



