figures 11-15.

Plate S50. *Zacatrophon skoglundae* Houart, 2010, various images of the shell. From the website of the Paris MNHN, specimen 22716.

Plate S51a. *Periploma skoglundae* Valentich-Scott & Coan, 2010, exterior of left valve, holotype (SBMNH 83429). Photo by Paul Valentich-Scott.

Plate S51b. *Periploma skoglundae* Valentich-Scott & Coan, 2010, interior view of left valve, holotype (SBMNH 83429). Photo by Paul Valentich-Scott.

Plate S51c. *Periploma skoglundae* Valentich-Scott & Coan, 2010, left valve hinge, holotype (SBMNH 83429). Photo by Paul Valentich-Scott.

Plate S51d. *Periploma skoglundae* Valentich-Scott & Coan, 2010, exterior of right valve, holotype (SBMNH 83429). Photo by Paul Valentich-Scott.

Plate S51e. *Periploma skoglundae* Valentich-Scott & Coan, 2010, interior of right valve, holotype (SBMNH 83429). Photo by Paul Valentich-Scott.

Plate S51f. *Periploma skoglundae* Valentich-Scott & Coan, 2010, right valve hinge, holotype (SBMNH 83429). Photo by Paul Valentich-Scott.

Plate S52. *Conus skoglundae* (Tenorio et al., 2012), apertural view, holotype SBMNH 92586. Photo courtesy of Henry Chaney.

Plate S53a. *Scabrotrophon norafosterae* Houart et al., 2019, apertural view of holotype (LACM 3450). Photo courtesy of Roland Houart and Shawn Wiedrick.

Plate S53b. *Scabrotrophon norafosterae* Houart et al., 2019, dorsal view of holotype (LACM 3450). Photo courtesy of Roland Houart and Shawn Wiedrick.

Plate S54a. *Kurtiella regueroae* Valentich-Scott in Coan & Valentich-Scott, 2012, exterior of left valve, paratype (SBMNH 149798). Photo by Paul Valentich-Scott.

Plate S54b. *Kurtiella regueroae* Valentich-Scott in Coan & Valentich-Scott, 2012, interior of left valve, paratype (SBMNH 149798). Photo by Paul Valentich-Scott.

Plate S54c. *Kurtiella regueroae* Valentich-Scott in Coan & Valentich-Scott, 2012, exterior of right valve, paratype (SBMNH 149798). Photo by Paul Valentich-Scott.

Plate S54d. *Kurtiella regueroae* Valentich-Scott in Coan & Valentich-Scott, 2012, interior of right valve, paratype (SBMNH 149798). Photo by Paul Valentich-Scott.

Plate S55a. *Bunnya naranjoae* Miller, 1987, dorsal, ventral, and side views of holotype specimen (SBMNH 34369). Original Figure 1.

Plate S55b. *Bunnya naranjoae* Miller, 1987, reproductive system. Original Figure 2.

Plate S56a. *Sonorella naranjoae* Gilbertson & Van Devender, 2019, apical, lateral, and umbilical images of holotype shell (LACM 3672). Photos by Lance Gilbertson.

Plate S56b. *Sonorella naranjoae* Gilbertson & Van Devender, 2019, reproductive system. Original Figures 1B-C (holotype, LACM 3672) and D (paratype LACM 3673).

Plate S57a. *Loy millenae* (Martynov, 1994), drawings of dorsal and ventral surfaces. Original Figure 1.

Plate S57b. *Loy millenae* (Martynov, 1994), radular teeth. Original Figure 2.

Plate S58a. *Tenellia millenae* Hermosillo & Valdés, 2007b, living animal, holotype (LACM 3053). Photo by Alicia Hermosillo.

Plate S58b. *Tenellia millenae* Hermosillo & Valdés, 2007b, radula and jaw of holotype (LACM 3053). Original Figure 6.

Plate S59a. *Unidentia sandramillenae* Korshunova et al., 2017, living photographs of holotype (ZMMU OP-617) and various aspects of anatomy. Original Figure 43.

Plate S59b. *Unidentia sandramillenae* Korshunova et al, 2017, living animal. Photo by David Mullins, Gold Coast, Australia.

Plate S60. *Cuthonella sandrae* Korshunova et al., 2020b, images of holotype (ZMMU OP-671), living and preserved animal, jaw elements and radula. Original Figure 16.

Plate S61. † *Protobusycon judithae* Saul, 1988, holotype specimen (LACMIP 7621). Photo by Lindsey T. Groves.

Plate S62a. *Liocerithium judithae* Keen, 1971, living animal with egg mass. Photo by Hans Bertsch, Cuevitas, Bahía de los Ángeles, Baja California, Mexico.

Plate S62b. *Liocerithium judithae* Keen, 1971, SEM of radula. Microscopy by Hans Bertsch.

Plate S62c. *Liocerithium judithae* Keen, 1971, SEM of central and lateral radular teeth. Microscopy by Hans Bertsch.

Plate S63. † *Ameranella terrysmithae* (Hickman, 1980), unnumbered specimen, Plate 6, Figure 4, and holotype (USNM 251369). Original Plate 6, Figures 5-6.

Plate S64. † *Gyrineum judithae* Zinsmeister, 1983, holotype (UCR 6899/100), Original Figures 3R-S, paratype (UCR 6899/101), Original Figures 3T-U, and *Parasyrinx hickmanae* Zinsmeister, 1983, holotype (UCR 6668/36), Original Figure 3W, and paratype (UCR 4572/100), Original Figure 3V.

Plate S65 † *Calyptraphorus terrysmithae* Perrilliat, 2013, dorsal and ventral views of several specimens. Original Figures 5.14-19.

Plate S66a. † *Lyropecten terrysmithae* Powell et al., 2020, interior and exterior photos of holotype valves (CAS 5900). Original Figure 1.

Plate S66b. † *Lyropecten terrysmithae* Powell et al., 2020, interior of valves showing hinges. Paratype (CAS 78557), Original Figure 2; juvenile paratype (CAS 78563), Original Figure 3.

Plate S67. *Carolesia* Güller & Zelaya, 2014, composite of shell, head region and radular teeth. Courtesy of Carole Hickman.

Plate S68a. *Margarites hickmanae* McLean, 1984, holotype shell (USNM 111048). Original Figure 3.

Plate S68b. *Margarites hickmanae* McLean, 1984, half row of radula (rachidian at left, with seven marginal teeth, lateromarginal plate and first two marginal teeth) of holotype (USNM 111048). Original Figure 9.

Plate S69. † *Bathybembix hickmanae* Moore, 1984, holotype (LACMIP 6623), Original Figures 12, 18, and paratype shells (LACMIP 6621 & 6622), Original Figures 10 and 11 respectively.

Plate S70. *Choristella hickmanae* McLean, 1992, shells and radular teeth. Holotype specimen (LACM 2249), Original Figures 42-43; paratype (LACM 2250) prior to sectioning; Original Figures 39-41, 44; radula of paratype (LACM 2250), Original Figure 45.

Plate S71. † *Astraea hickmanae* Kiel & Bandel, 2002, holotype, in the Geologisch- Paläontologisches Institut und Museum, Universität Hamburg (GPI 3978). Original Plate 2, Figures 10-11.

Plate S72. † *Turrinosyrinx hickmanae* Kiel, 2006, shell and microsculpture of holotype (LACMIP 13253). Original Figures 8.1-8.3.

Plate S73. † *Leptomaria hickmanae* Harasewych et al., 2009, various views of holotype shell (USNM 467218). Original Figure 10.

Plate S74a. *Propeleda hickmanae* Valentich-Scott et al., 2022, external view of left valve, holotype (LACM 3650). Photo by Paul Valentich-Scott.

Plate S74b. *Propeleda hickmanae* Valentich-Scott et al., 2022, internal view of left valve, holotype (LACM 3650). Photo by Paul Valentich-Scott.

Plate S74c. *Propeleda hickmanae* Valentich-Scott et al., 2022, external view of right valve, holotype (LACM 3650). Photo by Paul Valentich-Scott.

Plate S74d. *Propeleda hickmanae* Valentich-Scott et al., 2022, internal view of right valve, holotype (LACM 3650). Photo by Paul Valentich-Scott.

Plate S74e. *Propeleda hickmanae* Valentich-Scott et al., 2022, hinge area, holotype (LACM 3650). Photo by Paul Valentich-Scott.

Plate S75a. *Polybranchia jannae* Medrano et al., 2018, living animal. Photo by Ángel Valdés.

Plate S75b. *Polybranchia jannae* Medrano et al., 2018, entire radula, leading tooth and ascus. Original Figure 12.

Plate S76. † *Saulella* Zinsmeister, 1983, type species *Saulella undulifera* (Gabb, 1869). Original Figures 1I-J.

Plate S77. † *Louella* Cooper & Leanza, 2017, type species *Louella fitchi* (Packard, 1921). Original Figures 6 E, H, I, M.

Plate S78. † *Meekia louella* Popenoe in Saul & Popenoe, 1962, holotype (LACMIP 4962). Photo by Lindsey T. Groves.

Plate S79. † *Crassatella saulae* Dailey & Popenoe, 1966, holotype (LACMIP 8897). Photo by Lindsey T. Groves.

Plate S80. † *Toxoceratoides saulae* Murphy, 1975, holotype (UCR 6347/2). Original Plate 4, figures 4 & 6.

Plate S81. † *Galeodea louella* (Squires & Advocate, 1986), holotype (LACMIP 7166). Photo by Lindsey T. Groves.

Plate S82. † *Ranella louellae* Beu, 1988, holotype (LACMIP 7689). Photo by Lindsey T. Groves.

Plate S83. † *Eocypraea louellae* Groves, 1990, ventral view of holotype (LACMIP 8281). Photo by Lindsey T. Groves.

Plate S84. † *Barnea saulae* Kennedy, 1993, holotype (LACMIP 8403). Photo by Lindsey T. Groves.

Plate S85. † *Linearia louellasaulae* Squires & Goedert. 1994a, holotype LACMIP 12294. Photo by Lindsey T. Groves.

Plate S86. † *Stirpulina saulae* Stallwood, 1995, paratype specimen (LACMIP 12276). Photo by Lindsey T. Groves.

Plate S87. † *Trocotaulax saulae* Kiel & Aranda-Manteca, 2002, aperture and dorsal views of holotype (IGM 7837). Original Figures 9-10.

Plate S88. † *Angulathilda saulae* (Kaim, 2004), SEMs of shell and teleoconch and protoconch ornamentation, holotype (ZPAL Ga. 9/278, Institute of Paleobiology, Polish Academy of Sciences). Original Figure 108 B.

Plate S89. † *Pyropsis louellae* Squires, 2011, holotype (LACMIP 13726). Photo by Lindsey T. Groves.

Plate S90a. † *Protocypraea louellasaulae* (Groves et al., 2011), dorsal and ventral images of holotype (LACMIP 13720). Original Figures 1 and 20.

Plate S90b. † *Protocypraea louellasaulae* (Groves et al., 2011), aperture of holotype (LACMIP 13720). Photo by Lindsey T. Groves.

Plate S91. † *Polinices saulae* Perrilliat, 2013, holotype (IGM 4381). Original Figures 4, 33-36.

Plate S92. † *Tessarolax louellae* Squires in Saul & Squires, 2015, various original illustrations. Figures 61-64, holotype (RBCM.EH2001.007.0015); Figure 65, paratype (GSC 5936); Figure 66, paratype (RBCM.EH.007.0016); Figure 67, paratype (RBCM.EH.007.0017); Figures 68-70, paratype (RBCM.EH.007.0018).

Plate S93a. *Keenaea* Habe, 1951, external sculpture shown by *K. centifilosum* (Carpenter, 1864). Photo by Paul Valentich-Scott (SBMNH 145149).

Plate S93b. *Keenaea* Habe, 1951, interior showing hinge of *K. centifilosum* (Carpenter, 1864). Photo by Paul Valentich-Scott (SBMNH 145149).

Plate S94a. *Keenocardium* Kafanov, 1974, exterior sculpture on type species, *K. californiense* (Deshayes, 1839). Photo by Paul Valentich-Scott (SBMNH 3468).

Plate S94b. *Keenocardium* Kafanov, 1974, interior showing hinge on type species, *K. californiense* (Deshayes, 1839). Photo by Paul Valentich-Scott (SBMNH 3468).

Plate S95. *Myrakeena* Harry, 1985, cluster of valves of type species, *M. angelica* (Rochebrune, 1895). Photo by Hans Bertsch, Isla Coronado, Bahía de los Ángeles, Baja California.

Plate S96a. *Mytilisepta keenae* (Nomura, 1936), original illustrations of holotype (Saitô Hô-on Kai Museum, no number given), Figure 1, and "Varietal forms," Figures 2-5.

Plate S96b. *Mytilisepta keenae* (Nomura, 1936). Image from Taki & Oyama, 1954: Original Plate 12, Figure 16.

Plate S97. * *Alvania keenae* Gordon, 1939 [=*Onoba carpenteri* (Weinkoff, 1885), protoconch and shell of paratype (CAS 7229). Original Plate 7, figures 7, 9.

Plate S98. † *Anomalina keenae*, paratype (USNM CC 38975). Foraminiferan image from https://www.gbif.org/occurrence/1316622083

Plate S99a. *Glycymeris keenae* Willett, 1944, right exterior. Photo by Paul Valentich-Scott.

Plate S99b. *Glycymeris keenae* Willett, 1944, left exterior. Photo by Paul Valentich-Scott.

Plate S99c. *Glycymeris keenae* Willett, 1944, right interior. Photo by Paul Valentich-Scott.

Plate S99d. *Glycymeris keenae* Willett, 1944, left interior. Photo by Paul Valentich-Scott.

Plate S100. * *Ocenebra keenae* Bormann, 1946 [= *Paciocinebrina barbarensis* (Gabb, 1865)], apertural view of Bormann's holotype (CASIZ 064477). Photo by Shawn Wiedrick.

Plate S101. *Rissoina keenae* A. G. Smith & Gordon, 1948, apertural view of holotype (CAS 8553). Original Plate 4, Figure 3.

Plate S102a. *Tresus keenae* (Kuroda & Habe, 1950), exterior of both valves, Recent specimen. Photo by Guido T. & Philippe Poppe, copyright 2016.

Plate S102b. *Tresus keenae* (Kuroda & Habe, 1950), fossil specimen from Kanto Region, Japan. From Taki & Oyama, 1954: Plate 28, Figure 8.

Plate S103a. *Teinostoma myrae* Pilsbry & Olsson, 1952, holotype label (ANSP 88118).

Plate S103b. *Teinostoma myrae* Pilsbry & Olsson, 1952, apertural view of holotype, (ANSP 88118).

Plate S103c. *Teinostoma myrae* Pilsbry & Olsson, 1952, apical view of holotype, (ANSP 88118).

Plate S103d. *Teinostoma myrae* Pilsbry & Olsson, 1952, basal view of holotype, (ANSP 88118).

Plate S104a. *Ensis myrae* Berry, 1953, exterior of left valve (SBMNH 34022). Photo by Paul Valentich-Scott.

Plate S104b. *Ensis myrae* Berry, 1953, interior of left valve (SBMNH 34022). Photo by Paul Valentich-Scott.

Plate S104c. *Ensis myrae* Berry, 1953, exterior of right valve (SBMNH 34022). Photo by Paul Valentich-Scott.

Plate S104d. *Ensis myrae* Berry, 1953, interior of right valve (SBMNH 334022). Photo by Paul Valentich-Scott.

Plate S104e. *Ensis myrae* Berry, 1953, anterior portion of left valve of paratype (CASIZ 64461). Original Figure 3.

Plate S104f. *Ensis myrae* Berry, 1953, hinge plate of left valve of holotype (CASIZ 64460). Original Figure 4.

Plate S105. † *Angaria keenae* von der Osten, 1957, original illustration. Plate 65, Figure 1.

Plate S106a. *Stephopoma myrakeenae* Olsson & McGinty, 1958, various views of shell. Original Plate 2, Figures 8, 8a-c.

Plate S106b. *Stephopoma myrakeenae* Olsson & McGinty, 1958. Photo of holotype (ANSP 211867).

Plate S107. *Protothaca keenae* (Soot-Ryen, 1959), holotype (State Natural History Museum, Stockholm), exterior of left valve (Figure 24) and interior of right valve (Figure 25).

Plate S108. † *Eocypraea* ? *keenae* Woodring, 1959, dorsal and apertural views of holotype (USNM 562604). Original Plate 32, Figures 8, 10).

Plate S109. * *Yoldia keenae* Wagner, 1959 [= *Yoldia hyperborea* (Gould, 1841)], left valve and right valve of holotype (GSC No. 13983). Original Plate 1, Figures 16 and 19.

Plate S110. *Dolichupis myrae* (Campbell, 1961), dorsal, apertural and side views of holotype (CASIZ 64600). Original Figures 1-3.

Plate S111. *Halistrepta myrae* (Rogers, 1962), right valve of holotype (CASIZ 64660). Original Figures 1-2.

Plate S112a. * *Glyphostoma myrakeenae* Olsson, 1964 [= *Glyphostoma neglecta* (Hinds, 1843),] apertural view of Olsson's holotype. Original Plate 18, Figure 4.

Plate S112b. *Glyphostoma neglecta* (Hinds, 1843), apertural view (LACM 1972-54). Photo by Lindsey T. Groves.

Plate S113a. * *Transenpitar keenae* Fischer-Piette & Testud, 1967 [= *Transenpitar americana* (Doello-Jurado in Carcelles, 1951)], exterior of valve identified as *T. americana*, from Rios, 1985: Plate 93, figure 1306.

Plate S113b. *Transenpitar americana* (Doello-Jurado in Carcelles, 1951), exterior of valve. Photo by Guido T. & Philippe Poppe, copyright 2015.

Plate S114a. *Mitromorpha keenae* (Emerson & Radwin, 1969), apertural and dorsal views of holotype (AMNH 152601), and paratype (AMNH 152602). Original Plate 29, figures 3a-b and 2a-b (respectively).

Plate S114b. *Mitromorpha keenae* (Emerson & Radwin, 1969), two views of radular teeth. Original Figures 4-5.

Plate S115a. *Cinclidotyphis myrae* DuShane, 1969, holotype (LACM 1194). Photos by Eddie Hardy.

Plate S115b. *Cinclidotyphis myrae* DuShane, 1969, radular teeth. From Radwin & D'Attilio, 1975: Figure 140. Drawing by Anthony D'Attilio.

Plate S115c. *Cinclidotyphis myrae* DuShane, 1969, aspects of shell and sculpturing. From D'Attilio & Hertz, 1988: Figure 39. Drawings by Anthony D'Attilio.

Plate S116a. † *Typhis keenae* Gertman, 1969, apertural and dorsal views of paratype (USNM 646215) and holotype (USNM 646214). Original Figures 2-3 respectively.

Plate S116b. † *Typhis keenae* Gertman, 1969, aspects of shell and its morphology. From D'Attilio & Hertz, 1988: Figure 59. Drawings by Anthony D'Attilio.

Plate S117. *Anatoma keenae* (McLean, 1970b), apertural view of holotype (LACM-AHF 1373) showing slit on last body whorl. Original Figure 4.

Plate S118a. *Monoplex keenae* (Beu, 1970), various specimens dredged from off Guaymas, Sonora, Mazatlan, Sinaloa, and the Galápagos Islands. From Beu, 1982: Plate 2.

Plate S118b. *Monoplex keenae* (Beu, 1970), apertural view of live-collected specimen. Photo by Bob Hillis. See https://mexican-fish.com/keens-hairy-triton.

Plate S118c. *Monoplex keenae* (Beu, 1970), dorsal view of live-collected specimen. Photo by Bob Hillis. See https://mexican-fish.com/keens-hairy-triton.

Plate S119. † *Cancellaria keenae* Addicott, 1980, holotype (LACMIP 8430), Original Plate 16, Figures 1-2; hypotype (UCMP 33840), Original Plate 16, Figures 3-4; and another hypotype (USNM 650209), Original Plate 16, Figures 18 and 19.

Plate S120a. *Dermomurex myrakeenae* (Emerson & D'Attilio, 1970) dorsal and ventral views of holotype (AMNH 153298), Original Figures 1-2, and paratypes, Figures 4-6).

Plate S120b. *Dermomurex myrakeenae* (Emerson & D'Attilio, 1970), drawings of operculum. Original Figure 10.

Plate S120c. *Dermomurex myrakeenae* (Emerson & D'Attilio, 1970), drawing of radular teeth. Original Figure 11.

Plate S120d. *Dermomurex myrakeenae* (Emerson & D'Attilio, 1970), dorsal and apertural views. Photos by Bob Abela.

Plate S121. *Calliostoma keenae* McLean, 1970a, holotype images (LACM 1272). Photos by Eddie Hardy.

Plate S122a. *Favartia keenae* (E. H. Vokes, 1970), apertural, apical and dorsal views of holotype (LACM 1259). Original Plate 50, Figures 8-10.

Plate S122b. *Favartia keenae* (E. H. Vokes, 1970), apertural and dorsal views of holotype (LACM 1259). Photos by Eddie Hardy.

Plate S123. *Glyphostoma myrae* Shasky, 1971, apertural and dorsal views of holotype (LACM 1573). Photos by Eddie Hardy.

Plate S124. *Callucina keenae* (Chavin, 1971), external, internal and hinge region, Bailey-Matthews Museum, Florida, specimen No. 83483. Photo montage courtesy of José Leal.

Plate S125a. * *Primovula myrakeenae* Azuma & Cate, 1971 [= *Dentiovula azumai* (Cate, 1970), apertural and dorsal views of holotype (Azuma collection 14847). Original Figure 7. Photographs by Bertram C. Draper.

Plate S125b. *Dentiovula azumai* (Cate, 1970), apertural and dorsal views of holotype (Azuma collection 14826). Original Figure 1. Photographs by Bertram C. Draper.

Plate S126. *Petaloconchus keenae* Hadfield & Kay in Hadfield et al., 1972, tightly coiled and irregularly coiled shells. Original Figure 13.

Plate S127a. *Littorina keenae* Rosewater, 1978, apertural and dorsal view of holotype (USNM 47109). Original Figures 5-6.

Plate S127b. *Littorina keenae* Rosewater, 1978, dorsal view. Florida Museum of Natural History, Invertebrate Zoology Collection. See http://specifyportal.flmnh.ufl.edu/iz/

Plate S127c. *Littorina keenae* Rosewater, 1978, apertural view. Florida Museum of Natural History, Invertebrate Zoology Collection. See http://specifyportal.flmnh.ufl.edu/iz/

Plate S128. † *Protocardia keenae* Singh & Rai, 1980, photos of shell. Original Plate I, Figures 1a-b.

Plate S129. * *Nucula keenae* Bernard, 1983a [= *Nucula carlottensis* Dall, 1897], exterior and interior of valves, holotype (LACM 2027). Original Figure 2.

Plate S130a. *Tritonicula myrakeenae* Bertsch & Mozqueira Osuna, 1986, two living animals. Photo by Hans Bertsch, south end of Isla Cedros, Baja California.

Plate S130b. *Tritonicula myrakeenae* Bertsch & Mozqueira Osuna, 1986, radular teeth and jaws. Original Figures 2-3.

Plate S131. * *Petaloconchus myrakeenae* Absalão & Rios, 1987 [= *Petaloconchus varians* (d'Orbigny, 1839)] radular teeth and shell. Original Figures 1-3.

Plate S132. † *Niveotectura myrakeenae* Lindberg & Marincovich, 1988, holotype (USNM 414579). Original Figure 2e.

Plate S133. † *Integricardium keenae* Marincovich, 1993, holotype (USNM 468409), and paratypes. Original Figures 15-16 and 17-20, respectively.

Plate S134. † *Nemocardium keenae* Le Renard, 1994, replacement name for *Cardium semistriatum* (Deshayes, 1834). Original illustration from Deshayes, 1834, Plate XXIX, Figures 9-10.

Plate S135. † *Chattonia trigonata keenae* Chavan, 1939, exterior and interior views of shell. Specimen 8768796 in Paris Museum. Photo by Jacques Mouchart, 2014.

Plate S136a. † *Katherinella* Tegland, 1929, original photos of type species *Callocallista arnoldi* Weaver, 1916. Original Plate 23, Figures. 1-11.

Plate S136b. † *Katherinella arnoldi* (Weaver, 1916), hypotype (USNM 563271) from Moore, 1963: Plate 25, Figure 4.

Figures S136c. † *Katherinella angustifrons* (Conrad, 1849), lateral view (PRI 81754).

Plate S136d. † *Katherinella angustifrons* (Conrad, 1849), pair of specimens (PRI 82058).

Figures S136e-f. *Katherinella angustifrons* (Conrad, 1849), exterior and interior of valve shown in Figure S134d, left hand side (PRI 82058)

Plate S137a. † *Kathpalmeria* Ross, 1965, original photos of paratype specimens of type species *Kathpalmeria georgiana* Ross, 1965. Original Figures 2a-b, external and internal views of right lateral (PRI 6076); Original Figure 2c, external view of partially disarticulated shell (FSM 4000); Original Figure 2d, internal view of right lateral (PRI 6077); Original Figure 2d, internal view of right lateral (PRI 6077); Original Figure 2e, internal view of rostrum (PRI 6078); internal view of right lateral (PRI 6079).

Plate S137b. † *Kathpalmeria* Ross, 1965, internal and external views of *Kathpalmeria georgiana* Ross, 1965, holotype scutum (PRI No. 6075b). Original Figure 1. Drawing by Miss Brenda Baer.

Plate S138. † *Kapalmerella* Allmon, 2005, replacement generic name for *Palmerella*. Photos of *Palmerella mortoni mortoni* (Conrad, 1830), type species, from Allmon, 1996: Plate 1, Figures 4-6.

Plate S139. * † *Scapharca vanwinkleae* Sheldon & Maury in Maury, 1925 [= *Anadora paraensis* (White, 1887)], external view of valve. Original Plate 13, figure 4.

Plate S140. † *Palliolum vanwinkleae* (Clark, 1935), holotype (UCMP 14493).

Plate S141a. * † *Antigona palmerae* H. K. Hodson in F. Hodson et al., 1927 [= *Ventricolaria harrisiana* (Olsson, 1922)]. Original Plate 31, Figure 6, paratype hinge; Figure 7, holotype.

Plate S141b. * † *Antigona palmerae* H. K. Hodson in F. Hodson et al., 1927, another view of holotype. Original Plate 35, Figure 8.

Plate S141c. * † *Antigona palmerae* H. K. Hodson in F. Hodson et al., 1927, valve, exterior and interior views. From Jung, 1965: Plate 59, Figures 4-5.

Plate S141d. * † *Antigona palmerae*. H. K. Hodson in F. Hodson et al., 1927, holotype (PRI 22825).

Plate S141e. * † *Antigona palmerae*.H. K. Hodson in F. Hodson et al., 1927, paratype, lateral view (PRI 22824).

Plate S141f. * † *Antigona palmerae*. H. K. Hodson in F. Hodson et al., 1927, paratype, dorsal view (PRI 22824).

Plate S142. † *Sphenotus palmerae* Caster, 1930, left and right valves. Original Plate 42, Figures 9-10.

Plate S143a. † *Pandora vanwinkleae* Tegland, 1933, original images. Original Plate 7, figures 1-2.

Plate S143b. † *Pandora vanwinkleae* Tegland, 1933, holotype specimen (UCMP 32114). Photo courtesy of Carole S. Hickman.

Plate S144a. † *Smilotrochus palmerae* (Wells, 1933), transverse section of paratype. Original Plate 1, Figure 10.

Plate S144b. † *Smilotrochus palmerae* (Wells, 1933), lateral views of holotype (USNM 75139) and paratype. Original Plate 3, Figures 1-2.

Plate S145a. † *Dosinia palmerae* Olsson, 1931, exterior view of holotype (PRI 1988). Original Plate 7, Figure 1.

Plate S145b. † *Dosinia palmerae* Olsson, 1931, holotype, exterior of shell (PRI 1988).

Plate S145c. † *Dosinia palmerae* Olsson, 1931, holotype (PRI 1988), sediment-filled interior of shell.

Plate S146. † *Pseudorthoceras palmerae* Flower & Caster, 1935, holotype specimen. Original Plate 1, Figures 1-3.

Plate S147. † *Jonesia palmerae* (Coryell & Fields, 1937), holotype (AMNH 24900). Original Figures 16a-b.

Plate S148a. † *Macrocallista palmerae* Caster, 1938, holotype (PRI 1840) shell and hinge. Original Plate 1, Figures 9-10.

Plate S148b. † *Macrocallista palmerae* Caster, 1938, paratype (PRI 1919). Original Plate 8, Figure 7.

Plate S148c. † *Macrocallista palmerae* Caster, 1938, external view of paratype valve (PRI 1919). Photo by Jocelyn A. Sessa.

Plate S148d. † *Macrocallista palmerae* Caster, 1938, internal view of paratype hinge (PRI 1919). Photo by Jocelyn A. Sessa.

Plate S149a. † *Brachyspirifer palmerae* Caster, 1939, portion of external dorsal mold, paratype PRI 5407A. Original Plate 10, Figures 12-13.

Plate S149b. † *Brachyspirifer palmerae* Caster, 1939, external dorsal mold of holotype PRI 5407), showing smooth surface and plications. Original Plate 12, Figures 5-6.

Plate S149c. † *Brachyspirifer palmerae* Caster, 1939, holotype (PRI 5407).

Plate S150. † *Cardium palmerae* Harbison, 1944, holotype (ANSP 16164). Original Plate 2, Figure 7.

Plate S151. † *Cerithiopsis palmerae* Durham, 1944, holotype (UCMP 35329). Original Plate 18, Figure 3.

Plate S152. † *Crommium palmerae* Clark in Clark & Durham, 1946. Paratype (UCMP 34981), Original Plate 15, Figures 2 and 4; and holotype (UCMP 34980), Original Plate 15, Figures 13 and 16.

Plate S153a. † *Paracytheridea palmerae* Stephenson, 1946, right valve. Original Plate 42, Figure 14.

Plate S153b. † *Paracytheridea palmerae* Stephenson, 1946, dorsal view of right valve. Original Plate 44, Figure 19.

Plate S154. † *Divalinga palmerae* Chavan, 1951, exterior and interior of holotype right valve Chavan Collection 6048). Original Figures 11-12.

Plate S155. † *Barbatia palmerae* Richards & Palmer, 1953, holotype (FGS I-7551). Original Plate 9, Figure 1.

Plate S156. † *Chrysallida palmerae* Bartsch, 1955, holotype specimen (USNM 561704). Original Plate 15, Figure 4.

Plate S157. † *Mormula palmerae* Bartsch, 1955, type specimen (USNM 561690). Original Plate 5, Figures 4a-b.

Plate S158. † *Barbatia uxorispalmeri* Stenzel & Krause in Stenzel et al., 1957, inside and outside views of right and left valves. Original Plate 5, Figures 5-10. Type specimens are at the Bureau of Economic Geology, University of Texas, Austin, Texas.

Plate S159. † *Altrix palmerae* (Olsson, 1964), holotype (USNM 644063). Original Plate 33, Figures 8a-c.

Plate S160. † *Belemnosella palmerae* Allen, 1968, holotype (PRI 27549). Original Plate 1, Figures 4-6.

Plate S161. † *Meiocardia palmerae* Nicol, 1968, right valves. Holotype (PRI 27543), Original Figures 1-2; paratype (USNM 645660), Original Figures 3-4; second paratype (PRI 27544), Original Figure 5.

Plate S162a. † *Typhis palmerae* Gertman, 1969, holotype. Original Plate 1, Figures 1a-b.

Plate S162b. † *Typhis palmerae* Gertman, 1969, shell. From D'Attilio & Hertz, 1988: Figure 92. Drawings by Anthony D'Attilio.

Plate S163. † *Hystrivasum palmerae* (Hollister, 1971), ventral and dorsal views of holotype, (PRI 28203), Original Plate 38, Figures 1, 4, and *Hystrivasum vokesae* (Hollister, 1971), ventral and dorsal views of holotype (PRI 28204), Original Plate 38, Figures 2-3.

Plate S164a. † *Vexillum palmerae* (Perrilliat, 1973), various perspectives, Original Plate 2, Figures 13-16, and *Vexillum vokesae* (Perrilliat, 1973), several images, Original Plate 2, Figures 7-12.

Plate S164b. † *Vexillum palmerae* (Perrilliat, 1973), dorsal and ventral views of 6.1 mm specimen. Original Plate 3, Figures 3, 6.

Plate S164c. † *Vexillum palmerae* (Perrilliat, 1973), holotype. Universidad Nacional Autónoma de México, Colección Nacional de Paleontología (IGM 2362).

Plate S165a. † *Cadulus palmerae* Hodgkinson, 1974 holotype (USNM 180439) and paratype (USNM 180440). Original Plate 1, Figures 15-16.

Plate S165b. † *Cadulus palmerae* Hodgkinson, 1974, drawings of orifice shape. Original Figures 8t-u.

Plate S166. † *Apiotoma palmerae* Dockery III, 1977, two views of holotype (PRI 8245) and another specimen from Town Creek. Original Plate 15, figures 21a-b and 22.

Plate S167. † *Felaniella palmerae* Dockery III, 1980, various images of left valve of holotype (PRI 30026). Original Plate 72, Figures 1a-c.

Plate S168. † *Acrilla palmerae* MacNeil in MacNeil & Dockery III, 1984, holotype (USNM 498280). Original Plate 14, figure 27.

Plate S169. † *Vetidrillia palmerae* MacNeil & Dockery III, 1984, holotype (USNM 498174), and hypotype (USNM 376508). Original Plate 22, Figure 34 and 27.

Plate S170a. † *Lithophaga palmerae* Krumm & Jones, 1993, external and internal molds of holotype (UF 5789), Original Figures 2, 1-2; internal molds of paratype (UF 47250), Original Figures 2, 3-4; and lined boreholes of two individuals with *Actinastrea* coral host, Original Figure 2, 5.

Plate S170b. † *Lithophaga palmerae* Krumm & Jones, 1993, internal mold of left valve and multiple lined boreholes (paratypes UF 5790, 43651, and 5795), many inhabited. Original Figure 3.

Plate S171. † *Dentalium palmerae* Garvie, 1996, holotype (PRI 30313). Original Plate 9, Figure 2.

Plate S172. † *Profundiconus palmerae* (Hendricks & Portell, 2008), holotype (UF 108858), scale bars represent 1 cm. Original Figures 23-30.

Plate S173a. † *Hysteroconcha rosea vanwinkleae* (Olsson, 1922), specimens (PRI 21319-21320) from Banana River, Costa Rica, type locality. Original Plate 32, Figures 2-3.

Plate S173b. † *Hysteroconcha rosea vanwinkleae* (Olsson, 1922), right valves of articulated and immature specimens from the Gatun Formation in Panama (USNM 647694 and 647739). From Woodring, 1982: Plate 118, Figures 8, 12.

Figures S173c-d. † *Hysteroconcha rosea vanwinkleae* (Olsson, 1922), exterior and interior views of holotype (PRI 24016).

Plate S174a. † *Turritella carinata palmerae* Bowles, 1939, holotype (USNM 497997). Plate 33, figure 12.

Plate S174b. † *Turritella carinata palmerae* Bowles, 1939, apertural view. PRI 56248.

Plate S174c. † *Turritella carinata palmerae* Bowles, 1939, dorsal view. PRI 56248.

Plate S175. † *Pteria limula vanwinkleae* Harris in Harris & Palmer, 1946, right valves and left valve with close-up of hinge. Original Plate 10, Figure 1, holotype (PRI 4182); Original Plate 10, Figure 2, paratype (PRI 4183); Original Plate 10, Figures 3-4, paratype (PRI 4184).

Plate S176a. *Pyrgiscus palmerae* (Aguayo & Jaume, 1936), shell and close-ups of whorl sculpture. Original Figures 1-3.

Plate S176b. *Cymatosyrinx palmerae* Palmer in Harris & Palmer, 1947, holotype (PRI 4969). Original Plate 61, figure 17.

Plate S177. *Pascula citrica* (Dall, 1908), type species of *Pascula*, senior synonym to *Evokesia* Radwin & D'Attilio, 1976. Apertural view of shell, drawing by Anthony D'Attilio. From Radwin & D'Attilio, 1976: Figure 129.

Plate S178. † *Vokesinotus lepidota* (Dall, 1890), type species of *Vokesinotus* Petuch, 1988. Apertural view of Dall's holotype (USNM 112186). From Dall, 1890: Plate 9, figure 3.

Plate S179. *Vokesmurex tricornis* (Berry, 1960), living specimen from the Gulf of California. Photo by Alex Kerstitch.

Plate S180a. *Pteropurpura vokesae* Emerson, 1964, collection of specimens in the San Diego Natural History Museum. Photo by Hans Bertsch.

Plate S180b. *Pteropurpura vokesae* Emerson, 1964, close-up of shell showing sculpture. Photo by Hans Bertsch.

Plate S181a. † *Pterotyphis vokesae* Gertman, 1969, apertural and dorsal views of holotype (USNM 646227). Original Plate 8, figures 3a-b.

Plate S181b. † *Pterotyphis vokesae* Gertman, 1969, drawings of shell and protoconch by Anthony D'Attilio. From D'Attilio & Hertz, 1988: Figure 38.

Plate S182. † *Axelella vokesae* (Petit, 1970), views of holotype (USNM 646465). Original Plate 1, figures 1a-b.

Plate S183. † *Plesiotriton vokesae* (Allen, 1970), apertural and dorsal views of holotype (PRI 27644). Original Plate 2, figures 10-11.

Plate S184. † *Cerithium vokesae* S. E. Hoerle, 1972, apertural view of holotype (USNM 646942). Original Plate 1, figure 5.

Plate S185. † *Neritopsis vokesorum* R. C. Hoerle, 1972, views of holotype (USNM 646934). Original Text figure 1.

Plate S186. † *Limatula emilyae* Glibert & van de Poel, 1973, holotype (IRSNB No. 5325). Original Plate 8, figure 9.

Plate S187. † *Gastrochoena emilyana* H. E. Vokes, 1976. External and internal views of valves. Original Figure 1, holotype (USNM 647648); Original Figures 2a-b, paratype (USNM 647649).

Plate S188. † *Hemicytherura vokesae* Kontrovitz, 1978. Left valve holotype (USNM 236001), Original Figure 2; and right valve, Original Figure 4.

Plate S189a. † *Haynespongia vokesae* Rigby, 1981, photomicrographs of skeletal net and gastral surface of type specimens. Holotype (USNM 252494) Original Plate 2, Figures 1, 4, 6; Paratype (USNM 252495), Original Figure 3.

Plate S189b. † *Haynespongia vokesae* Rigby, 1981, various images of hypotypes (USNM 128037, 128039, 128040, and 128042). From Finks et al., 2011: Plate 36.

Plate S189c. † *Haynespongia vokesae* Rigby, 1981, various images of hypotypes (USNM 128036, 128038, and 128059). From Finks et al., 2011: Plate 37.

Plate S190. † *Oliva vokesorum* Drez, 1981, ventral views of holotype (USNM 247893), Figure 9) and a paratype (USNM 247894), Original Figure 10.

Plate S191a. *Aspella vokesiana* Houart, 1983, apertural and dorsal views of holotype (Museum National d"Histoire Naturelle, Paris). Original Plate 1, figures 5-6.

Plate S191b. *Aspella vokesiana* Houart, 1983, ventral, dorsal and side views of holotype MNHN, Paris. Photos by B. Fontaine.

Plate S192a. † *Trossulasalpinx vokesae* Petuch, 1986, Pliocene Miami reef structure, drawing of zonation pattern. Original Figure 3.

Plate S192b. † *Trossulasalpinx vokesae* Petuch, 1986, drawing of *in situ* position of the species. Original Figure 5.

Plate S192c. † *Trossulasalpinx vokesae* Petuch, 1986, dorsal and ventral views of holotype (MCZ 29223). Original Plate 4, figures 6-7.

Plate S193a. *Naquetia vokesae* (Houart, 1986), apertural and dorsal views of holotype shell (NMSA H213), Original Figure 1, and apertural view and drawing of protoconch, paratype (IRSNB 27035), Original Figure 2.

Plate S193b. *Naquetia vokesae* (Houart, 1986), comparative morphology of various specimens. From Houart et al., 2021: Figure 27. Holotype, NMSA H213, Figure A.

Plate S193c. *Naquetia vokesae* (Houart, 1986), overview photos of species of *Naquetia*. From Houart et al., 2021: Figure 28.

Plate S194. † *Lindapterys vokesae* Petuch, 1987 dorsal and ventral views of holotype (USNM 647012). Original Plate 15, Figures 10-11.

Plate S195a. *Chicoreus emilyae* Petuch, 1987 [= *Chicoreus florifer* (Reeve, 1846)], dorsal and ventral views. Original Plate 13, Figures 1-2.

Plate S195b. *Chicoreus emilyae* Petuch, 1987 [= *Chicoreus florifer* (Reeve, 1846)], photographs of holotype (USNM 859834).

Plate S196. † *Mariasalpinx emilyae* Petuch, 1988, dorsal and apertural views of holotype (ANSP 52860) and paratype (ANSP 52861). Original Plate 2, respectively Figures 1-2, and 5-6.

Plate S197. † *Calotrophon emilyae* Petuch, 1988, dorsal and ventral views of holotype (USNM 427966). Original Plate 18, Figures 7-8.

Plate S198. † *Scalaspira vokesae* Petuch, 1988, dorsal and apertural views of holotype (USNM 427961). Original Plate 7, Figures 5-6.

Plate S199. † *Trichotropis vokesae* Pitt & Pitt, 1989, apertural image of holotype (CASG 66058.01), Original Plate 1, Figure 1, and apertural and apical images of paratype (CASG 66058.02, Original Plate 1, Figure 2.

Plate S200a. † *Loxacypraea emilyae* (Dolin, 1991), dorsal and ventral views. From Petuch, 2004: Plate 19, Figures K-L.

Plate S200b. † *Loxacypraea emilyae* (Dolin, 1991), apertural drawing of holotype (USNM 438580). Original Figure 2a.

Plate S201a. † *Trajana emilyae* Petuch, 1994, apertural view of holotype (UF 66360). Original Plate 69, Figure K.

Plate S201b. † *Trajana emilyae* Petuch, 1994, apertural and dorsal views. From Claudio Galli, Worldwide Mollusc Species Database.

Plate S202. † *Vokesinotus emilyae* Petuch, 1994, dorsal view of holotype (UF 66265). Original Plate 47, Figure H.

Plate S203. † *Siphonaliopsis vokesae* Le Renard, 1995, apertural and dorsal views of specimen in MNHM. Photo by Christian Lemzaouda.

Plate S204. † "*Trophon*" *vokesae* Brunet, 1997, dorsal and apertural views of holotype (MPEF-PI-019). Original Plate 3, Figure 6. MPEF = Museo Paleontológico Egidio Fergulio, Trelew, Argentina

Plate S205. † *Massyla emilyvokesae* (Landau & Petit, 1997), apertural and dorsal views of holotype (NMB, Naturhistoricshes Museum Basel, H 17787). Original Figures 1a-b.

Plate S206a. *Siratus vokesorum* (García, 1999), ventral and dorsal views, protoconch and radula of holotype (ANSP 400854). Original Figures 1-4.

Plate S206b. *Siratus vokesorum* (García, 1999), apertural view of holotype (ANSP 400854).

Plate S206c. *Siratus vokesorum* (García, 1999), dorsal view of holotype (ANSP 400854).

Plate S206d. *Siratus vokesorum* (García, 1999), lateral view of holotype (ANSP 400854), showing dorsally recurved siphonal canal.

Plate S207a. † *Favia vokesae* Budd & Johnson, 1999, calical surface. Paratype (USNM 95278), Figures 3-5. Holotype (USNM NMB D6017), Original Figure 6.

Plate S207b. † *Favia vokesae* Budd & Johnson, 1999, colony. Photo from nmita.rsmas.miami.edu.

Plate S207c. † *Favia vokesae* Budd & Johnson, 1999, calix showing septa. Photo from nmita.rsmas.miami.edu.

Plate S208. *Chicoreus vokesae* Macsotay & Campos, 2001, dorsal and apertural views of holotype. Original Plate 4, Figures 8-9.

Plate S209a. *Enixotrophon emilyae* (Pastorino, 2002), apertural photo of holotype (USNM 896438).

Plate S209b. *Enixotrophon emilyae* (Pastorino, 2002), dorsal photo of holotype (USNM 896438).

Plate S209c. *Enixotrophon emilyae* (Pastorino, 2002), lateral photo of holotype (USNM 896438).

Plate S210. *Eupleura vokesorum* Herbert, 2005, apertural and ventral photos of paratypes (UCMP 198999 and USNM 519551), Original Figures 83-84, and holotype (UCMP 198998), Original Figure 85. Scanning electron micrographs of radula and protoconch and early teleoconch whorls. Original Figures 86-89.

Plate S211. † *Argenthina emilyae* Herbert & Del Rio, 2005, views of holotype (UF 104496), Original Figures 2.1-3, and paratypes, Original Figures 2.4-12.

Plate S212. *Timbellus emilyae* (Espinosa et al., 2007), apertural and dorsal views, and protoconch of holotype, deposited in the Colección Malacológica del Instituto de Ecología. Original Plate 2.

Plate S213. † *Metrarabdotos vokesorum* Cheetham et al., 2007. View of colony, with slender, narrow, strap-like branches. Holotype (USNM 529784), Original Figure 21.5; paratype (USNM 529789), Original Figures 21.6-7.

Plate S214. † *Epitonium vokesae* Schmelz & Portell, 2007, apertural, lateral, abapertural and basal view of holotype (UF 113898), and magnified view of teleoconch sculpture. Original Figures 79-83.

Plate S215a. † *Lobatus vokesae* Landau et al., 2007, holotype (NHMW, Naturhistoriches Museum in Wien, Austria, 2007z0161/0001. Original Figures 1-3.

Plate S215b. † *Lobatus vokesae* Landau et al., 2007, paratype specimen. Original Figures 4-7.

Plate S216. † *Neoteron emilyvokesae* Landau & Marques da Silva, 2010, dorsal and ventral views of holotype (NHMW 2010/0038/0019), Original Plate 15, Figures 3a-b, and paratype (NHMW 2010/0038/0020), Original Plate 15, Figure 4.

Plate S217. † *Cymatiella vokesorum* Beu, 2010, holotype (NMB H 17967), Original Plate 54, Figures 1, 4, 9), and other specimens, Original Plate 54, Figures 2-3, 5-8, and 10.

Plate S218. † *Mimachlamys vokesorum* Waller, 2011, images of articulated shell of holotype (USNM 540950), dorsal, anterior, and right and left exterior valves (scale bar = 10 mm). Original Plate 3, Figures 6-9.

Plate S219. † *Eupilumnus* (?) *vokesae* Luque in Luque et al., 2020, views of carapace and chelipeds, holotype (USNM PAL 770846), Original Figures A-C, E; close-up and chelipeds of paratype (USNM PAL 770847), Original Figures 12 D, and F-H.

Plate S220. † *Zonaria vokesae* Groves & Landau, 2021, images of holotype (NHMW 2017/0124/0146), Original Figures 17.1-5.

Plate S221a. † *Lyropecten colinensis vokesae*. Smith, 1991, left valve of holotype (USNM 334988), showing characteristic coarse radial macrosculpture and flanged nodes, Plate 16, Figure 1, and left valve of hypotype (USNM 334989), Original Plate 16, Figure 3.

Plate S221b. † *Lyropecten colinensis vokesae*. Smith, 1991, right valve of hypotype (USNM 334989), Original Plate 17, Figure 3.

Plate S221c. † *Lyropecten colinensis vokesae*. Smith, 1991, right and left valves of hypotype (UCMP 37380) collected from near Los Quemados, Dominican Republic, Original Plate 18, Figures 2, 4; left valve of hypotype (USNM 334990) collected from north bank of Chagres River, Panama, Original Plate 18, Figure 3.

Plate S221d. † *Lyropecten colinensis vokesae*. Smith, 1991, right valve of holotype (USNM 334988), Plate 19, Figure 2; right valve of hypotype (USNM 334992), Original Plate 19, Plate 4.

Plate S222. No image for this number.

Plate S223. † *Tegula ellenae* Addicott, 1966, views of holotype (USNM 649120), Plate 76, Figures 2-3, and several paratypes (USNM 649121-649123), Original Plate 76, Figures 5-7.

Plate S224. † *Lysonia mooreae* Marincovich, 1983, right and articulated valves of the holotype (USNM 339812), Plate 22, Figures 1-3, and left valve of paratype (USNM 339813), Original Plate 22, figures 1-4.

Figures S225. † *Fulgoraria ellenmooreae* Squires & Goedert, 1994b, various views of holotype (LACMIP 12274), Original Figures 3-6, and paratype (LACMIP 12275), Original Figures 7-8.

Plate S226. *Subcancilla edithrexae* Sphon, 1976, apertural view of holotype (LACM 1735). Photo by Lindsey T. Groves.

Plate S227a. *Paciocinebrina thelmacrowae*, Houart et al., 2019, close-up of aperture of holotype (LACM 2712), Original Figure 7I.

Plate S227b. *Paciocinebrina thelmacrowae* Houart et al., 2019, rib structure of holotype (LACM 2712), Original Figure 8C.

Plate S227c. *Paciocinebrina thelmacrowae* Houart et al., 2019, dorsal and ventral views of holotype (LACM 2712), Original Figures 23K-L.

Plate S228. * *Phenacovolva greenbergae* Cate, 1974, dorsal and apertural views of holotype (LACM 1556). Original Figure 3.

Plate S229a. * *Favartia dorothyae* Emerson & D'Attilio, 1979, dorsal and apertural views of holotype (AMNH 183821), Original Figures 3-4.

Plate S229b. * *Favartia dorothyae* Emerson & D'Attilio, 1979, dorsal and ventral views of paratype (AMNH 183822), Original Figures 15-16.

Plate S230a. *Boonea seminuda* (C. B. Adams, 1839), apertural drawing of shell. Type species of the genus *Boonea* Robertson, 1978: Original Figure 3.

Plate S230b. *Boonea* Robertson, 1978, spermatophores of the genera *Boonea* (Original Figure 1) and *Fargoa* (Original Figure 2).

Plate S231a. *Booneostrea cucullina* (Deshayes, 1836), sensu Harry, 1985, left and right valves and interior of left valve. "Specimen collected and loaned by Constance E. Boone," from Harry, 1985, Figure 25.

Figures S231b-d. *Booneostrea* Harry, 1985, images of *Booneostrea subucula* (Jousseaume in Lamy, 1925) from the Paris Museum (6531104). Photo by Philippe Maestrati (see www.gbif.org/species/6531104).

Plate S232. * *Hydrobia booneae* Morrison, 1973. Figured specimen is holotype (USNM 635630) of *Odostomia* (now *Texadina*) *barretti* Morrison, 1965: Figure 4.

Plate S233. *Lucernaria janetae* Collins & Daly, 2005. Photo by Peter Batson.

Plate S234a. *Anatoma janetae* Geiger, 2006a, SEMs of shell of holotype (FMNH 307218), Original Figures 1A-B, scale bar = 1 mm, and protoconch, Original Figure 1C, scale bar = 100 µm; SEMs of paratype (FMNH 282781), Original Figures 1D-F, scale bar = 500 µm.

Plate S234b. *Anatoma janetae* Geiger, 2006a, radular teeth, showing central field, laterals and marginals, scale bar = 20 µm. Original Figure 3.

Plate S235a. *Oligocladus voightae* Quiroga et al., 2006, drawing of ventral surface. Original Figure 9.

Plate S235b. *Oligocladus voightae* Quiroga et al., 2006, whole mount and close-up of anterior, scale bar = 1 mm. Original Figure 6.

Plate S235c. *Oligocladus voightae* Quiroga et al., 2006, sagittal sections showing brain posterior to mouth and details of the male and female reproductive systems, scale = 100 µm. Original Figure 8.

Plate S236a. *Xyloplax janetae* Mah, 2006. Photo by Christopher Mah.

Plate S236b. *Xyloplax janetae* Mah, 2006, digital still image of a fresh-collected female with a diameter of about 10 mm. Developing embryos can be seen through the body, which is covered by erect spines and encircled by marginal spines. From Voight, 2005, Figure 1. Photo by Todd Haney.

Plate S237. *Paronesimoides voightae* Larsen, 2007, lateral view of female holotype (FMNH 13756), Original Figure 1A, and close-up drawings of various body parts of female paratypes (FMNH), Original Figures 1B-K.

Plate S238. *Apomatus voightae* Kupriyanova & Nishi, 2010, branchial crown with operculum (FMNH 6583) Original Figure 1A; anterior part of the tube of holotype (FMNH 6199), Original Figure 1B; ventral view of the thorax (stained with methylene blue) of holotype, showing glandular field of the thoracic depression, Original Figure 1C; and lateral view of the thorax of holotype, Original Figure 1D. Scale bar: A = 2 mm, B = 1 mm, C, D = 2 mm.

Plate S239a. *Dillwynella voightae* Kunze, 2011, views of holotype shell (FMNH 312467). Original Figures 1-4.

Plate S239b. *Dillwynella voightae* Kunze, 2011, shell and protoconch of juvenile (Original Figures 10-11), and views of holotype: operculum, Original Figure 12; ventral view of foot, Original Figure 13; epipodial tentacles and propodium, Original Figures 14-15; radula, Original Figures 16-18; gut content, Original Figure 19; and jaws, Original Figure 20.

Plate S240. *Echinocletodes voightae* George & Müller, 2013, dorsal and lateral views of female holotype (FMNH-INV 14021), Original Figures 1A-B, scale bar = 500 µm, and cuticular spike; Original Figure 1C, scale bar = 50µm.

Plate S241. † *Bathrotomaria annejoffeae* Harasewych & Kiel, 2007, views of holotype (USNM 534483) and details of sculpture. Original Figures 13-16.

Plate S242. *Parviturbo annejoffeae* Rubio et al. in Rubio et al., 2015, SEMs of holotype (FLMNH 478949) shell, Original Figure 20a; paratype shell, protoconch and microsculpture, Original Figures 20b-d.

Plate S243. *Potoniopsides paulae* (Gore, 1981), lateral view of female holotype, (FMNH 13756), scale bar = 1 mm, and various body parts of paratypes, scale bar = 0.2 mm, Original Figure 1.

Plate S244a. *Coccopigya mikkelsenae* McLean & Harasewych, 1995, dorsal, lateral, and ventral views of holotype (USNM 860357), periostracum removed, Original Figure 40, scale bar = 1.0 mm; detail of periostracum at shell edge of paratype (HBOM 065:03786), Original Figure 41, scale bar = 100 µm, and dorsal and lateral views of protoconch of holotype; Original Figures 42-43, scale bars = 50 µm.

Plate S244b. *Coccopigya mikkelsenae* McLean & Harasewych, 1995, oblique and dorsal views of rachidian, lateral, and pluricuspid teeth, Original Figures 44-45, scale bar = 20 µm; radular ribbon, Original Figure 46, scale bar = 25 µm; and detail of marginal teeth, Original Figure 47, scale bar = 5 µm.

Plates S245a-b. *Amerycina mikkelsenae* Valentich-Scott in Coan & Valentich-Scott, 2012, left and right valves of holotype (LACM 3211). Photo by Paul Valentich-Scott.

Plate S246. *Collonista mikkelsenae* (Huang et al., 2016), holotype Paris Museum MNHN. Photo by Manuel Caballer.

Plate S247a. *Lamprohaminoea mikkelsenae* Oskars & Malaquias, 2020, shells, Original Figures 15A-C; rachidian and first lateral teeth, Original Figures 15D, scale bar = 10μm, and 15E, scale bar = 5 μm); gizzard plate, Original Figures 15F, scale bar = 50 μm, and G-H, scale bar = 100 μm).

Plate S247b. *Lamprohaminoea mikkelsenae* Oskars & Malaquias, 2020, jaw rods and reproductive system. Original Figure 16.

Figures S247c-d. *Lamprohaminoea mikkelsenae* Oskars & Malaquias, 2020, living animals. Photos by Manuel Malaquias.

Plate S248a. *Camachoaglaja* Zamora-Silva & Malaquias, 2017, drawings of shells of Aglajidae. Figure 5.

Figures S248b-c. *Camachoaglaja africana* (Pruvot-Fol, 1953), living animal of type species of the genus. Photo by Manuel Antonio E. Malaquias.

Plate S249. *Agra yola* Erwin, 2000, dorsal views of female holotype (INBio, CRI 002-140738). Original Figure 3.

Plate S250a. *Volvarina yolandae* Espinosa & Ortea, 2000, shells (A, C & E, scale bar = 1 mm) and radular teeth (B & D, scale bar = 50μm). Original Figure 10.

Plate S250b. *Volvarina yolandae* Espinosa & Ortea, 2000, color drawing of shell (scale bar = 1 mm). Original Plate 2.

Figures S251a. *Eubranchus yolandae* Hermosillo & Valdés, 2007, living animal. Photo by Alicia Hermosillo.

Plate S251b. *Eubranchus yolandae* Hermosillo & Valdés, 2007, radular teeth of holotype (LACM 3055). Original Figure 10.

Plate S252. *Bogasonia jennyae* Valdés, 2019, shell of holotype (LACM 3331). Photo by Ángel Valdés.

Plate S253. *Microglyphis sabrinae* Valdés, 2019, shell of holotype (LACM 3330). Photo by Ángel Valdés.

Plate S254. *Goniodoridella mexicorum* (Gosliner & Bertsch, 2004), dorsal view of one cm animal in situ, Cuevitas, Bahía de los Ángeles, 10 January 2020. Photo by Craig Hoover.

Plate S255. *Discodoris aliciae* Dayrat, 2005, living animal. Photo by Alicia Hermosillo.

Plate S256a. *Oxynoe aliciae* Krug et al., 2018, living animal. Photo by Craig Hoover.

Plate S256b. *Oxynoe aliciae* Krug et al., 2018, living animal, Majahuitas, Bahía de Banderas, Jalisco, Mexico. Photo by Alicia Hermosillo.

Plate S256c. *Oxynoe aliciae* Krug et al., 2018, SEMs of radular teeth and ascus of paratype (LACM 3426). Original Figure 31.

Plate S257. *Unidentia aliciae* Korshunova et al., 2019, living animal, 10 September 2020, at La Balsa Park Buddina, Mooloolah River (saltwater tidal estuary), Sunshine Coast, Queensland, Australia. Photo by David Mullins.

Plate S258a. *Myja karin* Martynov et al., 2019, living animals, holotype (ZMMU Op-610), Original Figures 2A-D, and cerata close-up and view in situ on hydroids, Original Figures 2E-F; veliger larvae Original Figures 2G-H; jaws, Original Figures 2I-J, and radula, Original Figures 2K-N. Scale bars: 100 μm (2I); 50 μm (2J, L); 10 μm (2M); 5 μm (2N).

Plate S258b. *Myja karin* Martynov et al., 2019, living animal on hydroid prey. Photo by Alexander Martynov and Tatiana Korshunova (see Martynov et al., 2019, Figure 2F); courtesy of Karin Fletcher.

Plate S259a. *Favartia rosamiae* D'Attilio & Myers, 1985, drawings by Anthony D'Attilio of the protoconch and radular teeth. Original Figures 5-6.

Plate S259b. *Favartia rosamiae* D'Attilio & Myers, 1985, dorsal and apertural views of holotype (SDNHM 80742). Photos by Bob Abela.

Plate S260a. *Solen gemmellae* Cosel, 1992, exterior left valve (SBMNH 347165). Photo by Paul Valentich-Scott.

Plate S260b. *Solen gemmellae* Cosel, 1992, interior left valve (SBMNH 347165). Photo by Paul Valentich-Scott.

Plate S260c. *Solen gemmellae* Cosel, 1992, exterior right valve (SBMNH 347165). Photo by Paul Valentich-Scott.

Plate S260d. *Solen gemmellae* Cosel, 1992, interior right valve (SBMNH 347165). Photo by Paul Valentich-Scott.

Plate S261a. † *Eocypraea* (?) *carolehickmanae* Groves & Squires, 2023a, dorsal view of holotype (LACMIP 15015). Photo by Lindsey T. Groves.

Plate S261b. † *Eocypraea* (?) *carolehickmanae* Groves & Squires, 2023a, apertural view of holotype (LACMIP 15015). Photo by Lindsey T. Groves.

Plate S262a. † *Eocypraea judithsmithae* Groves & Squires, 2023c, dorsal view of holotype (LACMIP 14940). Photo by Lindsey T. Groves.

Plate S262b. † *Eocypraea judithsmithae* Groves & Squires, 2023c, apertural view of holotype (LACMIP 14940). Photo by Lindsey T. Groves.

Table 1: Number of species and subspecies taxa named for each woman

	Recent	Fossil	Gastropods	Bivalves	Other [1]	Synonyms
Elsie M. Chace	4	1	4		1 [2]	1
Jean M. Cate	3		3			
Helen DuShane	5		5			1
Beatrice J. Burch	2		2			
Lois J. Pitt	1	2	3			
Margaret F. Mulliner	1		1			
Billee L. Dilworth	1		1			
Twila L. Bratcher	8		8			1
Kirstie L. Kaiser	6		3	2	1 [3]	
Carole M. Hertz	5 [4]		4 [4]	1		
Carol C. Skoglund	14 [4]		10 [4]	2	2 [5]	
Nora Foster	1		1			
Martha Reguero Reza	1			1		
Edna Naranjo García	2		2			
Sandra V. Millen	4		4			
Judith Terry Smith	1	6	6	1		
Carole S. Hickman	3	6	8	1		
Jann E. Vendetti	1		1			
LouElla R. Saul		15	9	5	1 [6]	
A. Myra Keen	30	10	25	14	1 [7]	9
Katherine Van Winkle Palmer		37	13	16	8 [8]	2
Emily H. Vokes	9	35	35	4	5 [9]	
Ellen J. Moore	3	2	1			
Edith Rex	1		1			
Thelma Crow	1		1			
Ruth Greenberg	1		1			1
Dorothy Janowsky	1		1			1
Constance Boone	1		1			1
Janet Voight	8		2		6 [10]	
Anne Joffe	1	1	2			
Paula Mikkelsen	5		3	1	1 [11]	
Yolanda Camacho-García	3		2		1 [12]	
Sabrina Medrano	1		1			
Jennifer McCarthy	1		1			
Alicia Hermosillo-McKowen	4		4			
Karin Fletcher	1		1			
Rose D'Attilio	1		1			
Joyce Gemmell	1			1		
TOTALS	133 [4]	116	172 [4]	50	27	17

Explanation of Footnotes:

[1]Includes polyplacophoran, scaphopod and octopod mollusks, and other phyla.

[2]One polyplacophoran.

[3]One brachyuran crab.

[4]One species of gastropod (*Sinezona carolarum*) was named for both Carole Hertz and Carol Skoglund. Counted separately for each person, but only counted as one species in the species Totals.

[5]Two polyplacophorans.

[6]One ammonoid cephalopod.

[7]One foraminiferan.

[8]Two shelled cephalopods and two scaphopods, and one scleractinian, two ostracods and one brachiopod.

[9]One hexactinellid sponge, one solitary stony coral, one ostracod, one brachyuran, one bryozoan.

[10]One stauromedusan, polyclad platyhelminth, polychaete, amphipod, copepod and asteroid each.

[11]One pontoniid shrimp.

[12]One carabid beetle.

Table 2: Number of Supra-specific taxa named for each woman

	Tribe	Recent Genera	Fossil Genera	Gastropod Genera	Bivalve Genera	Other	Genus Synonym
Carole Hickman		1		1			
LouElla R. Saul			2		2		
A. Myra Keen	1	3			3		
Katherine Van Winkle Palmer			3	1	1	1 [1]	
Emily H. Vokes		2	1	2			1
Constance Boone		2		2			
Yolanda Camacho-García		1		1			

[1]One fossil barnacle.

Table 3: Taxonomic list of feminine eponyms honoring Western Society of Malacologists members.

* = Synonymized

† = Fossil

FORAMINIFERA

Globothalamea - Rotaliida -Chilostomelloidea - Anomalinidae

† *Anomalina keenae* Martin, 1943

PORIFERA

Hexactinellida - Hexactinosa - Cribrospongiidae

† *Haynespongia vokesae* Rigby, 1981

CNIDARIA

Anthozoa - Zoantharia - Scleractinia - Faviidae

† *Favia vokesae* Budd & Johnson, 1999

Anthozoa - Zoantharia - Scleractinia - Turbinoliidae

† *Smilotrochus palmerae* (Wells, 1933)

Medusozoa - Staurozoa - Stauromedusae - Lucernariidae

Lucernaria janetae Collins & Daly, 2005

PLATYHELMINTHES

Polycladida - Cotylea - Euryleptidae

Oligocladus voightae Quiroga, Bolaños & Litvaitis, 2006

MOLLUSCA

Gastropoda

Patellogastropoda - Lottioidea - Lottidae

† *Niveotectura myrakeenae* Lindberg & Marincovich, 1988

Neomphalina - Cocculiiformia - Cocculinida - Cocculinoidea - Cocculinidae

Coccopigya mikkelsenae McLean & Harasewych, 1995

Vetigastropoda - Trochida - Trochoidea - Calliostomatidae

Calliostoma keenae McLean, 1970a

Vetigastropoda - Trochida - Trochoidea - Colloniidae

Collonista mikkelsenae (Huang, Fu & Poppe, 2016)

Vetigastropoda - Trochida - Trochoidea - Margaritidae

Margarites hickmanae McLean, 1984

Vetigastropoda - Trochida - Trochoidea - Skeneidae

Dillwynella voightae Kunze, 2011

Parviturbo annejoffeae Rubio, Rolán & Lee in Rubio, Rolán and Fernández-Garcés, 2015

Vetigastropoda - Trochida - Trochoidea - Tegulidae

Carolesia Güller & Zelaya, 2014

† *Tegula ellenae* Addicott, 1966

Vetigastropoda - Trochida - Trochoidea - Turbinidae

† *Angaria keenae* von der Osten, 1957

† *Astraea hickmanae* Kiel & Bandel, 2002

Vetigastropoda - Seguenziida - Seguenzoidea - Calliotropidae

† *Bathybembix hickmanae* Moore, 1984

Vetigastropoda - Seguenziida - Seguenzoidea - Choristellidae

Choristella hickmanae McLean, 1992

Vetigastropoda - Lepetillida - Fissurelloidea - Fissurellidae

† *Altrix palmerae* (Olsson, 1964)

Vetigastropoda - Lepetellida - Scissurelloidea - Anatomidae

Anatoma keenae (McLean, 1970b)

Anatoma janetae Geiger, 2006a

Vetigastropoda - Lepetellida - Scissurelloidea - Scissurelliidae

Scissurella kaiserae Geiger, 2006b

Sinezona carolarum Geiger & McLean, 2010

Vetigastropoda - Pleurotomariida - Pleurotomarioidea - Pleurotomariidae

† *Bathrotomaria annejoffeae* Harasewych & Kiel, 2007

† *Leptomaria hickmanae* Harasewych, Oleinik & Zinsmeister, 2009

Neritomorpha - Cycloneritida - Neritopsoidea - Neritopsidae

† *Neritopsis vokesorum* R. C. Hoerle, 1972

Caenogastropoda - Unassigned - Epitonioidea - Epitoniidae

† *Acrilla palmerae* MacNeil in MacNeil & Dockery III, 1984

Cirsotrema hertzae Garcia, 2010

Cirsotrema skoglundae Garcia, 2010

Claviscala dushaneae Brown, 2019

Epidendrium billeeanum (DuShane & Bratcher, 1965)

Epifungium twilae (A. Gittenberger & Goud, in A. Gittenberger, Goud & Gittenberger, 2000)

Epifungium pseudotwilae A. Gittenberger & E. Gittenberger, 2005

Epitonium skoglundae DuShane, 1974

† *Epitonium vokesae* Schmelz & Portell, 2007

Opalia burchorum DuShane, 1988

Opalia dushaneae García, 2004

Caenogastropoda - Unassigned - Triphoroidea - Cerithiopsidae

† *Cerithiopsis palmerae* Durham, 1944

Caenogastropoda - Unassigned - Campaniloidea - Ampullinidae

† *Crommium palmerae* Clark in Clark & Durham, 1946

Caenogastropoda - Cerithiimorpha - Cerithioidea - Cerithiidae

† *Cerithium vokesorum* S. E. Hoerle, 1972

Liocerithium judithae Keen, 1971

Caenogastropoda - Cerithiimorpha - Cerithioidea - Siliquariidae

Stephopoma myrakeenae Olsson & McGinty, 1958

Caenogastropoda - Cerithiimorpha - Cerithioidea - Potamididae

† *Trocotaulax saulae* Kiel & Aranda-Manteca, 2002

Caenogastropoda - Cerithiimorpha - Cerithioidea - Turritellidae

† *Kapalmerella* Allmon, 2005

† *Turritella carinata palmerae* Bowles, 1939

Caenogastropoda - Littorinomorpha - Capuloidea - Capulidae

† *Trichotropis vokesae* Pitt & Pitt, 1989

Caenogastropoda - Sorbeoconcha – Latrogastropoda - Cypraeoidea - Cypraeidae

† *Protocypraea louellasaulae* (Groves, Filkorn & Alderson, 2011)

† *Loxacypraea emilyae* (Dolin, 1991)

† *Pseudozonaria pittorum* (Groves, 1997)

Zoila jeaniana (C. N. Cate, 1968)

† *Zonaria vokesae* Groves & Landau, 2021

Caenogastropoda - Sorbeoconcha – Latrogastropoda - Cypraeoidea - Eocypraeidae

† *Eocypraea (Eocypraea) louellae* Groves, 1990

† *Eocypraea* (?) (*Apiocypraea*?) *keenae* Woodring, 1959

† *Eocypraea* (?) *carolehickmanae* Groves & Squires, 2023a

† *Eocypraea judithsmithae* Groves & Squires, 2023c

Caenogastropoda - Sorbeoconcha – Latrogastropoda - Cypraeoidea - Ovulidae

* *Phenacovolva greenbergae* Cate, 1974
[Synonym: *Quasisimnia hirasei* (Pilsbry, 1913)]

**Primovula myrakeenae* Azuma & Cate, 1971
[Synonym = *Dentiovula azumai* (Cate, 1970)]

Pseudosimnia jeanae (Cate, 1973)

* *Cymbovula bratcherae* (C. N. Cate, 1973)
[Synonym = *Simnialena rufa* (G.B. Sowerby I., 1833)]

Caenogastropoda - Sorbeoconcha - Latrogastropoda - Velutinoidea - Triviidae

Dolichupis myrae (Campbell, 1961)

* *Pusula elsiae* (Howard & Sphon, 1960)

[Synonym = *Pseudopusula californiana* (Gray, 1827)]

Caenogastropoda - Littorinomorpha - Littorinoidea - Littorinidae

Littorina keenae Rosewater, 1978

Caenogastropoda - Littorinomorpha - Naticoidea - Naticidae

† *Polinices saulae* Perrilliat, 2013

Caenogastropoda - Littorinomorpha - Rissooidea - Rissoidae

* *Alvania keenae* Gordon, 1939
[Synonym = *Onoba carpenteri*(Weinkoff, 1885)]

Rissoina keenae A.G. Smith & Gordon, 1948

Caenogastropoda - Littorinomorpha - Stromboidea - Aporrhaidae

† *Tessarolax louellae* Squires in Saul & Squires, 2015

† *Calyptraphorus terrysmithae* Perrilliat, 2013

Caenogastropoda - Littorinomorpha - Stromboidea - Strombidae

† *Lobatus vokesae* Landau, Kronenberg & Herbert, 2008

Caenogastropoda - Littorinomorpha - Tonnoidea - Cassidae

† *Galeodea louella* (Squires & Advocate, 1986)

Caenogastropoda - Littorinomorpha - Tonnoidea - Cymatiidae

† *Cymatiella vokesorum* Beu, 2010

Monoplex keenae (Beu, 1970)

Caenogastropoda - Littorinomorpha - Tonnoidea - Ranellidae

† *Ameranella terrysmithae* (Hickman, 1980)

† *Gyrineum judithae* Zinsmeister, 1983

† *Ranella louellae* Beu, 1988

Caenogastropoda - Littorinomorpha - Truncatelloidea - Caecidae

Caecum skoglundae Pizzini, Raines & Nofroni, 2007

Caenogastropoda - Littorinomorpha - Truncatelloidea - Hydrobiidae

* *Hydrobia booneae* Morrison, 1973
[Synonym = *Texadina barretti* (Morrison, 1965)]

Caenogastropoda - Littorinomorpha - Truncatelloidea - Teinostomatidae

Teinostoma myrae Pilsbry & Olsson, 1952

Caenogastropoda - Littorinomorpha - Vermetoidea - Vermetidae

Petaloconchus keenae Hadfield & Kay, in Hadfield, Kay, Gillette & Lloyd, 1972

* *Petaloconchus myrakeenae* Absalão & Rios, 1987
[Synonym = *Petaloconchus varians* (d'Orbigny, 1839)]

Caenogastropoda - Neogastropoda - Incertae sedis

† *Trossulasalpinx vokesae* Petuch, 1986

Caenogastropoda - Neogastropoda - Unassigned - Perissityidae

† *Pyropsis louellae* Squires, 2011

Caenogastropoda - Neogastropoda - Buccinoidea - Buccinidae

† *Siphonaliopsis vokesae* Le Renard, 1995

Caenogastropoda - Neogastropoda - Buccinoidea - Columbellidae

Cotonopsis skoglundae Jung, 1989

Mitrella loisae Pitt & Kohl, 1979

Nassarina helenae Keen, 1971

Cenogastropoda - Neogastropoda - Buccinoidea - Echinofulguridae

† *Protobusycon judithae* Saul, 1988

Caenogastropoda - Neogastropoda - Buccinoidea - Melongenidae

† *Torquifer pittorum* Roth, 1981

Caenogastropoda - Neogastropoda - Buccinoidea - Nassariidae

† *Neoteron emilyvokesae* Landau & Marques da Silva, 2010

† *Trajana emilyae* Petuch, 1994

Caenogastropoda - Neogastropoda - Conoidea - Clathurellidae

Glyphostoma myrae Shasky, 1971

* *Glyphostoma myrakeenae* Olsson, 1964
[Synonym = *Glyphostoma neglecta* (Hinds, 1843)]

Caenogastropoda - Neogastropoda - Conoidea - Cochlespiridae

† *Apiotoma palmerae* Dockery, 1977

Caenogastropoda - Neogastropoda - Conoidea - Conidae

Conus bratcherae (Petuch & Berschauer, 2019)

Conus kaiserae (Tenorio, Tucker & Chaney, 2012)

Conus skoglundae (Tenorio, Tucker & Chaney, 2012)

† *Profundiconus palmerae* (Hendricks & Portell, 2008)

Caenogastropoda - Neogastropoda - Conoidea - Drillidae

† *Cymatosyrinx palmerae* Palmer in Harris & Palmer, 1947

Splendrillia bratcherae McLean & Poorman, 1971

Caenogastropoda - Neogastropoda - Conoidea - Terebridae

Terebra twilae Bouchet, 1983

Terebra bratcherae Cernohorsky, 1987

* *Terebra dushanae* Campbell, 1964
[Synonym = *Terebra bridgesi* Dall, 1908]

Caenogastropoda - Neogastropoda - Conoidea - Mangeliidae

Ithycythara hertzorum Wiedrick, 2022

Ithycythara mullinerorum Wiedrick, 2022

Caenogastropoda - Neogastropoda - Conoidea - Mitromorphidae

Mitromorpha keenae (Emerson & Radwin, 1969)

Caenogastropoda - Neogastropoda - Conoidea - Pseudomelatonidae

Thelecythara dushanae McLean & Poorman, 1971

Caenogastropoda - Neogastropoda - Conoidea - Raphitomidae

Hemilienardia twilabratcherae Wiedrick, 2017

Caenogastropoda - Neogastropoda - Conoidea - Terebridae

Neoterebra carolae (Bratcher, 1979)

Caenogastropoda - Neogastropoda - Conoidea - Turridae

† *Parasyrinx hickmanae* Zinsmeister, 1983

† *Vetidrillia palmerae* MacNeil in MacNeil & Dockery, 1984

Caenogastropoda - Neogastropoda - Mitroidea - Mitridae

Subcancilla edithrexae Sphon, 1976

Caenogastropoda - Neogastropoda - Muricoidea - Incertae Sedis

† "*Troph*on" *vokesae* Brunet, 1997

Caenogastropoda - Neogastropoda - Muricoidea - Muricidae

† *Argenthina emilyae* Herbert & Del Río, 2005

Aspella vokesiana Houart, 1983

† *Calotrophon emilyae* Petuch, 1988

* *Chicoreus emilyae* Petuch, 1987
[Synonym = *Chicoreus florifer* (Reeve, 1846)]

Chicoreus evokesana Bertsch, Groves & Dees, n. sp.

Chicoreus vokesae Macsotay & Campos, 2001

Cinclidotyphis myrae DuShane, 1969

Coralliophila caroleae D'Attilio & Myers, 1984

Dermomurex myrakeenae (Emerson & D'Attilio, 1970)

Enixotrophon emilyae (Pastorino, 2002)

Eupleura vokesorum Herbert, 2005

* *Evokesia* Radwin & D'Attilio, 1972
[Synonym = *Pascula* Dall, 1908]

* *Favartia dorothyae* Emerson & D'Attilio, 1979
[Synonym = *Favartia salmonea* (Melville & Standen, 1899)]

Favartia keenae (E.H. Vokes, 1970)

Favartia rosamiae D'Attilio & Myers, 1985

† *Lindapterys vokesae* Petuch, 1987

† *Mariasalpinx emilyae* Petuch, 1988

Mitromica jeancateae (Sphon, 1969)

Murexsul skoglundae (Myers, Hertz & D'Attilio, 1993)

Naquetia vokesae (Houart, 1986)

* *Ocenebra keenae* Boorman, 1946
[Synonym = *Paciocinebrina barbarensis* (Gabb, 1865)]

Paciocinebrina thelmacrowae Houart, Vermeij & Wiedrick, 2019

Pteropurpura vokesae Emerson, 1964

† *Pterotyphis vokesae* Gertman, 1969

Scabrotrophon norafosterae Houart, Vermeij & Wiedrick, 2019

† *Scalaspira vokesae* Petuch, 1988

Siratus vokesorum (Garcia, 1999)

Subcancilla edithrexae Sphon, 1976

Timbellus emilyae (Espinosa, Ortea & Fernández-Garcés, 2007)

† *Trossulasalpinx vokesae* Petuch, 1986

† *Turrinosyrinx hickmanae* Kiel, 2006

Typhina carolskoglundae (Houart & Hertz, 2006)

† *Typhis keenae* Gertman, 1969

† *Typhis palmerae* Gertman, 1969

† *Vokesinotus* Petuch, 1988

† *Vokesinotus emilyae* Petuch, 1994

Vokesimurex Petuch, 1994

Zacatrophon skoglundae Houart, 2010

Caenogastropoda - Neogastropoda - Muricoidea - Volutidae

† *Fulgoraria ellenmoorae* Squires & Goedert, 1994b

Caenogastropoda - Neogastropoda - Olivoidea - Olividae

† *Oliva vokesorum* Drez, 1981

Caenogastropoda - Neogastropoda - Turbinelloidea - Costellariidae

Vexillum burchorum Salisbury, 2011

† *Vexillum palmerae* (Perrilliat, 1973)

† *Vexillum vokesae* (Perrilliat, 1973)

Caenogastropoda - Neogastropoda - Turbinelloidea - Turbinellidae

† *Hystrivasum palmerae* (Hollister, 1971)

† *Hystrivasum vokesae* (Hollister, 1971)

Caenogastropoda - Neogastropoda - Volutoidea - Cancellariidae

† *Axelella vokesae* (Petit, 1970)

† *Cancellaria keenae* Addicott, 1970

† *Massyla emilyvokesae* (Landau & Petit, 1997)

† *Plesiotriton vokesae* (Allen, 1970)

Caenogastropoda - Neogastropoda - Volutoidea - Marginellidae

Volvarina yolandae Espinosa & Ortea, 2000

"Lower Heterobranchia" - Architectonicoidea - Mathilidae

† *Angulathilda saulae* (Kaim, 2004)

Heterobranchia - Ringipleura - Ringiculoidea - Ringiculidae

Microglyphis sabrinae Valdes, 2019

Heterobranchia - Ringipleura - Nudibranchia - Doridina - Polyceroidea - Polyceridae

Polycera kaiserae Hermosillo & Valdés, 2007a

Heterobranchia - Ringipleura - Nudibranchia - Doridina - Onchidoridoidea - Corambidae

Loy millenae (Martynov, 1994)

Heterobranchia - Ringipleura - Nudibranchia - Doridina - Onchidoridoidea - Goniodorididae

Goniodoridella mexicorum (Gosliner & Bertsch, 2004)

Heterobranchia - Ringipleura - Nudibranchia - Doridina - Doridoidea - Discoridiidae

Discodoris aliciae Dayrat, 2005

Heterobranchia - Ringipleura - Nudibranchia - Cladobranchia - Tritonoidea - Tritoniidae

Tritonicula myrakeenae (Bertsch & Mozqueira Osuna, 1986)

Heterobranchia - Ringipleura - Nudibranchia - Cladobranchia - Aeolidioidea - Facelinidae

Myja karin Martynov, Mehrotra, Chavanich, Nakano, Kashio, Lundin, Picton & Korshunova, 2019

Heterobranchia - Ringipleura - Nudibranchia - Cladobranchia - Fionoidea - Eubranchidae

Eubranchus yolandae Hermosillo & Valdés, 2007

Heterobranchia - Ringipleura - Nudibranchia - Cladobranchia - Fionoidea - Fionidae

Tenellia millenae (Hermosillo & Valdés, 2007b)

Cuthonella sandrae Korshunova et al., 2020b

Heterobranchia - Ringipleura - Nudibranchia - Cladobranchia - Fionoidea - Unidentiidae

Unidentia aliciae Korshunova, Mehrotra, Arnold, Lundin, Picton & Martynov, 2019

Unidentia sandramillenae Korshunova et al., 2017

Heterobranchia - Tectipleura - Cephalaspidea - Cylichnoidea - Cylichnidae

Bogasonia jennyae Valdés, 2019

Heterobranchia - Tectipleura - Cephalaspidea - Haminoeoidea - Haminoeidae

Lamprohaminoea mikkelsenae Oskars & Malaquias, 2020

Heterobranchia - Tectipleura - Cephalaspidea - Philinoidea - Aglajidae

Camachoaglaja Zamora-Silva & Malaquias, 2017

Heterobranchia - Tectipleura - Sacoglossa - Oxynooidea - Oxynoidae

Oxynoe aliciae Krug, Berriman, & Valdés, 2018

Heterobranchia - Tectipleura - Sacoglossa - Plakobranchoidea - Hermaeidae

Polybranchia jannae Medrano, Krug, Gosliner, Biju Kumar & Valdés, 2018

Heterobranchia - Tectipleura - Panpulmonata - Stylommatophora - Helicoidea - Xanthonychidae

Monadenia chaceana Berry, 1940

Herpeteros chaceorum (Willett, 1940)

Bunnya naranjoae Miller, 1987

Sonorella naranjoae Gilbertson & Van Devender, 2019

Heterobranchia - Tectipleura - Panpulmonata - Pyramidelloidea - Pyramidellidae

Boonea Robertson, 1978

† *Chrysallida elsiae* (Willett, 1948)

† *Chrysallida palmerae* Bartsch, 1955

† *Mormula palmerae* Bartsch, 1955

Pyrgiscus palmerae (Aguayo & Jaume, 1936)

Bivalvia

Protobranchia - Nucilida - Nuculoidea - Nucilidae

* *Nucula keenae* Bernard, 1983a
[Synonym = *Nucula carlottensis* Dall, 1897]

Protobranchia - Nuculanida - Nuculanoidea - Nuculanidae

Propeleda hickmanae Valentich-Scott, Coan & Zeyala, 2020

Protobranchia - Nuculanida - Nuculanoidea - Yoldiidae

* *Yoldia keenae* Wagner, 1959
[Synonym = *Yoldia hyperborea* (Gould, 1841)]

Autobranchia - Mytilida - Mytiloidea - Mytilidae

† *Lithophaga palmerae* Krumm & Jones, 1993

Mytilisepta keenae (Nomura, 1936)

Autobranchia - Arcida - Arcoidea - Arcidae

† *Barbatia palmerae* Richards in Richards & Palmer, 1953

† *Barbatia uxorispalmeri* Stenzel & Krause in Stenzel, Krause & Twining, 1957

* † *Scapharca vanwinkleae* Sheldon & Maury in Maury, 1925
[Synonym = *Anadora paraensis* (White, 1887)]

Autobranchia - Arcida - Arcoidea - Glycymerididae

Glycymeris keenae Willett, 1944

Autobranchia - Ostreida - Ostreoidea - Ostreidae

Booneostrea Harry, 1985

Myrakeenini Harry, 1985

Myrakeena Harry, 1985

Autobranchia - Ostreida - Pterioidea - Pteriidae

† *Pteria limula vanwinkleae* Harris in Harris & Parker, 1946

Autobranchia - Pectinida - Pectinoidea - Pectinidae

† *Lyropecten colinensis vokesae* J. T. Smith, 1991

† *Lyropecten terrysmithae* Powell, Millard & Garcia, 2020

† *Mimachlamys vokesorum* Waller, 2011

† *Palliolum vanwinkleae* (Clark, 1925)

Autobranchia - Limida - Limoidea - Limidae

† *Limatula* (*Limatulella*) *emilyae* Glibert & van de Poel, 1973

Autobranchia - Trigoniida - Myophorelloidea - Steinmanellidae

† *Louella* Cooper & Leanza, 2017

Autobranchia - Carditida - Carditoidea - Condylocardiidae

Condylocardia kaiserae Coan, 2003

Autobranchia - Carditida - Crassatelloidea - Crassitellidae

Crassinella skoglundae Coan, 1979

Autobranchia - Lucinida - Lucinoidea - Lucinidae

† *Callucina keenae* (Chavan, 1971)

† *Divalinga palmerae* Chavan, 1951

Autobranchia - Pholadida - Pholadoidea - Pholadidae

† *Barnea saulae* Kennedy, 1993

Autobranchia - Cardiida - Cardioidea - Cardiidae

† *Cardium palmerae* Harbison, 1944

† *Integricardium keenae* Marincovich, 1993

Keenaea Habe, 1951

Keenocardium Kafanov, 1974

† *Protocardia keenae* Singh & Rai, 1980

Autobranchia - Cardiida - Crassatelloidea - Crassitellidae

† *Crassatella saulae* Dailey & Popenoe, 1966

Autobranchia - Cardiida - Galeomatoidea - Lasaeidae

Chattonia trigonata keenae Chavan, 1939

Kurtiella reguerae Valentich-Scott in Coan & Valentich-Scott, 2012

Autobranchia - Cardiida - Mactroidea - Mactridae

Tresus keenae (Kuroda & Habe, 1950)

Autobranchia - Cardiida - Tellinoidea - Tancrediidae

† *Meekia louella* Popenoe in Saul & Popenoe, 1962

Autobranchia - Cardiida - Tellinoidea - Tellinidae

† *Linearia louellasaulae* Squires & Goedert, 1994a

† *Saulella* Zinsmeister, 1983

Autobranchia - Venerida - Galeommatoidea - Lasaeidae

Amerycina mikkelsenae Valentich-Scott in Coan & Valentich-Scott, 2012

Autobranchia - Venerida - Glossoidea - Glossidae

† *Meiocardia palmerae* Nicol, 1968

Autobranchia - Venerida - Ungulinoidea - Ungulinidae

† *Felaniella palmerae* Dockery, 1980

Autobranchia - Venerida - Veneroidea - Veneridae

* † *Antigona palmerae* Hodson in Hodson, Hodson & Harris, 1927
[Synonym = *Ventricolaria harrisiana* (Olsson, 1922)]

† *Dosinia palmerae* Olsson, 1931

† *Hysteroconcha rosea vanwinkleae* (Olsson, 1922)

† *Katherinella* Tegland, 1929

† *Macrocallista palmerae* Caster, 1938

† *Nemocardium keenae* le Renard, 1994

Petricola hertzana Coan, 1997

Protothaca keenae (Soot-Ryen, 1957)

* *Transenpitar keenae* Fischer-Piette & Testud, 1967
[Synonym = *Transenpitar americana* (Doello-Jurado in Carcelles, 1951)]

Autobranchia - Gastrochaenida - Gastrochaenoidea - Gastrochaenidae

† *Gastrochaena emilyana* H.E. Vokes, 1976

Autobranchia - Pholadomyida - Pholadomyoidea - Pholadomyidae

† *Sphenotus palmerae* Caster, 1930

Autobranchia - Pandorida - Clavagelloidea - Clavagellidae

† *Stirpulina saulae* Stallwood, 1995

Autobranchia - Pandorida - Pandoroidea - Lysoniidae

† *Lysonia mooreae* Marincovich, 1983

Autobranchia - Pandorida - Pandoroidea - Pandoridae

† *Pandora vanwinkleae* Tegland, 1933

Autobranchia - Thraciida - Thracioidea - Periplomatidae

Periploma skoglundae Valentich-Scott & Coan, 2010

Periploma kaiserae Valentich-Scott & Coan, 2010

Halistrepta myrae (Rogers, 1962)

Autobranchia - Solenida - Solenoidea - Pharidae

Ensis myrae Berry, 1953

Autobranchia - Solenida - Solenoidea - Solenidae

Solen gemmellae Cosel, 1992

Polyplacophora

Neoloricata - Chitonida - Chitonoidea - Ischnochitonidae

Ischnochiton carolianus Ferreira, 1984

Ischnochiton chaceorum Kaas & Van Belle, 1990

Lepidozona skoglundorum (Ferreira, 1986)

Cephalopoda

Ammonoidea - Ammonitida - Ancyloceratoidea - Ancyloceratidae

† *Toxoceratoides saulae* Murphy, 1975

Coleoidea - Spirulida - Belemnoidea - Belemnoseidae

† *Belemnosella palmerae* Allen, 1968

Nautiloidea - Orthoceratia - Pseudorthoceratida - Pseudorthoceratidae

† *Pseudorthoceras palmerae* Flower & Caster, 1935

Scaphopoda

Gadilida - Gadilimorpha - Gadilidae

† *Cadulus (Gadila) palmerae* Hodgkinson, 1974

Dentaliida - Dentaliidae

† *Dentalium palmerae* Garvie, 1996

ANNELIDA

Polychaeta - Sedentaria - Sabellida - Serpulidae

Apomatus voightae Kupriyanova & Nishi, 2010

BRYOZOA

Gymnolaemata - Cheilostomatida - Lepralielloidea - Metrarabdotosidae

† *Metrarabdotos vokesorum* Cheetham, Sanner & Jackson, 2007

BRACHIOPODA

Spiriferida - Rhynochonellata - Delthyroidea - Hysterolitidae

† *Brachyspirifer palmerae* Caster, 1939

ARTHROPODA - CRUSTACEA

Malacostraca - Eucarida - Decapoda - Caridea - Palaemonoidea - Palaemonidae

Pontoniopsides paulae (Gore, 1981)

Malacostraca - Eucarida - Decapoda - Brachyura - Aethridae

Osachila kaiserae Zimmerman & Martin, 1999

Malacostraca - Eucarida - Decapoda - Brachyura - Eriphioidea (?) - Oziidae (?)

Eupilumnus (?) *vokesae* Luque in Luque, Nyborg, Alvarado-Ortega & Vega, 2020

Pericarida - Amphipoda - Amphilochidea - Lysianassoidea - Tryphosidae

Paronesimoides voightae Larsen, 2007

Thecostraca - Cirripedia - Thoracica - Balanomorpha - Chionolasmatoidea - Archaeobalanidae

† *Kathpalmeria* Ross, 1965

Copepoda - Podoplea - Harpacticoida - Cletodidae

Echinocletodes voightae George & Müller, 2013

Ostracoda - Podocopida - Cytheroidea - Bythocytheridae

† *Jonesia palmerae* (Coryell & Fields, 1937)

Ostracoda - Podocopida - Cytheroidea - Cytheruridae

† *Hemicytherura vokesae* Kontrovitz, 1978

Ostracoda - Podocopida - Cytheroidea - Paracytherideidae

† *Paracytheridea palmerae* Stephenson, 1946

ARTHROPODA - HEXAPODA

Insecta - Coleoptera - Carabidae

Agra yola Erwin, 2000

ECHINODERMATA

Asteroidea - Ambulasteroidea - Concentricycloidea - Peripodida - Xyloplacidae

Xyloplax janetae Mah, 2006

Uncertain eponymy

Caenogastropoda - Littorinomorpha - Stromboidea - Pereiraeidae

† *Pereiraea palmerae* Abbass, 1975

Caenogastropoda - Unassigned - Cerithioidea - Turritellidae

† *Turritella (Stirocolpus) palmerae* Abbass, 1977

FIGURES - People


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POOL RULES
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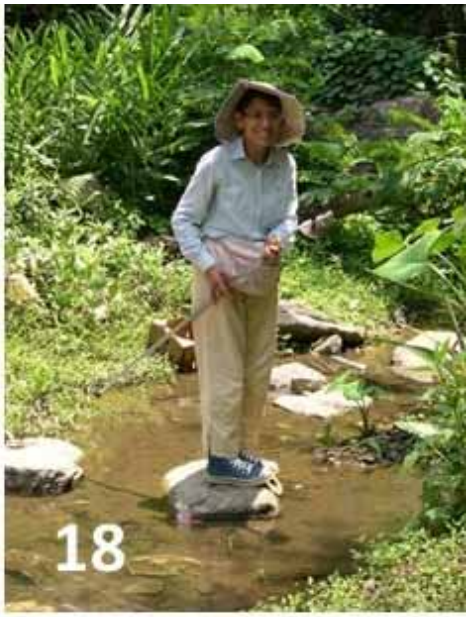
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BUTTERFLIES
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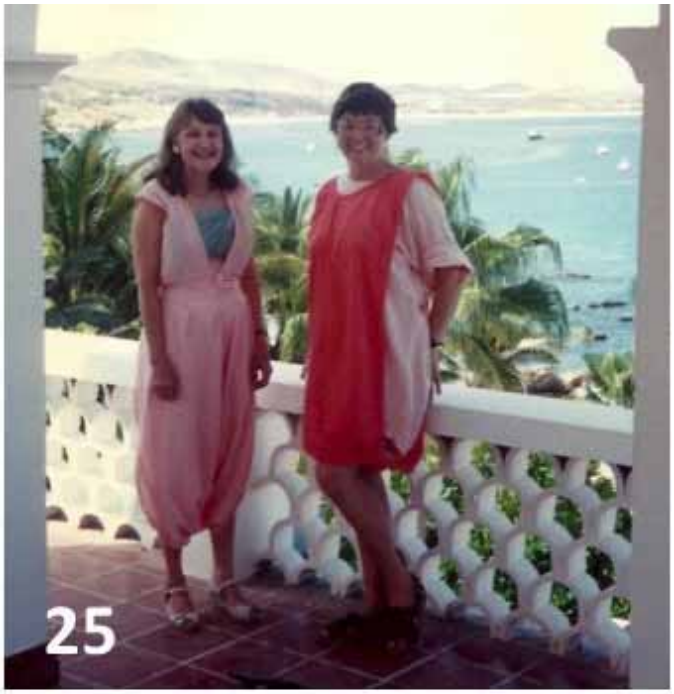
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Graduate Paleontology Class at Cornell University, McGraw Hall. left to right: Professor


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TUE
CLOS


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Figure 55: Members in Group Photo at First WSM Meeting, 1968, Asilomar

FRONT ROW: (left to right)

Mr. E. P. Chace, Miss Mary E. Long, Mrs. Charles McLean, Dr. Edwin Allison, Mrs. Bernadine Hughes, Mrs. Fay Wolfson, Mr. David K. Mulliner, Mrs. Helen DuShane, Mrs. Laura Powell, Mrs. Ruth Richmond, Miss Winnifred Wagg, Mrs. Elsie Chace.

Second Row:

Mrs. Ruth French, Mrs. Ondine Brohaska, Mrs. Elmo Adams, Mrs. Virginia McClure, Mrs. Jean Cate, Dr. Rudolf Stohler, Mrs. Douglas Larson, Miss Margaret Dewar, Mrs. Roland Taylor, Mr. Roland Taylor, Dr. Albert Mead, Mrs. Jean Wilkins, Miss Marilyn Vassallo, Dr. Judith Terry, Mrs. Twila Bratcher.

Third Row:

Miss Donna Mulliner, Mr. Frank Russ, Mae Dean Richart, Mrs. Beatrice Burch, Mrs. Diana Wait, Mr. Don Cadien, Miss Carolyn Stover, Mr. Norman Polonsky, Miss Jody Woolsey, Mr. Ford Bratcher, Mrs. Betty Phillips, Mr. Ted Phillips, Mr. Douglas Larson, Mr. Crawford Cate, Mr. Wm. Pitt, Mrs. Wm. Pitt, Mrs. Carol Skoglund, Mr. Ralph Ferguson.

BACK ROW:

Mr. Eugene Coan, Dr. James McLean, Mr. Elmo Adams, Mr. Paul Hughes, Mr. Charles Powell, Mrs. Elizabeth Payne, Mrs. Mary Anna D'Aiuto, Dr. Wm. Emerson, Mr. Ralph Fox, Mr. Gale Sphon, Jr., Dr. A. Myra Keen, Mr. Joseph DuShane, Dr. Warren Addicott.

(Attending the convention, but not in the picture:)

Mrs. Barbara Good, Dr. G. Bruce Campbell, Mr. Ray Summers, Mr. Robert Talmadge, Mr. Lawrence Thomas, Mr. Nelson Baker, Mr. Phillip Crane, Dr. James Nybakken, Mrs. Arthur Robinson, Mrs. F. T. Smith, Mrs. Katherine Stewart.


55

Fig. 56: Members in Group Photo at 1969 WSM Meeting, Asilomar

Front Row: Ralph O. Fox, Jean Cate, Crawford Cate, Bernadine Hughes, Eugene V. Coan, William K. Emerson, Myra Keen, Forrest Poorman, Mae Dean Richart, Gertrude Wahrenbrock, Rudolf Stohler.

Second Row: Mike Homchick, Veda Kenk, Winnifred Wagg, Mary E. Long, Lawrence E. Thomas, Eleanor M. Mead, Myrtle E. Johnson, Maria Shoemaker, Norine D. Haven, Ondine Brohaska, Anna Morris, Ruth E. Richmond, Helen Burton, Virginia McClure, Alice Burton.

Third Row: Phyllis Crane, Gladys D. Archerd, George E. Radwin, Jean Wilkins, Effie R. Forthum, Walter J. Eyerdam, Ruth Shasky (with Napoleon), Anthony D'Attilio, Rose D'Attilio, Junius B. Sessoms III, Diana Wait, Mrs. Charles A. McLean III, Laura Burghardt, Nancy L. Brown, Judith Terry, Sharon Brown.

Fourth Row: Ruby Berg, Beatrice Burch, Phillip Crane, Barbara Good, Peter V. Fankboner, Betty Phillips, Ted Phillips, Jody Woolsey, Albert R. Mead, Helen DuShane, Joseph DuShane, Charles A. McLean III, Walter B. Miller, E. E. Wahrenbrock, Garrel E. Long, Carol Skoglund, Thomas Burch, Clifford A. Martin, George M. Davis, Donald Shasky, Robert Robertson.

Fifth (Top) Row: James McLean, Wesley M. Farmer, Lois Pitt, William D. Pitt, James Nybakken, Gordon Robilliard, Jack W. Brookshire, Hans W. Bertsch, Clifton L. Martin, Glenn Burghardt, Alan Solem, George L. Kennedy, William E. Old, Jr., Ray Summers, Nelson W. Baker, Fred Berg, Mary Anna D'Aiuto.


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56

Fig. 57: Members in Group Photo at 1972 WSM Meeting, University of Redlands

Row 1 (l. to r.): David Mulliner, William K. Emerson, Hans Bertsch.

Row 2: Gertrude Wahrenbrock, S. Stillman Berry, Ralph Olen Fox, James H. McLean, Beatrice L. Burch, Edith M. Abbott, Eugene V. Coan, Myra Keen, Mary Long.

Row 3: Fay Wolfson, Lois Goldsmith, Lupe Ferguson, Hazel Porter, Bert C. Draper, Kate St. Jean, Harold Whiting, James T. Carlton, Mary R. Larson, Vida C. Kenk, Lucinda V. Draper.

Row 4: Arthur Burton, Thelma Crow, Kaniaulono Meyer, Kay Webb, Bernadine Hughes, Barbara Good, Carol N. Hopper, Rose A. Burch, Alice Williams, Sara DeLaney-

Row 5: Mario Pena G., Betty Phillips, Peter D'Eliscu, Laura Burghardt, Lorrie Hudson, Margaret Cunningham, Forrest Poorman, George Radwin, Ruth Shasky.

Row 6: Louise Russell, Nola Michel, Jody Woolsey, Joyce Gemmell, Bernie Crampton, Bonnie Williams, Lois Pitt, Bill Pitt, Merton Goldsmith, Ann Marti.

Row 7: Anthony D'Attilio, Richard Behrendt, Bob Talmadge, Wendell O. Gregg, Walter B. Miller, Helen DuShane, Agnes Thompson, Ivan E. Thompson, Margaret Chavannes, Doug Larson, Chris Kitting, Carol Skoglund.

Row 8: Patrick LaFollette, Ted Phillips, Ralph Ferguson, Paul O. Hughes, Tom Burch, Joseph DuShane, Roy L. Hudson, Don Shasky, William L. Woods, Barry Roth.

Row 9: Karen Long, Steve Long, James Lance, Glenn Burghardt, Robert Beeman, Gary McDonald, Del Williams, Louie Marincovich, Richard Cowen, Roy Poorman, Clifton L. Martin, Gale Sphon, E. E. Wahrenbrock.


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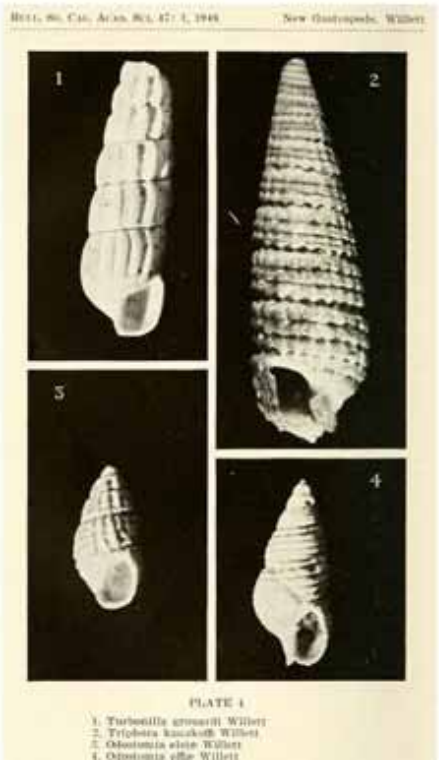
57

Fig. 58: Members in Group Photo at 1975 Joint WSM/AMU Meeting, San Diego

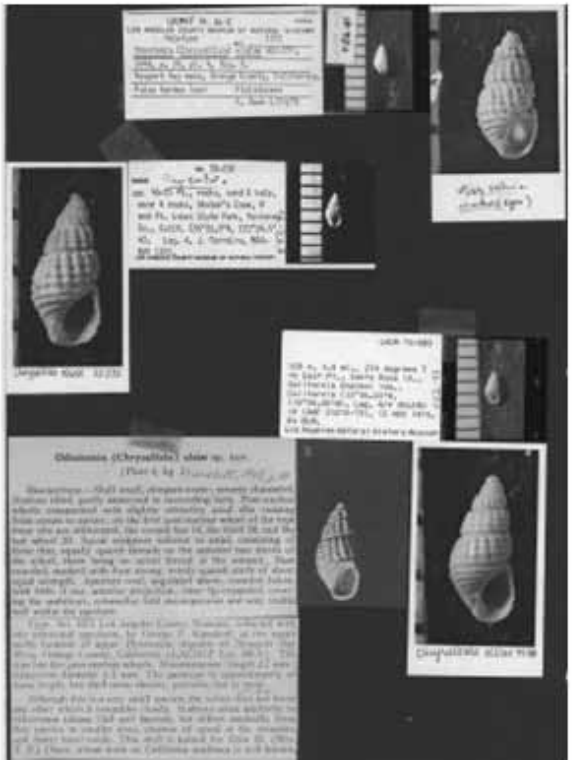
1. Unidentified
2. Unidentified
3. Unidentified
4. Norval Brewer
5. William L. Woods
6. Mae Dean Richart
7. Brett Morrison
8. Wendell O. Gregg
9. Merton J. Goldsmith
10. Blanche Brewer
11. Carl C. Christensen
12. William Minkel
13. Jan Greenberg
14. Hollis Q. Boone
15. Gary L. Pace
16. Joshua L. Baily
17. Bruce H. Fowler
18. Hal Lewis
19. Walter B. Miller
20. Judith Christensen
21. Wesley M. Farmer
22. Louise Lewis
23. Beth Brewer
24. Joseph P. E. Morrison
25. Chuck Courtney
26. Jerry Harasewych
27. Edgar J. Hailey
28. Ruth H. Fair
29. Richard Reeder
30. Russell H. Jensen
31. Helen DuShane
32. Roland Taylor
33. Tim Chapman
34. Harold Vokes
35. James Carlton
36. Jerry Landye
37. Peter D'Sliscu
38. H. Wallace Roberts
39. Kay Taylor
40. George Hemingway
41. Glenn Long
42. George M. Davis
43. Charlotte Johnson
44. Barry Roth
45. Charles L. Powell
46. Emily Vokes
47. Vida Carmen Kenk
48. Lucinda Draper
49. Fred G. Hochberg
50. Eugene V. Coan
51. Elaine Hoagland-Davis
52. Artie Metcalf
53. James H. McLean
54. Clyde F. E. Roper
55. Clifton L. Martin
56. Harold D. Murray
57. Albert Taxson
58. Ingrid Roper
59. Hans Bertsch
60. Adlai B. Wheel, Sr.
61. W. L. Pratt
62. Elois Crum
63. Harold A. Rehder
64. Wendell P. Woodring
65. Anna Paine
66. Anne Taxson
67. Lois C. Rehder
68. Mary Rosewater
69. Bertram C. Draper
70. Suzanne Pratt
71. Irene Wheel
72. Joseph Rosewater
73. S. Stillman Berry
74. Louie Marincovich
75. Rose A. Burch
76. Rose D'Attilio
77. Sally Bennett
78. Roy Poorman
79. Jo Ransaran
80. Anthony D'Attilio
81. Jeanne S. Whiteside
82. Ivan E. Thompson
83. Constance Boone
84. Bill Pitt
85. Bernadine Hughes
86. Myra Keen
87. Joyce Gemmell
88. Henry Bagdon
89. Rhoda Webb
90. Agnes Thompson
91. Bill Gemmell
92. George Radwin
93. Lois Pitt
94. John Webb
95. Hyacinth B. Rowe
96. Beatrice L. Burch
97. William Bledsoe
98. Marjorie Neiswanger
99. Patricia Bagdon
100. Esther Parodiz
101. Carole Hertz
102. Carol Skoglund
103. Juan J. Parodiz
104. Vera Schieler
105. Lorrie Hudson
106. Donald A. Moore
107. Gale G. Sphon
108. Roy L. Hudson
109. Twila Bratcher
110. Jean Cate
111. Helen King
112. Ruth Waters
113. Billee Dilworth
114. Forrest Poorman
115. Virginia O. Maes
116. Ruth Purdy
117. Edith Abbott
118. Myra Taylor
119. Tom Rice
120. Juliette Compitello
121. Joyce Clover
122. Viola Perrault
123. David Bickel
124. Margaret S. Cunningham
125. Dee S. Dundee
126. Ben Purdy
127. Marian S. Hubbard
128. Phillip W. Clover
129. Elsie Marshall
130. Norma Dexter
131. Edwin Boworth
132. H. Wayne Holiman
133. Barbara Chaney
134. Salle Crittenden
135. Paul Jennewein
136. G. Alan Solem
137. Wilma G. Young
138. Veronica P. Johns
139. William K. Emerson
140. Richard M. Kurz
141. Jody Woolsey
142. William Old, Jr.
143. Dorothy Raeihle
144. Joseph Vagvolgyi
145. Kirk Anders
146. Ursula Shasky
147. Unidentified
148. Paul O. Hughes
149. Robert Robertson
150. Judy Terry Smith
151. Robert R. Talmadge
152. Ed Petuch
153. Don Shasky
154. George Kennedy
155. Clifford A. Martin
156. Joseph DuShane
157. Audrey Holiman
158. Bayle Greenberg
159. Crawford N. Cate (& Robaire)
160. Dave Mulliner
161. E. P. Chace
162. Ruth Greenberg


58

PLATES - Specimens



S3a



S3b

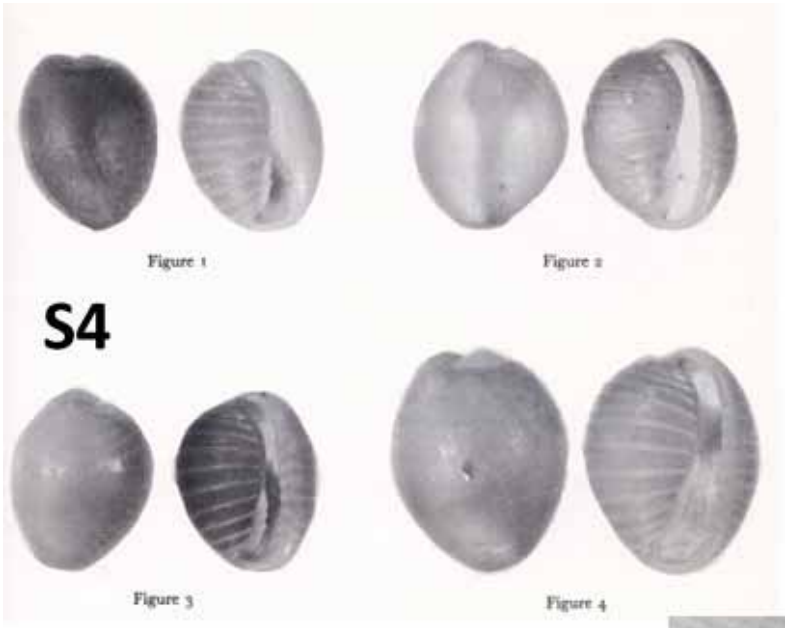
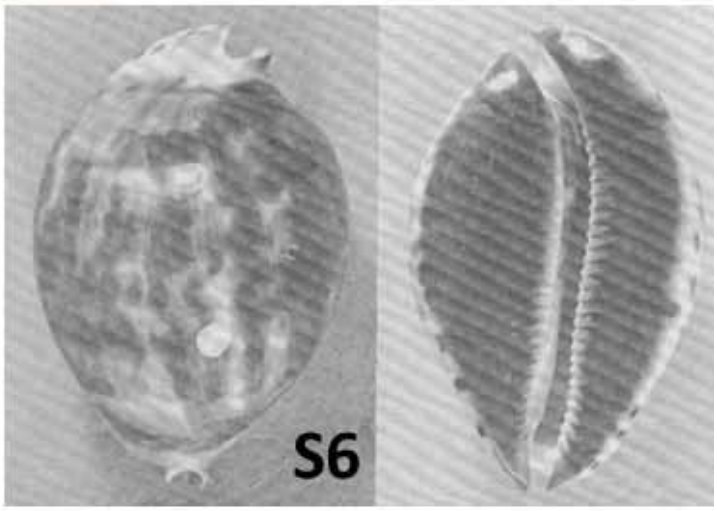
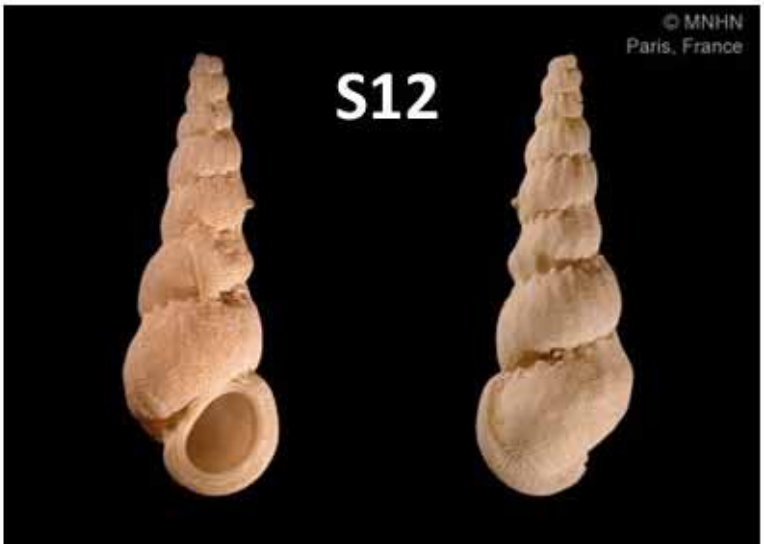
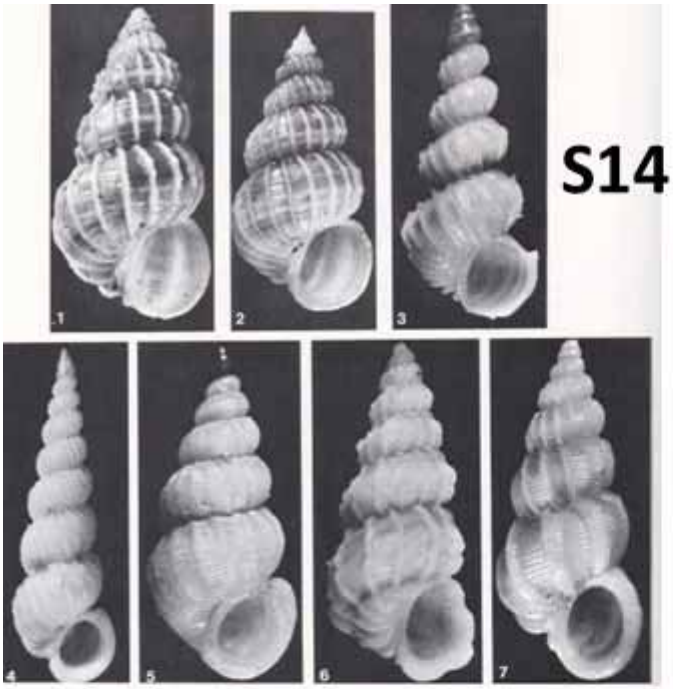


Fig. 75. *Ischnochiton (I.) chazaroae* sp. nov.
1, valve V, dorsal view, × 21; 2, valve VIII, dorsal view, × 21; 3, camera lucida sketch of valve V, ventral view, × 10; 4, do, lateral view of valve VIII, × 21; 5, dorsal girdle scale, × 210; 6, ventral scale, × 420; 7, central and first lateral radula teeth, × 420; 8, major lateral tooth, × 420; 9, head of same tooth, little more turned inwardly, × 420. 1-9, paratype, VB 2803a.





S13



S14

S15a S15b

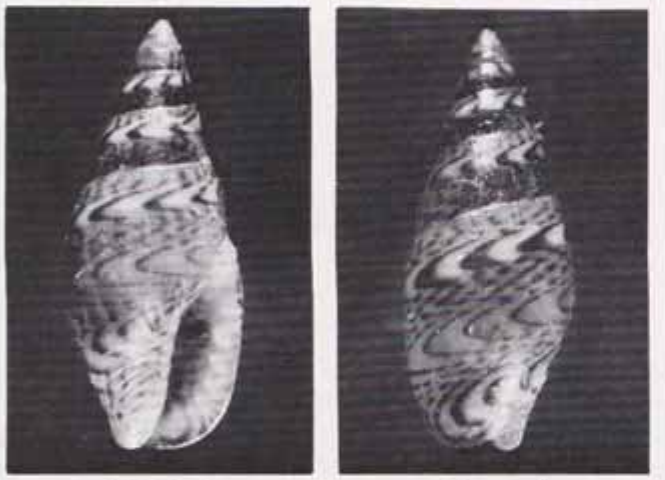


Figure 2a Figure 2b

S16b

S16a

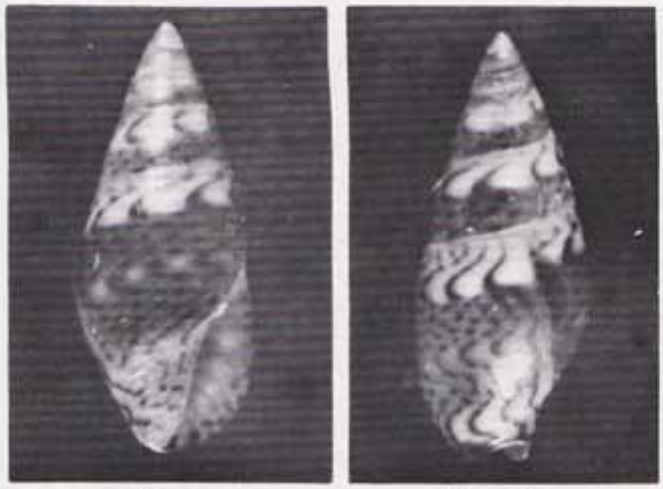
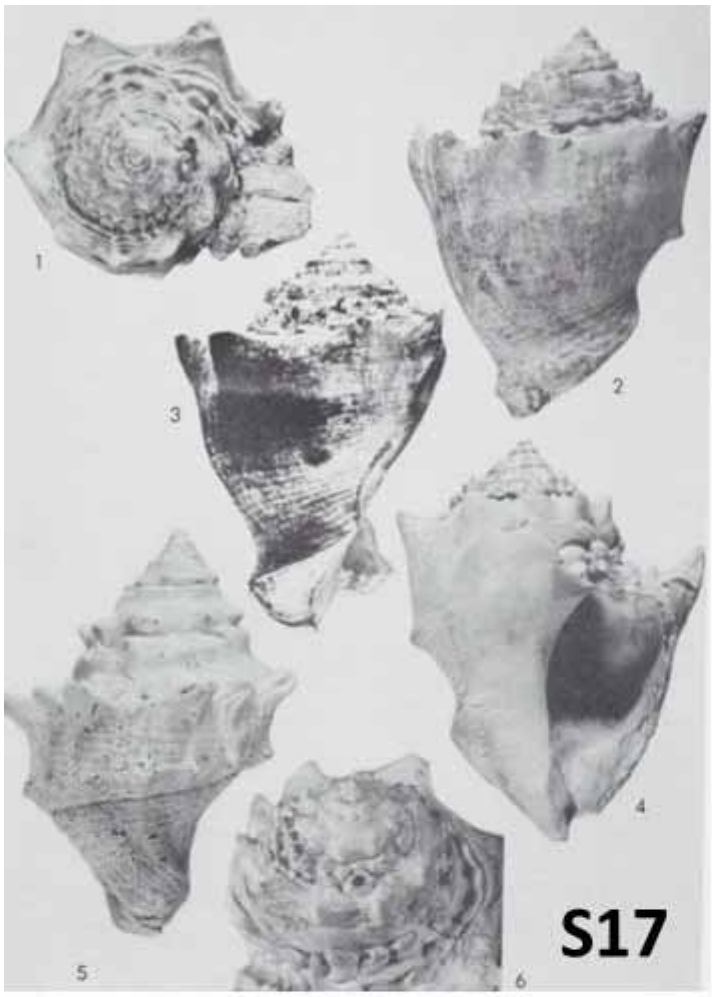
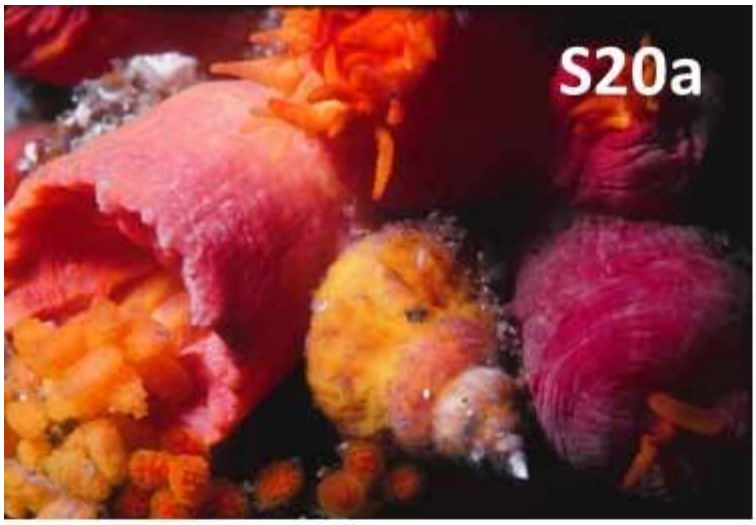


Figure 3a Figure 3b

S16c



S19a, b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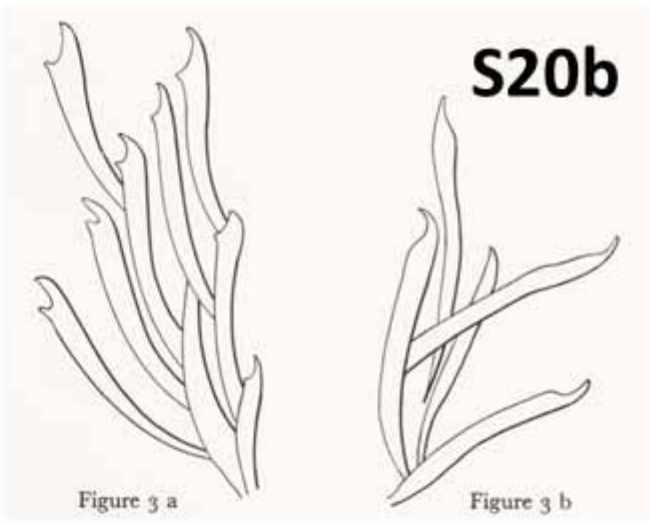
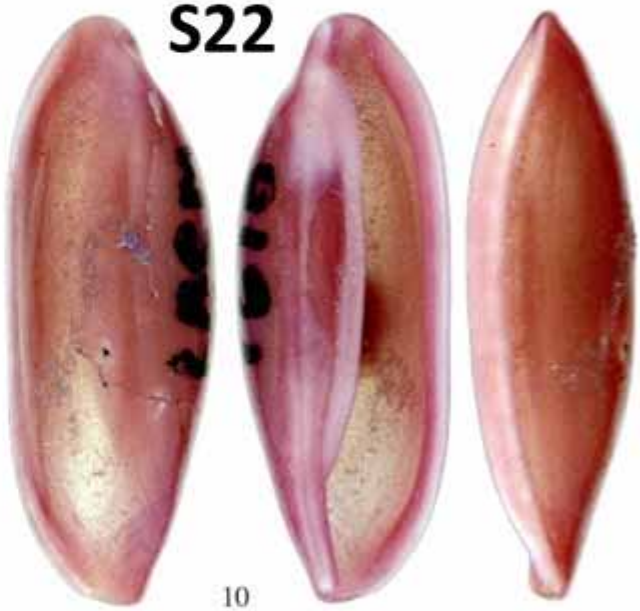

S20b
Figure 3 a
Figure 3 b


S21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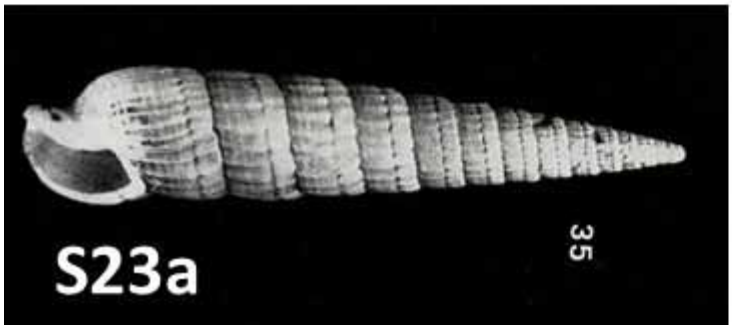
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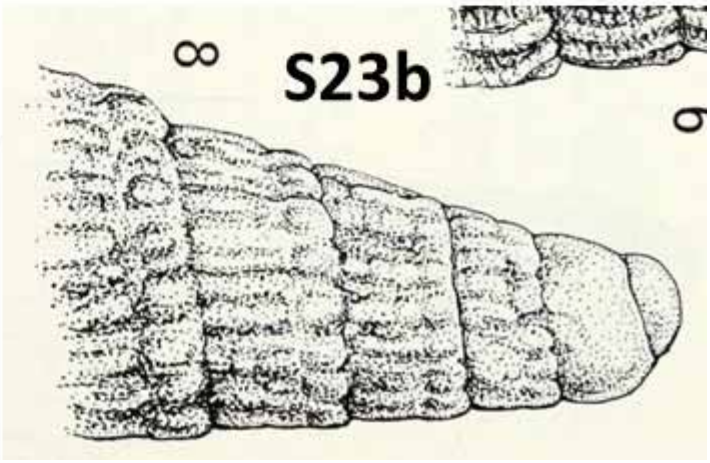
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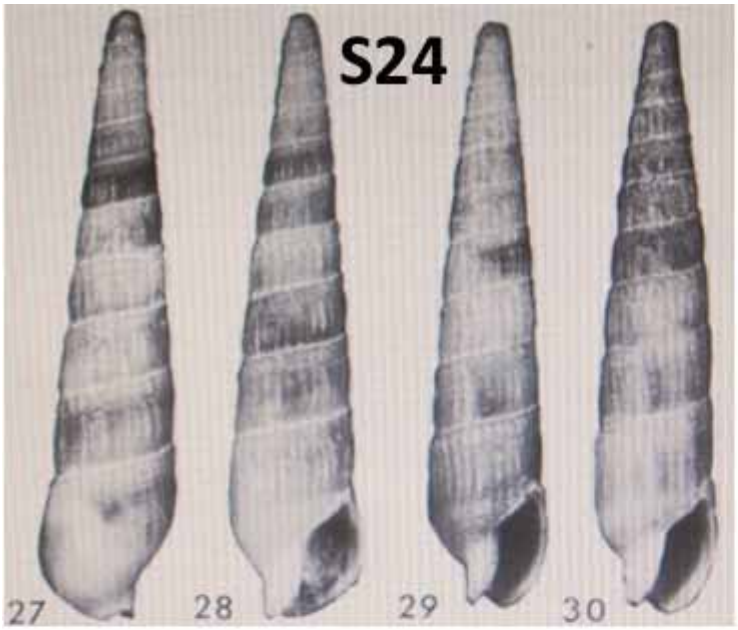
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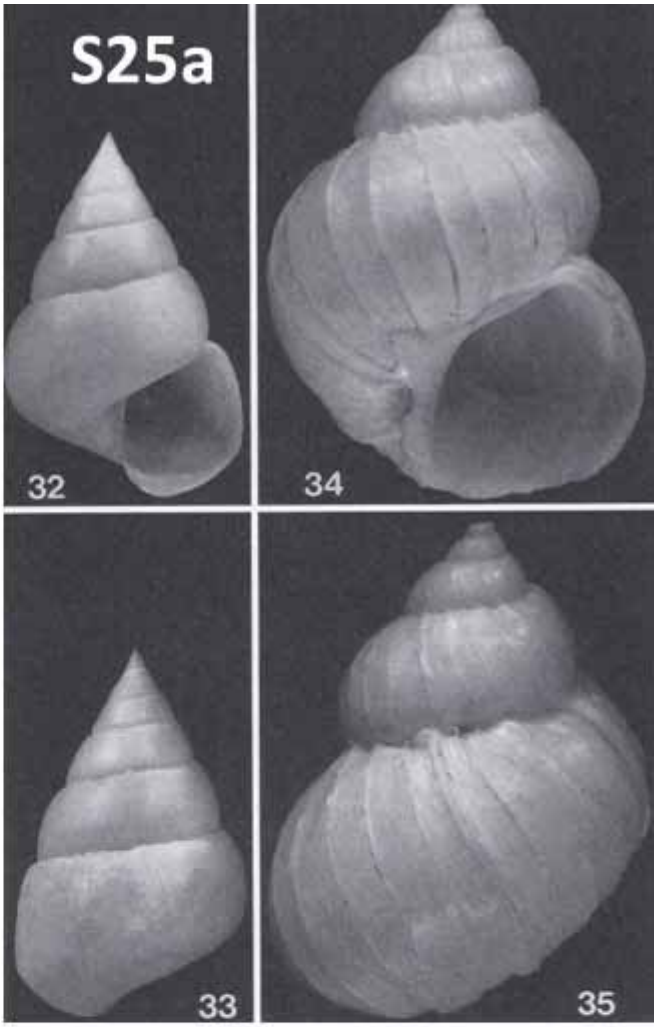
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S25c
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S25b
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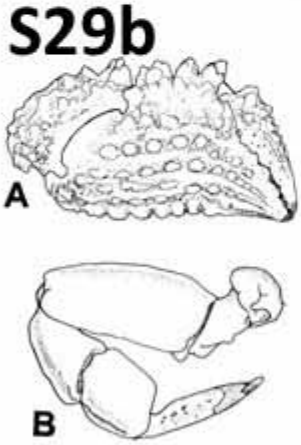
S27


S28a


S28b


S29a
HOLOTYPE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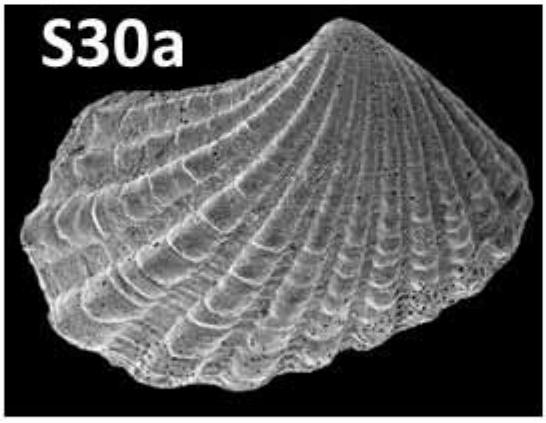
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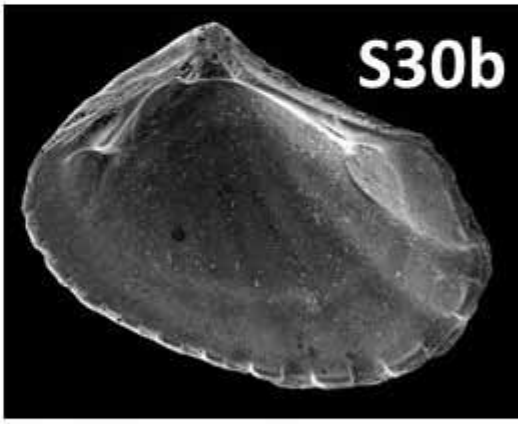
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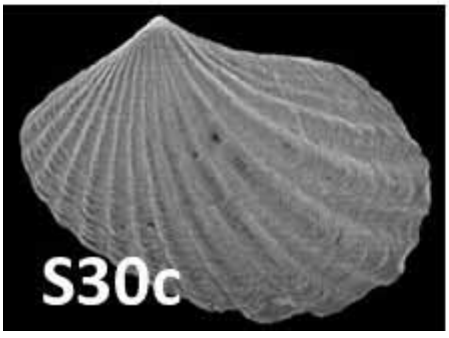
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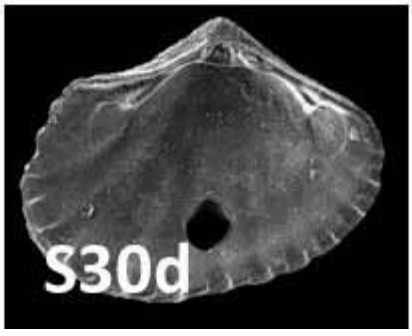
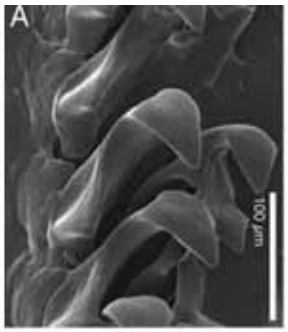

S30d

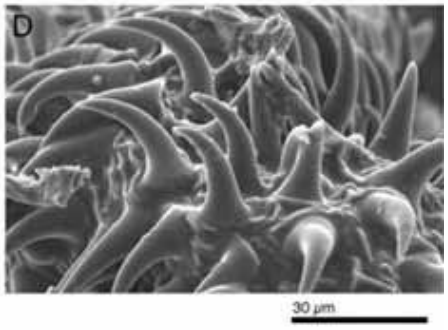

S31


S32a


A
100 µm


B
S32b
300 µm


C
200 µm


D
30 µm


S33a


S33b

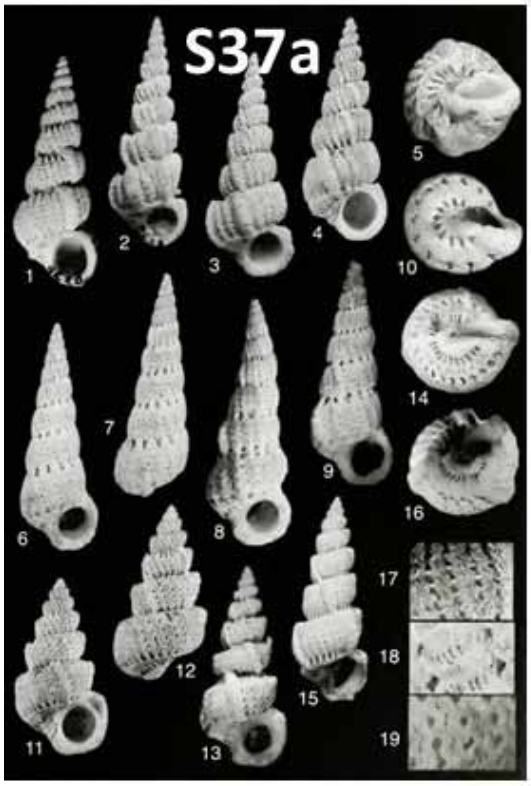

S33c


S33d


S34


S35

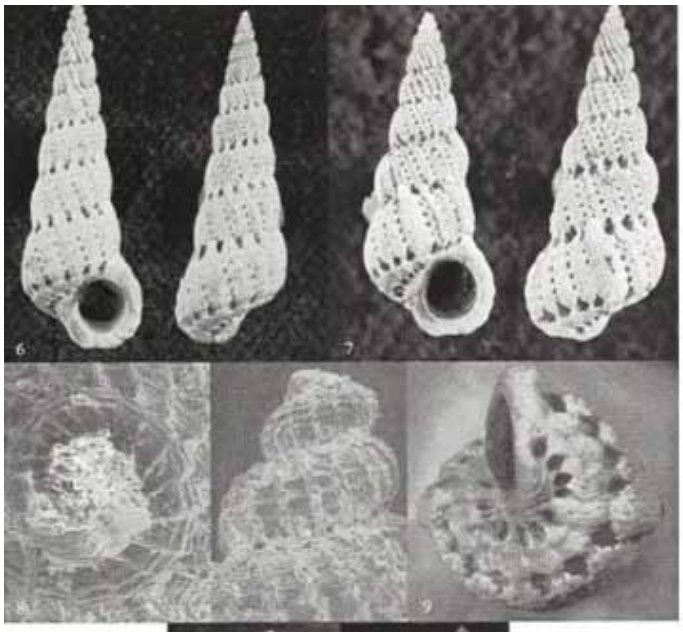

S36a

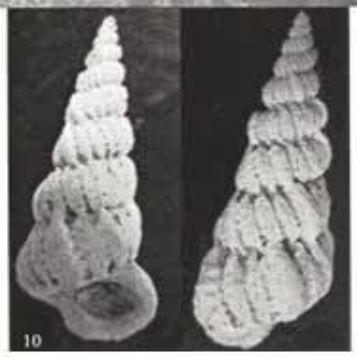

S37a
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19


S36b

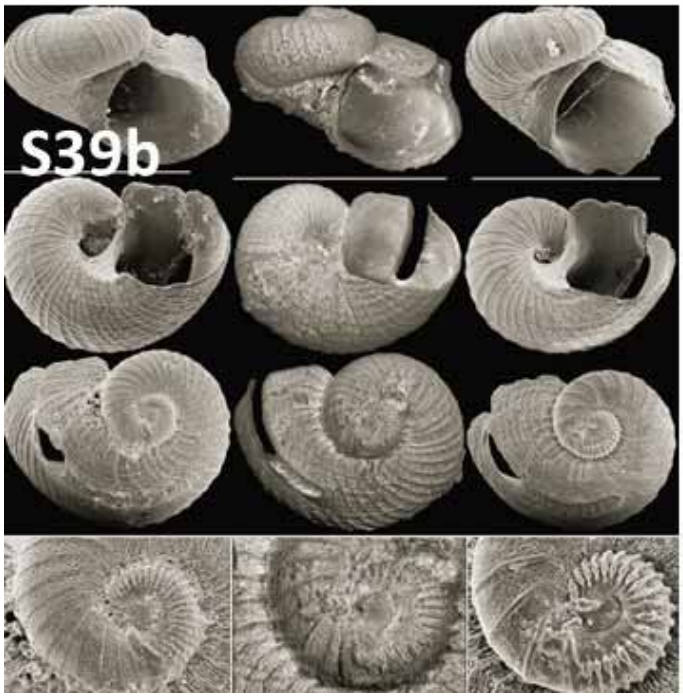

S36c


S36d





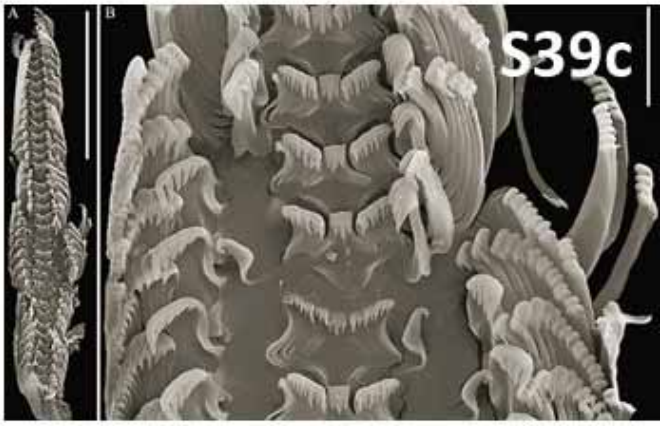
S37b



S39b

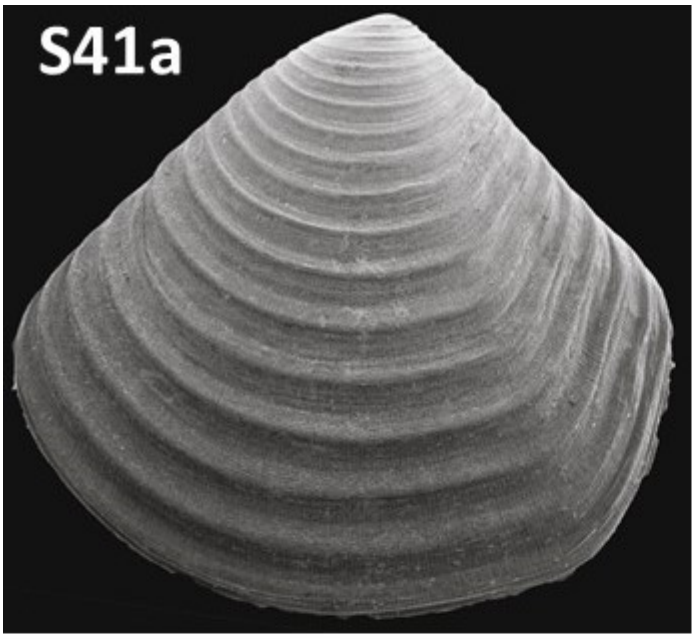
S38

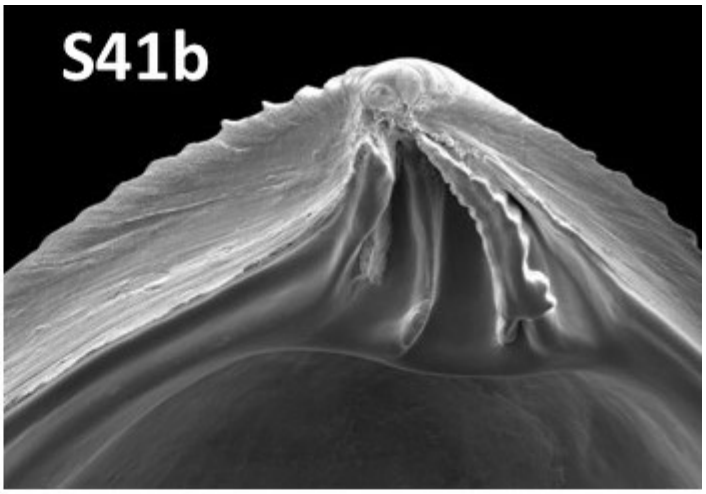
S39a

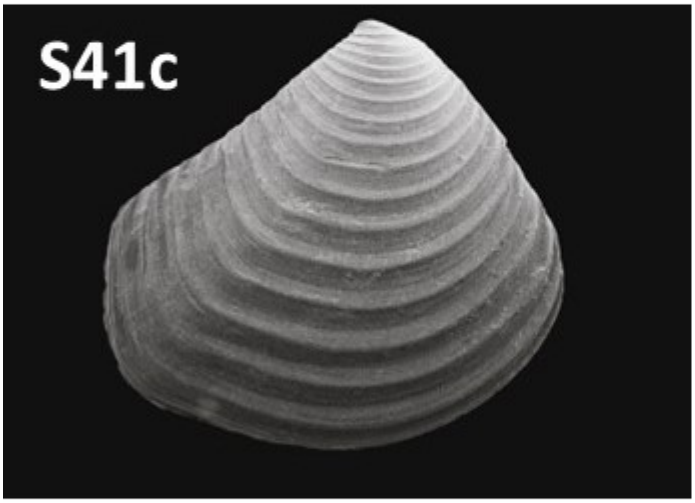


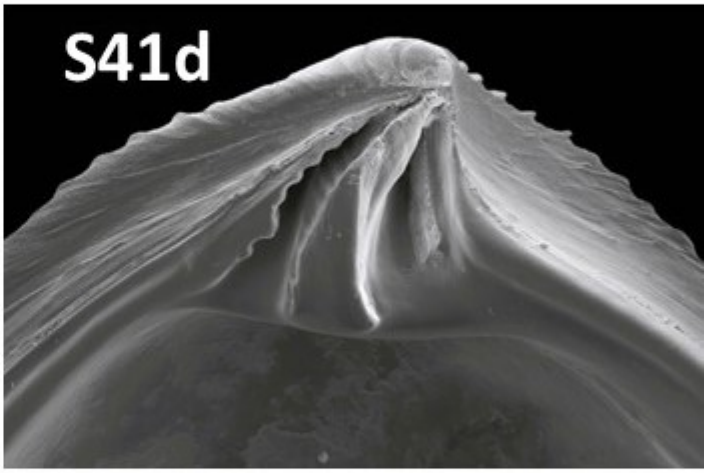
S39c

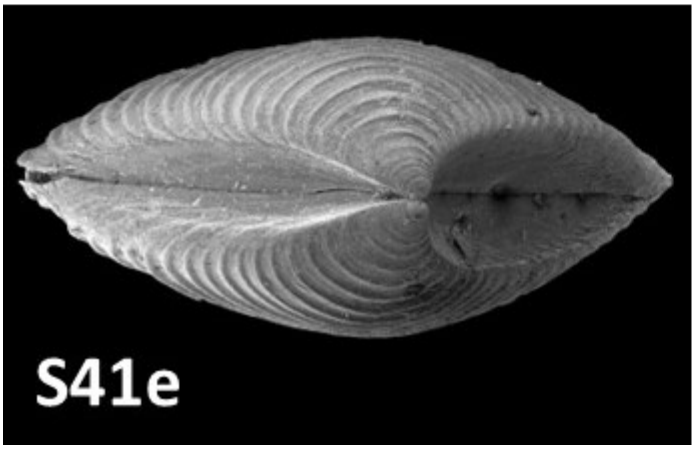
S40

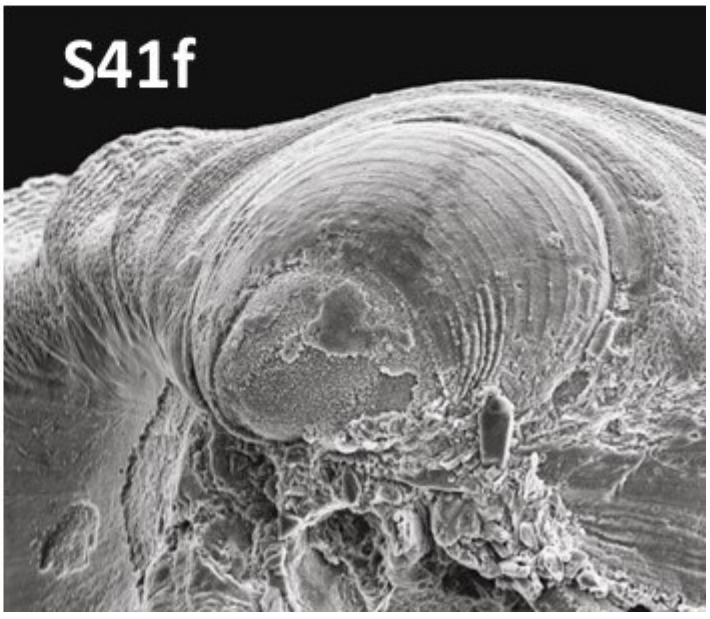

S41a

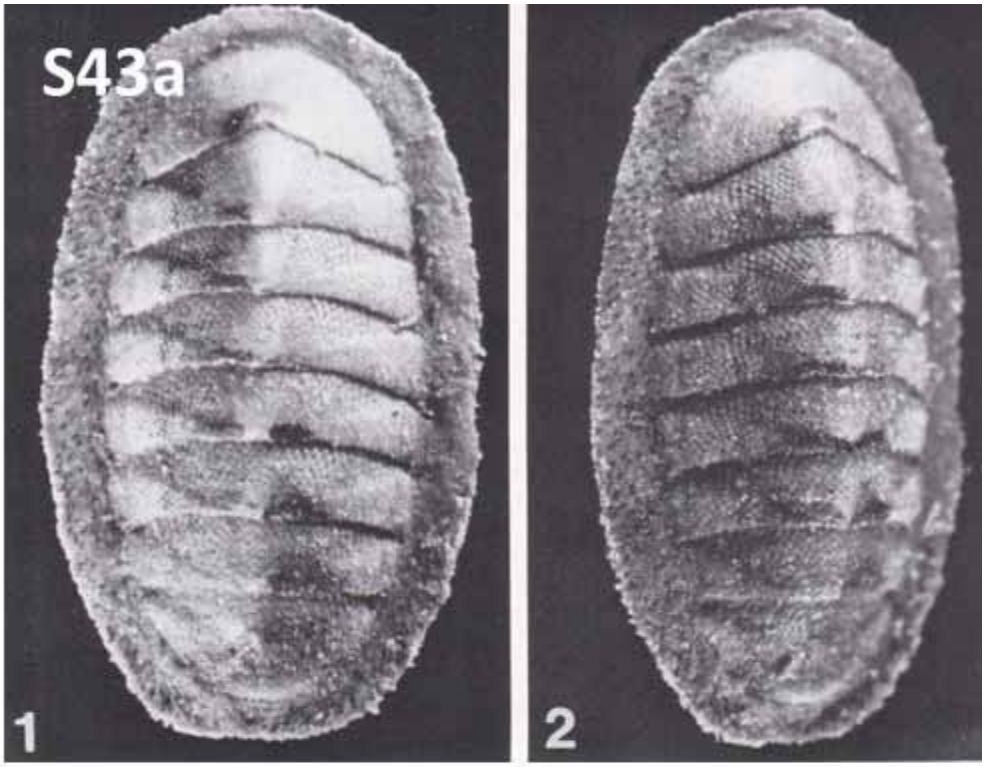

S41b

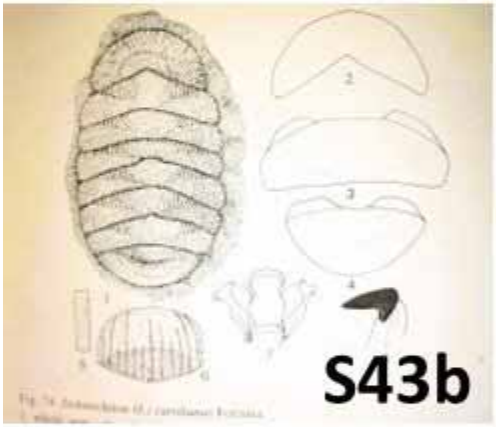

S41c

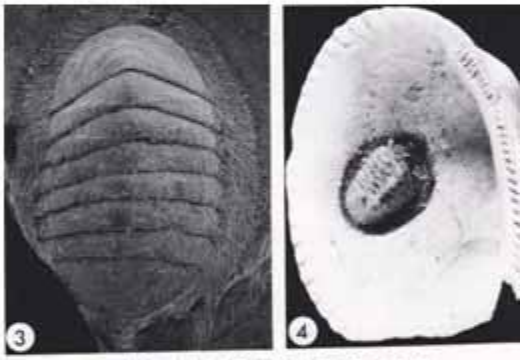

S41d


S41e


S41f

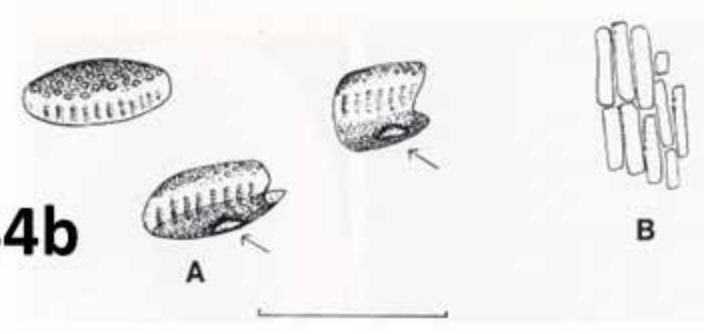




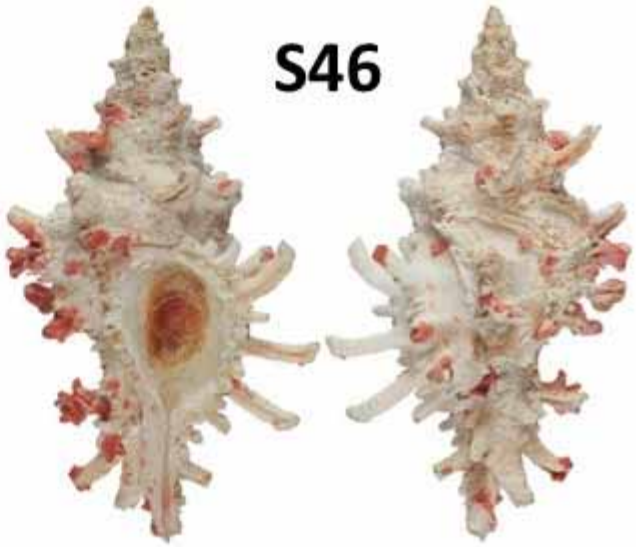


←S44c

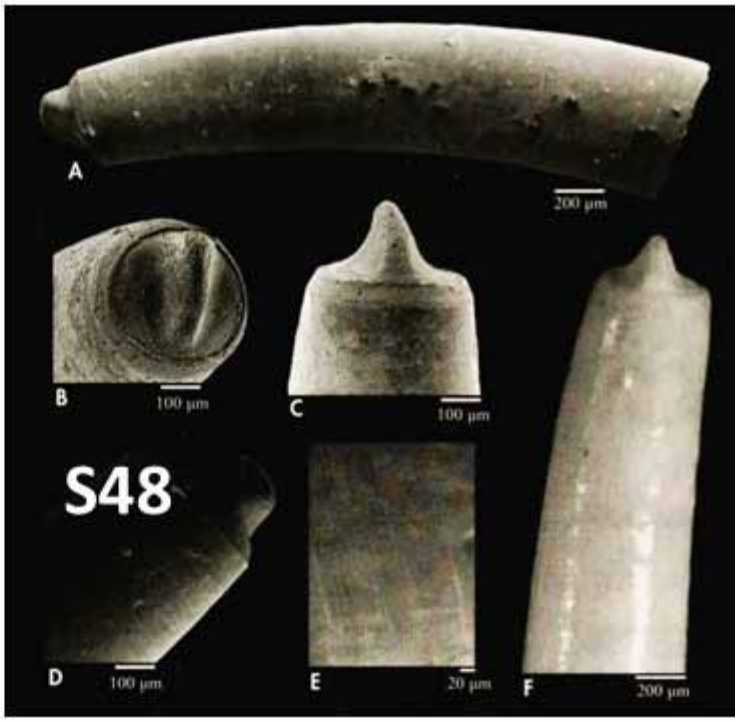
S44a

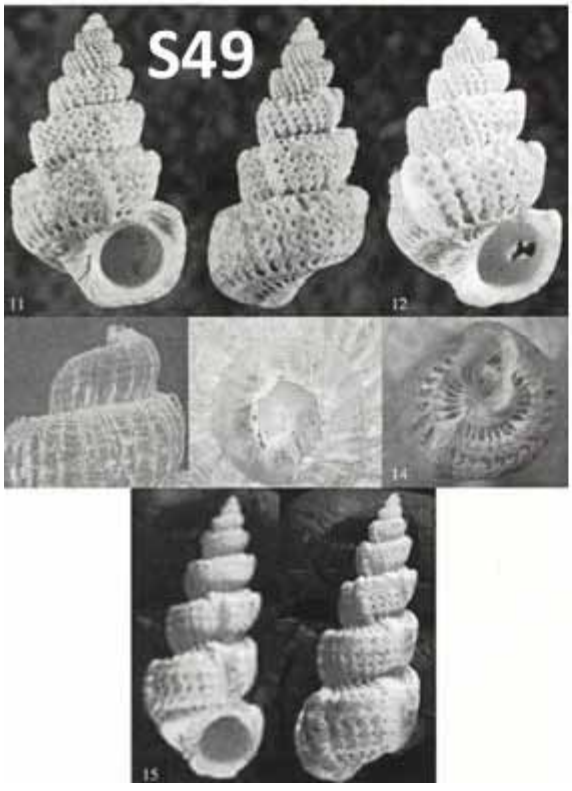


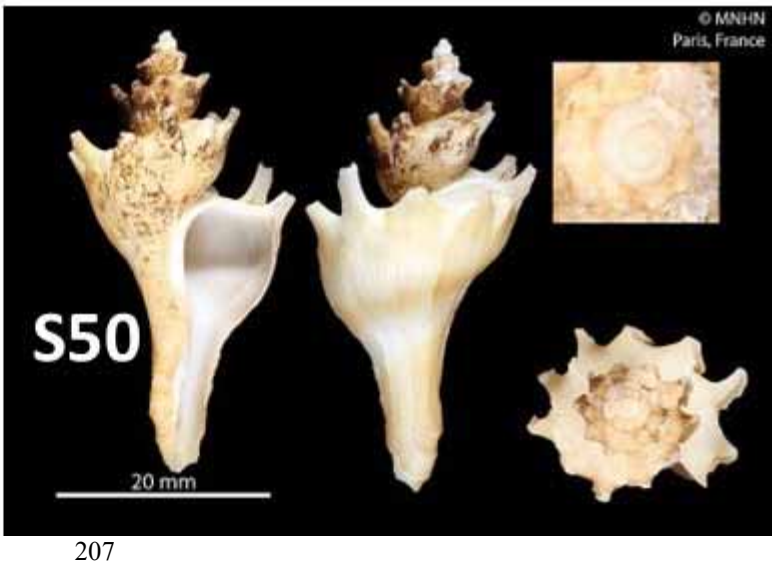

Paratype
S45
© Eddie Hardy


S46


S47

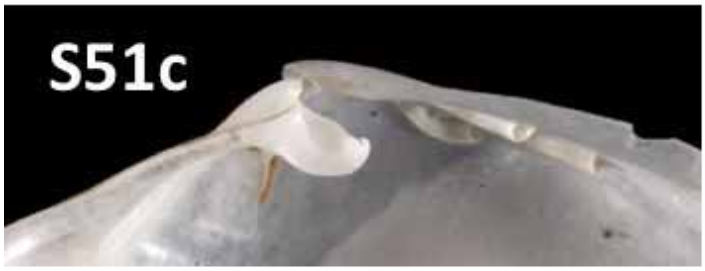

A
200 µm
B
100 µm
C
100 µm
S48
D
100 µm
E
20 µm
F
200 µm


S49
11
12
14
15


© MNHN
Paris, France
S50
20 mm


S51a


S51b


S51c


S51d

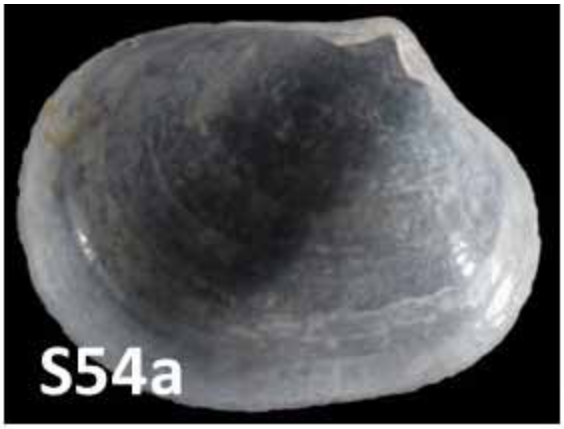

S51e

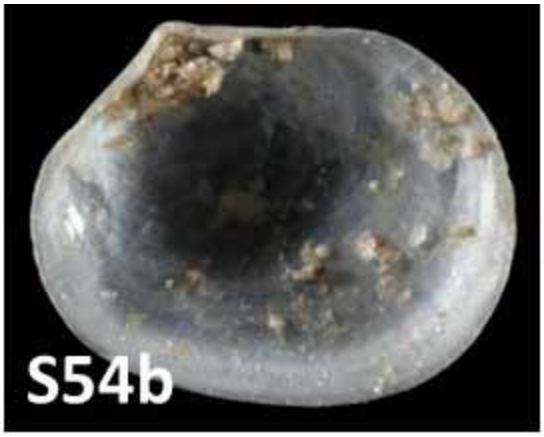

S51f


S52

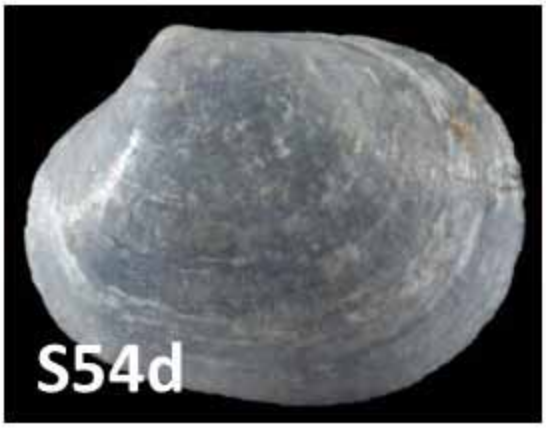

S53a

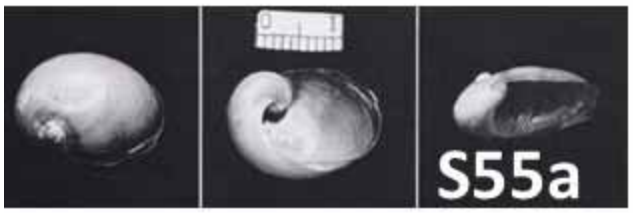

S53b


S54a

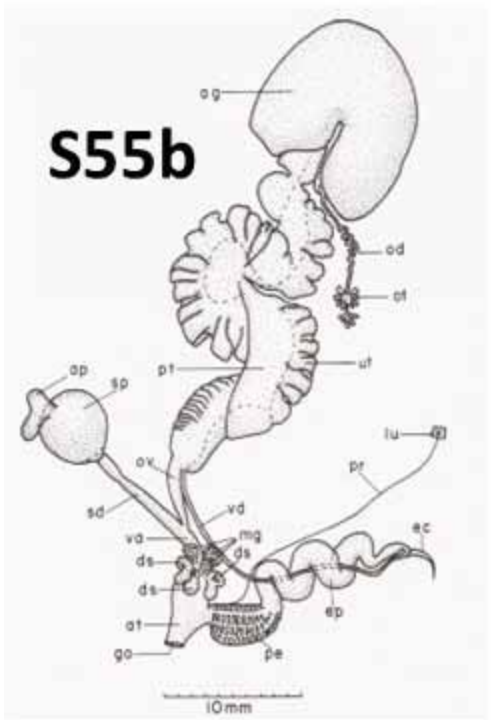

S54b

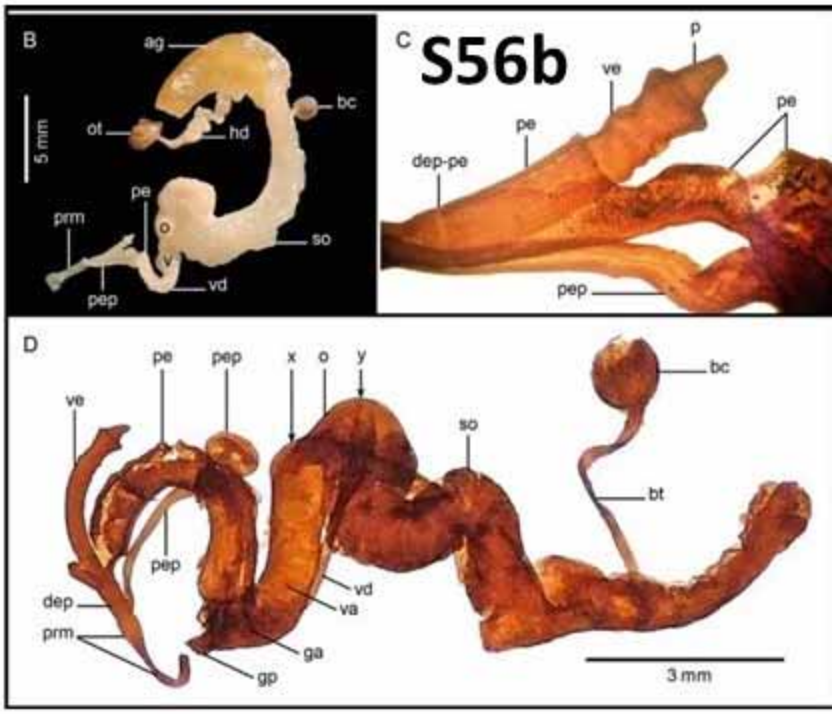

S54c


S54d


S55a


S56a


S55b
og
od
ot
op
sp
pt
ut
lu
ov
pr
sd
vd
va
mg
ds
ds
ds
ec
ep
at
go
pe
10 mm


B
ag
bc
ot
hd
5 mm
pe
prm
o
so
pep
vd
C
S56b
p
ve
pe
pe
dep-pe
pep
D
pe
pep
x
o
y
bc
ve
so
bt
pep
vd
va
dep
prm
ga
gp
3 mm

S57a

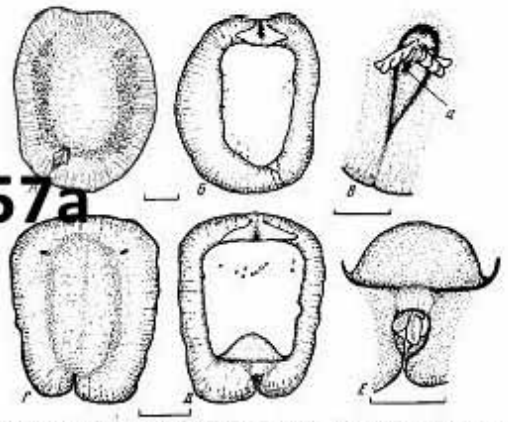


Рис. 1. *Loy tuyeni* sp. n. (*A* — *B*) и *Proloy millenae* sp. n. (*Г* — *Е*): *А*, *Г* — внешний вид со спинной стороны; *Б*, *Д* — внешний вид с брюшной стороны; *В* — *Е* — жаберный аппарат. Масштаб (мм): *А*, *Б*, *Г*, *Д* — 1; *В*, *Е* — 0,5

S57b

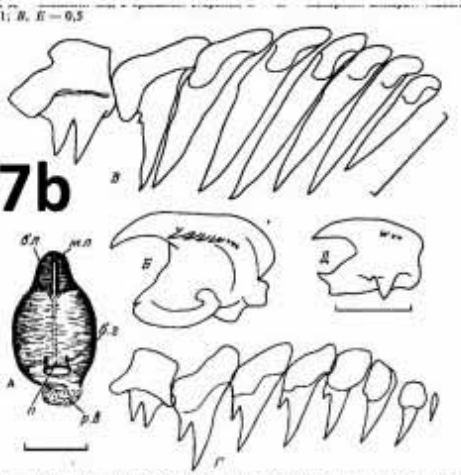
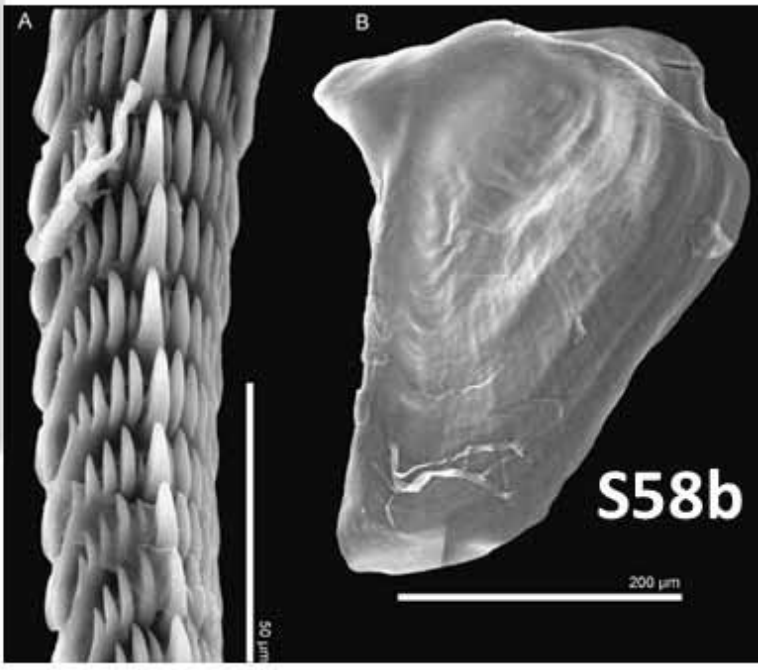
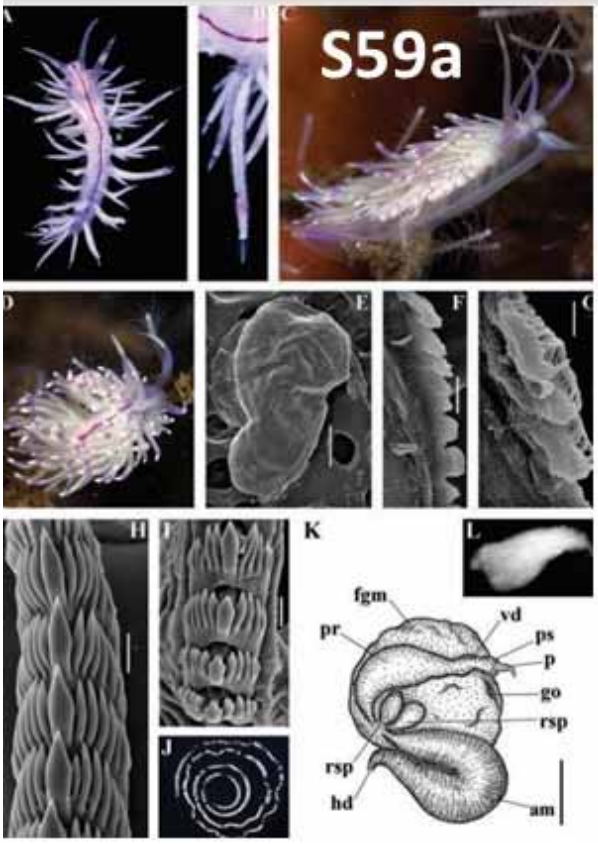
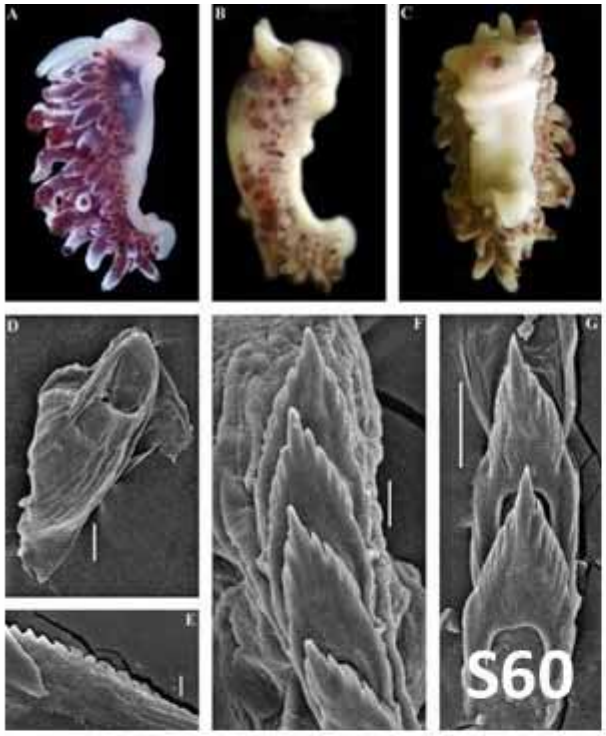


Рис. 2. *Loy tuyeni* sp. n. (*А* — *В*) и *Proloy millenae* sp. n. (*Г*, *Д*): *А* — глотка; *Б*, *Д* — 1-й латеральный зуб; *В*, *Г* — 2—9-й латеральные зубы. Масштаб: *А* — 0,5 мм; *Б*, *В* — 40 мкм; *Г*, *Д* — 20 мкм





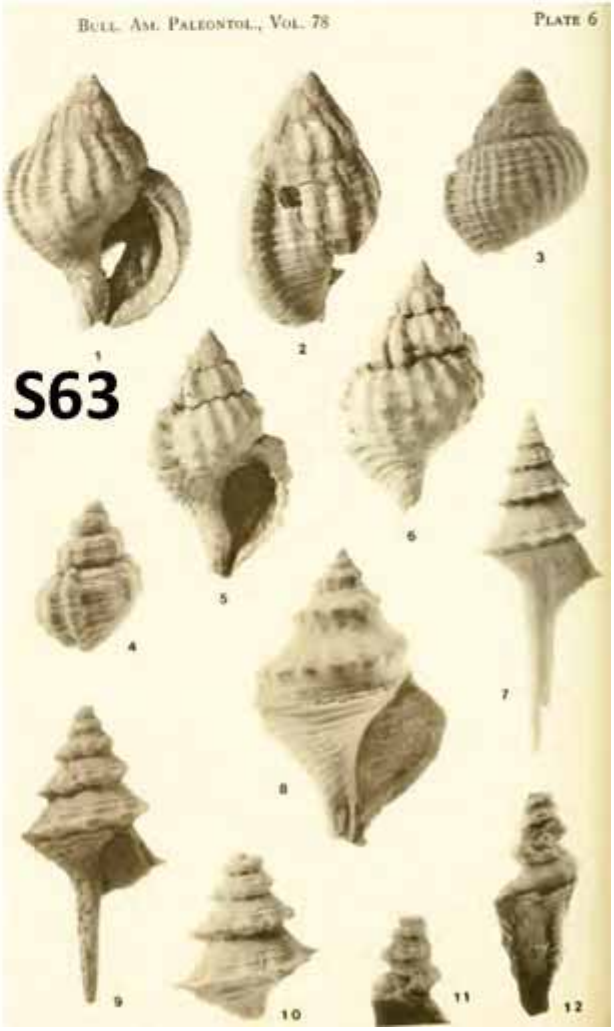

S60

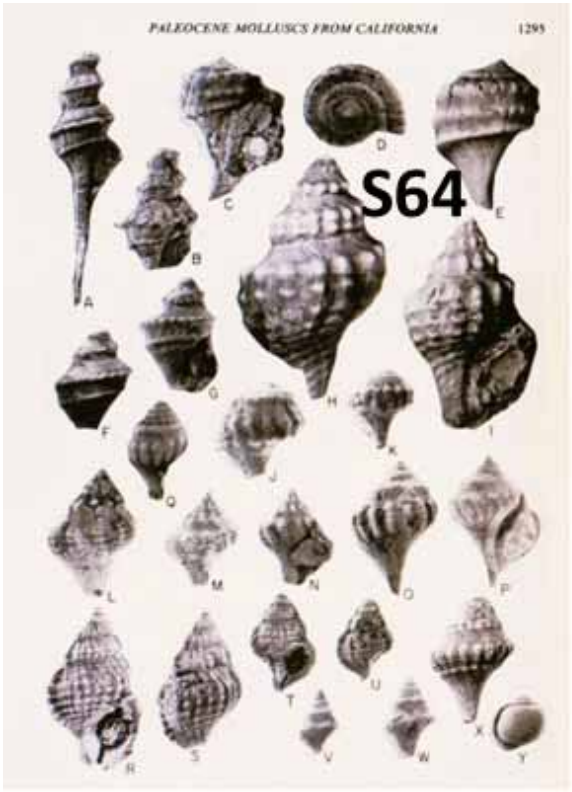

S61

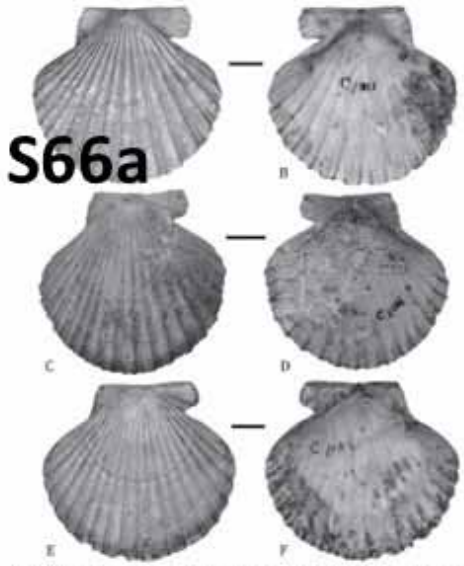

S62a

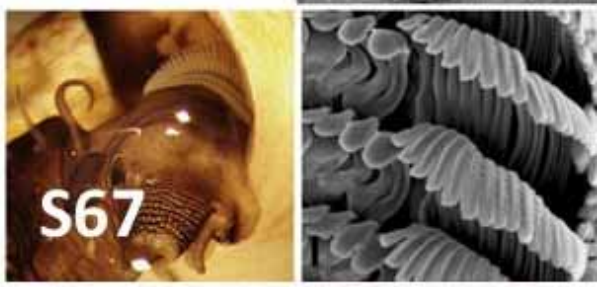

S62b


S62c


Bull. Am. Paleontol., Vol. 78
Plate 6
S63







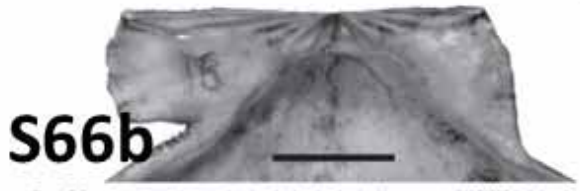
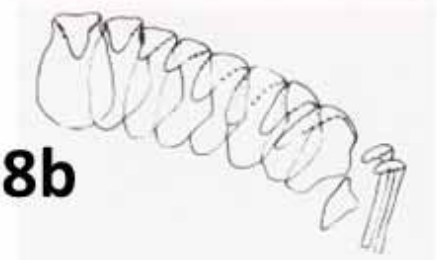
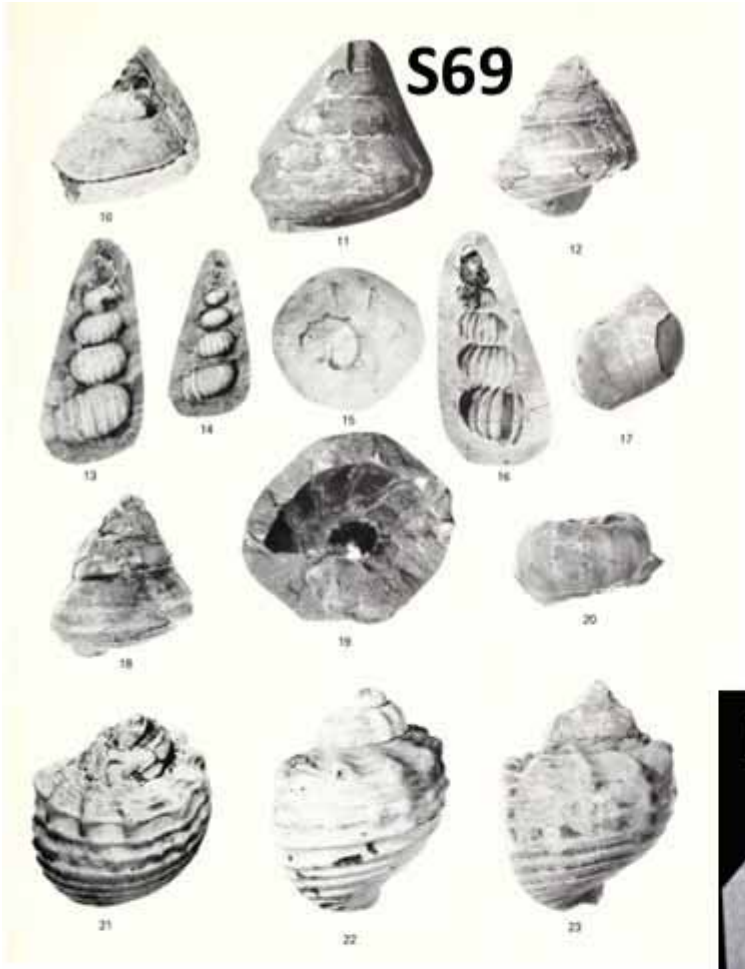
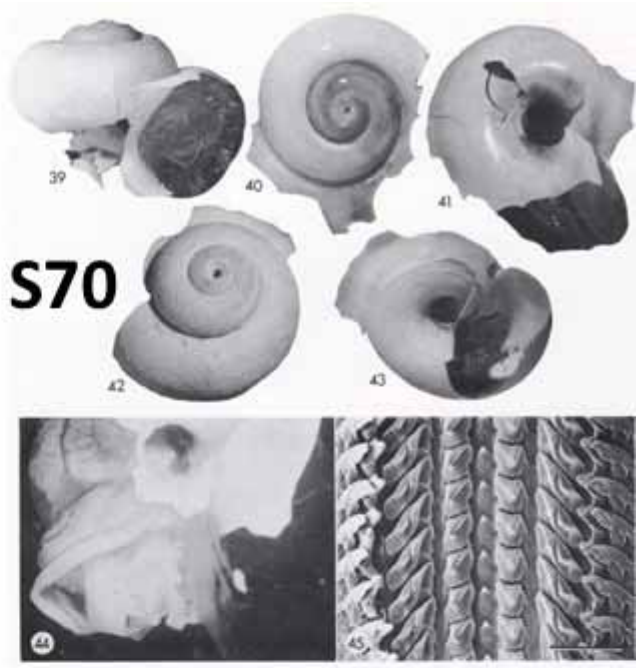


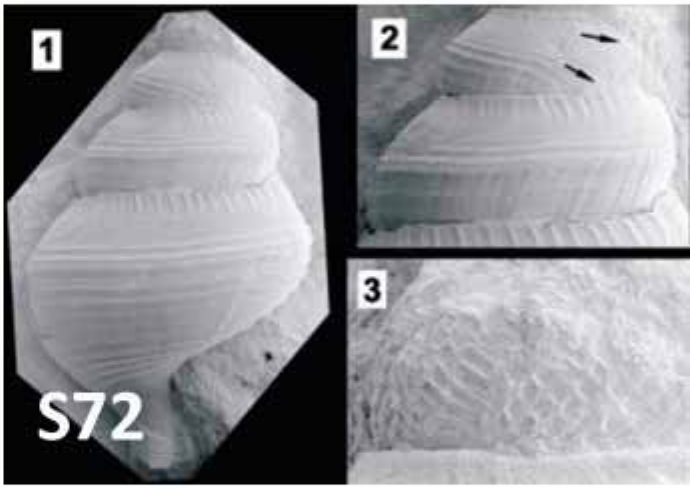
Figure 2. *Lyropecten terryxenithus* n. sp. Interior of right valve showing hinge, paratype CAS 79557. Scale bar=1 cm.

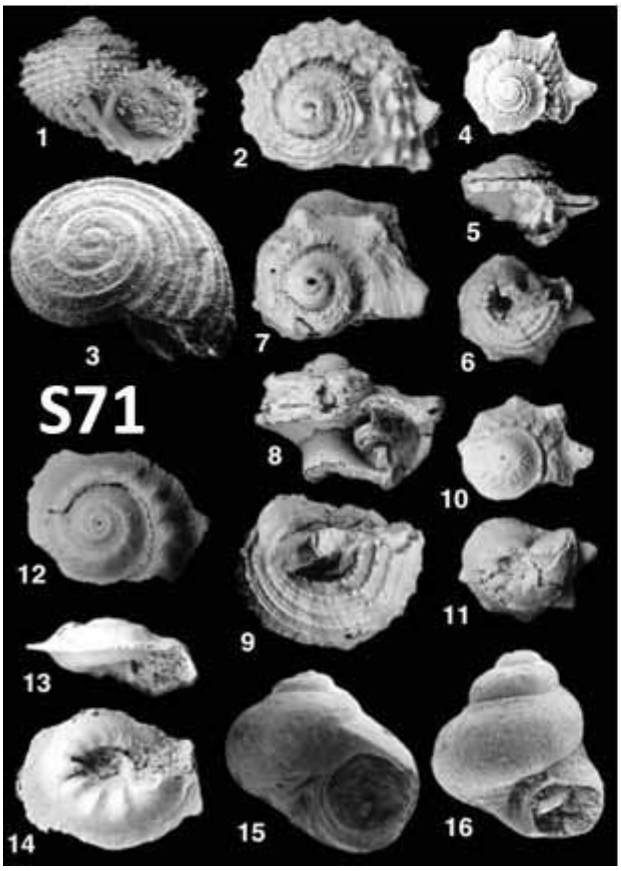
Figure 3. *Lyropecten terryxenithus* n. sp. Interior of left valve showing hinge (juvenile), paratype CAS 79563. Scale bar=1 cm.

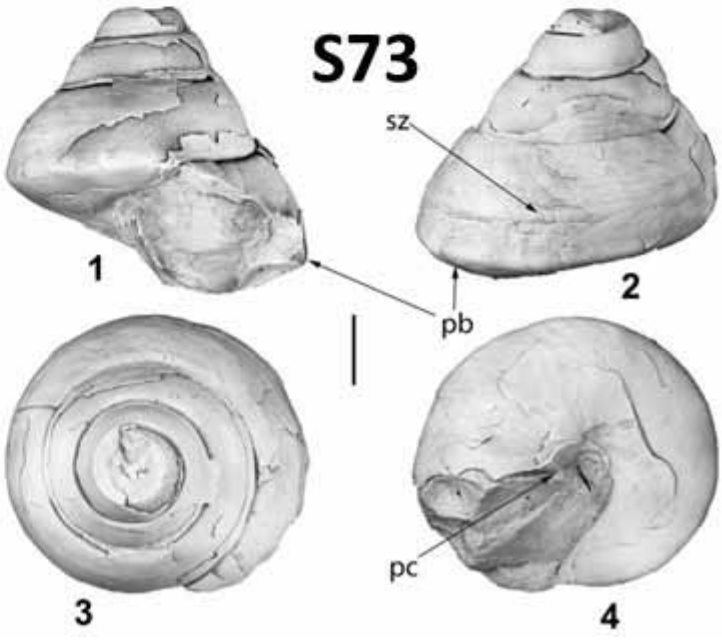



S69


S70


1
2
3
S72


S71


S73
sz
pb
pc


S74a


S74b


S74c

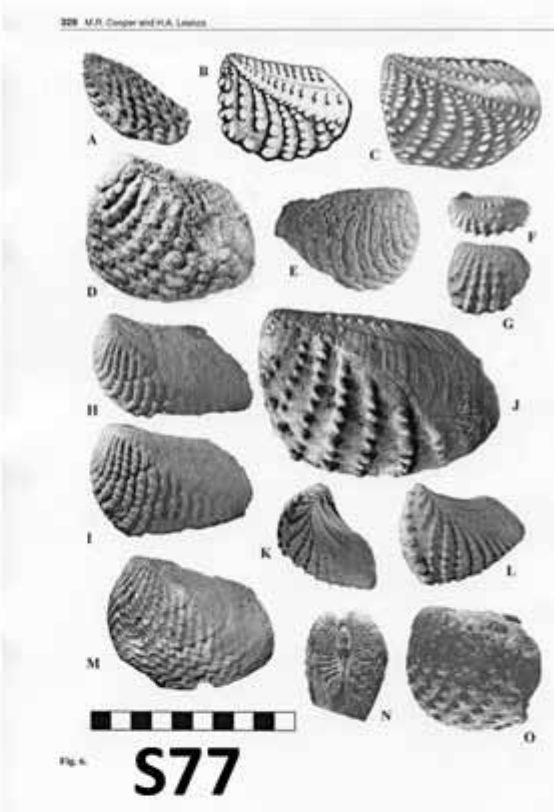

S74d


S74e


S75a

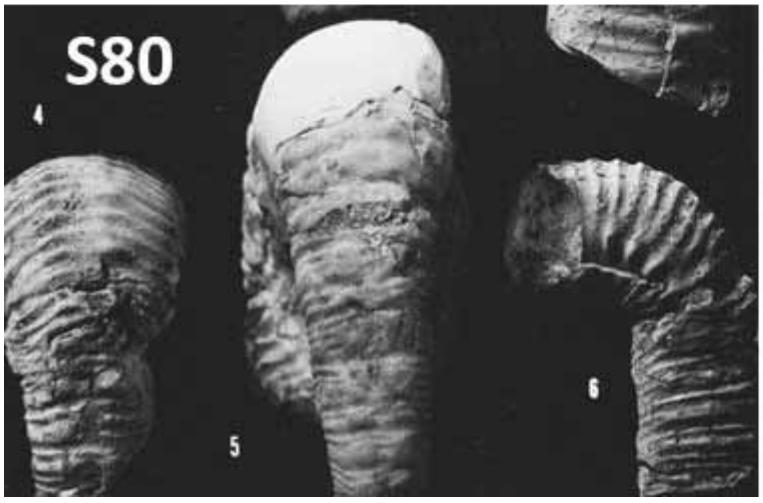

S75b


PALEOCENE MOLLUSCS FROM CALIFORNIA 1285
S76


S77


S78


S79


S80
4
5
6

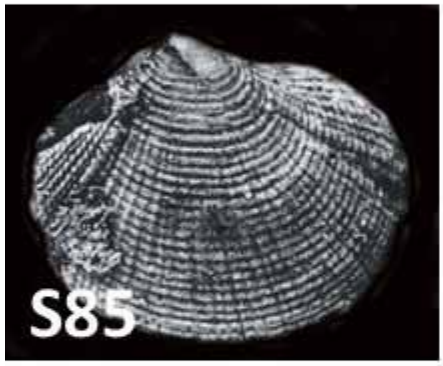

S81


S82

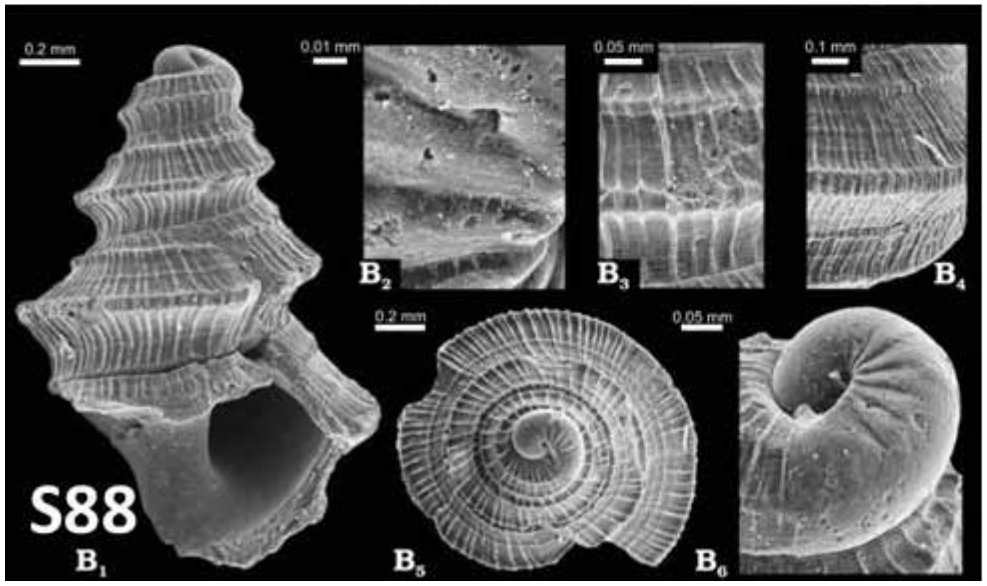

S83

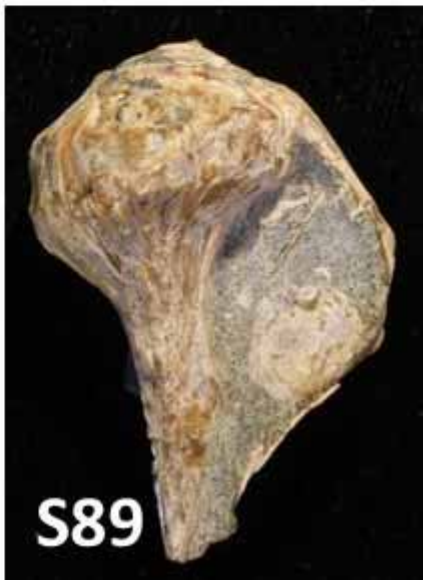

S84

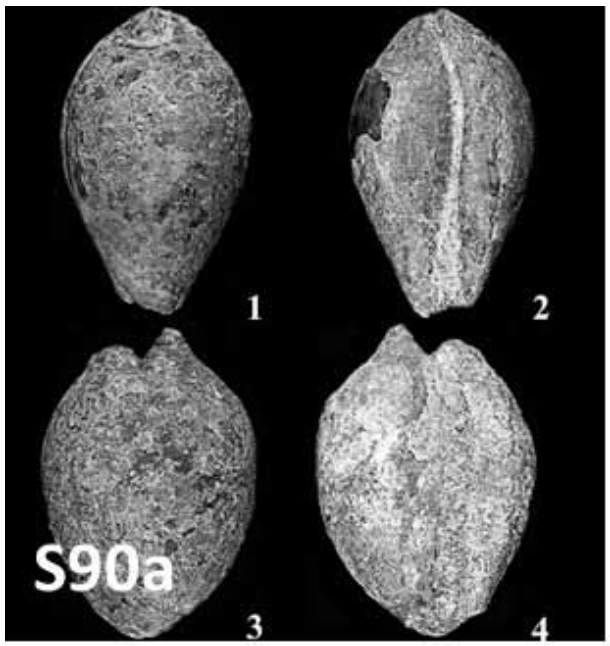

S87


S85


S86

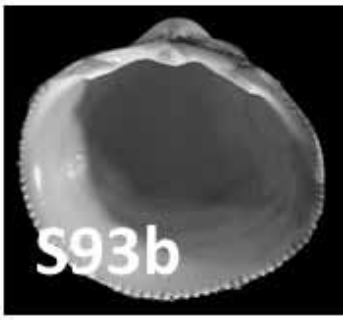

0.2 mm
0.01 mm
0.05 mm
0.1 mm
B2
B3
B4
0.2 mm
0.05 mm
S88
B1
B5
B6


S89

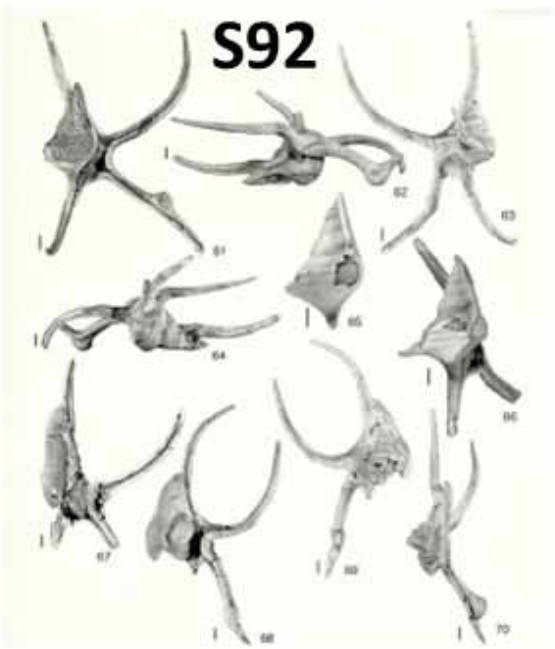

1
2
3
4
S90a

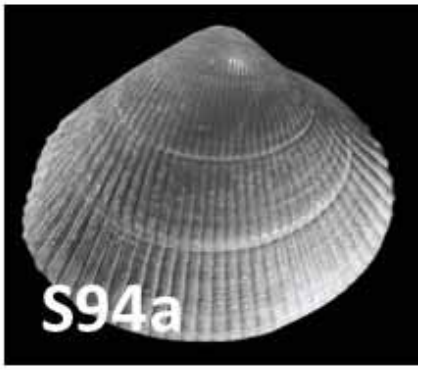

S90b

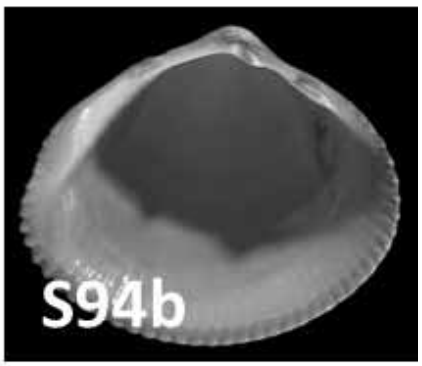

S93a

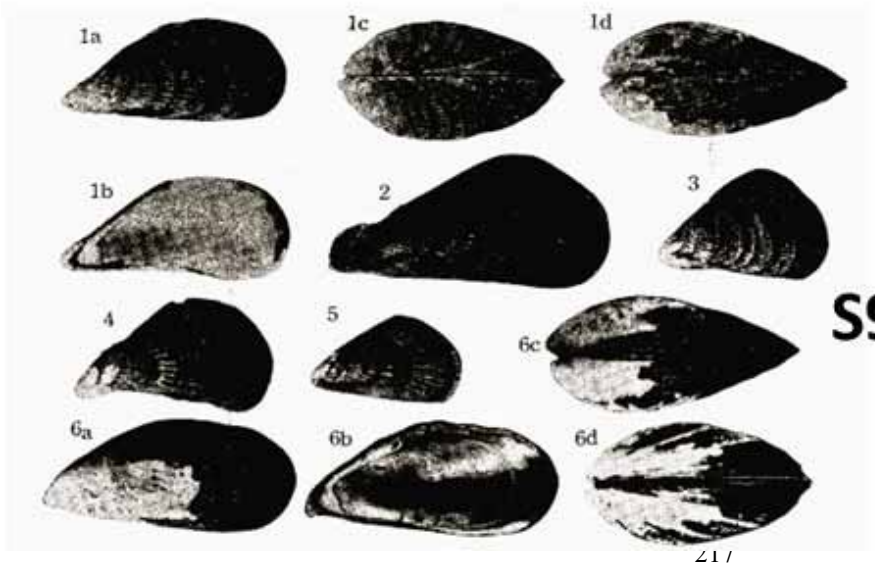

S93b


S91

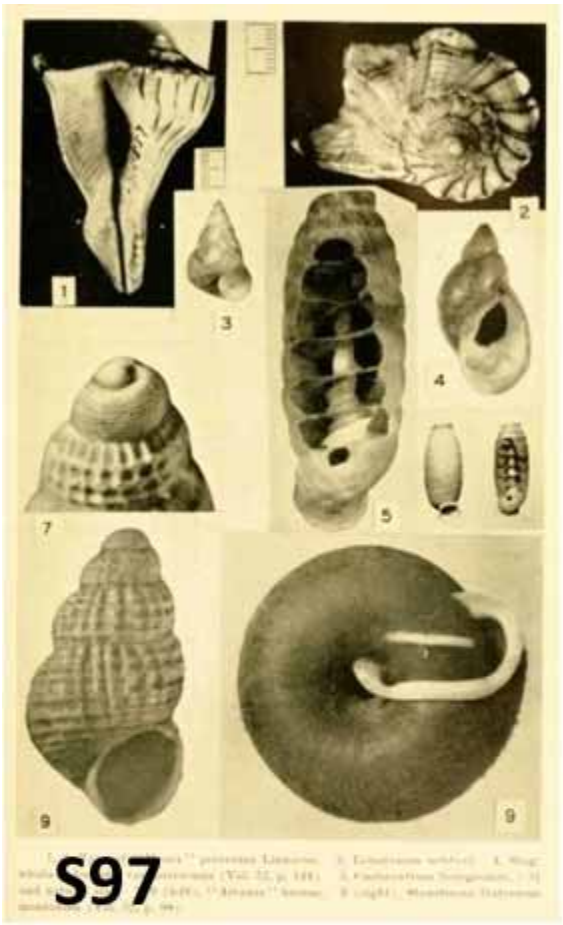

S92

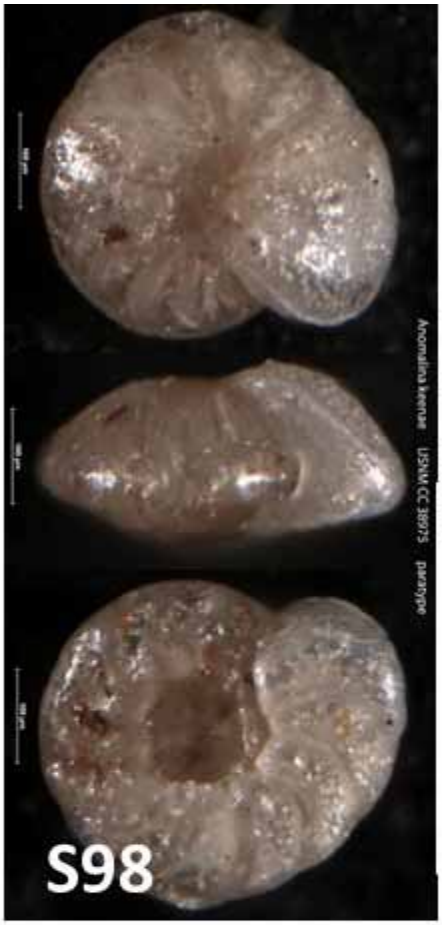

S94a


S94b


1a
1c
1d
1b
2
3
4
5
6c
6a
6b
6d
S96

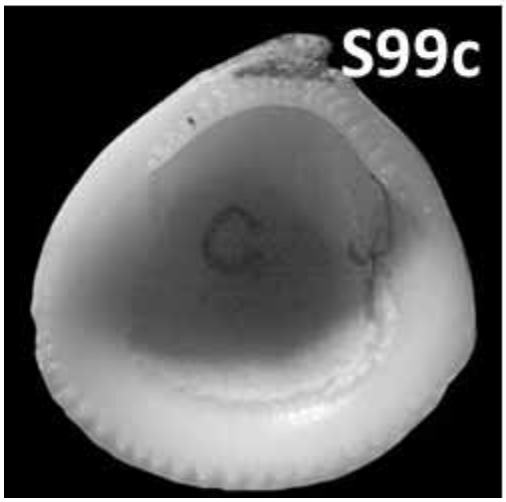

S95

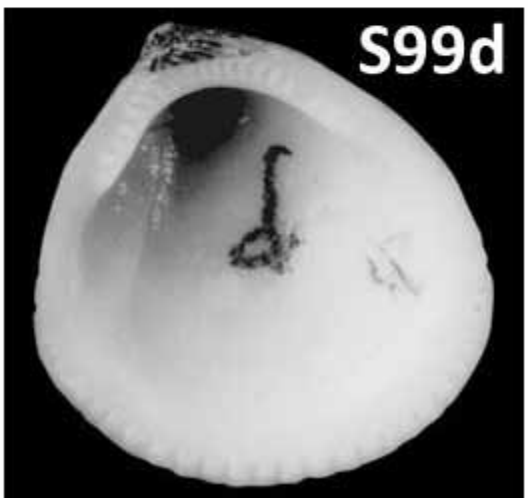

S97


S98

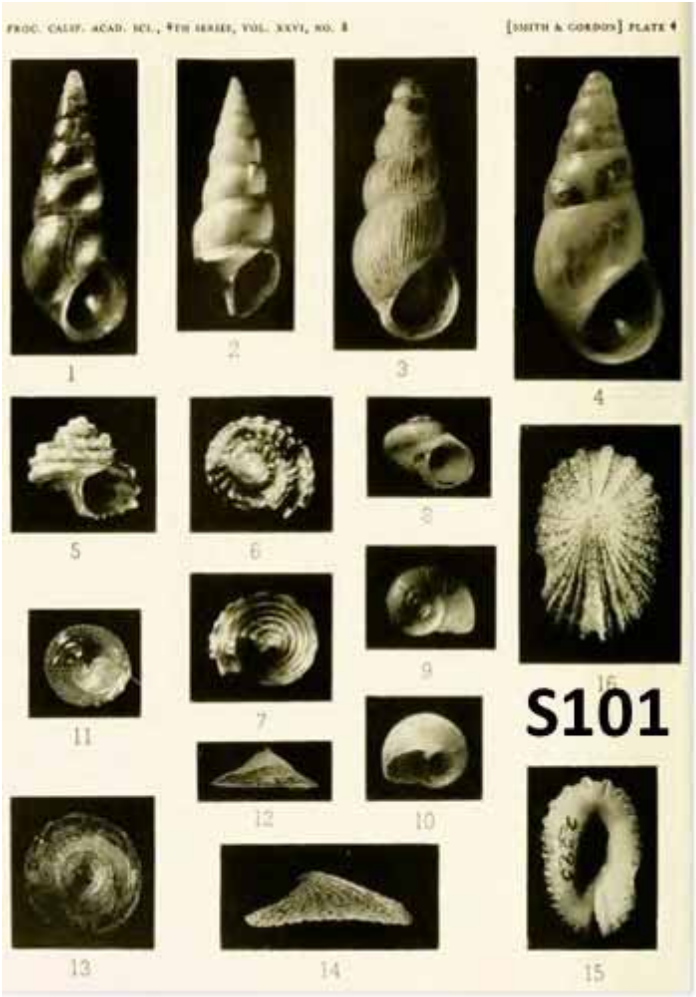

S99a


S99b

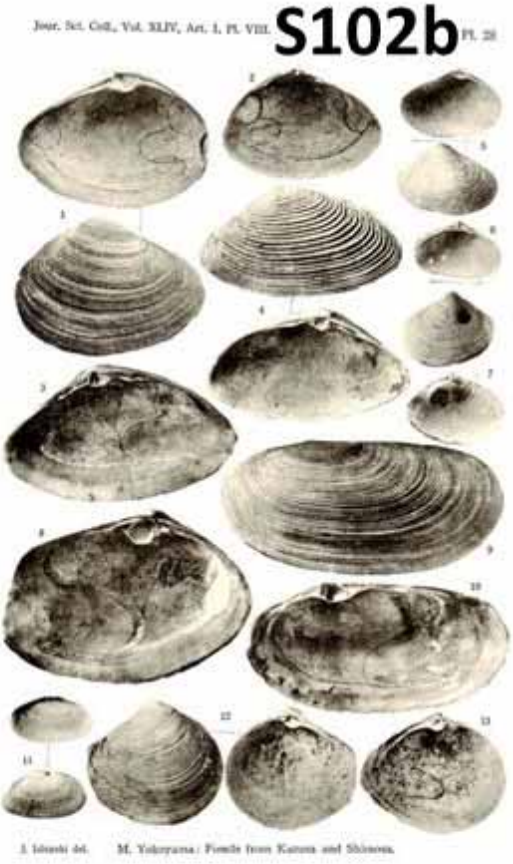

S99c


S99d

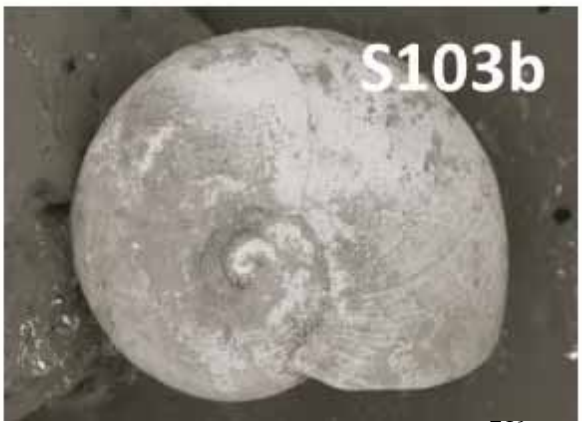

S100

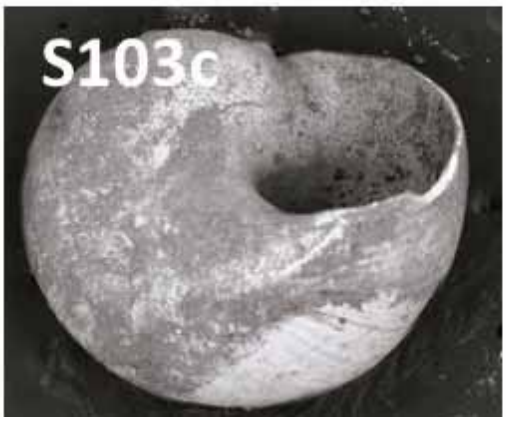

PROC. CALIF. ACAD. SCI., 4TH SERIES, VOL. XXVI, NO. 8
[SMITH & GORDON] PLATE 4
S101


S102a
© 2016 - G. & Ph. Poppe


Jour. Sci. Coll., Vol. XLIV, Art. 1, Pl. VIII.
S102b
Pl. 28
M. Yokoyama: Fossils from Kazusa and Shinano.


1.6 mm MC
S103a


S103b

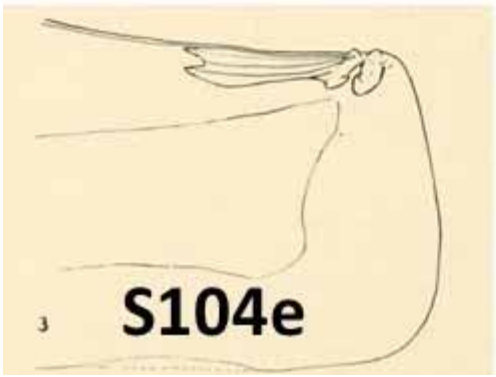

S103c

S104a

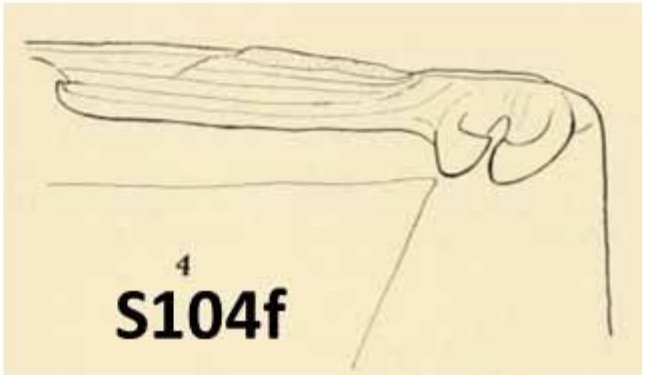
S104b

S104c

S104d

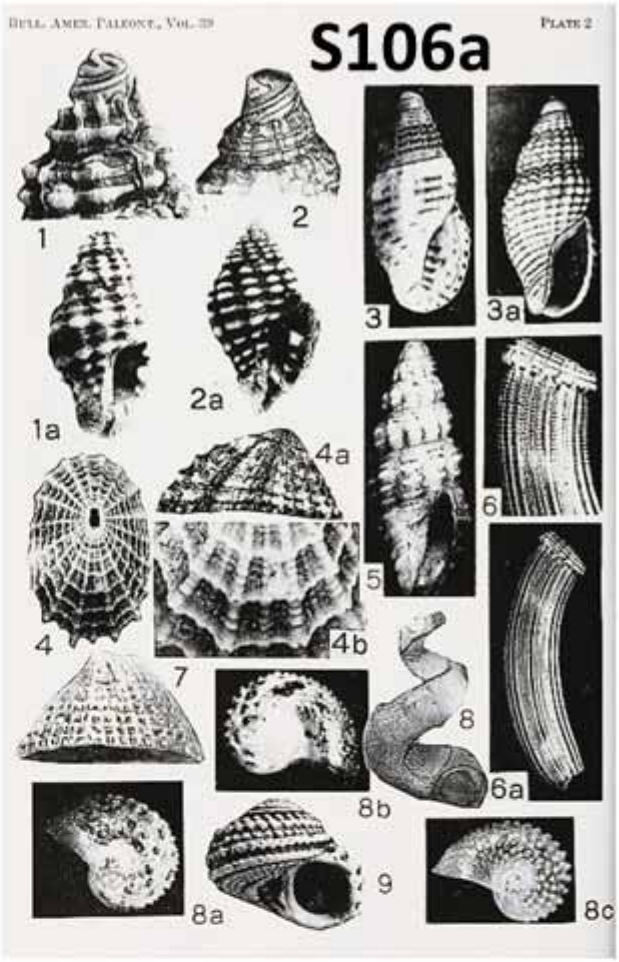


S104e



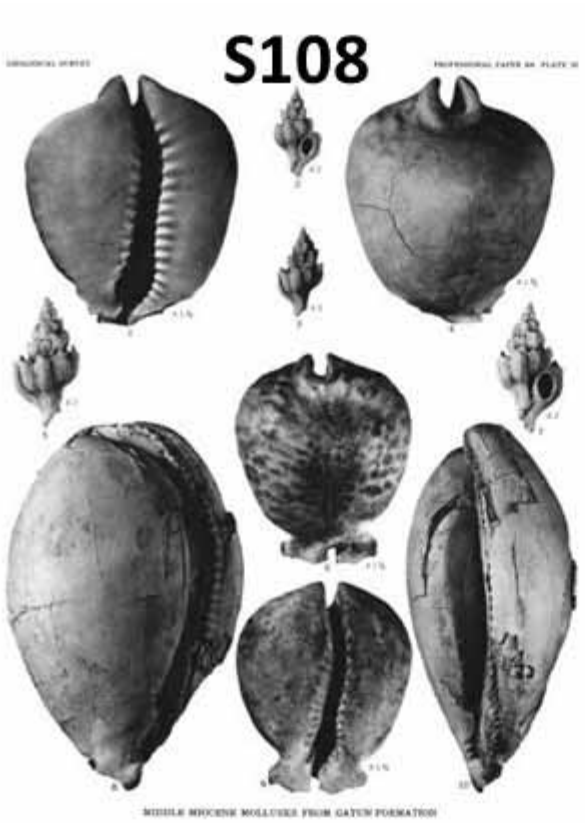
S104f


S105


BULL. AMER. PALEONT., VOL. 29
PLATE 2
S106a
1
2
3
3a
1a
2a
4a
6
4
4b
5
7
8
6a
8b
8a
9
8c


S106b
2 mm


S107
22
23
24
26
25
27


S108
MIDDLE MIOCENE MOLLUSKS FROM GATUN FORMATION

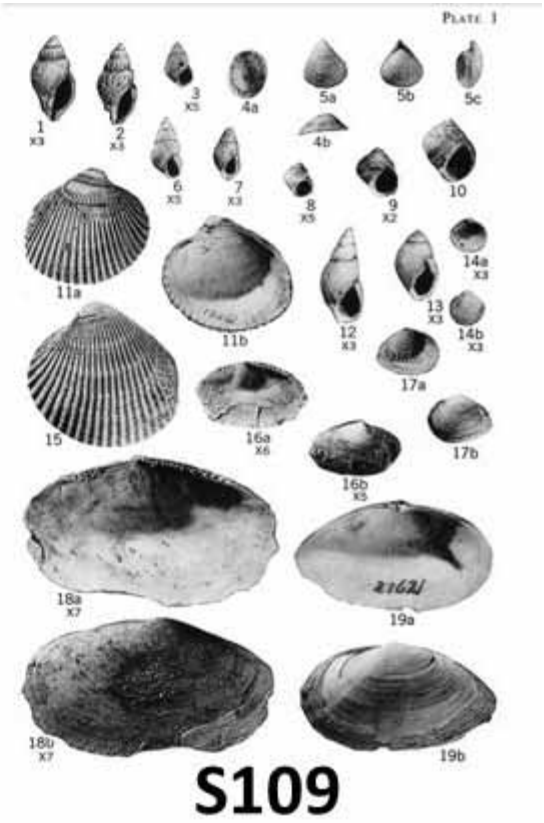
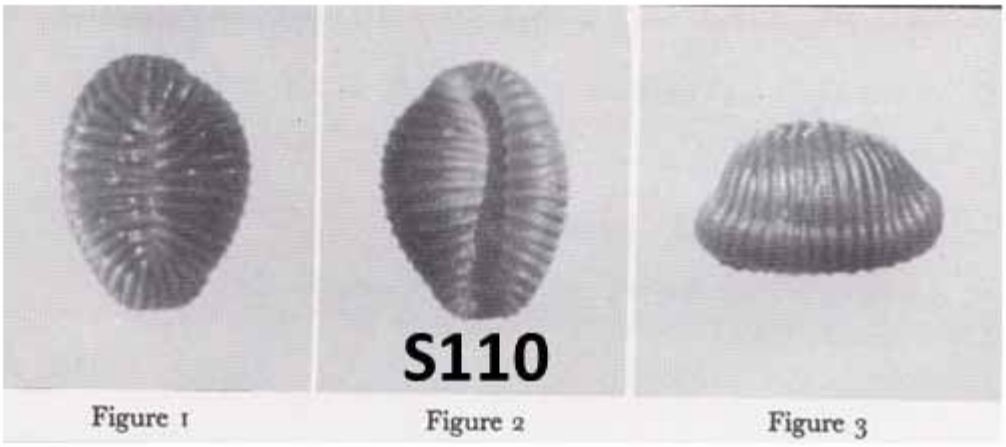
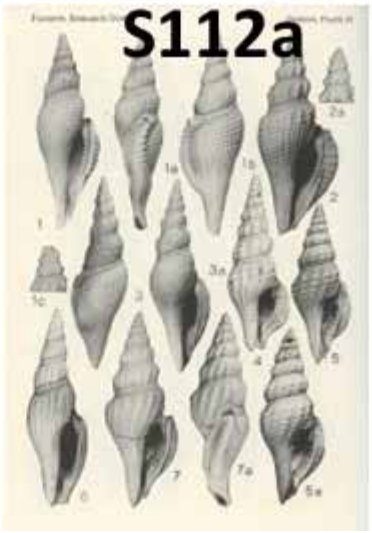


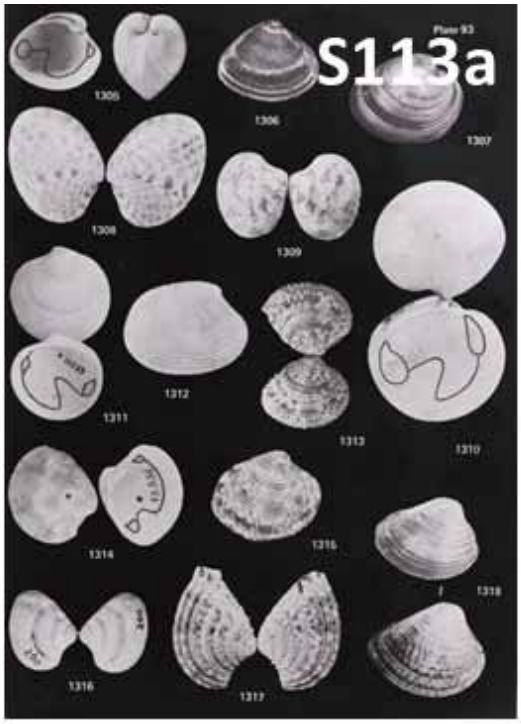
PLATE 1
S109


S110
Figure 1
Figure 2
Figure 3

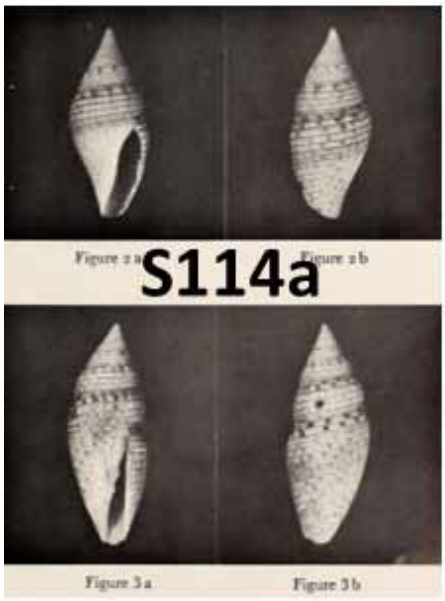

S111
Figure 1. Periploma (Halistrepta) myrae, new species. Exterior view of right valve of holotype, x2.
Figure 2. Periploma (Halistrepta) myrae new species. Hinge area of right valve of holotype, x3.

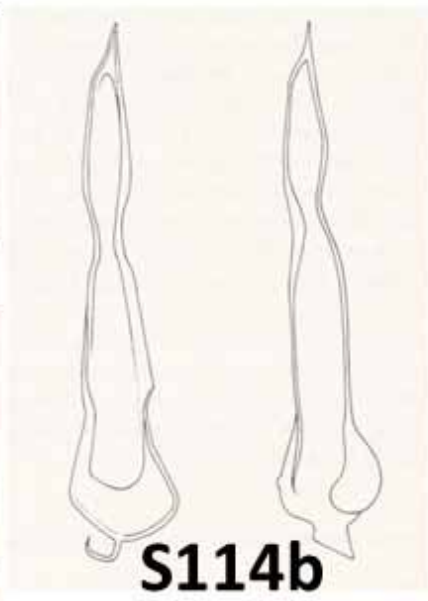

S112a


S112b

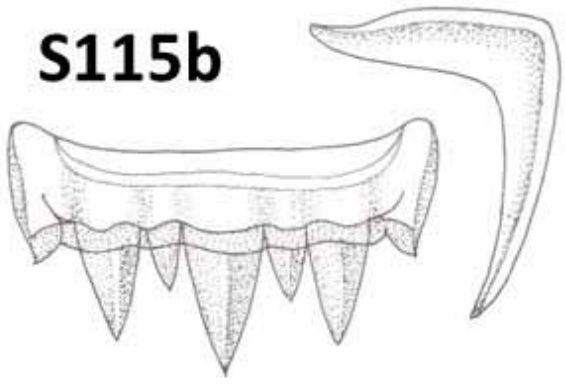

S113a

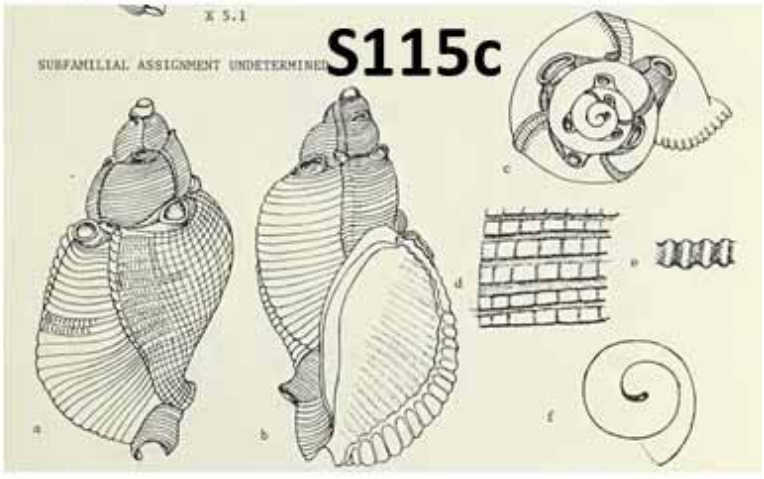

S113b
© 2015 - G. & Ph. Poppe

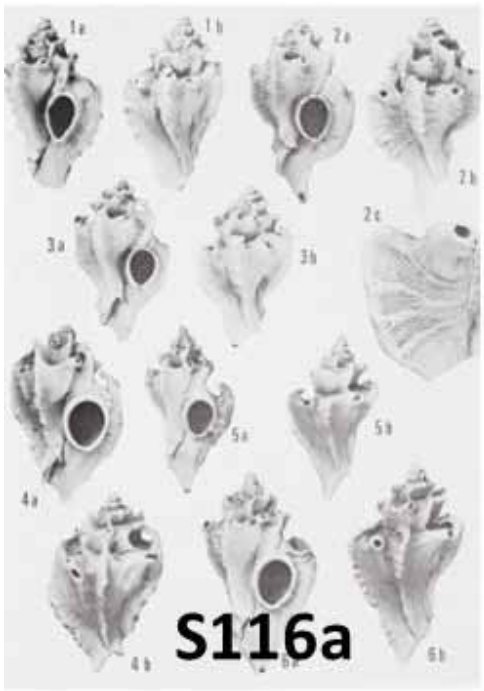

S114a
Figure 3a
Figure 3b

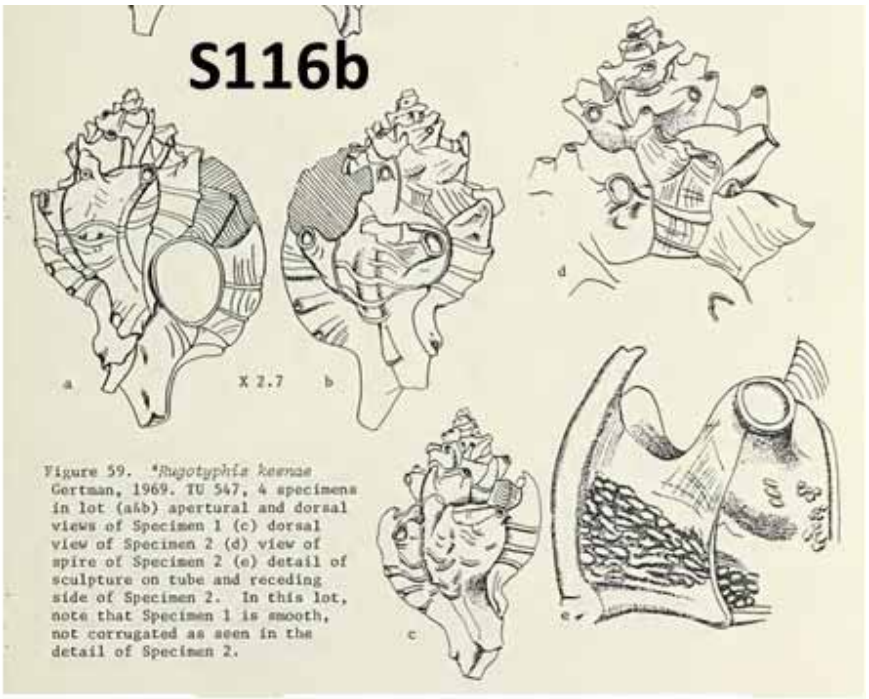

S114b

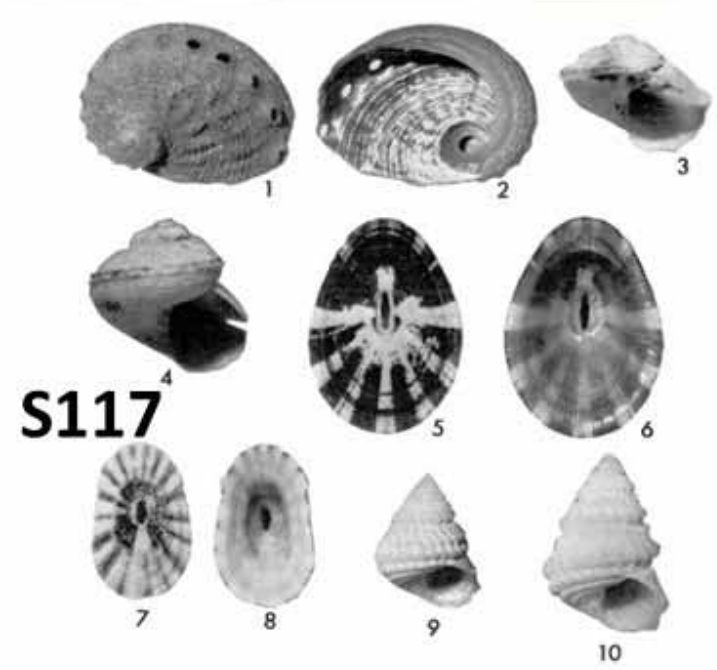

S115a


S115b


S115c
SUBFAMILIAL ASSIGNMENT UNDETERMINED


S116a

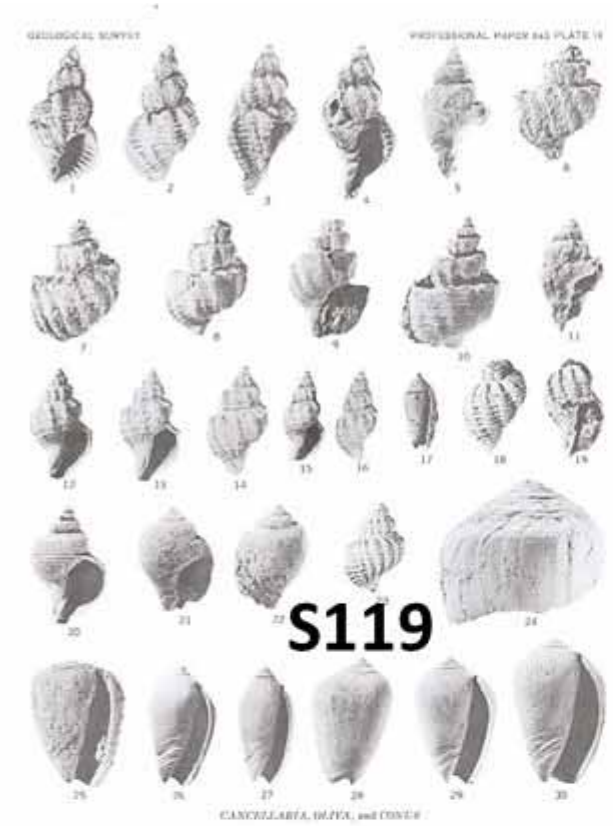

S116b
X 2.7
Figure 59. *Rhogotyphis keenae* Gertman, 1969. TU 547, 4 specimens in lot (a&b) apertural and dorsal views of Specimen 1 (c) dorsal view of Specimen 2 (d) view of spire of Specimen 2 (e) detail of sculpture on tube and receding side of Specimen 2. In this lot, note that Specimen 1 is smooth, not corrugated as seen in the detail of Specimen 2.

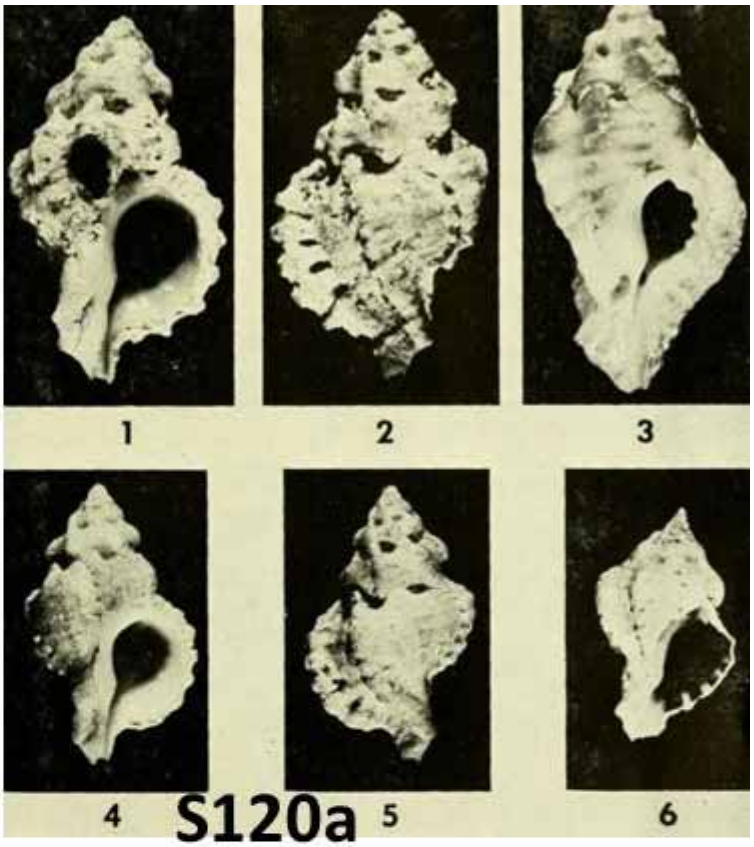

S117

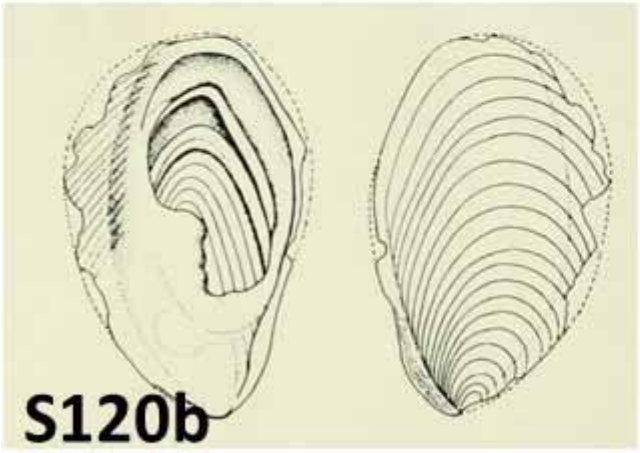

S118a

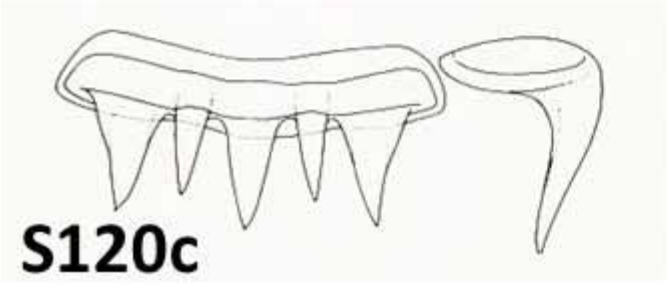

S118b


S118c


S119

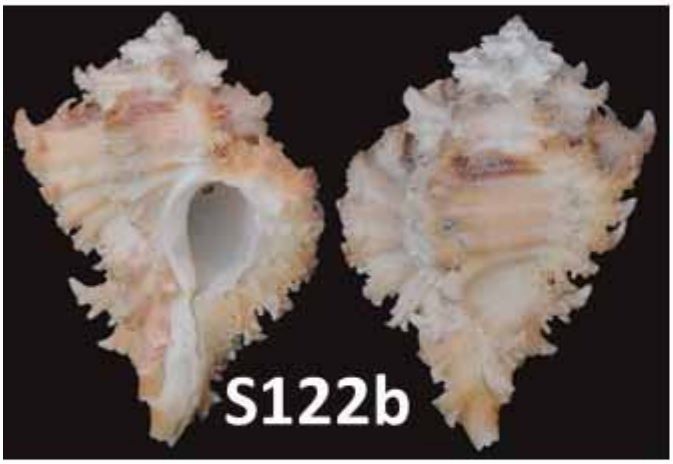

1
2
3
4
S120a
5
6

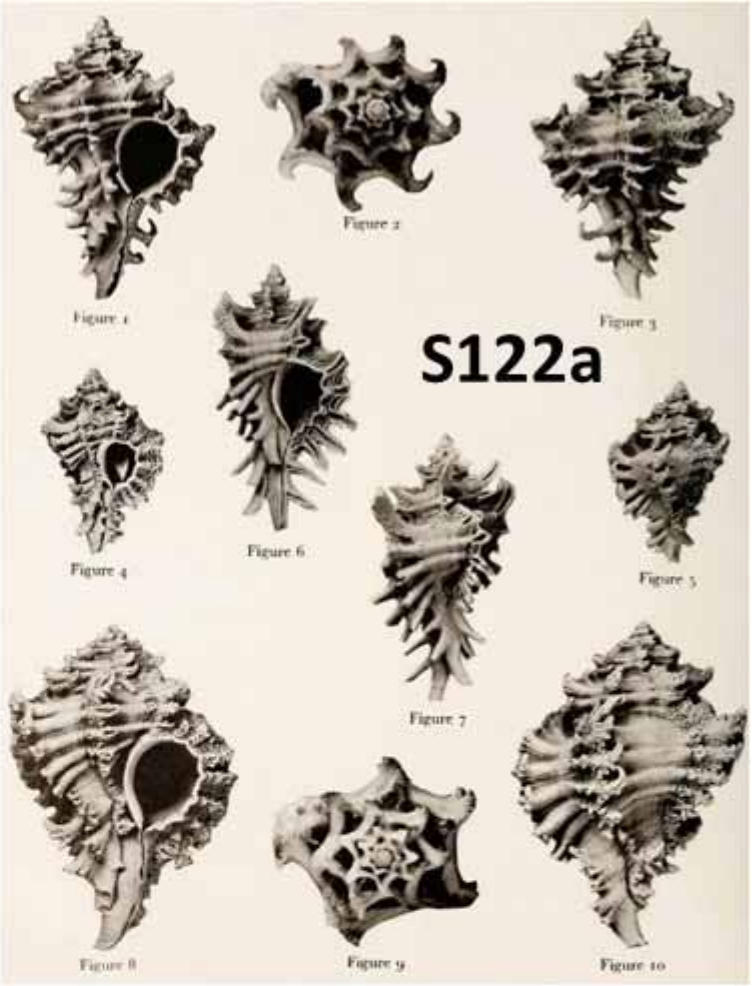

S120b


S120c


S120d


S121

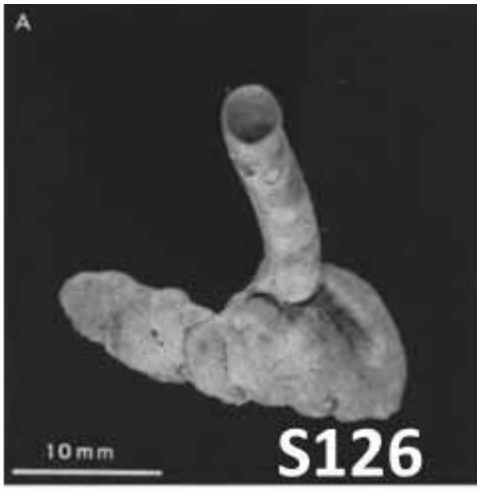

S122b

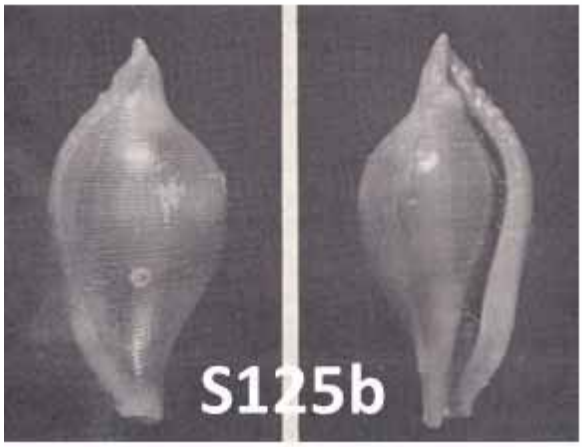

S122a
Figure 1
Figure 2
Figure 3
Figure 4
Figure 5
Figure 6
Figure 7
Figure 8
Figure 9
Figure 10

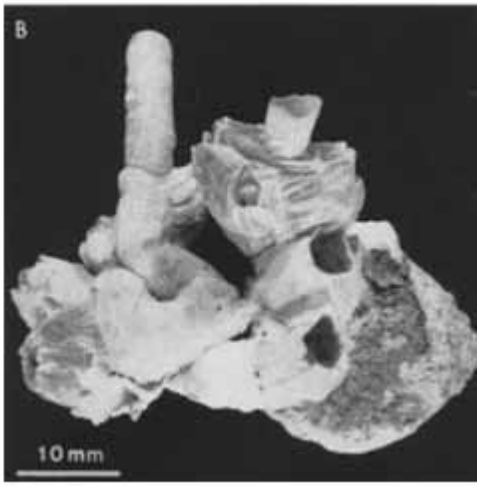

S123

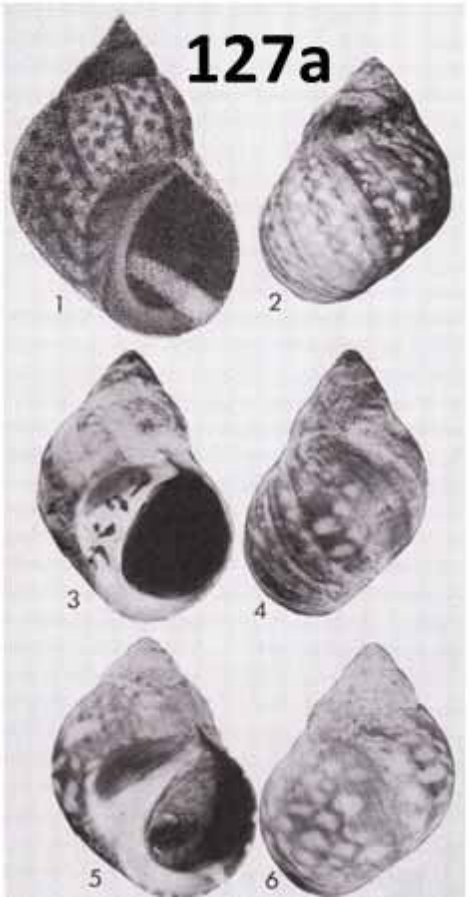

S124
BMSM 83483
Callucina keenae
Abaco, Bahamas
Radtion Collection

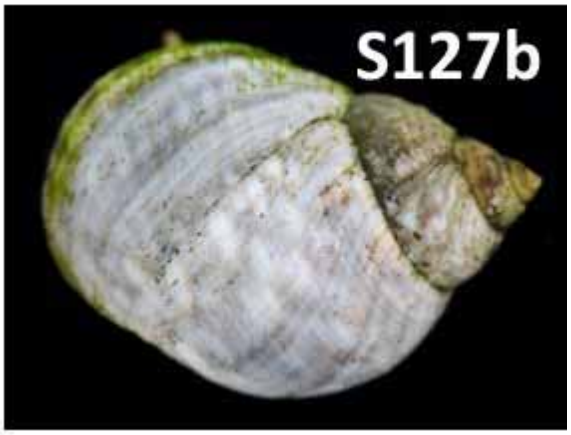

S125a


A
10 mm
S126

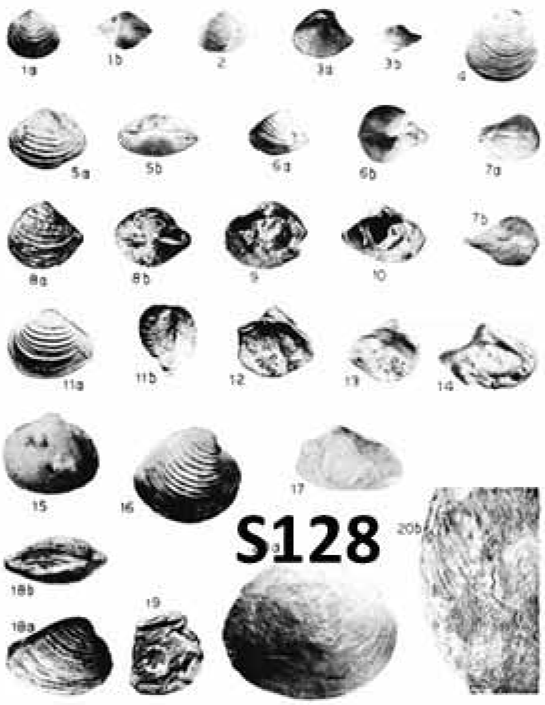

S125b

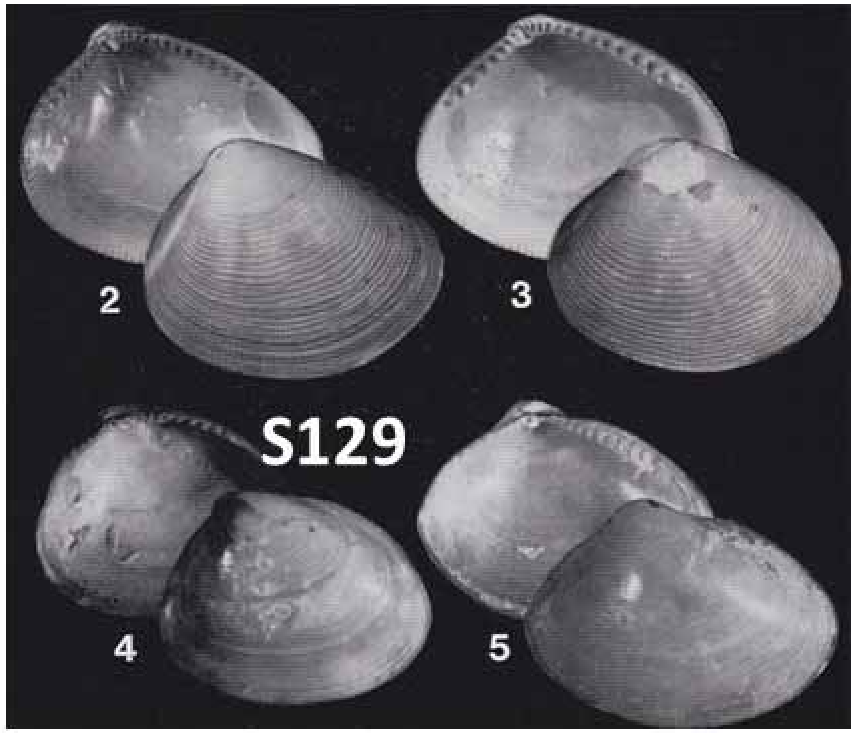

B
10 mm


127a
1
2
3
4
5
6

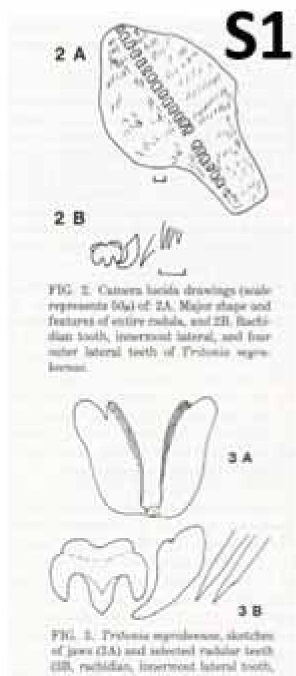

S127b

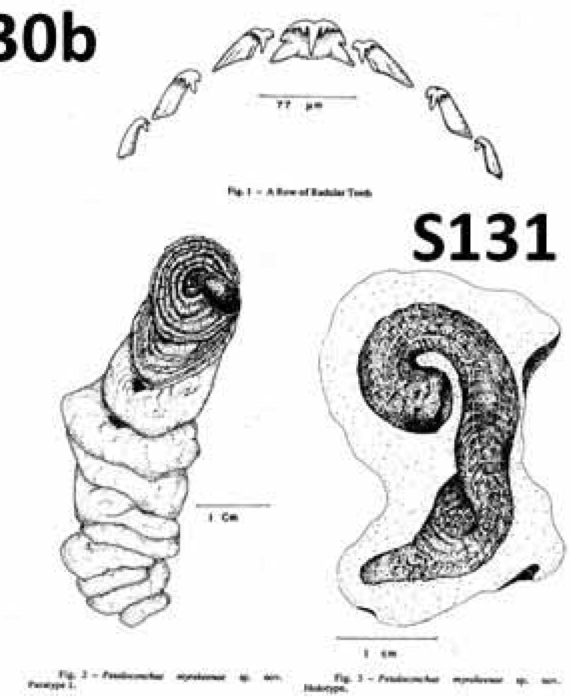

S127c


S128
1a
1b
2
3a
3b
5a
5b
6a
6b
7a
7b
8a
8b
9
10
11a
11b
12
13
14
15
16
17
18a
18b
19
20b

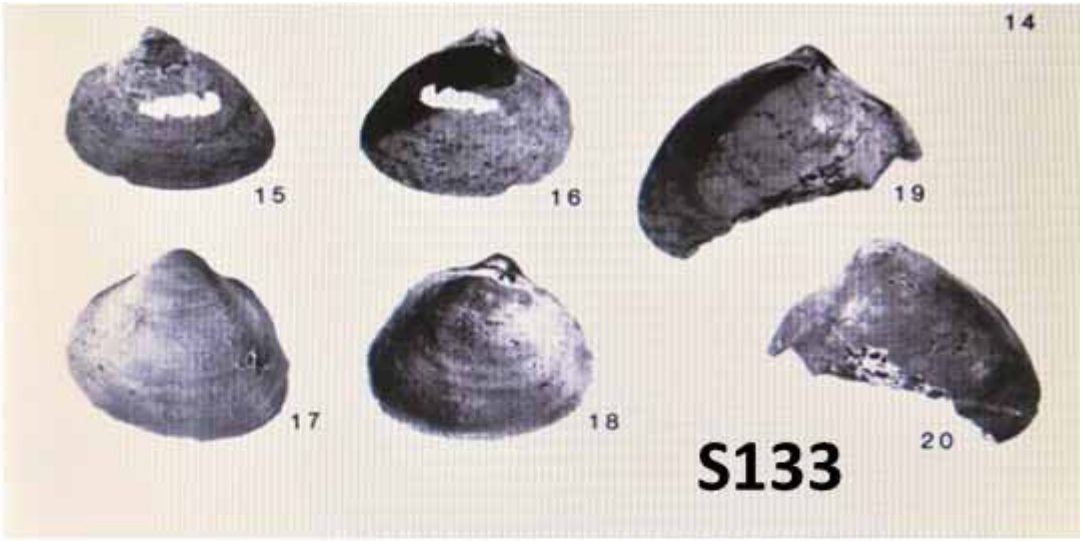

2
3
S129
4
5

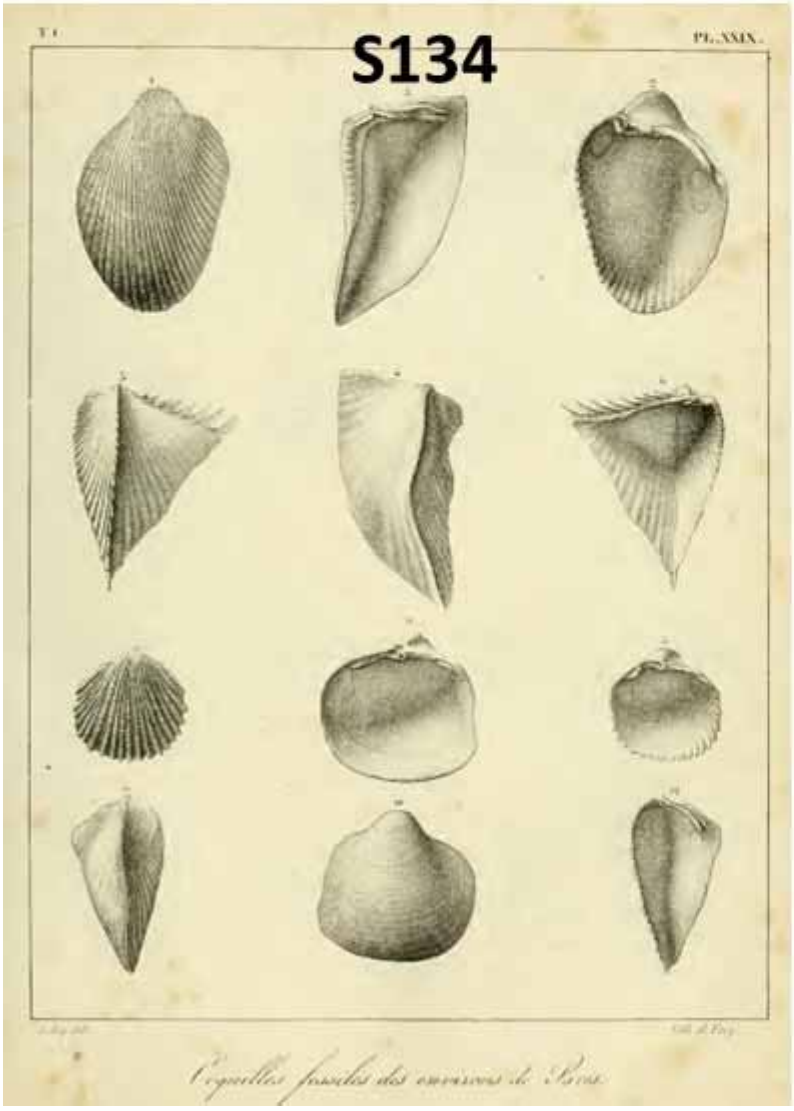

S130a

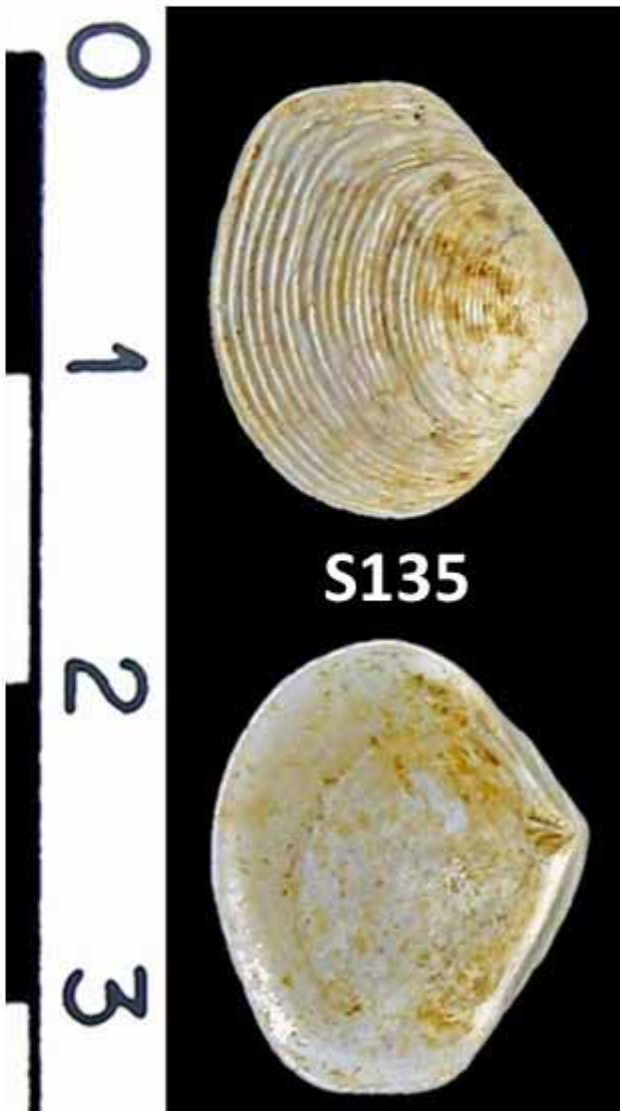

S130b
2 A
2 B
3 A
3 B

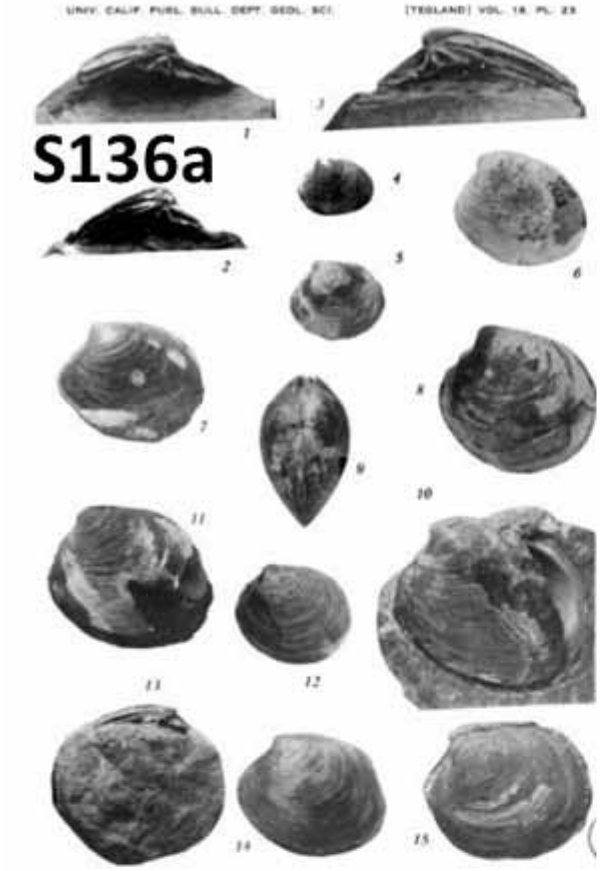

77 µm
Fig. 1 – A Row of Radular Teeth
S131
1 Cm
1 cm

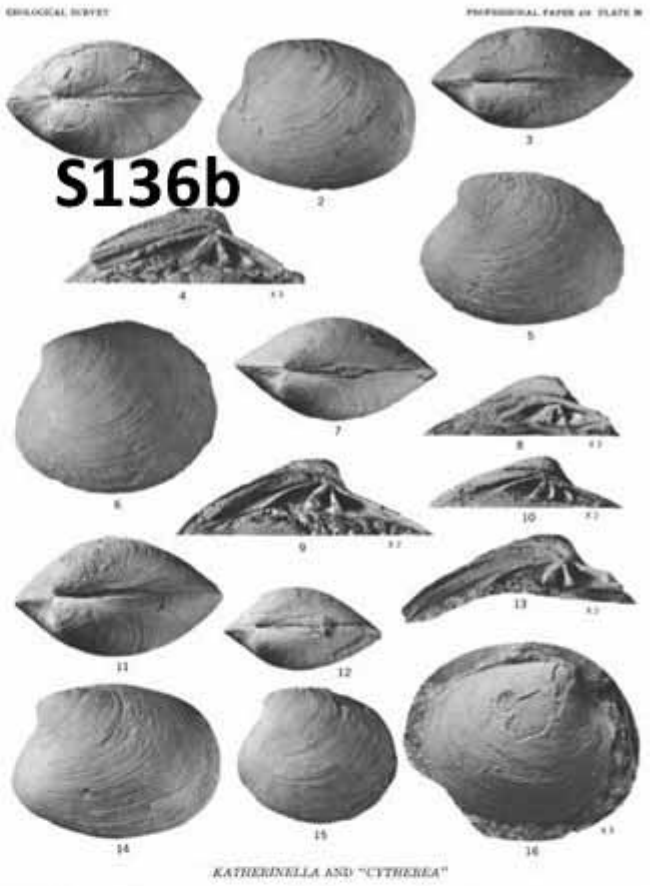

e
S132


14
15
16
19
17
18
20
S133

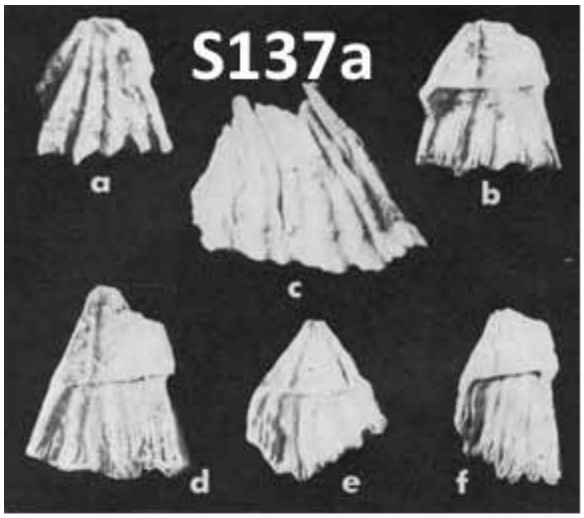

S134
PL. XXIX.
Coquilles fossiles des environs de Paris


0
1
2
3
S135





KATHERINELLA AND "CYTHEREA"



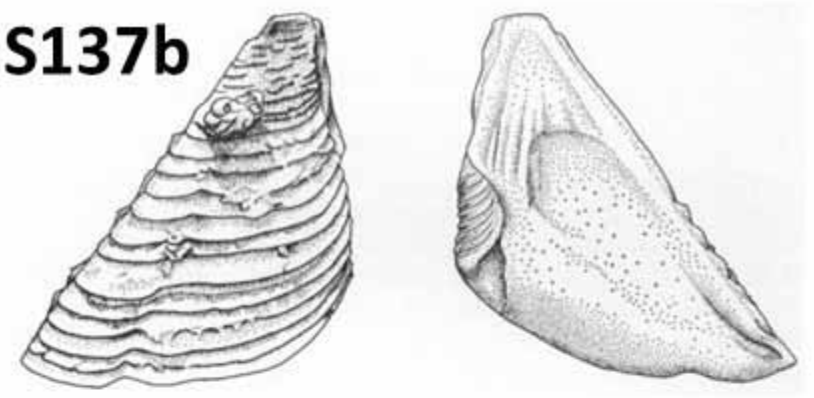
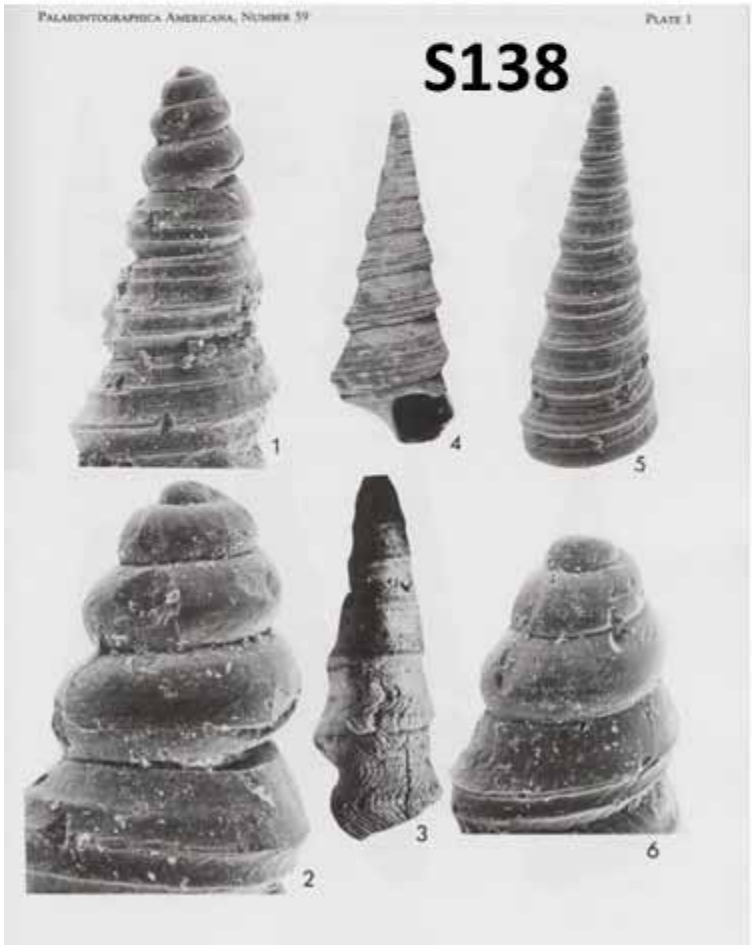
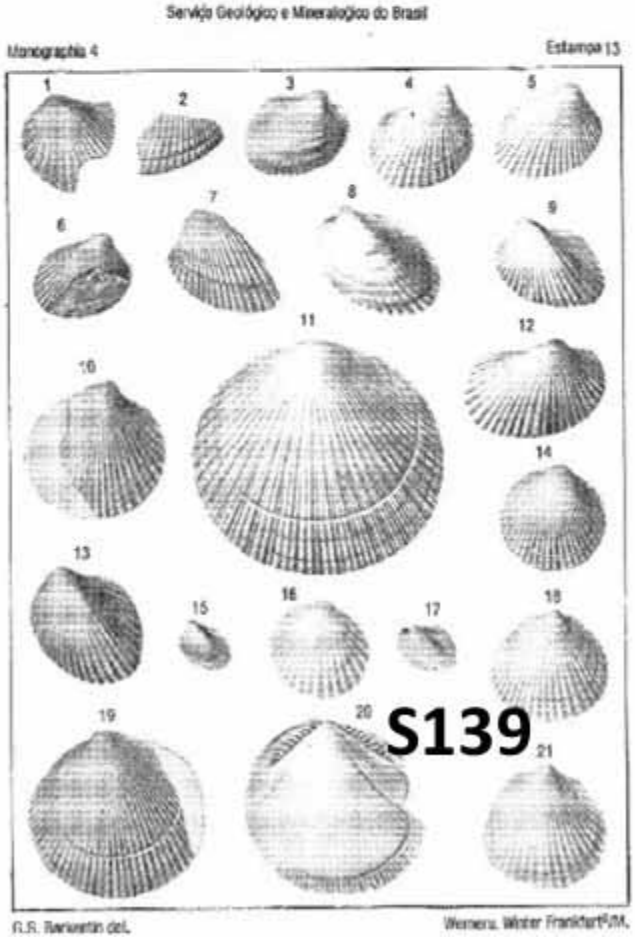
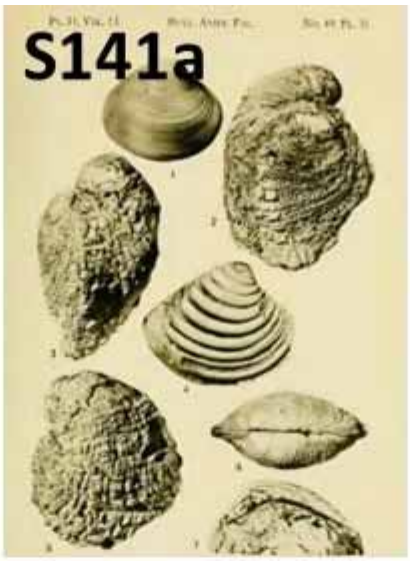


Fig. 1. *Kathpalmeria georgiana*, new genus, new species. Drawings of external and internal views of holotype scutum, P.R.I. no. 6075b. Actual height 4.3 mm. Drawings prepared by Miss Brenda Baer.

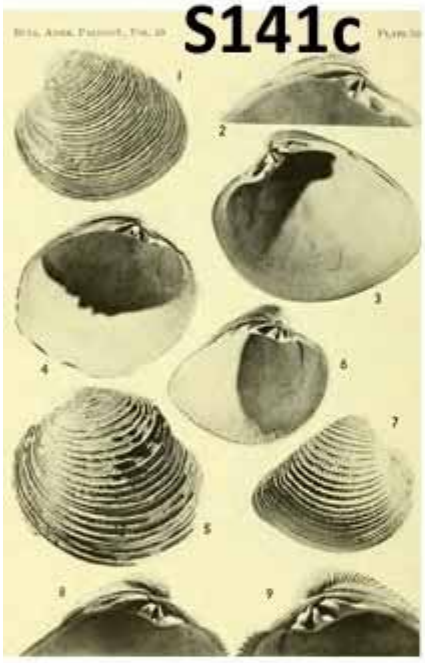





S140
METRIC 1 2 3 4


S141a


S141b


S141c


22825
S141d
mm 10 20 30

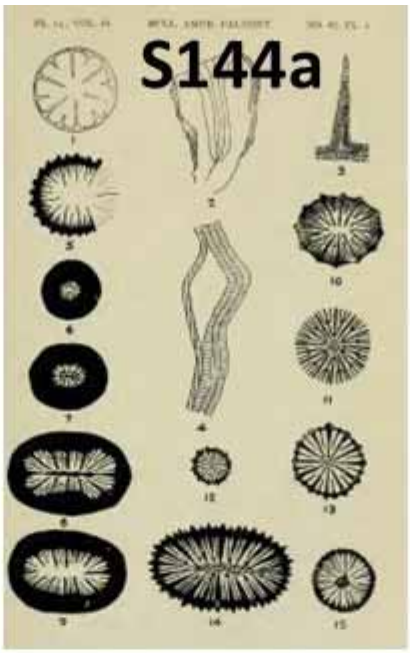

22824
S141e
mm 10 20 30

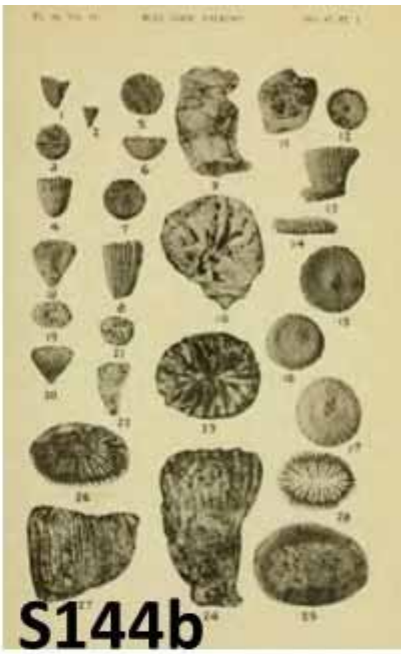

22824
S141f
mm 10 20 30


S142


S143a


1 cm
S143b


S144a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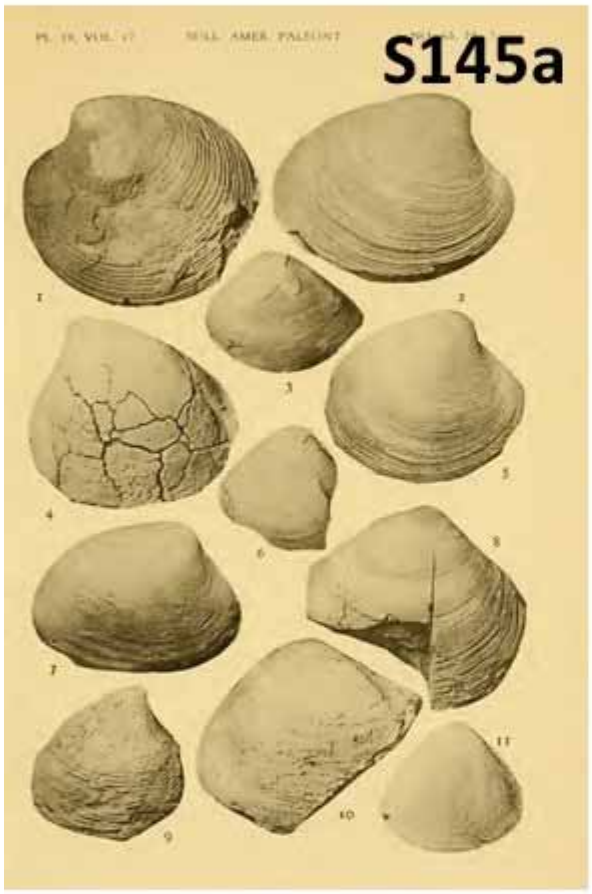
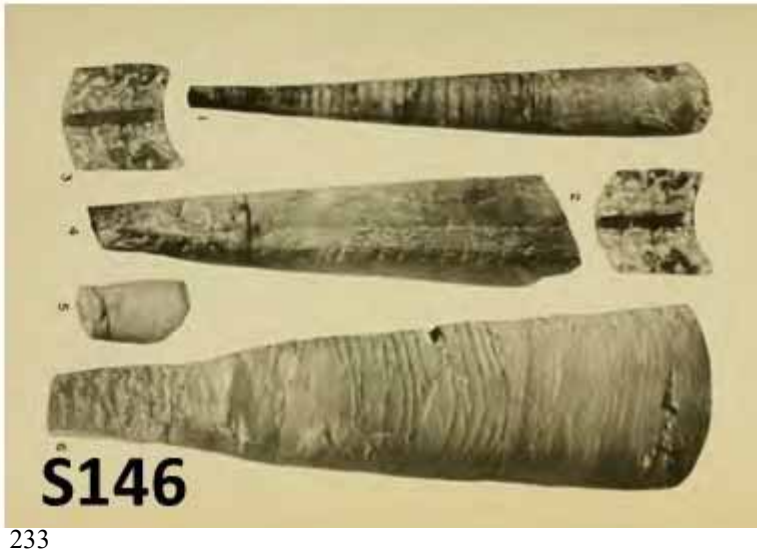

S145a


S145b
cm 1 2 3 4 5


S145c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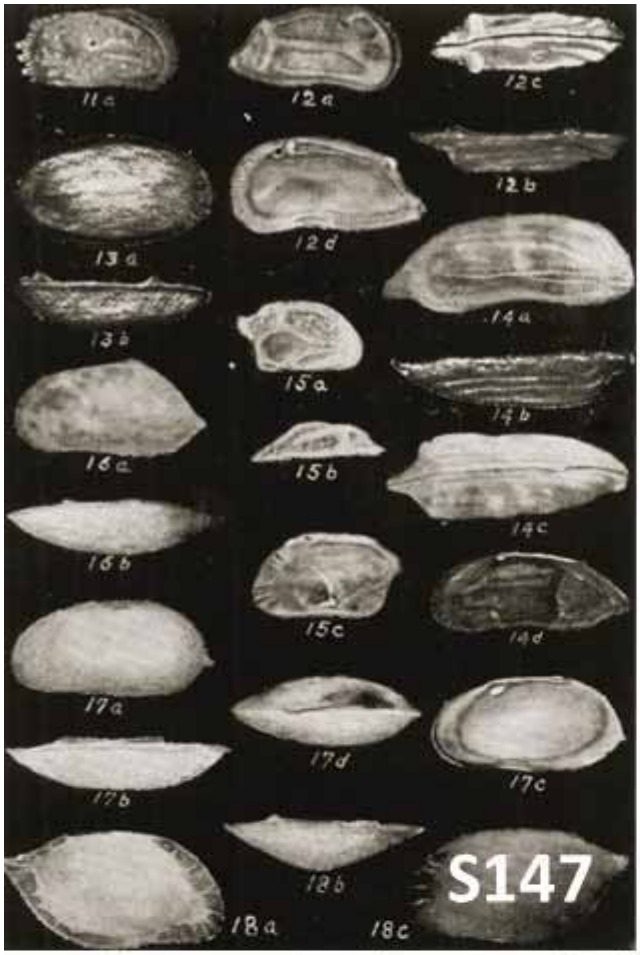
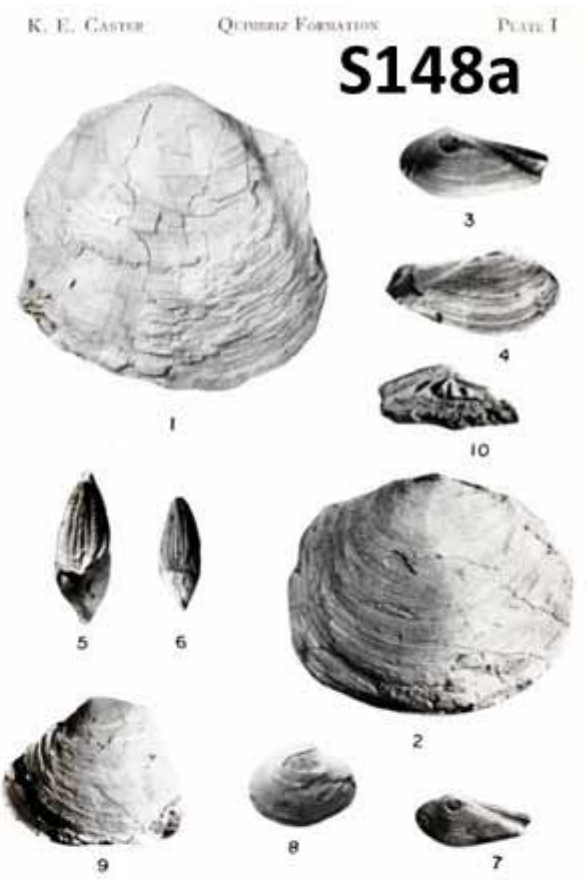
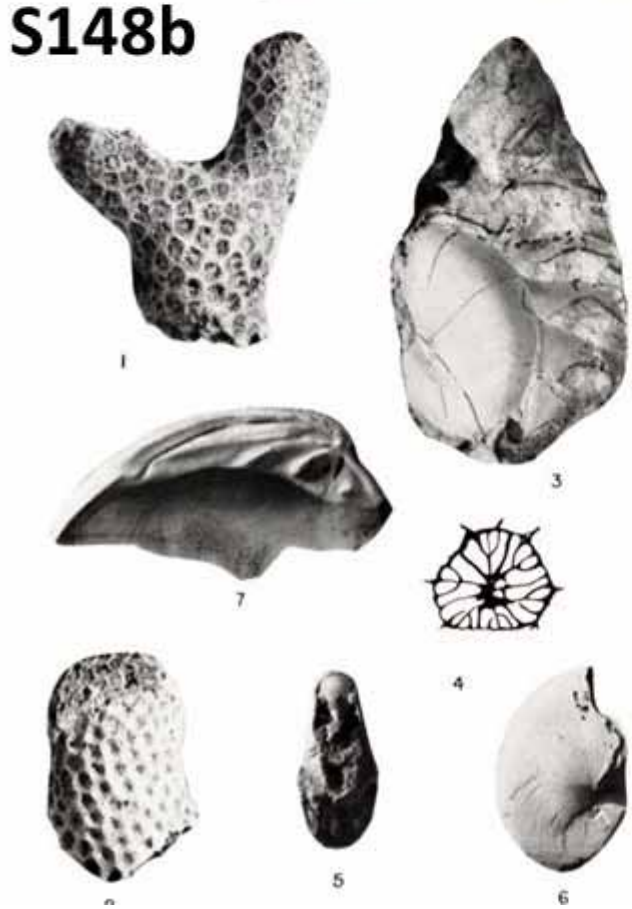
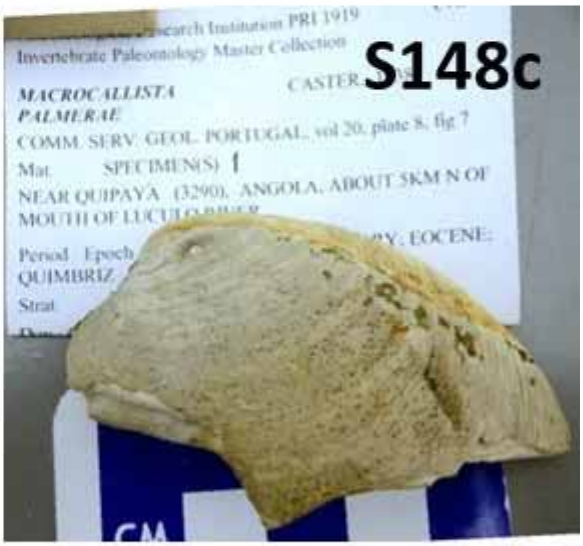
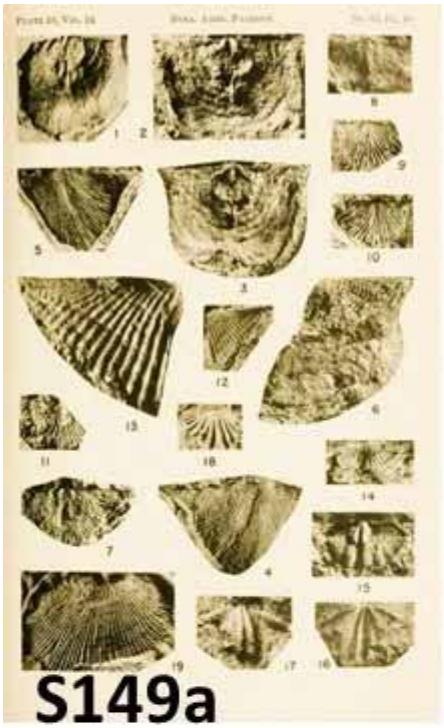




K. E. Caster Quimbriz Formation Plate VIII



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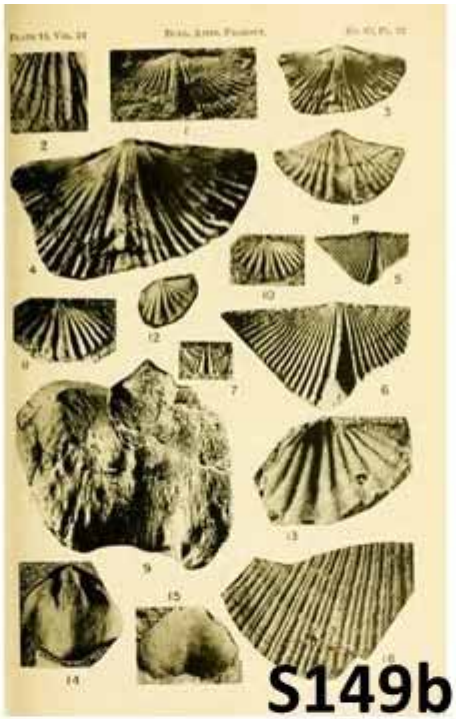
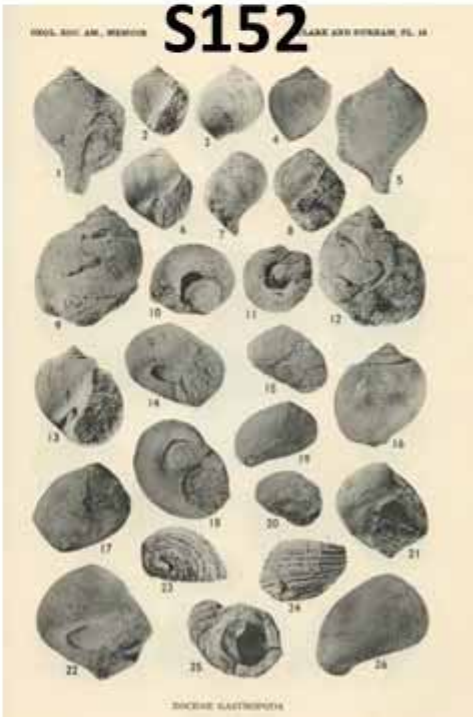

S149b


S150


S151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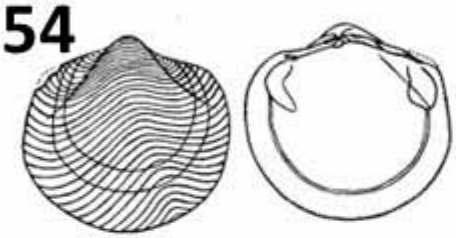
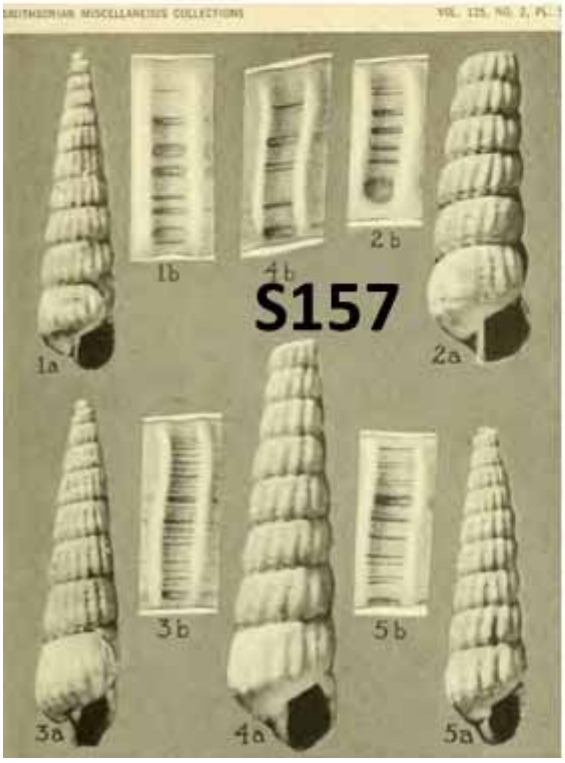
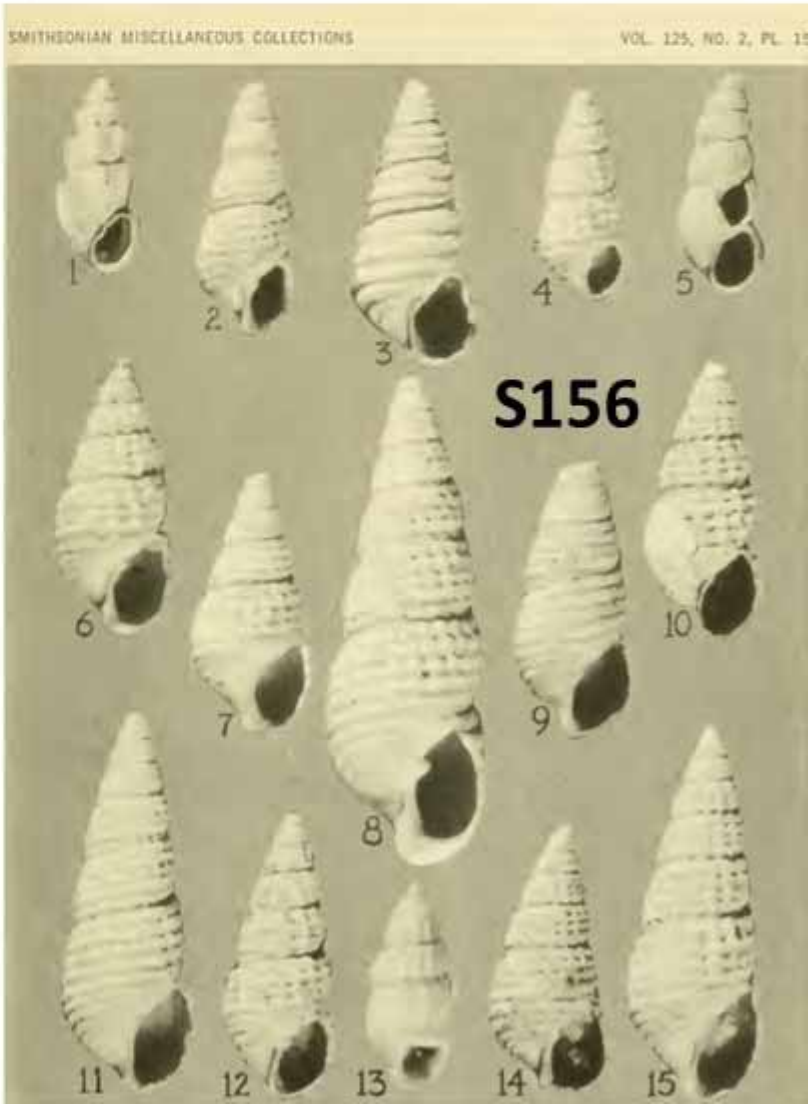


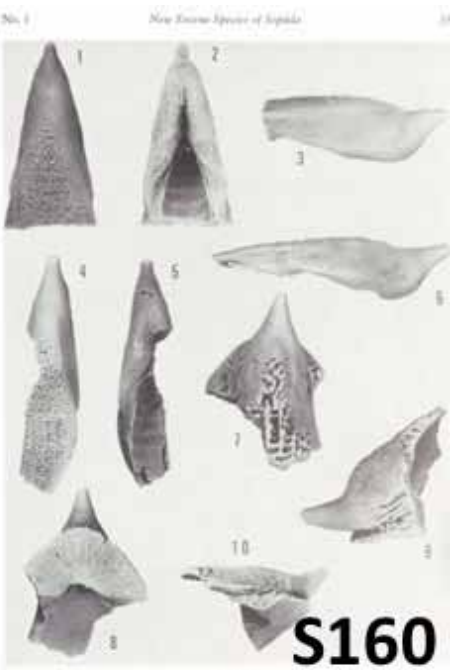
Fig. 11-12. — *Divalinga (Stchepinskya) palmeræ* nov. sp. Extérieur et intérieur de la valve droite type, × 5 1/2. Lutétien d'Amblainville (Oise), coll. CHAVAN, n° 6048. (Echantillon sans doute non adulte.)






S158


S159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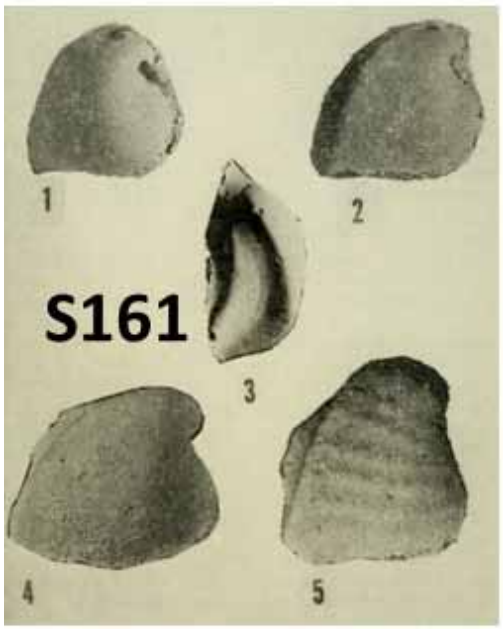
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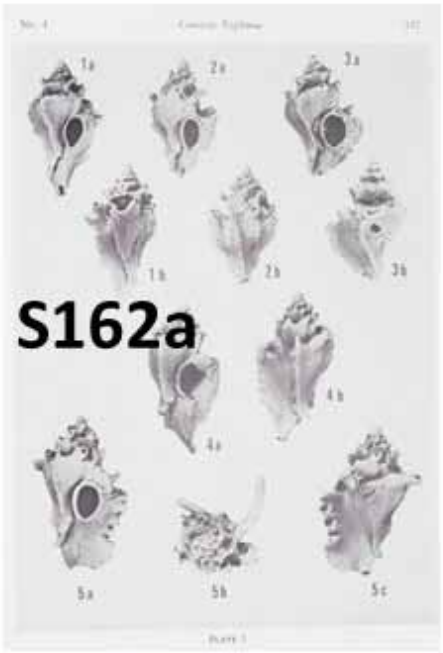
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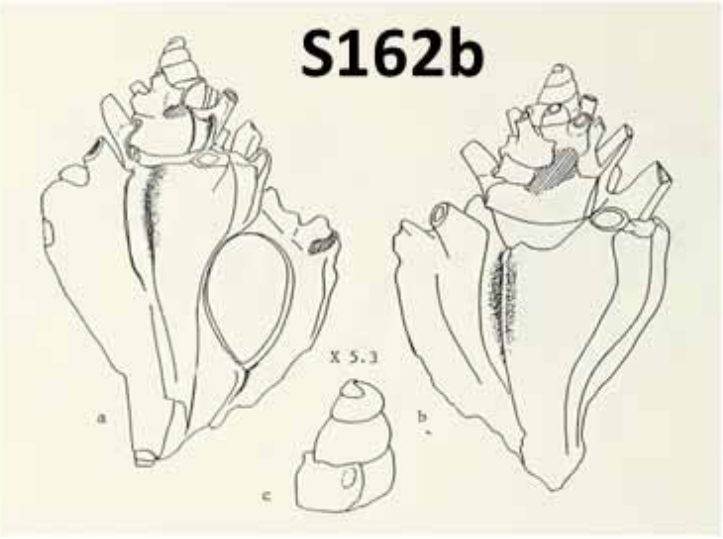
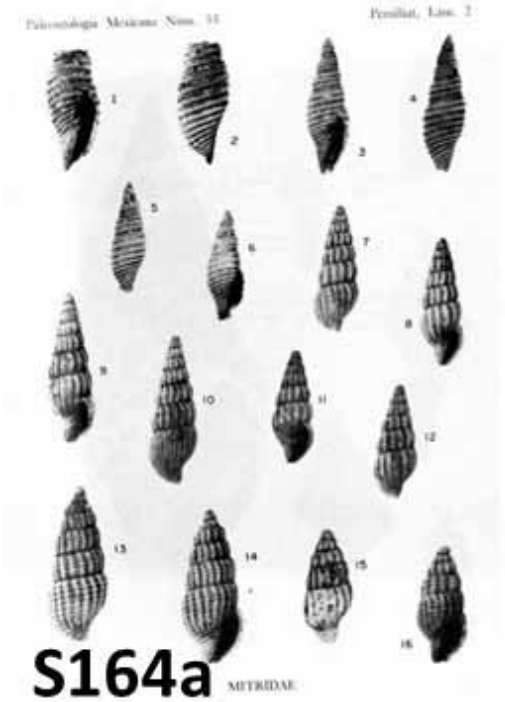

S162b

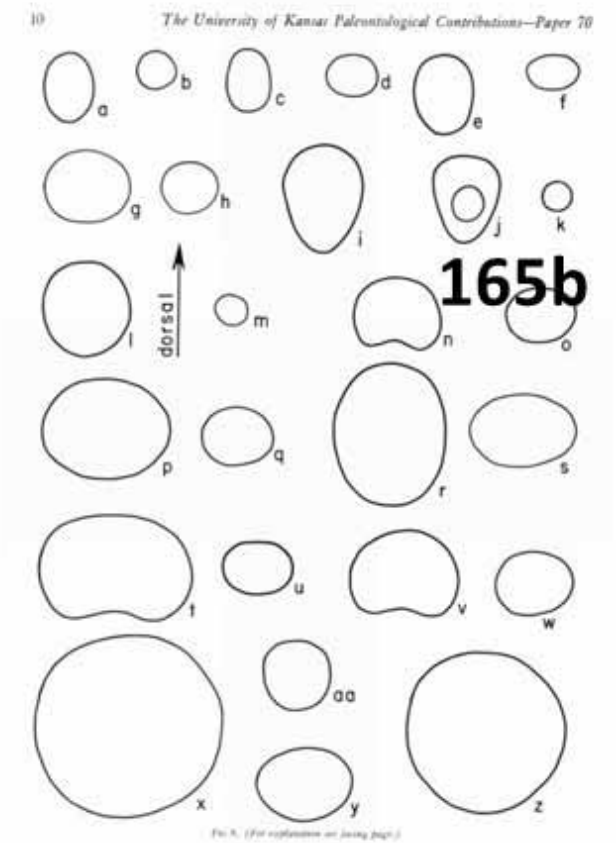

S163


Paleontologia Mexicana Núm. 33
Perrilliat, Lám. 2
S164a
MITRIDAE


S164c
2 mm
IGM 2362


Paleontologia Mexicana Núm. 33
Perrilliat, Lám. 3
S164b
MITRIDAE, XANCIDAE


THE UNIVERSITY OF KANSAS PALEONTOLOGICAL CONTRIBUTIONS
Hodgkinson–Middle Eocene Scaphopods from Texas
Paper 70, Plate 1
S165a


10
The University of Kansas Paleontological Contributions—Paper 70
dorsal
165b

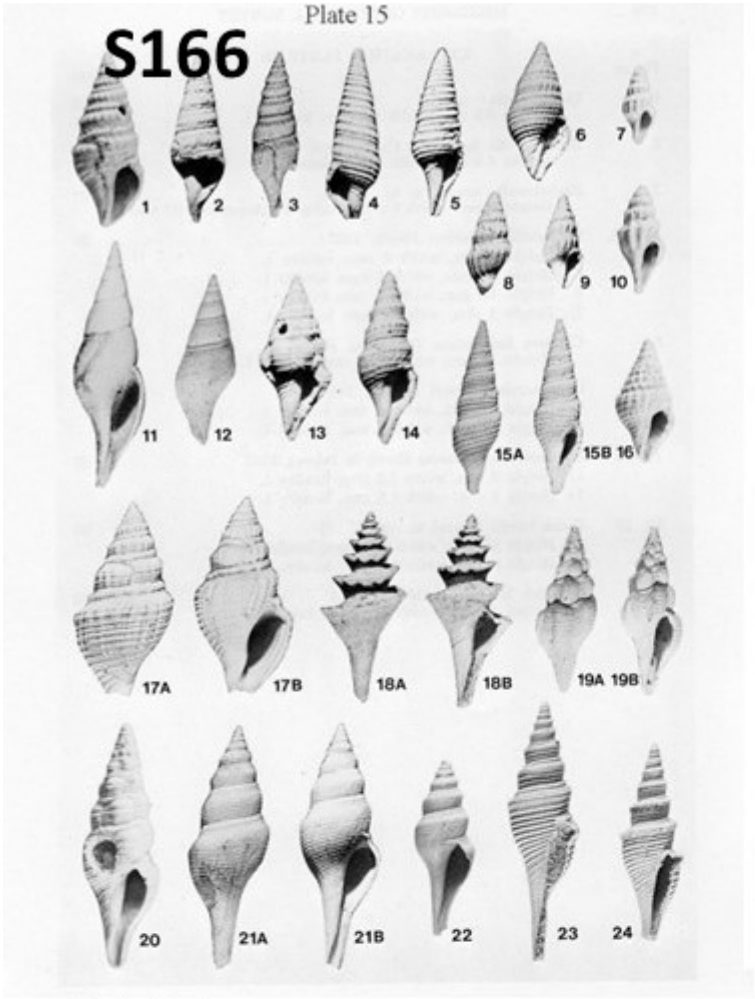


Plate 15
S166
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15A
15B
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18B
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19B
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21A
21B
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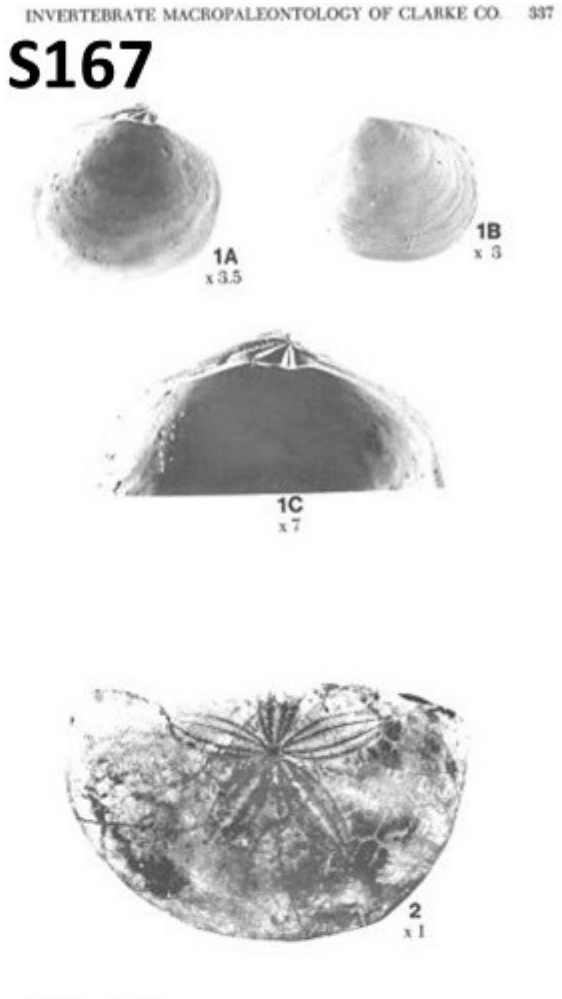
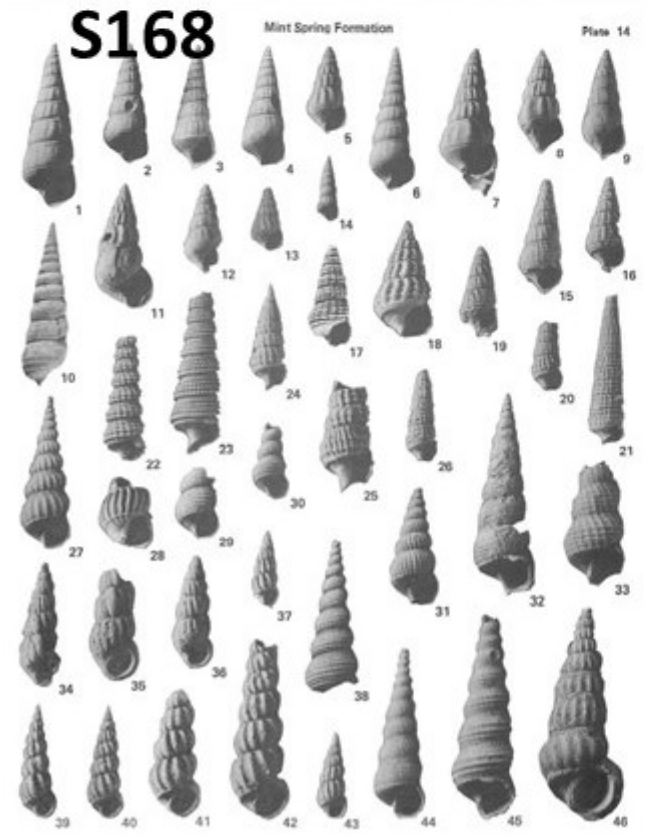
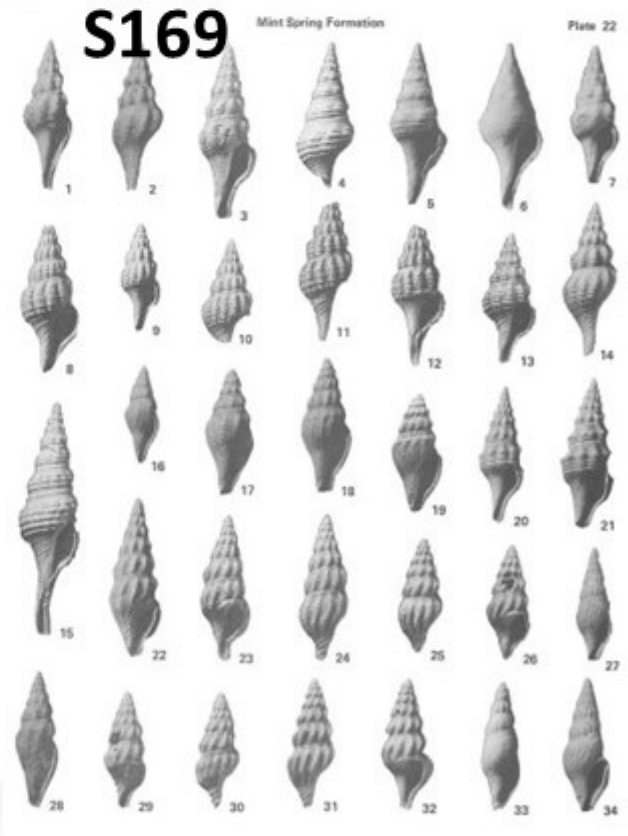
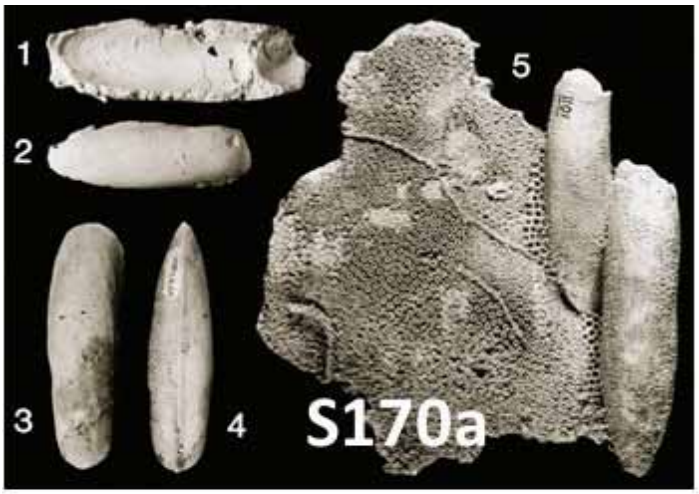
24


INVERTEBRATE MACROPALEONTOLOGY OF CLARKE CO. 337
S167
1A
x 3.5
1B
x 3
1C
x 7
2
x 1


S168
Mint Spring Formation
Plate 14


S169
Mint Spring Formation
Plate 22


1
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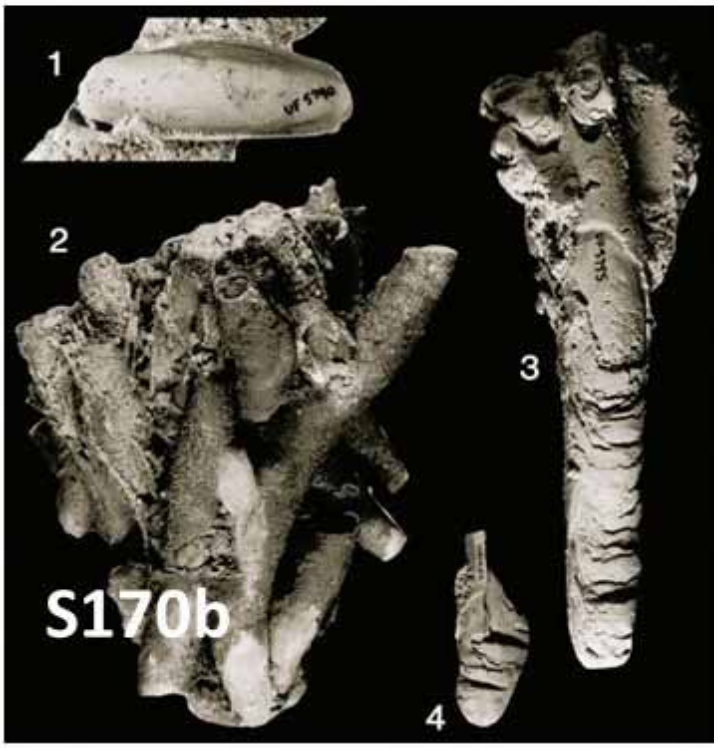
5
S170a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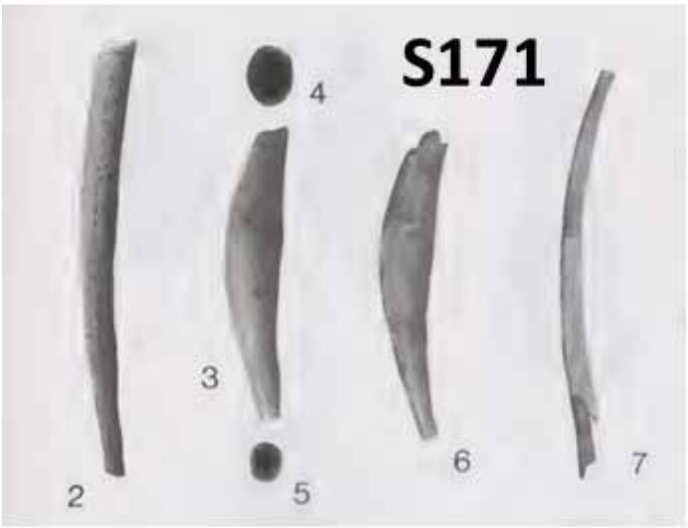
S170b


S171
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S172
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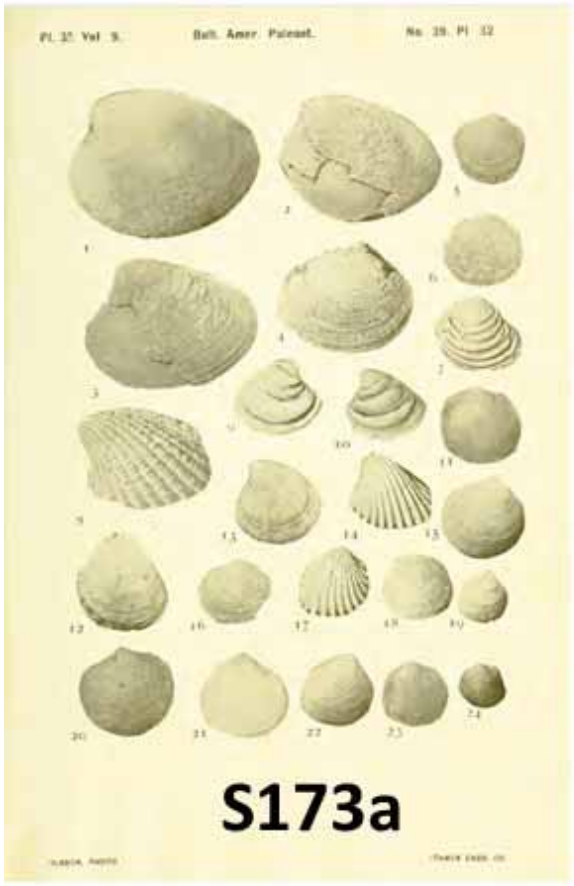


S173a

S173b

MIDDLE MIOCENE MOLLUSKS FROM GATUN FORMATION

S173c

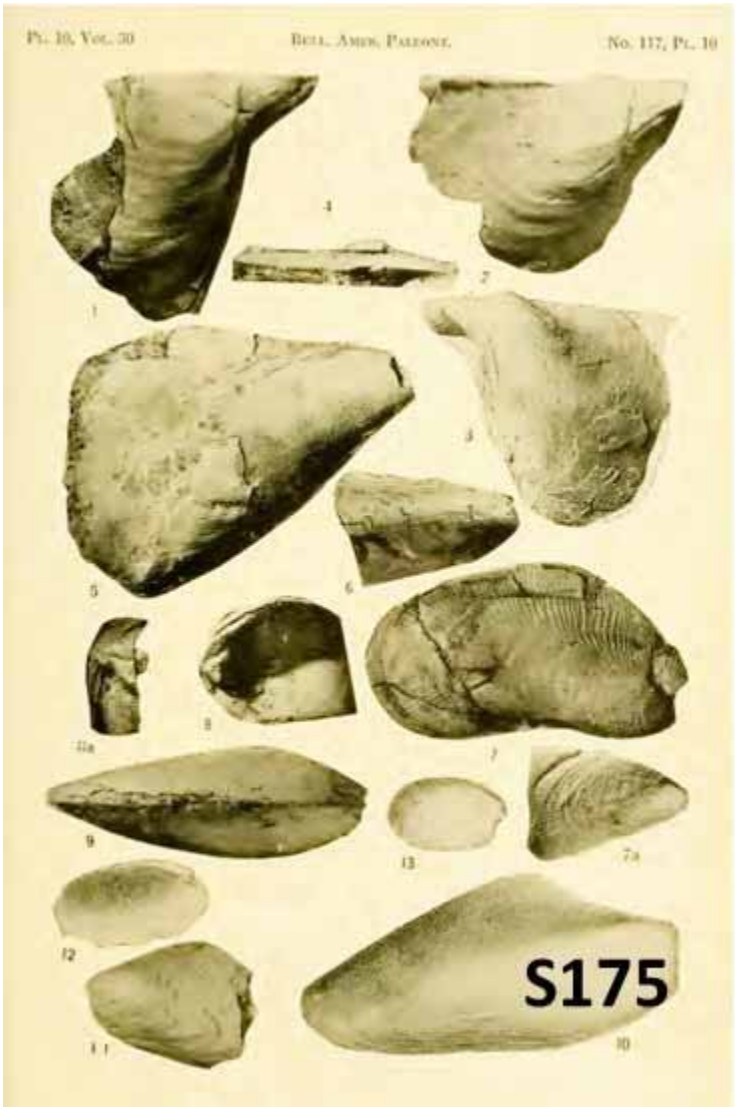
S173d

S174b

S174c

JOURNAL OF PALEONTOLOGY, VOL. 13 PLATE 33

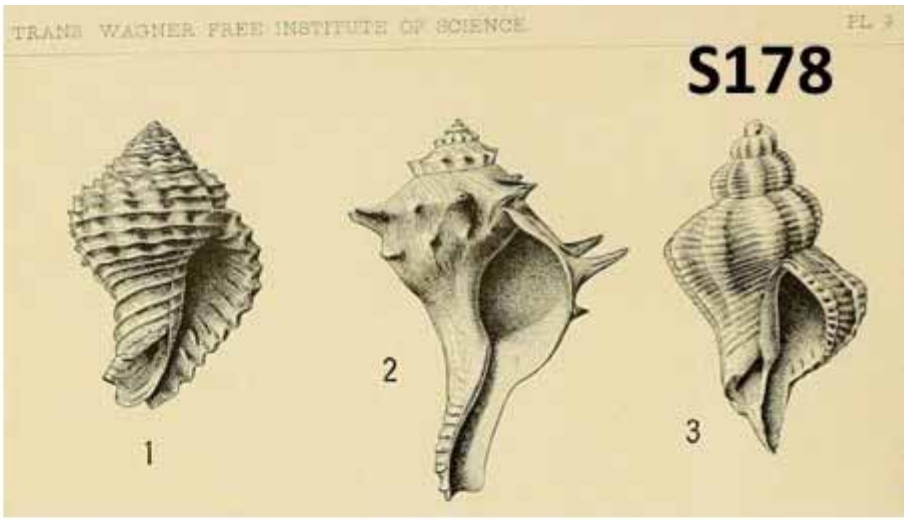
S174a


Pl. 10, Vol. 30
Bull. Amer. Paleont.
No. 117, Pl. 10
S175


S176a
Turbonilla palmeri, sp. nov.
Fig. 1.—Vueltas nepiônicas. Fig. 2.—Fotografía de un paratypus × 9. Las depresiones han sido reforzados en blanco para hacerlas resaltar.
Fig. 3.—Penúltima vuelta × 60.


4969
S176b


S177
129. Pugnus citrica


TRANS. WAGNER FREE INSTITUTE OF SCIENCE
PL. 3
S178
1
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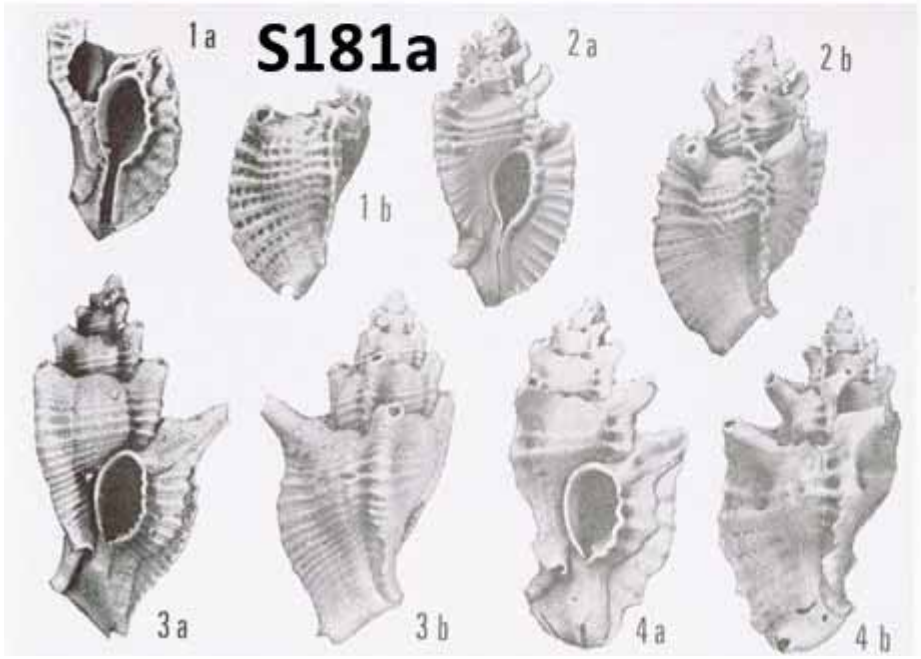
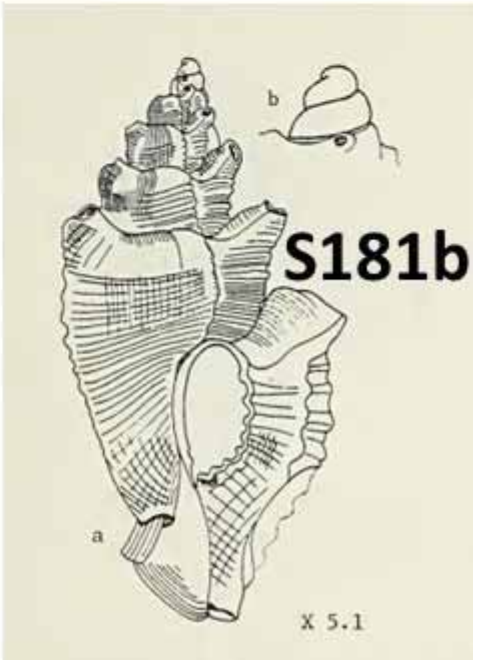
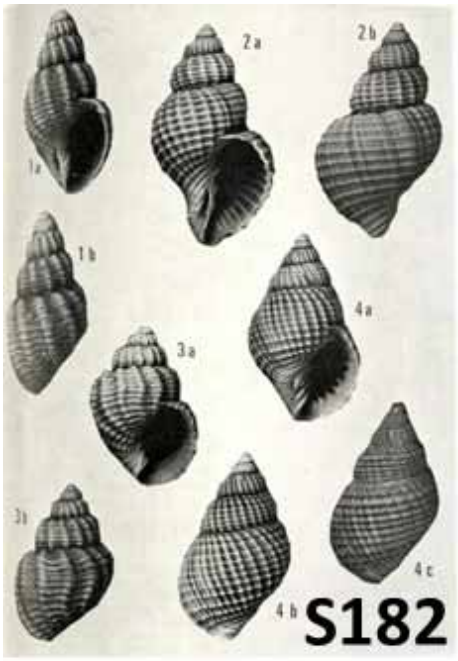
S179


S180a


S180b


1a
S181a
2a
2b
1b
3a
3b
4a
4b


b
S181b
a
X 5.1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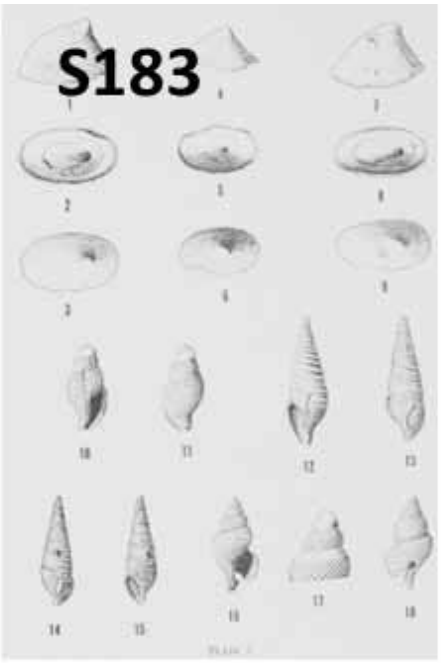
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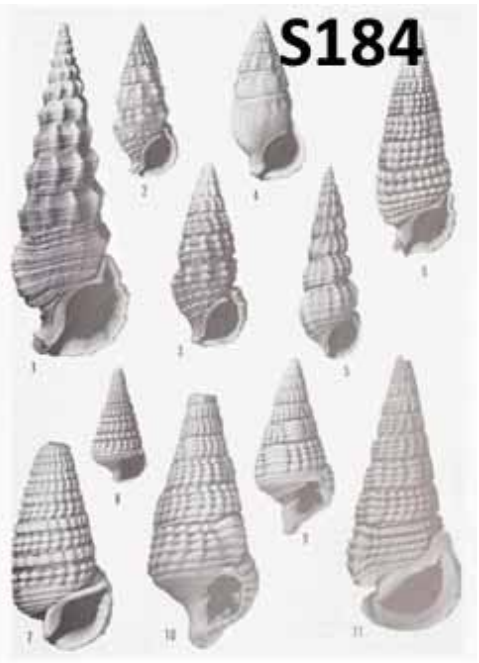
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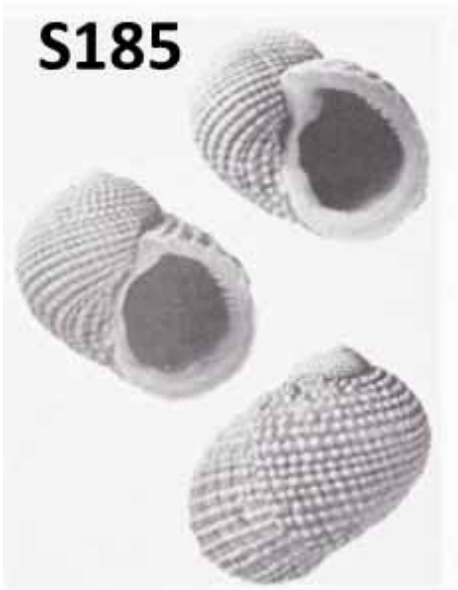
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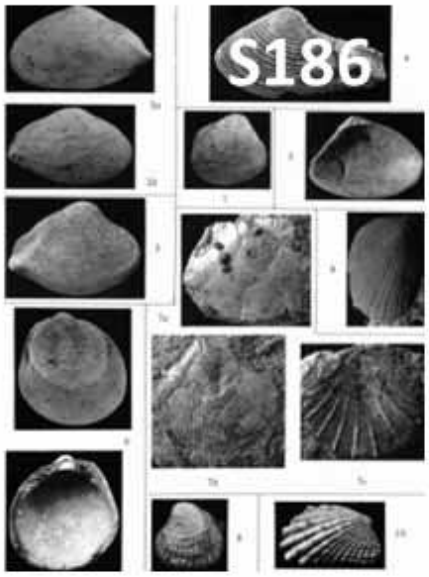
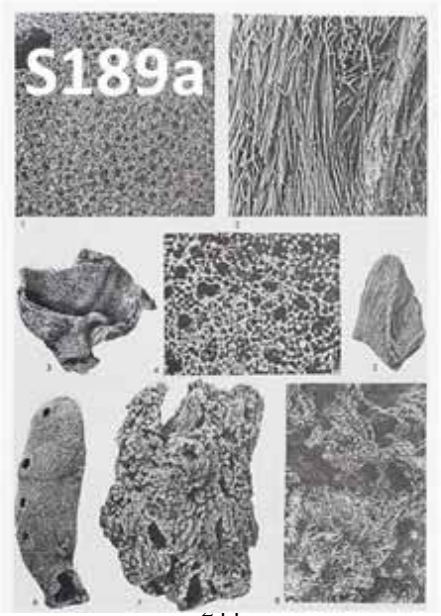
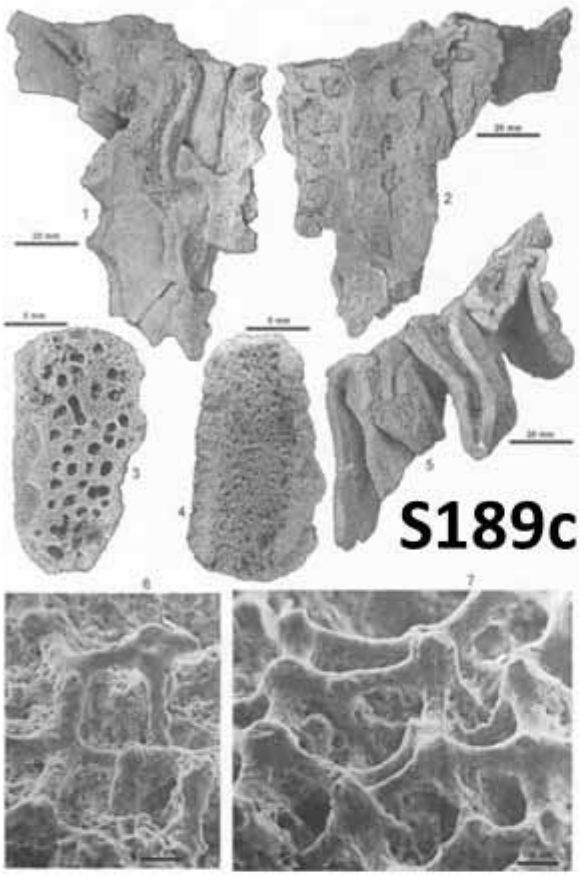

S186

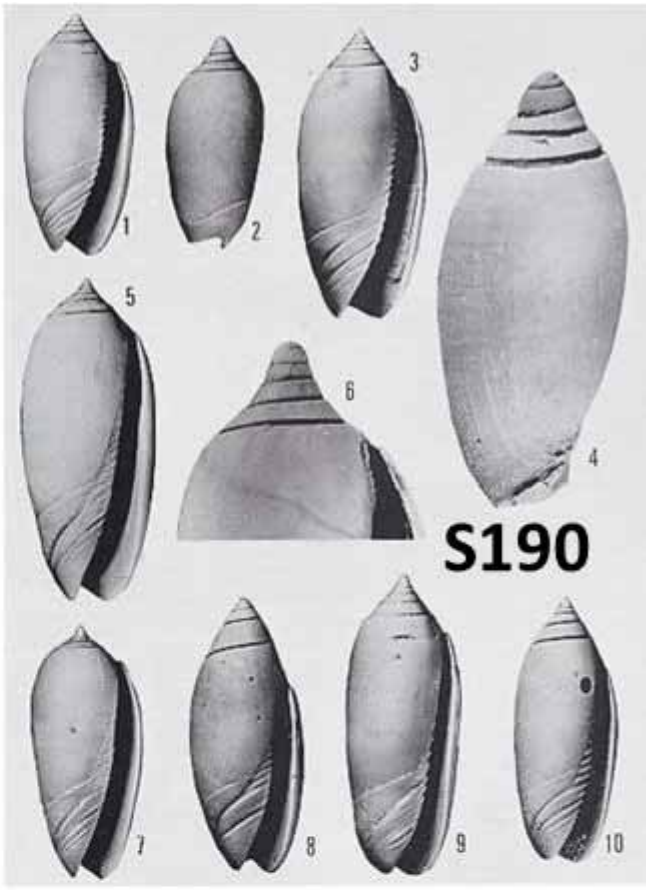

S187


S188


S189a


S189b


S189c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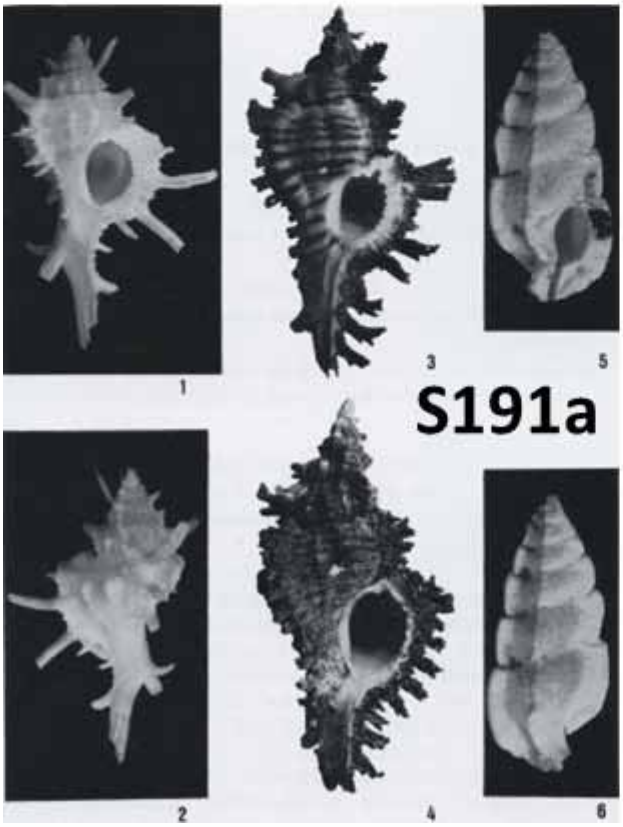
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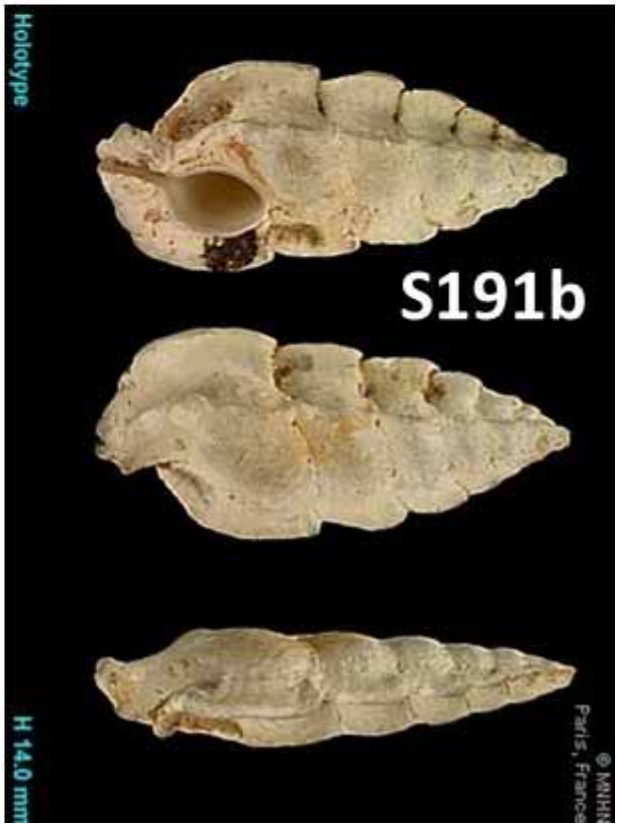

Holotype
S191b
H 14.0 mm

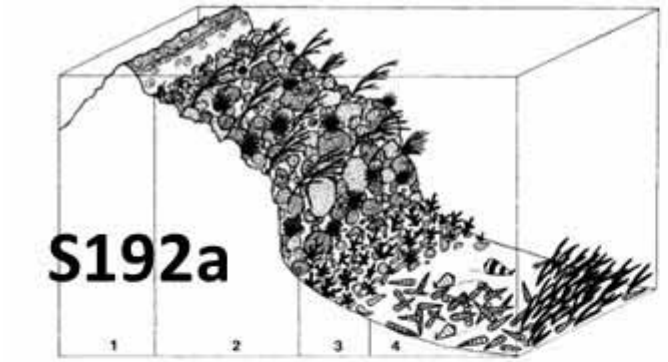
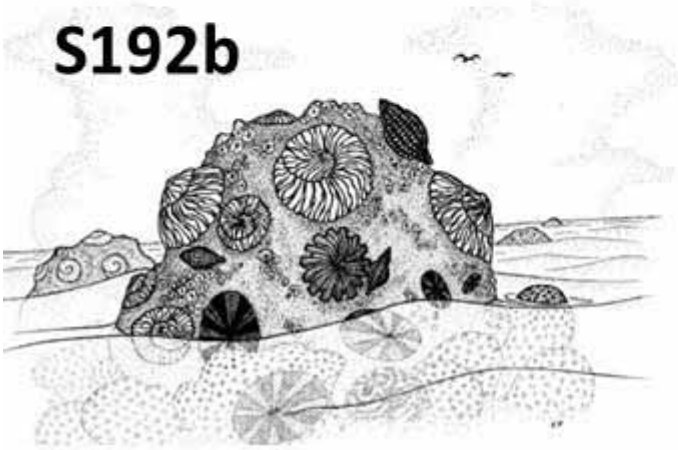
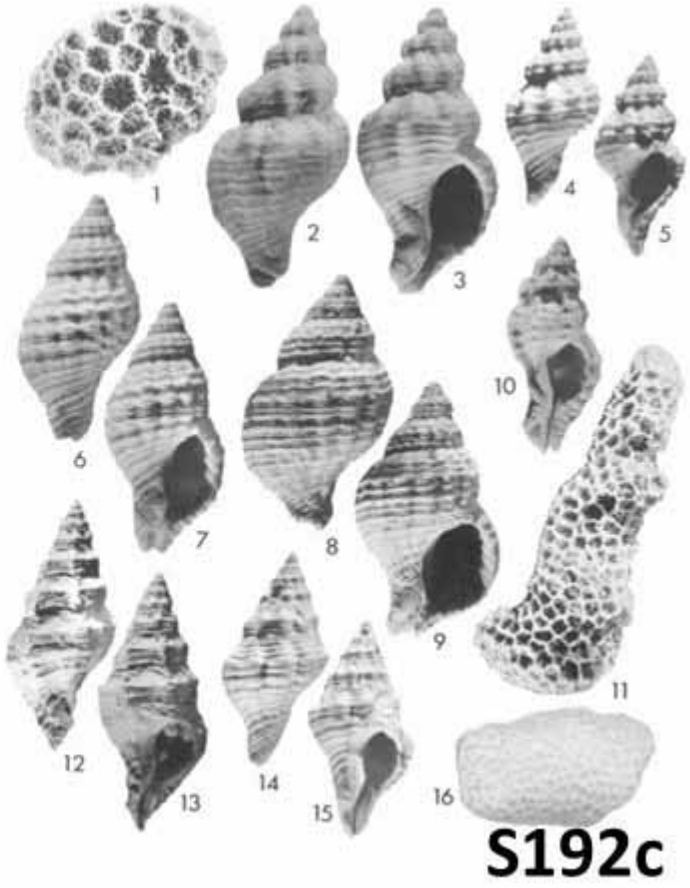
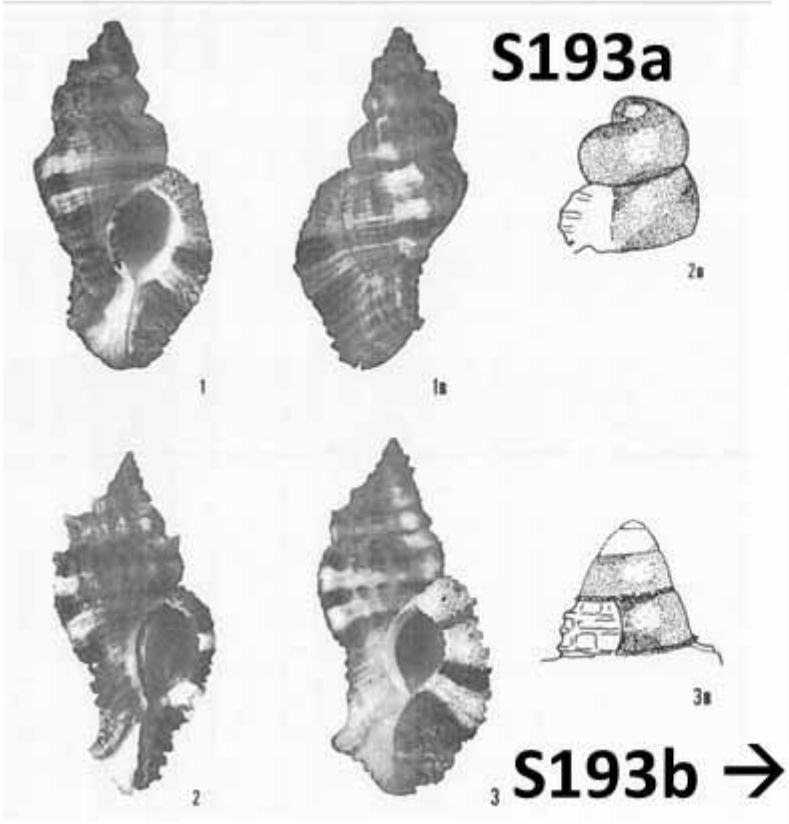
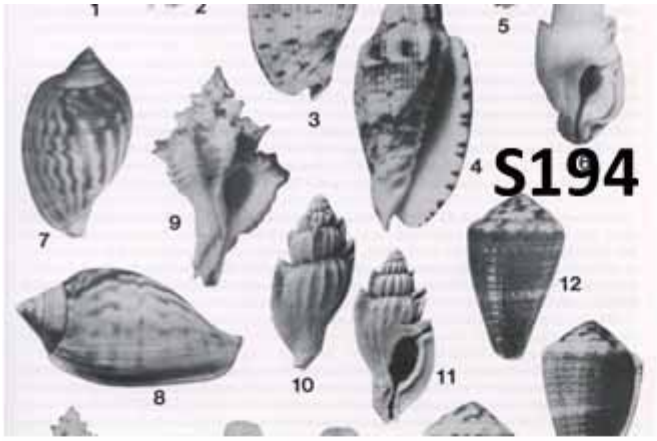


Figure 3. Schematic diagram of the possible zonational patterns of the Miami reef tract; Zone 1 (*Millepora* – *Trochita* Zone), high energy, wave-surge reef crest, exposed at low tide; Zone 2 (*Diploria* – *Gorgonian* Zone), lower energy reef platform dominated by massive corals and gorgonians; Zone 3 (*Porites* – *Septastrea* Zone), deeper water, low energy back reef area dominated by fragile, branching corals; Zone 4 (*Thalassia* – *Turritella* Zone), quiet lagoonal area dominated by turtle grass and *Turritella* beds and soft substrate mollusks.





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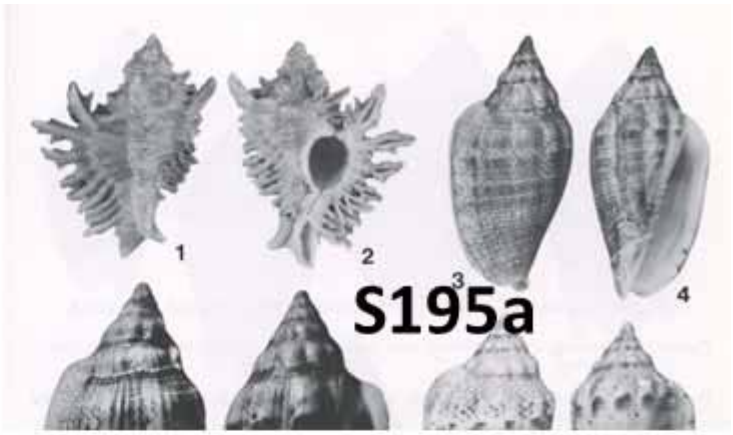
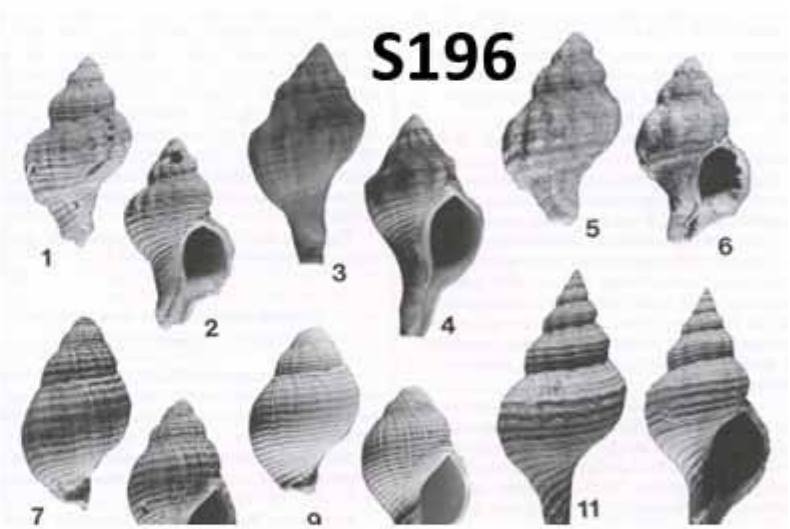

S195a


1 cm
S195b
Chicoreus emilyae Petuch, 1987
Holotype USNM 859834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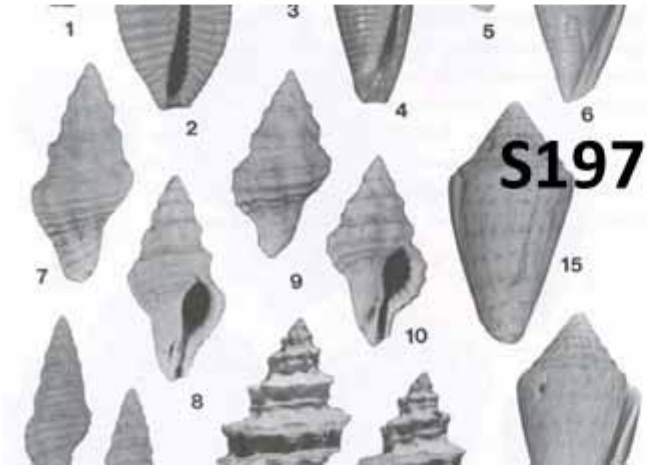
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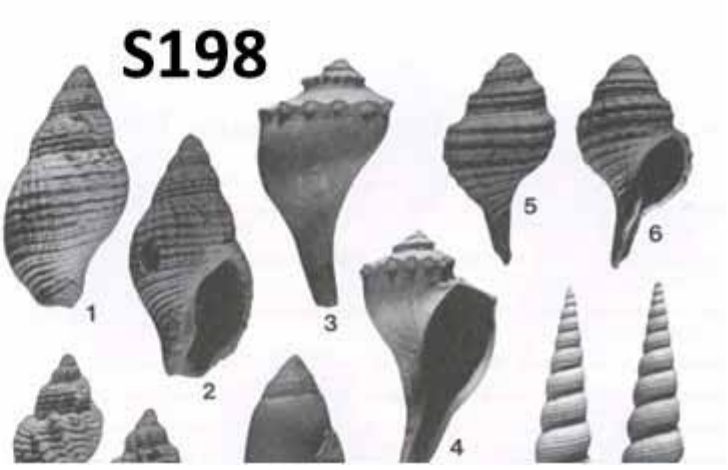
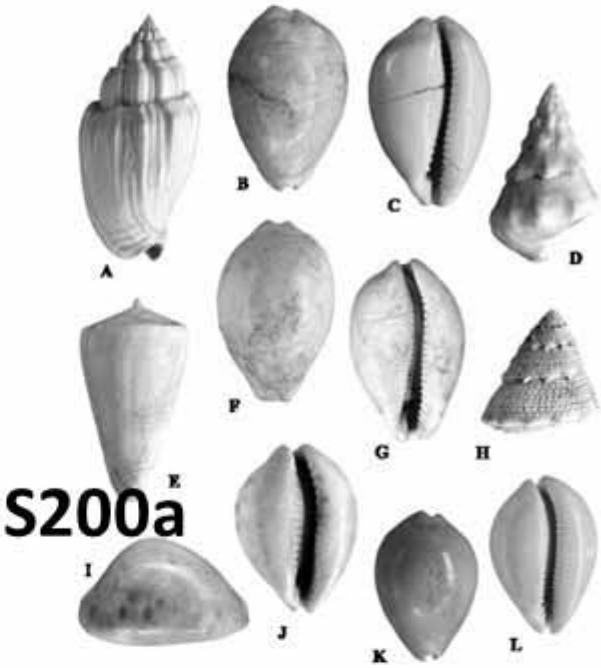

S198


S199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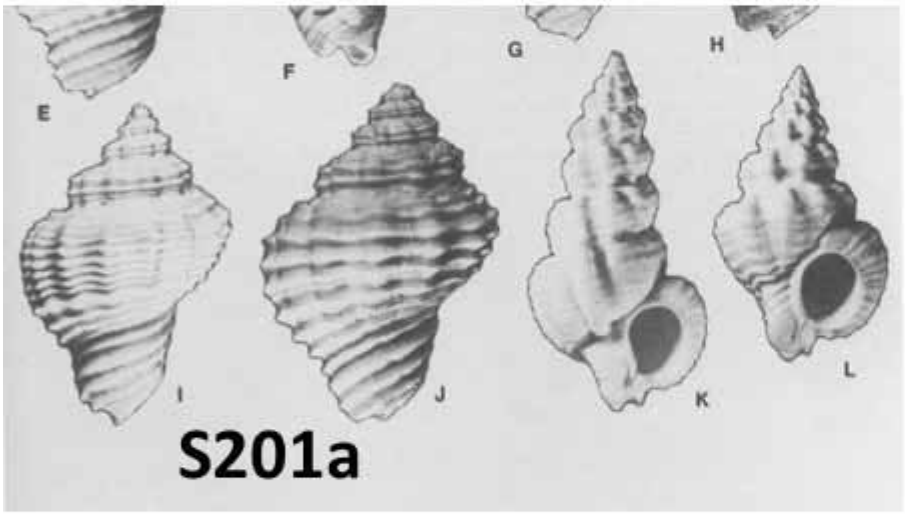
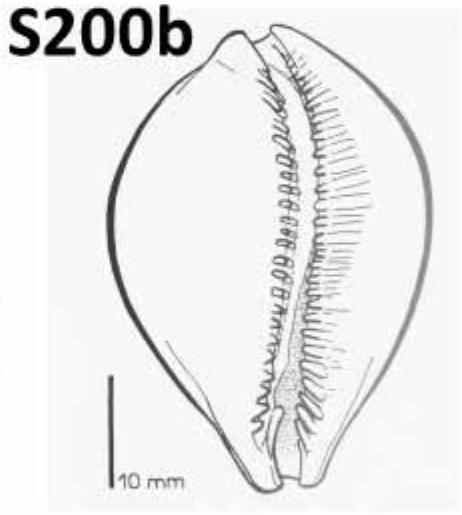
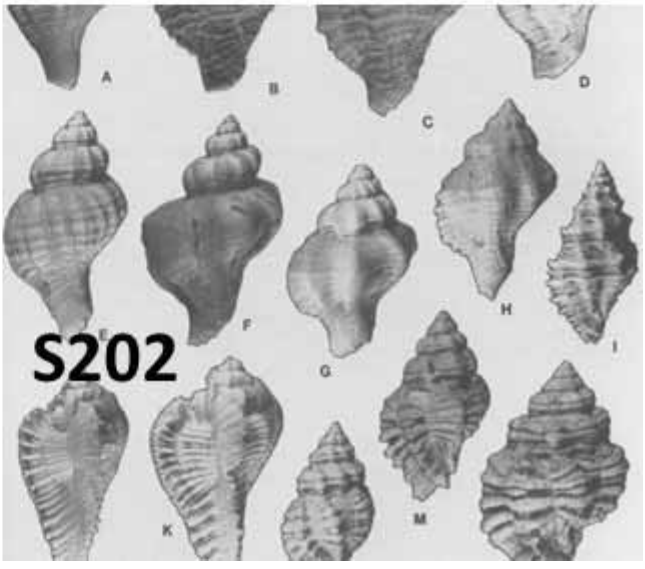
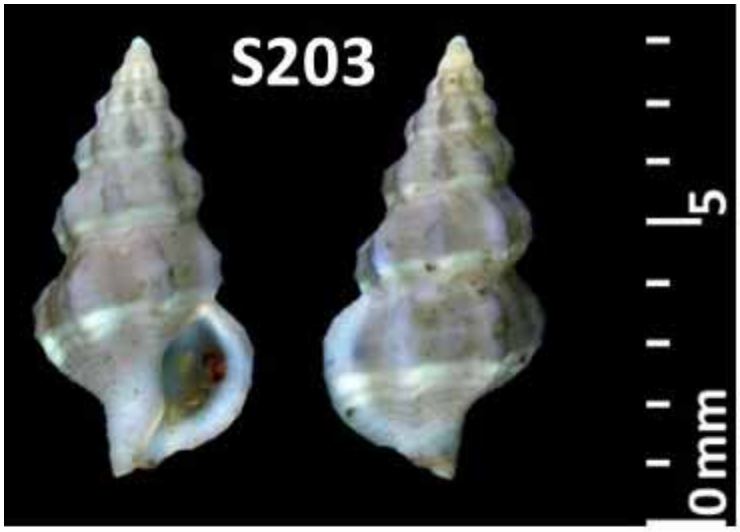
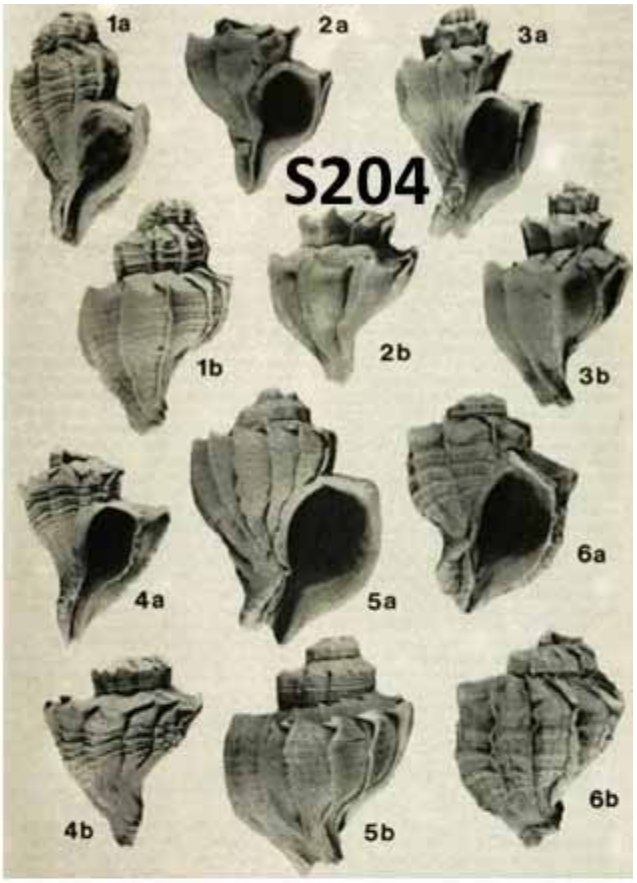

S201a

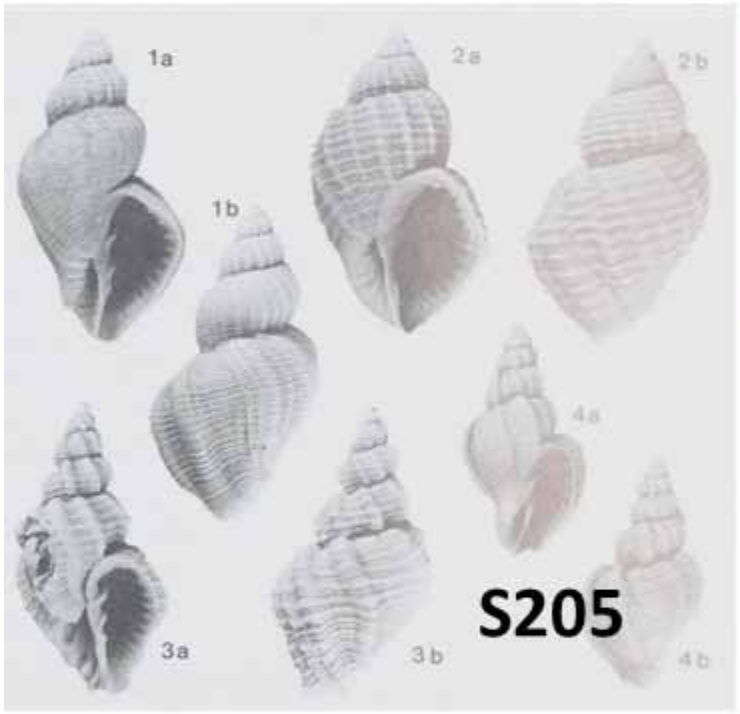

S200b
10 mm


S201b
1.7 CM

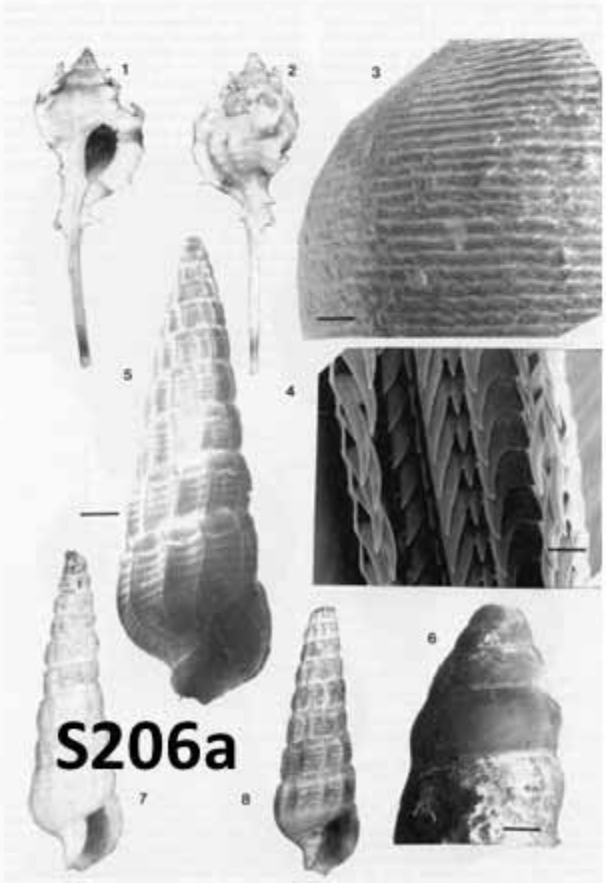

S202

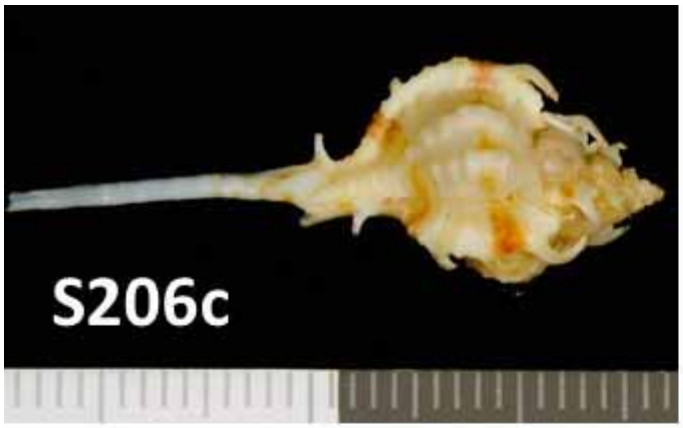

S203
5
10 mm


1a
2a
3a
S204
1b
2b
3b
4a
5a
6a
4b
5b
6b

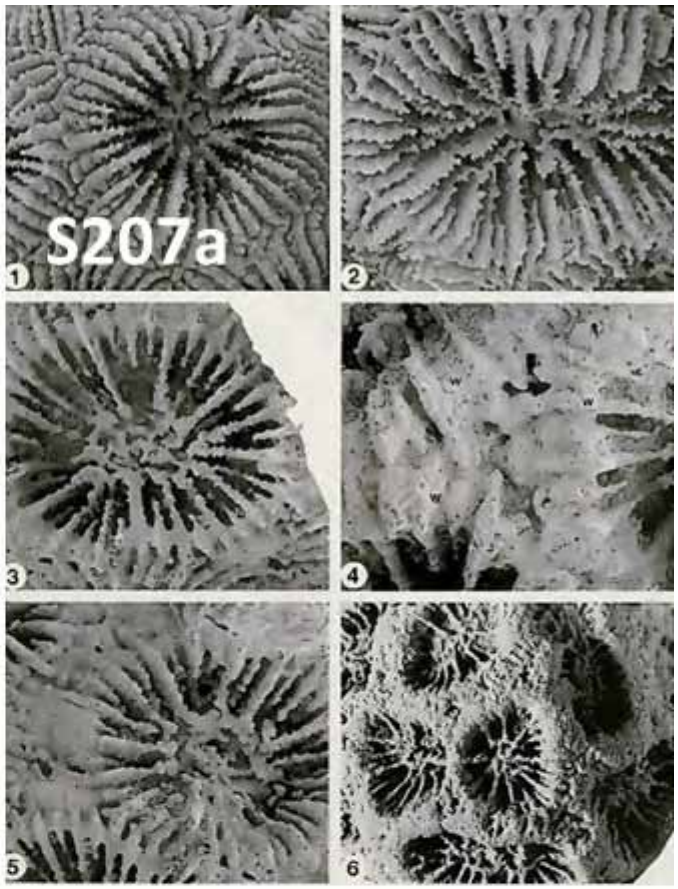

1a
2a
2b
1b
4a
3a
3b
4b
S205


S206b

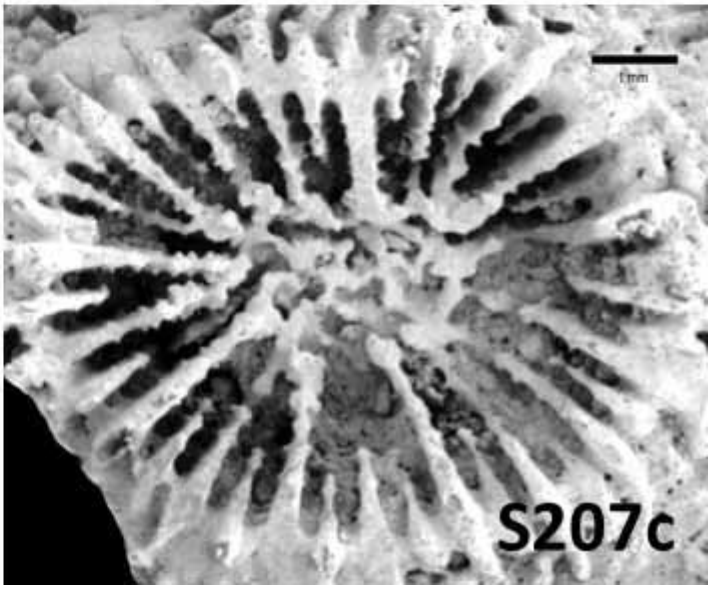

1
2
3
4
5
6
7
8
S206a

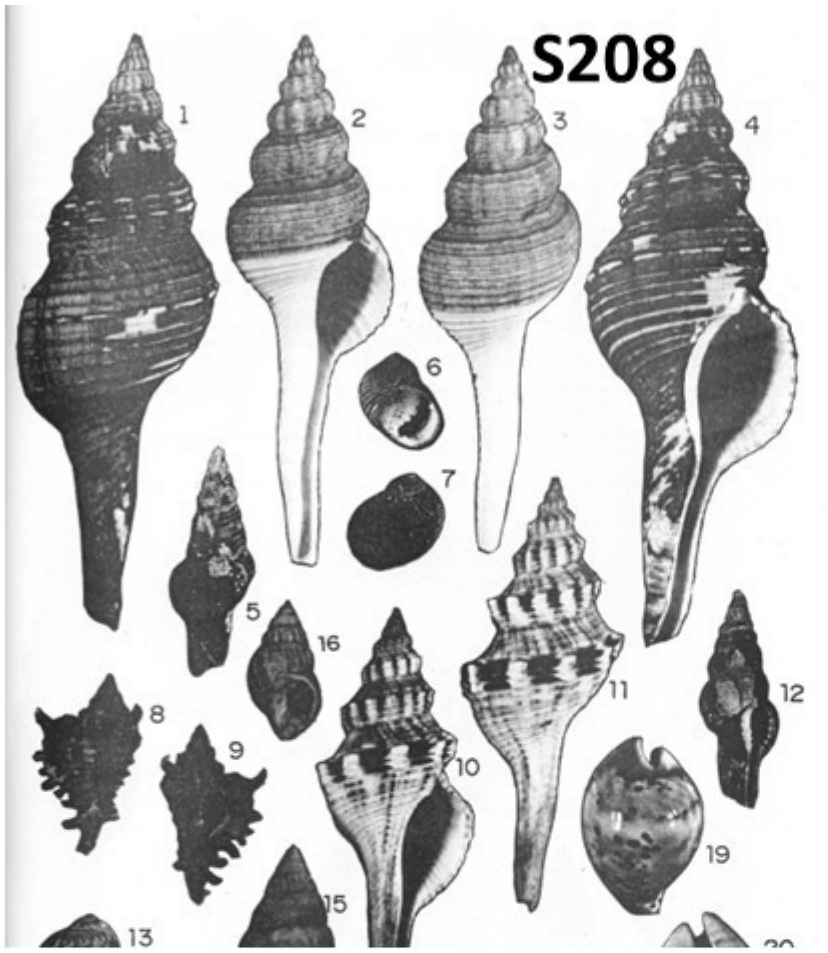

S206c


S206d


S207a
1
2
3
4
5
6


5 mm
S207b


1mm
S207c


S208
1
2
3
4
5
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8
9
10
11
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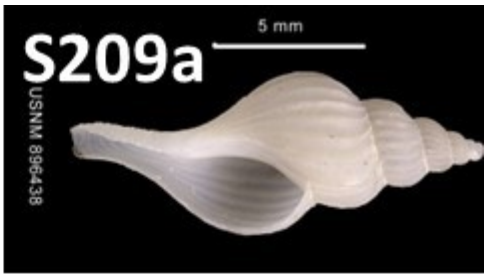
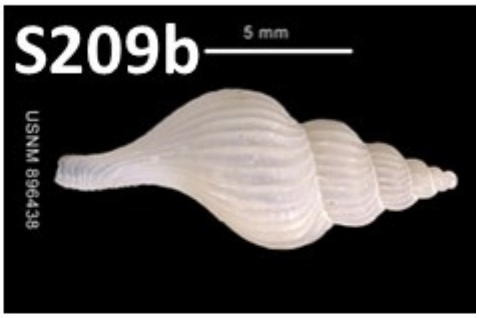
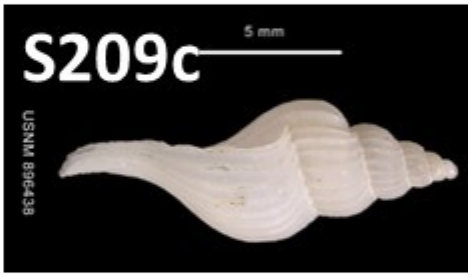
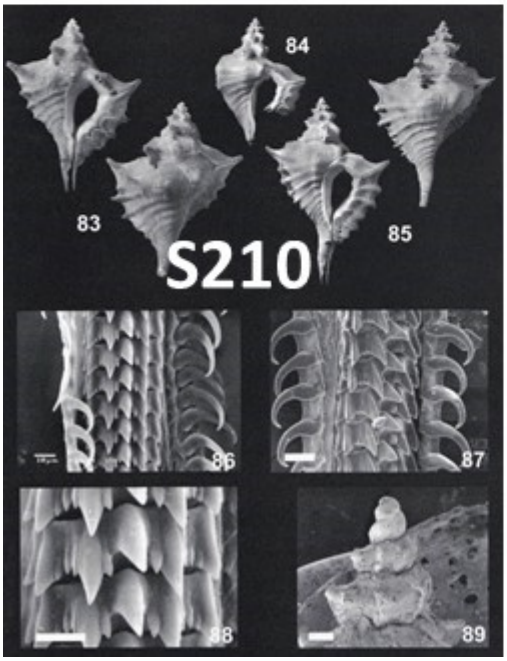
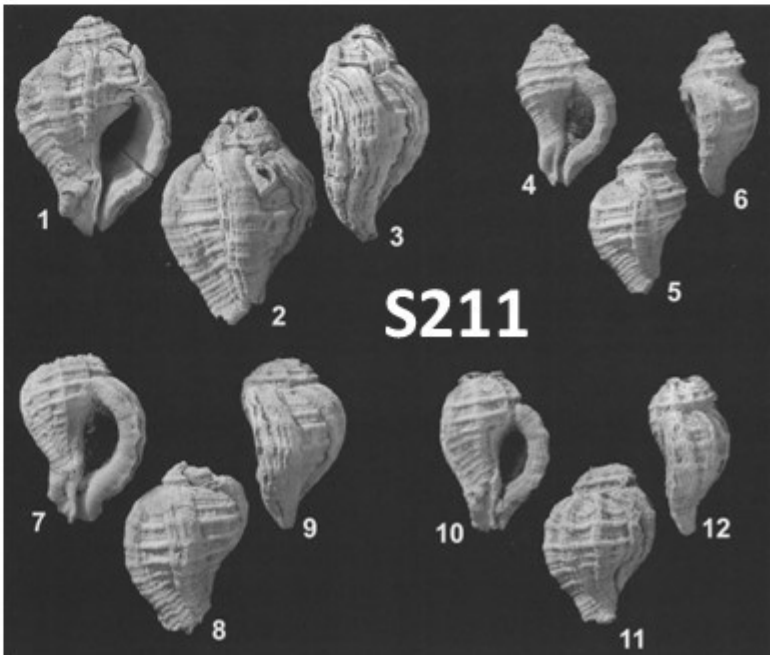
16
19


S209a
5 mm
USNM 896438


S209b
5 mm
USNM 896438


S209c
5 mm
USNM 896438


S210
83
84
85
86
87
88
89


S211
1
2
3
4
5
6
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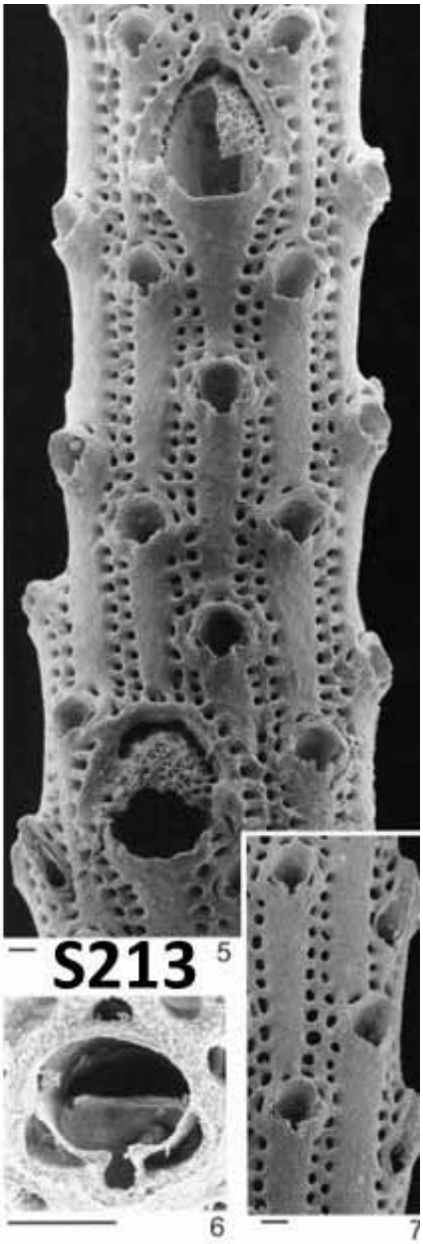
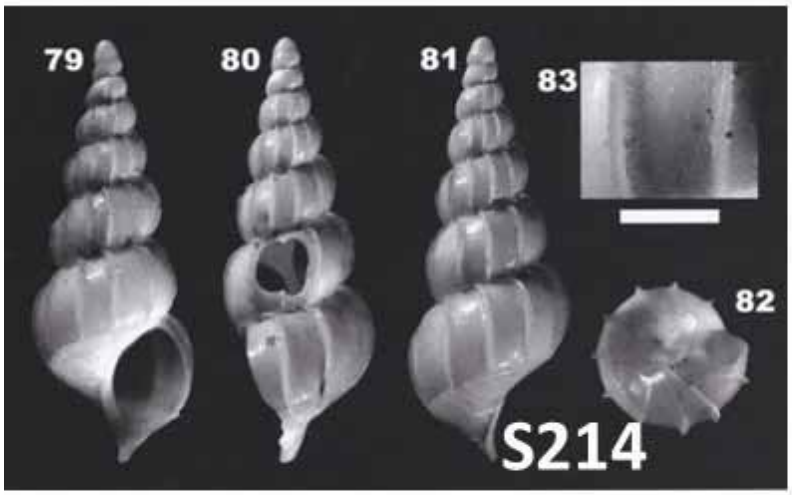
8
9
10
11
12

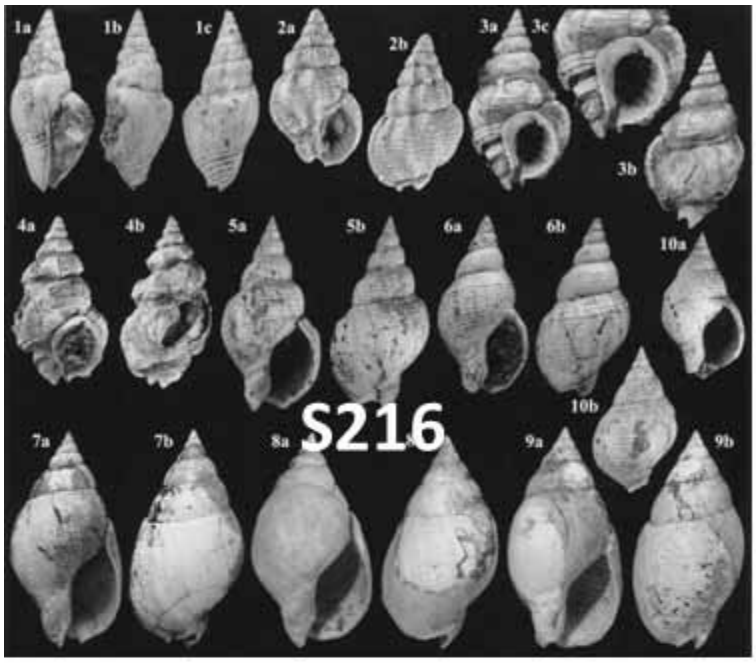

069
especie nueva
S212

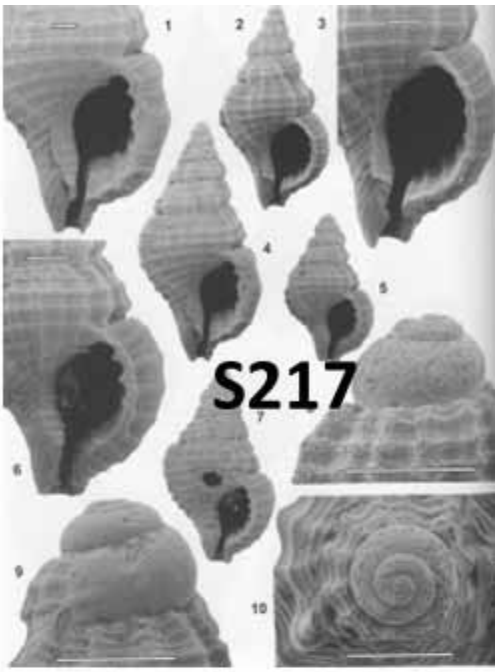

S213
5
6
7


79
80
81
83
82
S214


1
2
3
S215a


4
5
6
7
S215b


1a
1b
1c
2a
2b
3a
3c
3b
4a
4b
5a
5b
6a
6b
10a
10b
7a
7b
8a
9a
9b
S216


1
2
3
4
5
6
7
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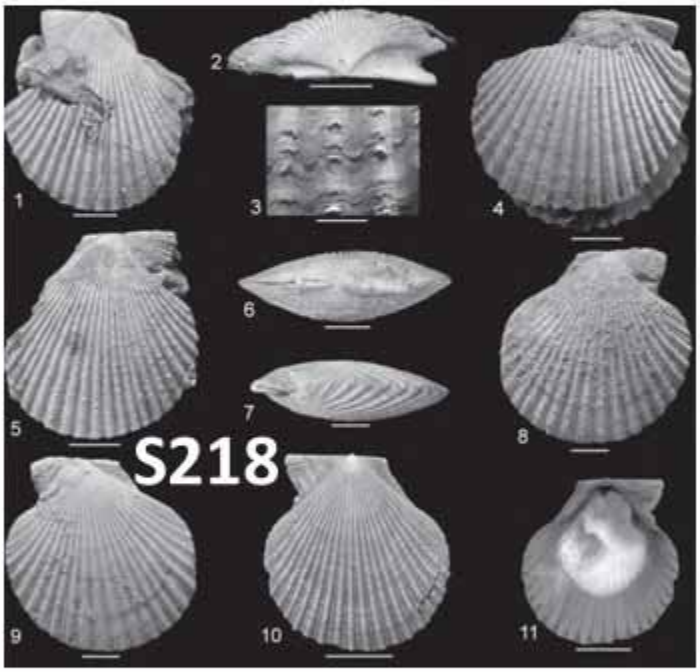
9
10
S217


1
2
3
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5
6
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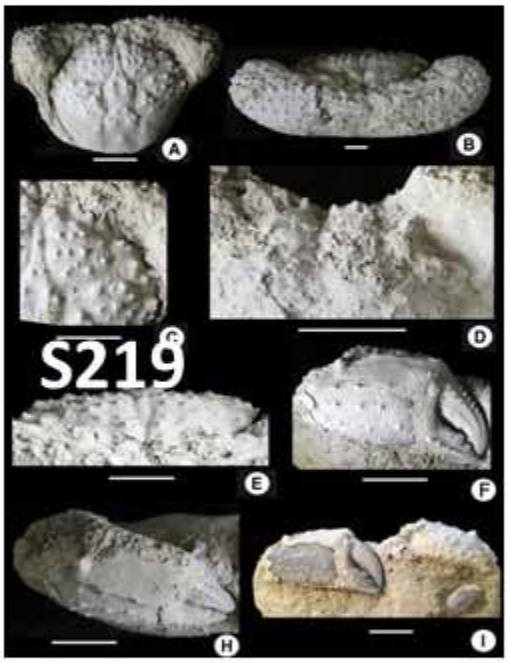
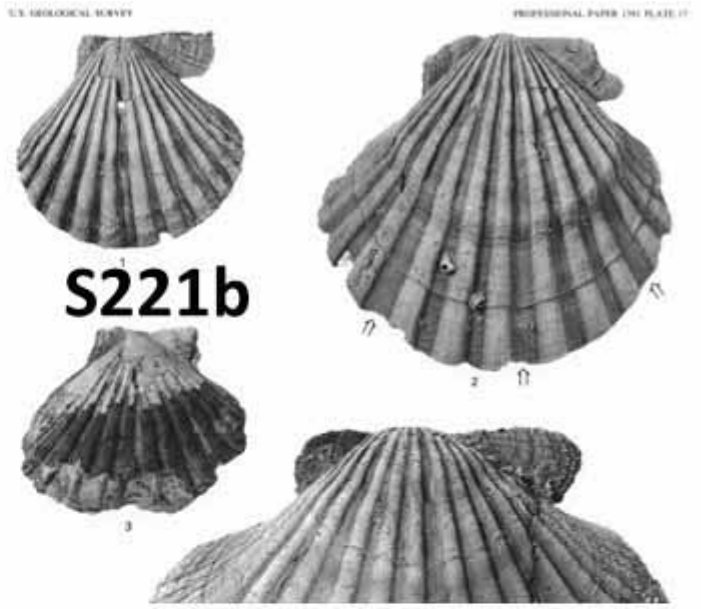
8
9
10
11
S218


A
B
C
D
E
F
H
I
S219

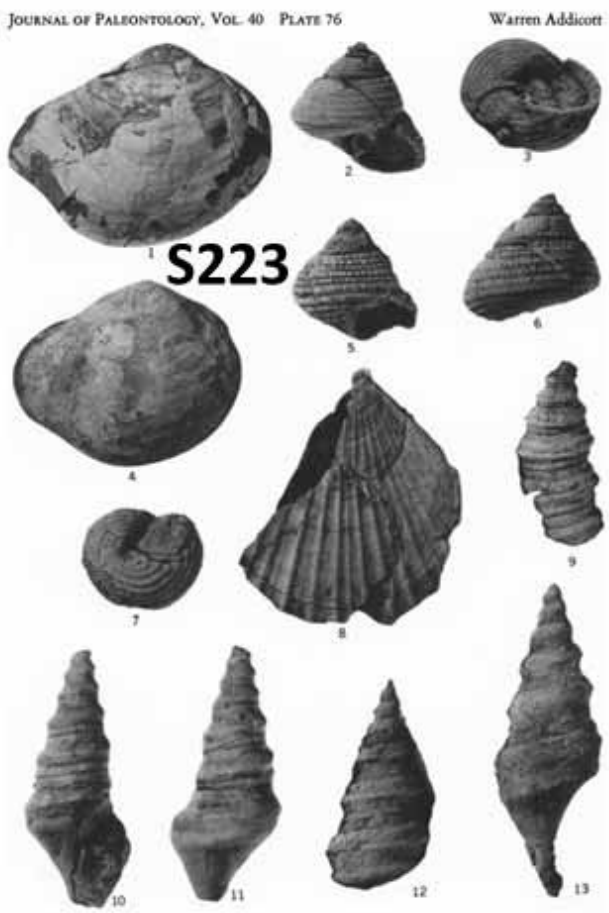

1
3
S220
2
5
4


S221a

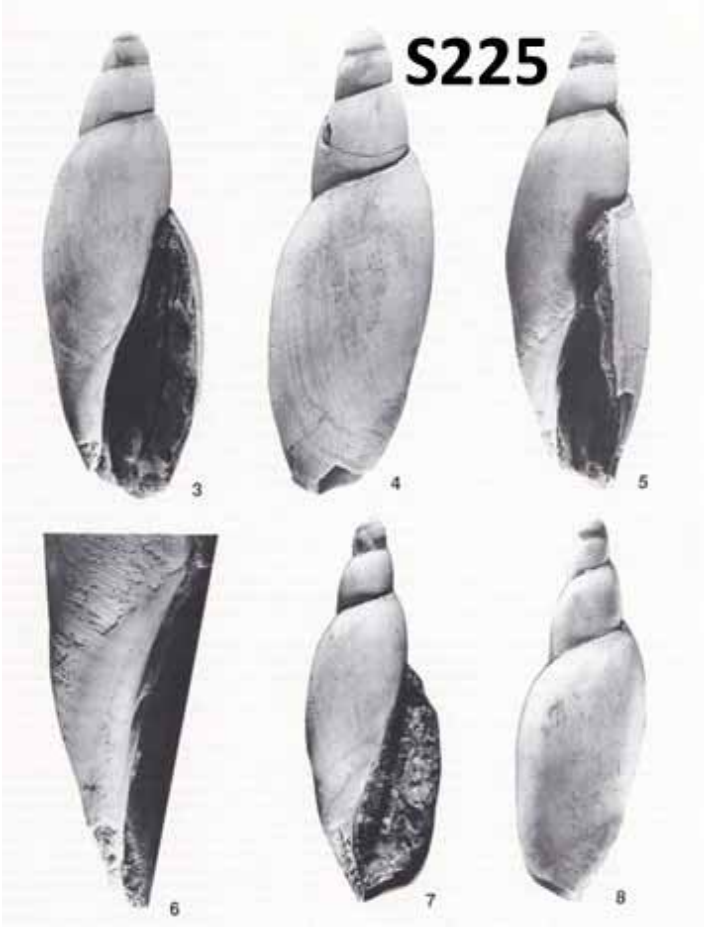

S221b


S221c


S221d


JOURNAL OF PALEONTOLOGY, VOL. 40 PLATE 76
Warren Addicott
S223


BULLETINS OF AMERICAN PALEONTOLOGY, VOLUME 84
PLATE 22
S224


S225


S226

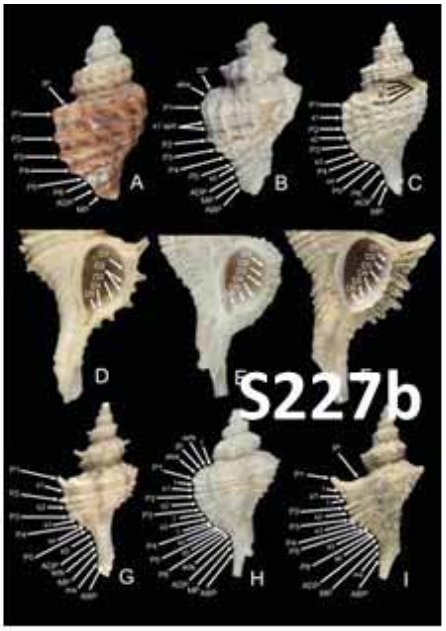



Figure 1

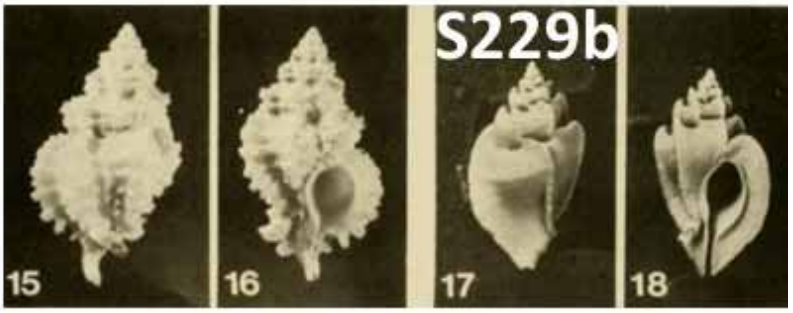

Figure 2

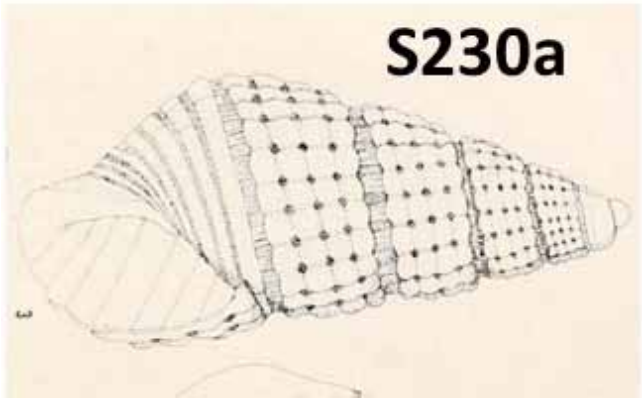

Figure 3

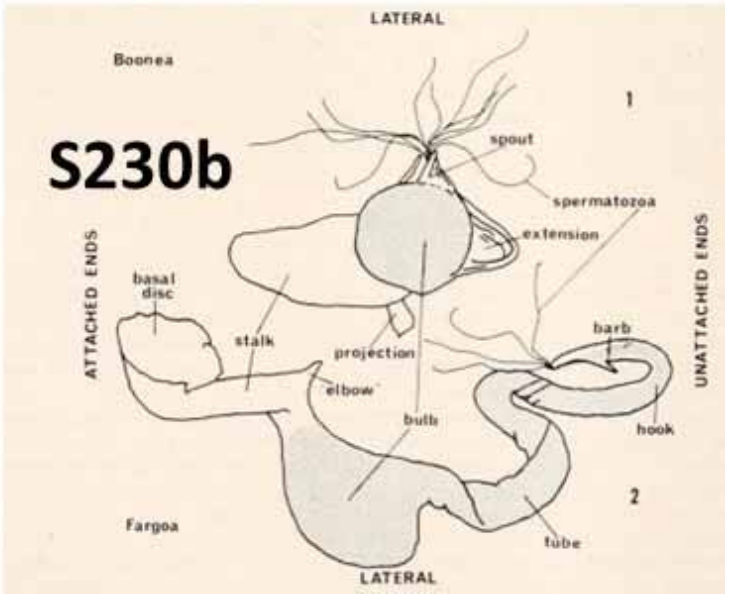

Figure 4


Figure 5

Figure 6





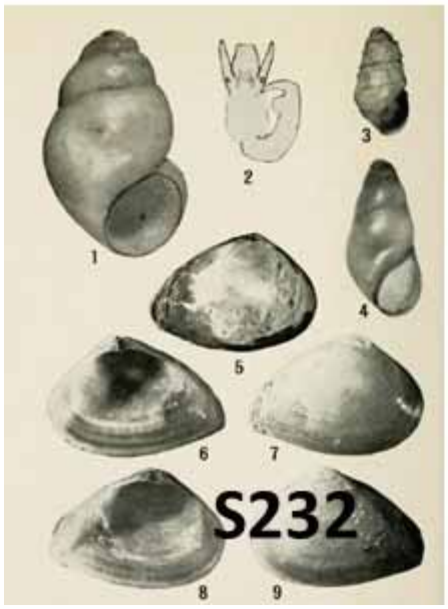



S231a

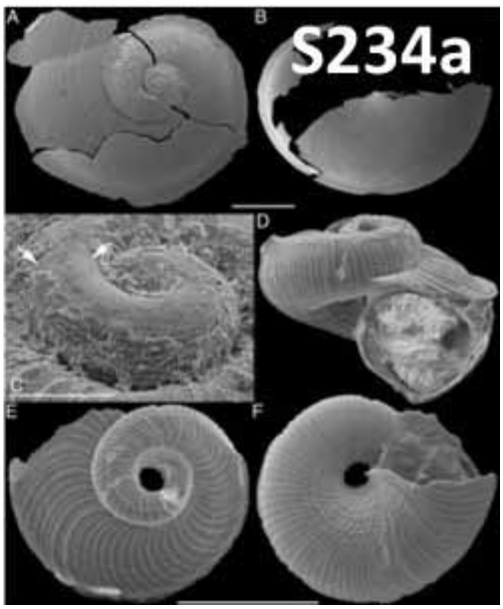

S231b


S231c


S231d

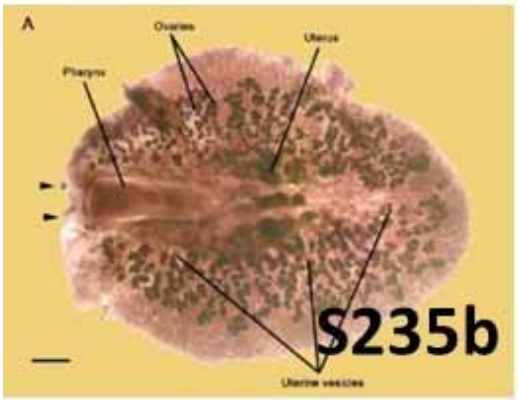

1
2
3
4
5
6
7
8
9
S232

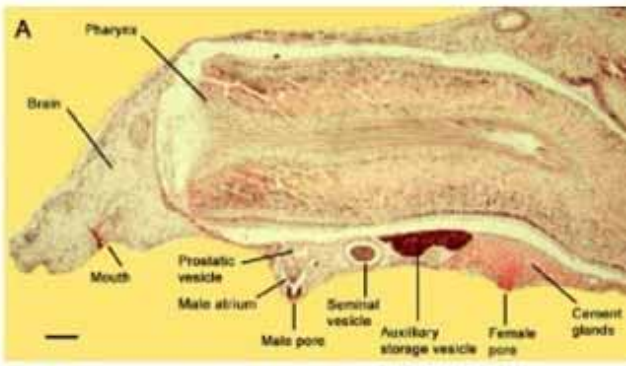

S233

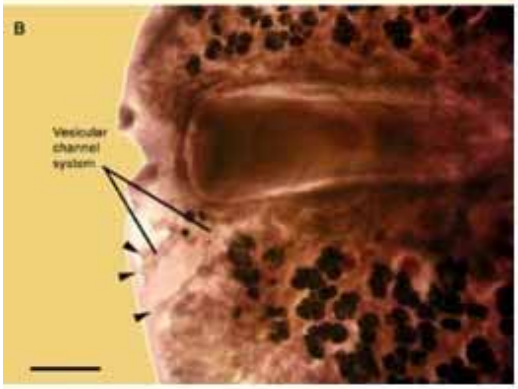

A
B
S234a
C
D
E
F

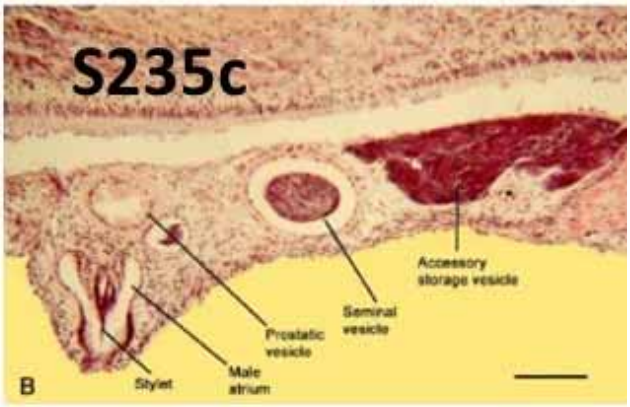

A
B
C
D
E
l1
l2
l3
l4
l5
im
om
tm
S234b

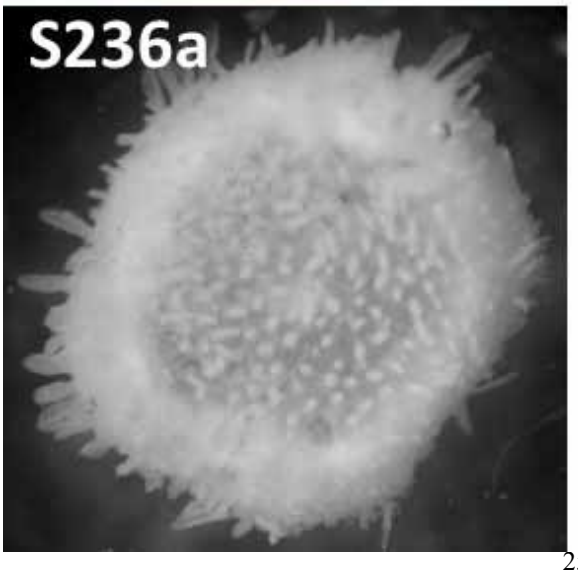

S235a
Mouth
Pharynx
Prostatic vesicle
Male pore
Seminal vesicle
Female pore
Uterus
Sucker
Uterine vesicles

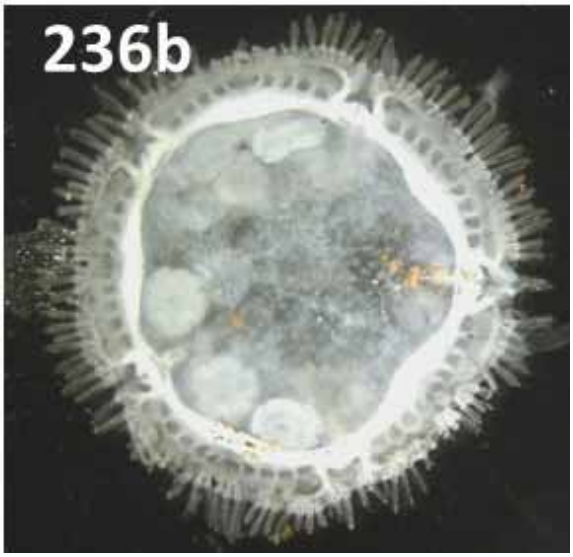

A
Ovaries
Uterus
Pharynx
S235b
Uterine vesicles

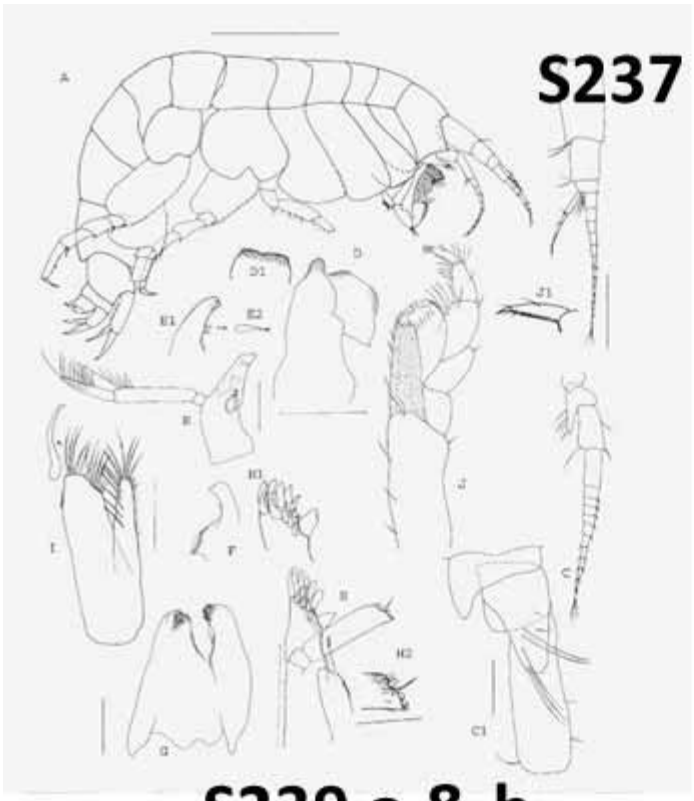

A
Pharynx
Brain
Mouth
Prostatic vesicle
Male atrium
Male pore
Seminal vesicle
Auxiliary storage vesicle
Female pore
Cement glands


B
Vesicular channel system


S235c
Accessory storage vesicle
Seminal vesicle
Prostatic vesicle
Stylet
Male atrium
B


S236a


236b

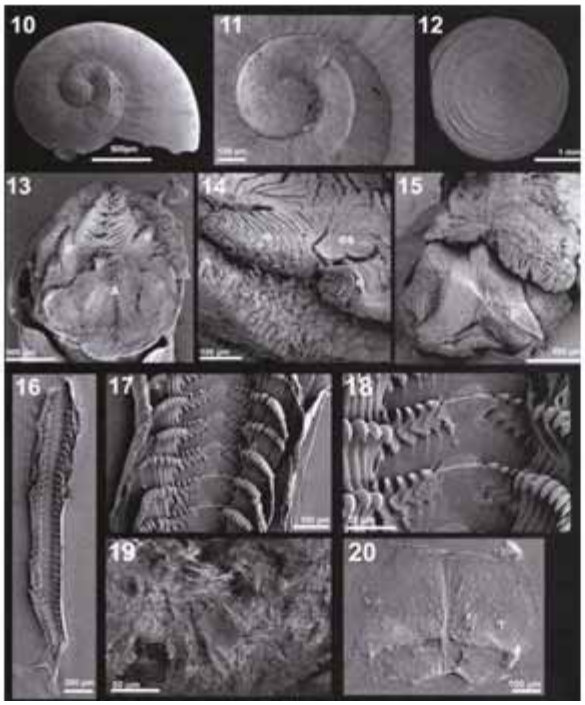

S237

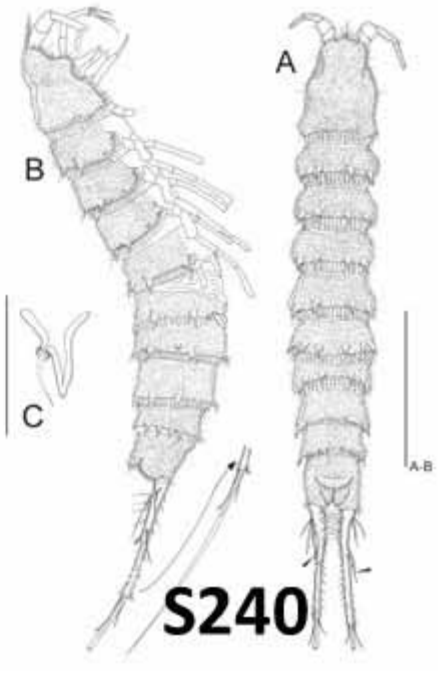

S238
A

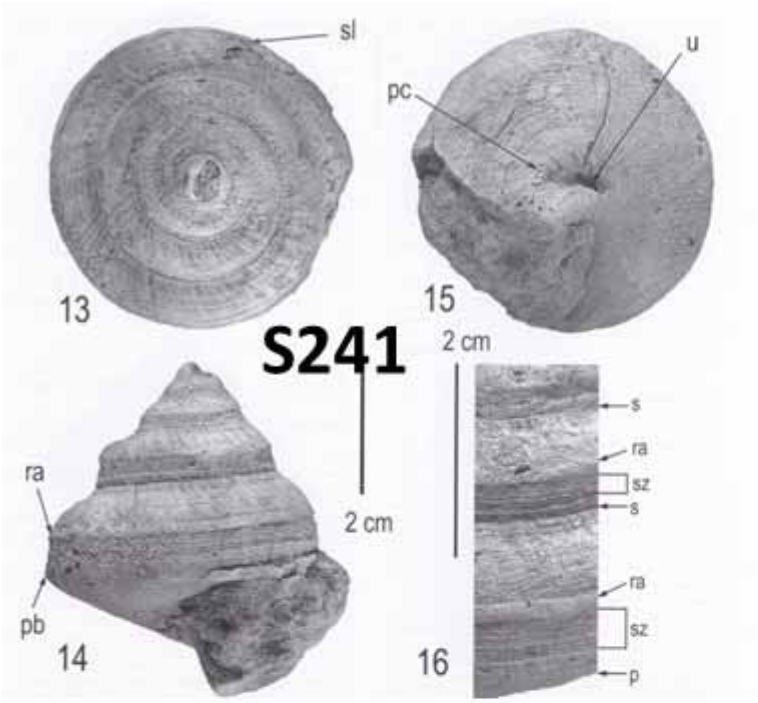

B
C
D

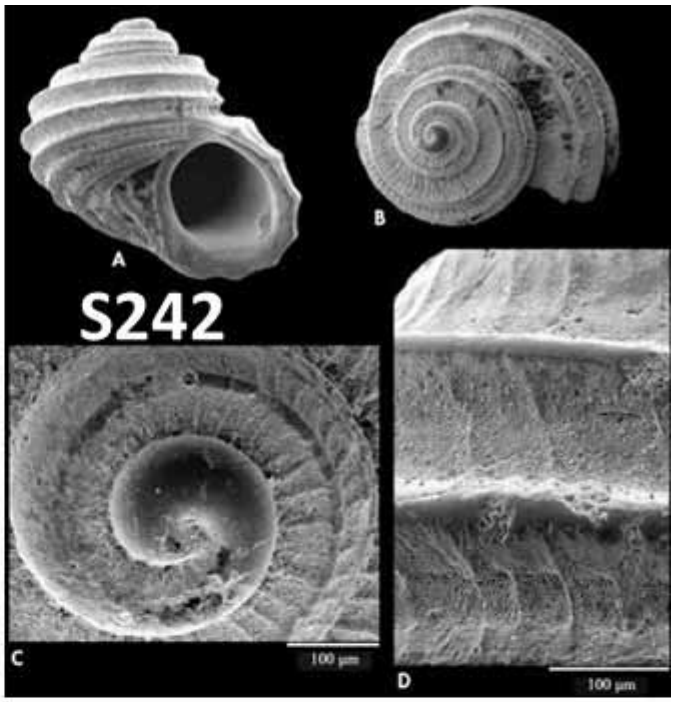
S239 a & b

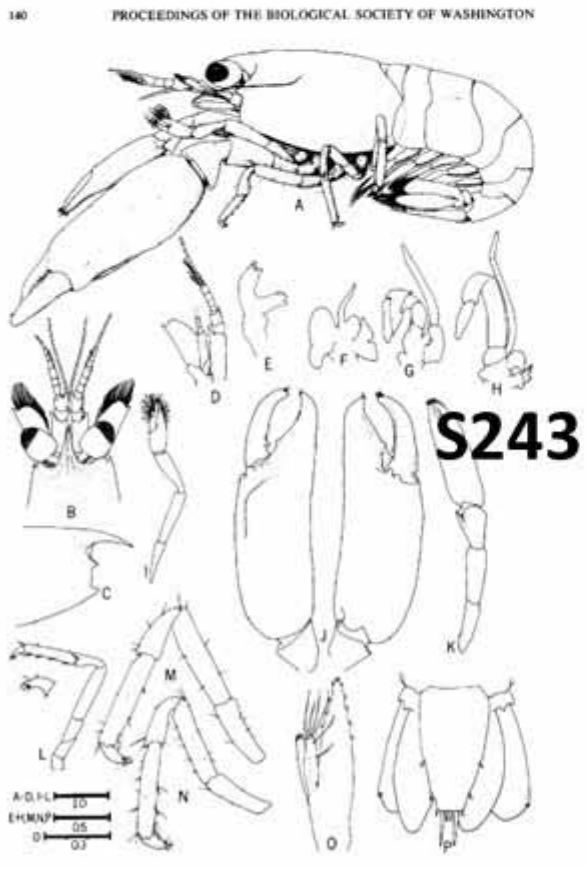

1
2 mm
2
2 mm
3
2 mm
4
2 mm

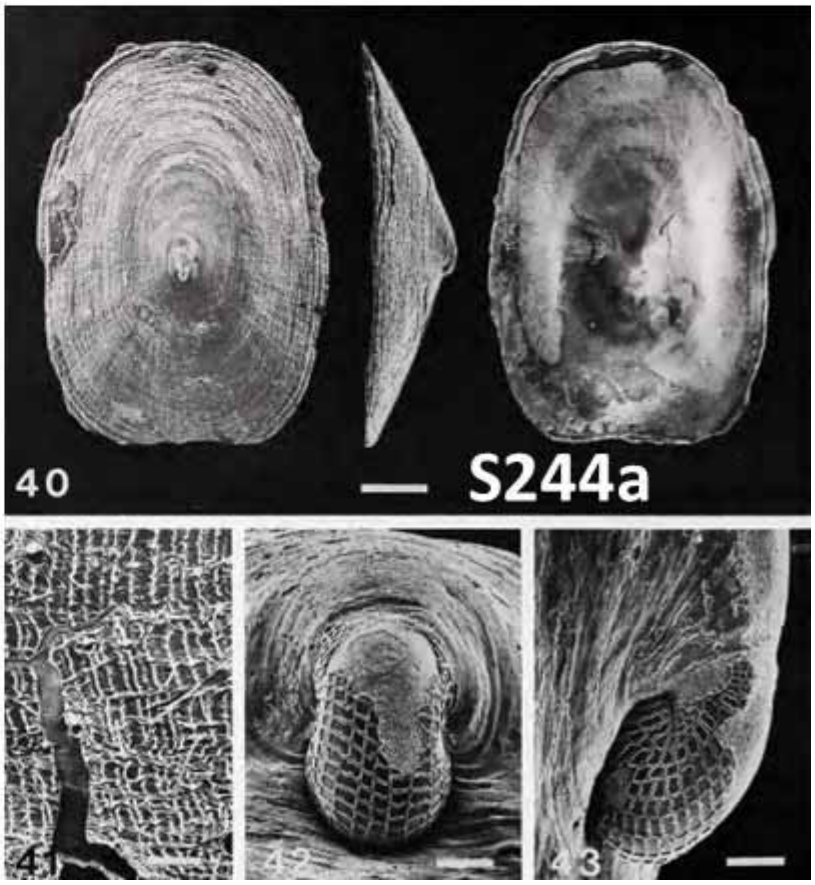

10
11
12
13
14
15
16
17
18
19
20

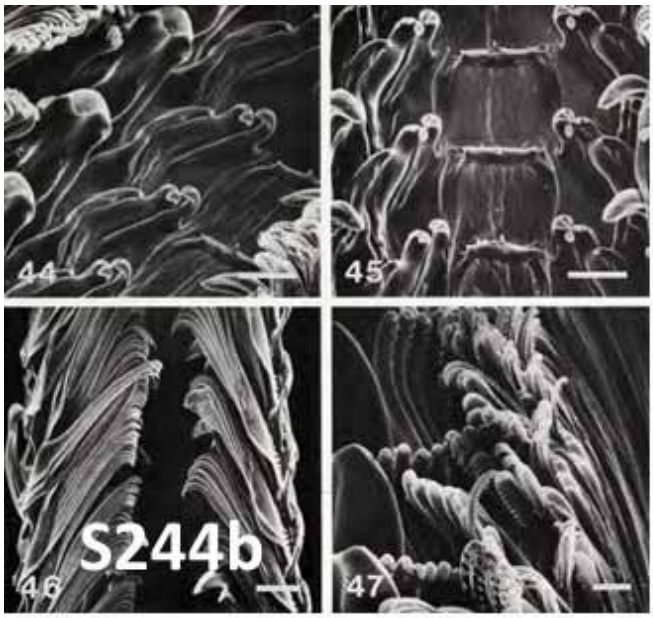

A
B
C
A-B
S240


sl
u
pc
13
15
S241
2 cm
2 cm
ra
pb
14
16
s
ra
sz
s
ra
sz
p


A
B
S242
C
100 µm
D
100 µm

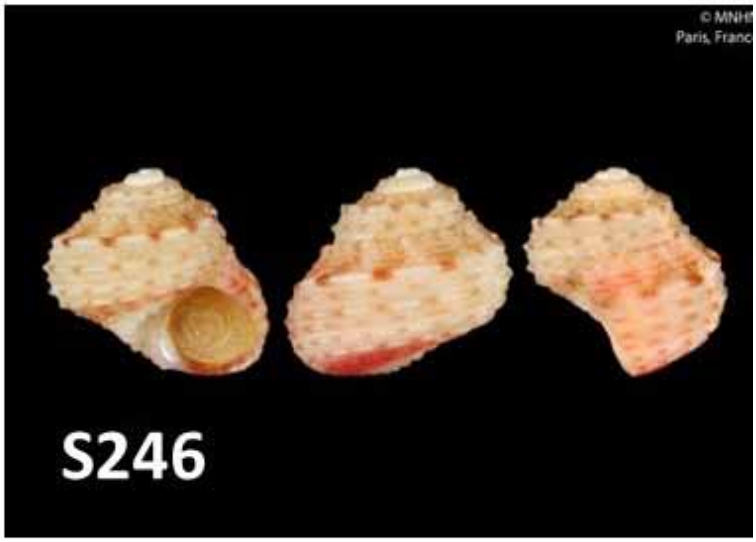

140 PROCEEDINGS OF THE BIOLOGICAL SOCIETY OF WASHINGTON
A
D
E
F
G
H
S243
B
C
K
M
L
N
O
A-D, I-L
E-H, M-P
0

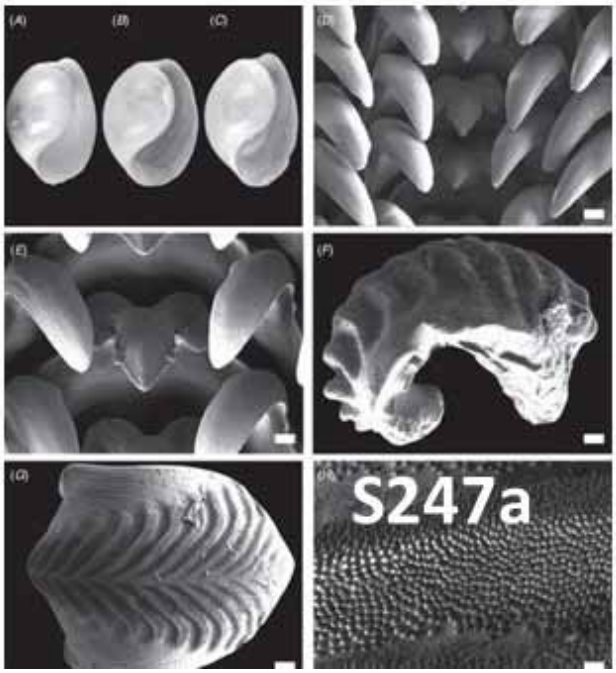

40
S244a
41
42
43

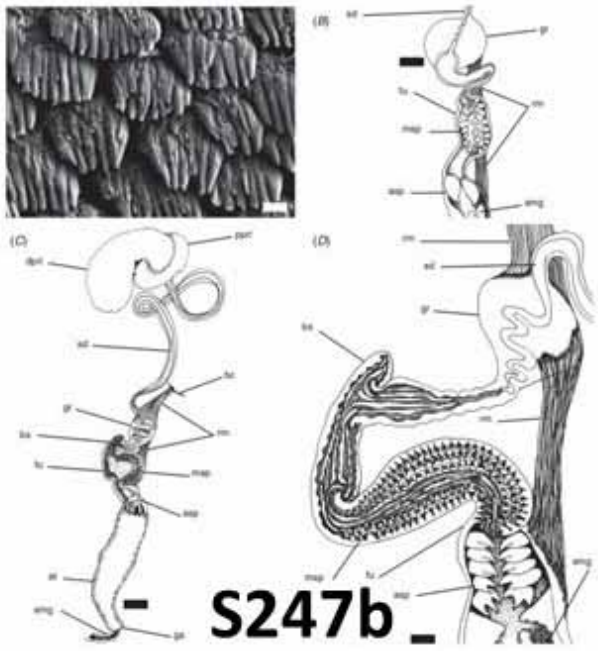

44
45
S244b
46
47


S245a


S245b

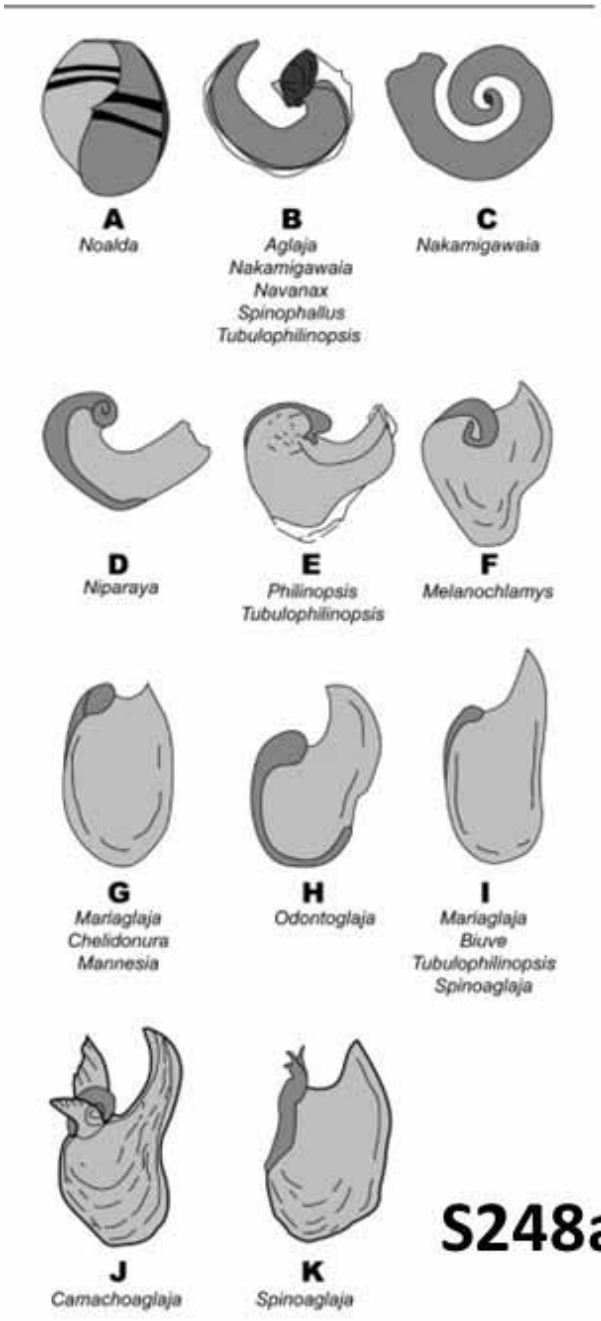

S246


S247a


S247b


S247c


S247d


A
Noalda
B
Aglaja
Nakamigawaia
Navanax
Spinophallus
Tubulophilinopsis
C
Nakamigawaia
D
Niparaya
E
Philinopsis
Tubulophilinopsis
F
Melanochlamys
G
Mariaglaja
Chelidonura
Mannesia
H
Odontoglaja
I
Mariaglaja
Biuve
Tubulophilinopsis
Spinoaglaja
J
Camachoaglaja
K
Spinoaglaja
S248a


S248b


S248c

S249

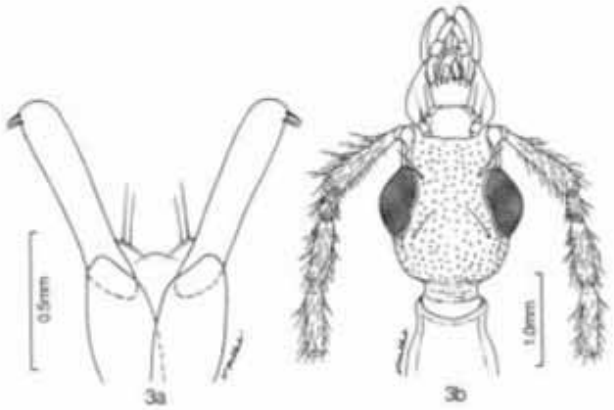
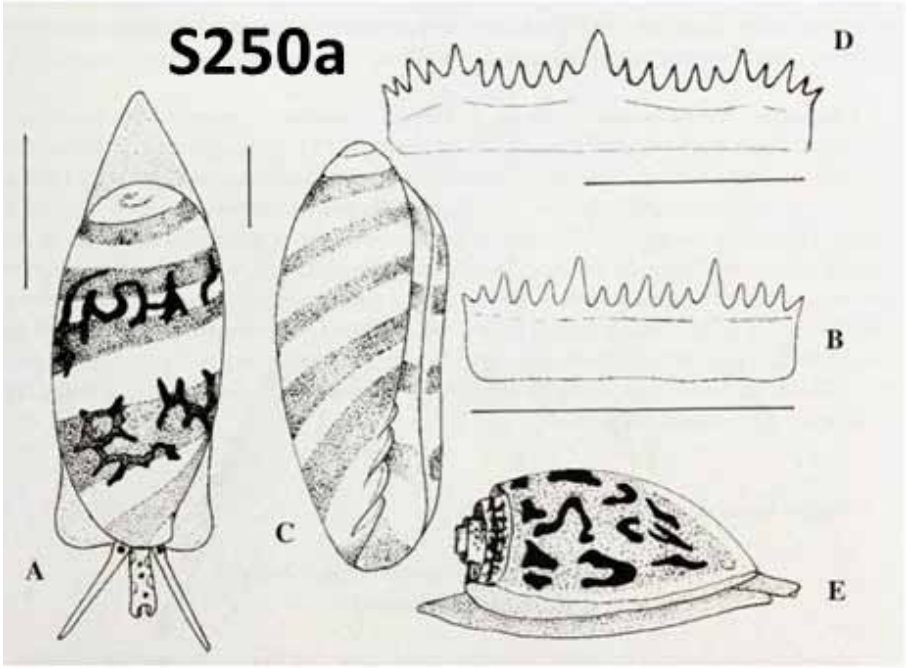
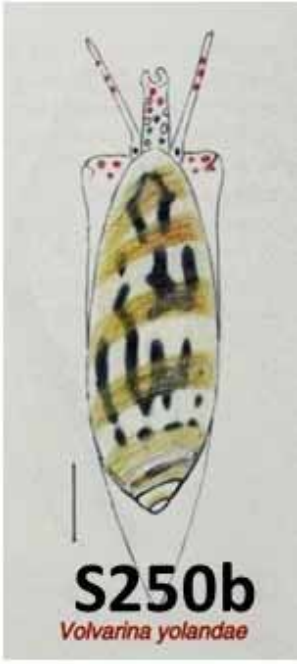


Fig. 3. *Agra yola,* **a)** dorsal aspect, stylomere 2; **b)** dorsal aspect, head with partial antenna.

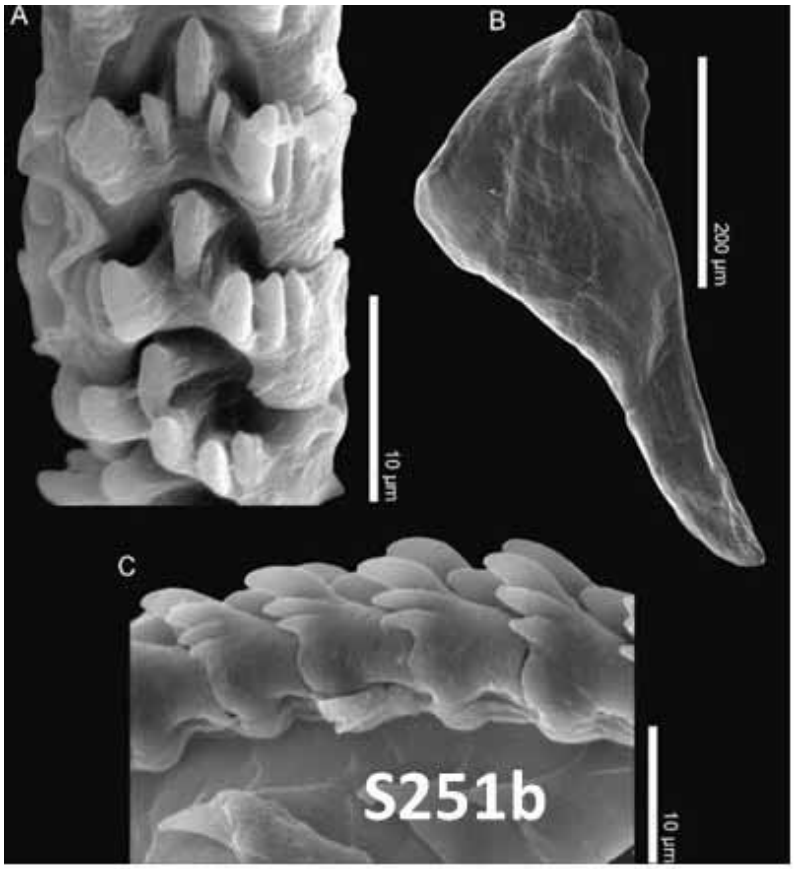
S250a



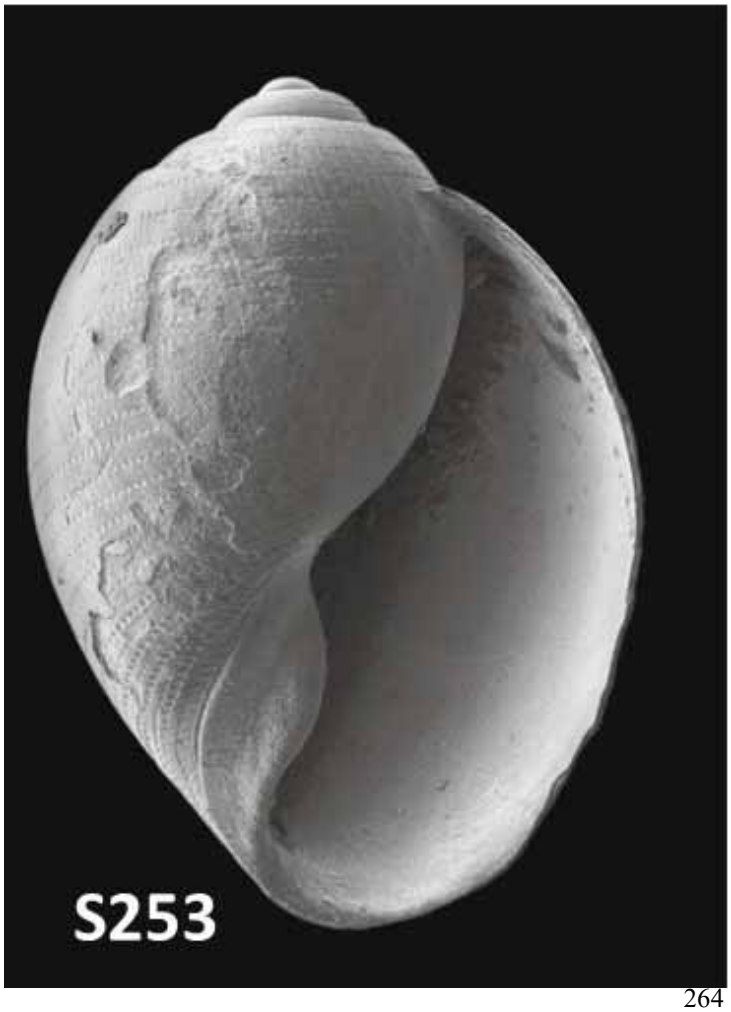


S250b

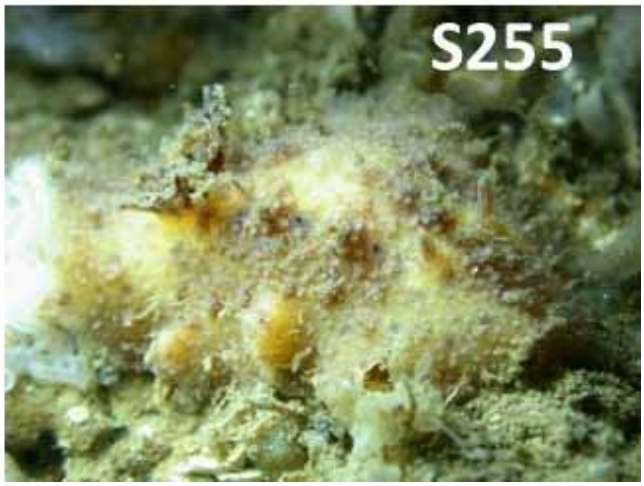
Volvarina yolandae


A
B
200 µm
10 µm
C
S251b
10 µm


S252

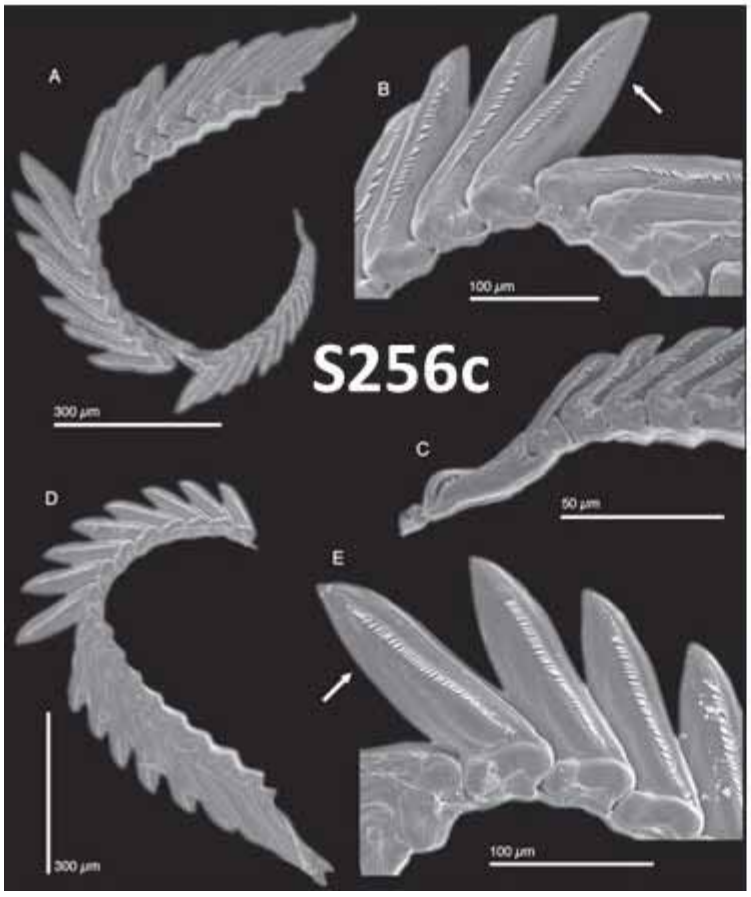

S253


S254

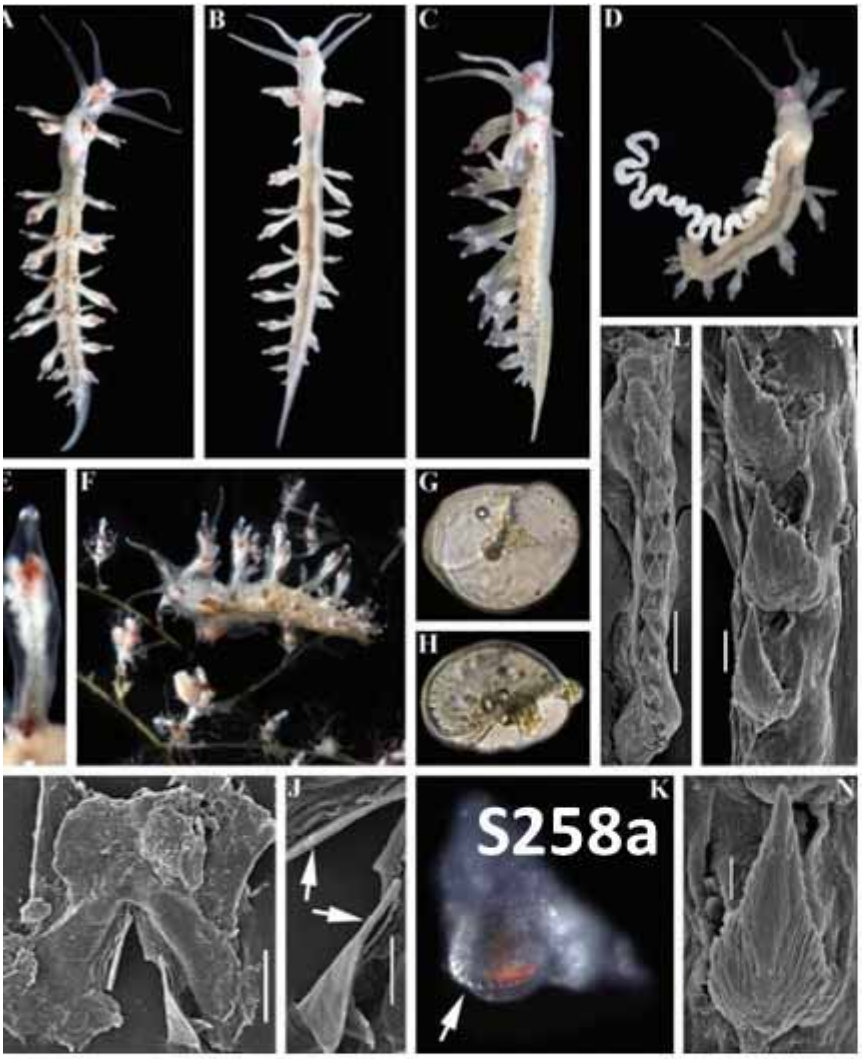

S255


S256a


S256b


A
B
100 µm
S256c
300 µm
C
50 µm
D
E
300 µm
100 µm


S257



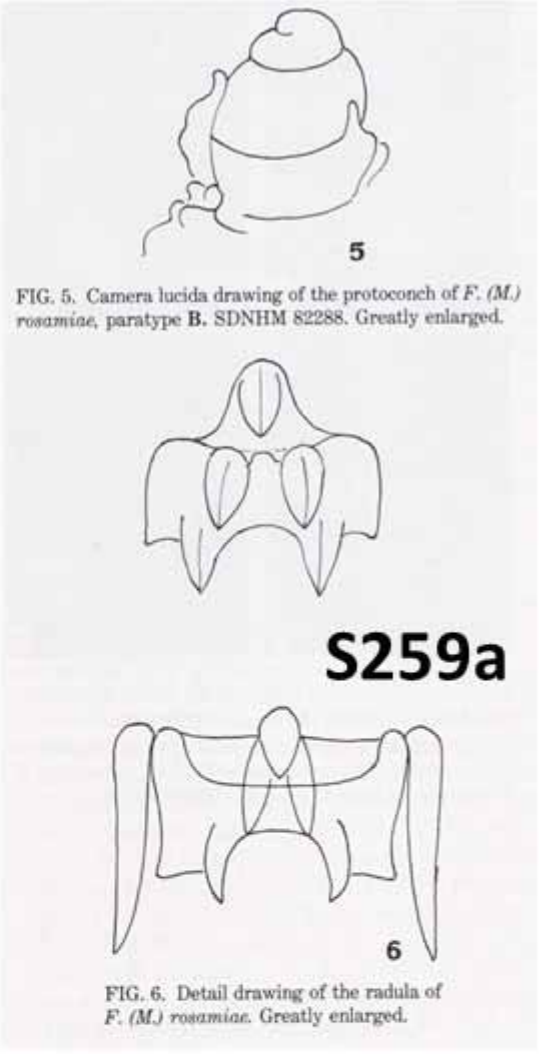
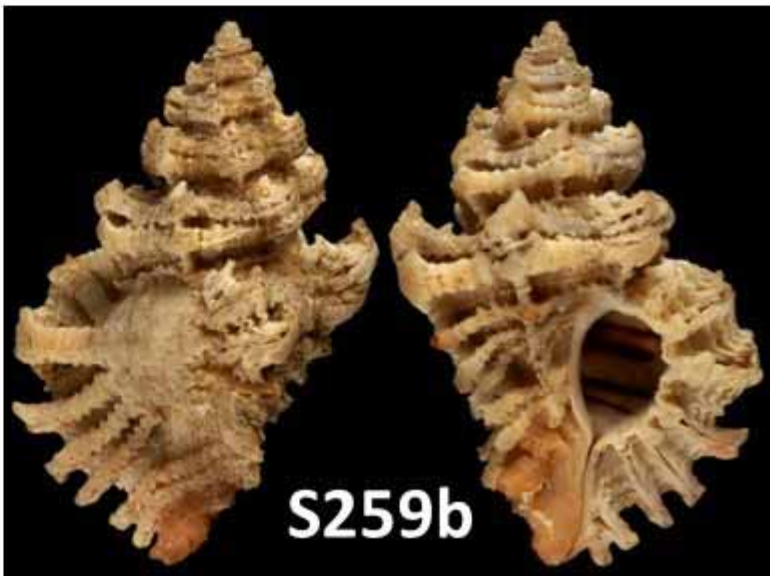


FIG. 5. Camera lucida drawing of the protoconch of *F. (M.) rosamiae*, paratype **B.** SDNHM 82288. Greatly enlarged.

FIG. 6. Detail drawing of the radula of *F. (M.) rosamiae*. Greatly enlarged.




S260a
S260b
64-4A
S260c
S260d

S261a

S261b

S262a

S262b

Note added in Press

The following eponym, a trochid gastropod, honors Carole Hickman. It was published too late for inclusion in the main text or in the tables:

Ethminolia hickmanae Herbert, 2024 (Figure S263)

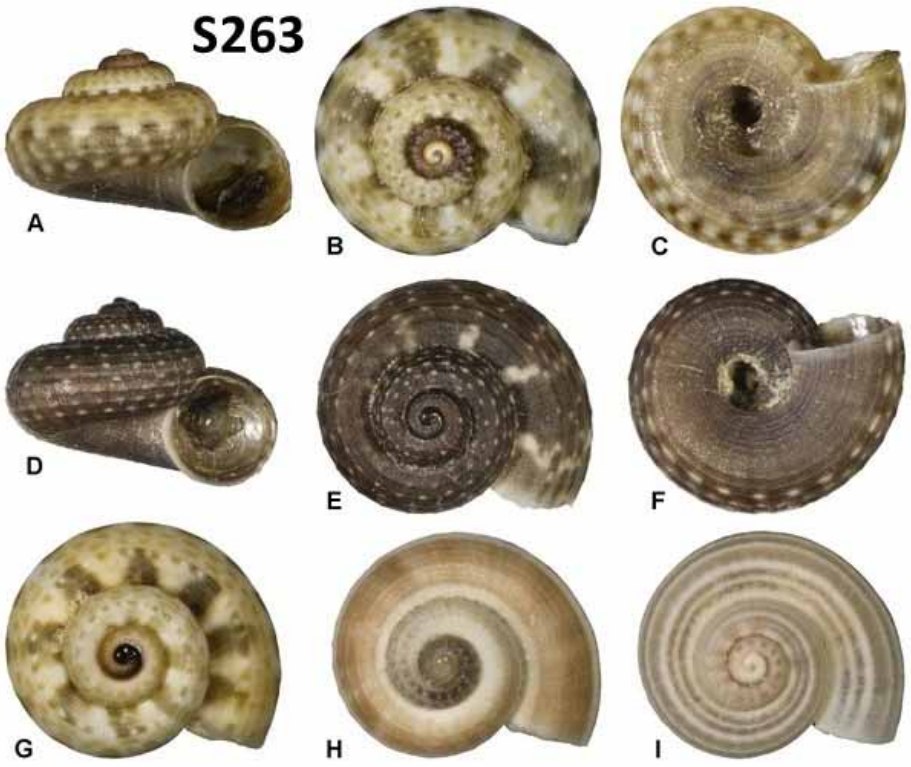
Shell with variable coloration, usually mottled with dark and light spots, blotches, and flames. Diameter reaches 2.3 mm.

Distribution: Type locality New Caledonia; also known from the Fiji Islands.

Figure S263. *Ethminolia hickmanae* Herbert, 2024. Photographs of the shells in the Paris Museum show the holotype (Figs. A-C), 1.3 mm in diameter (MNHN-IM-2000-38863), a paratype (Figs. D-F), and various color variations (Figs G-I). Original Figure 53.

REFERENCE

Herbert, David G. 2024. The Umboniinae (Mollusca: Gastropoda: Trochidae) of New Caledonia, with descriptions of two new genera and eight new species, plus an additional new species from the Bismarck Sea. European Journal of Taxonomy 973: 1-143.


S263
A
B
C
D
E
F
G
H
I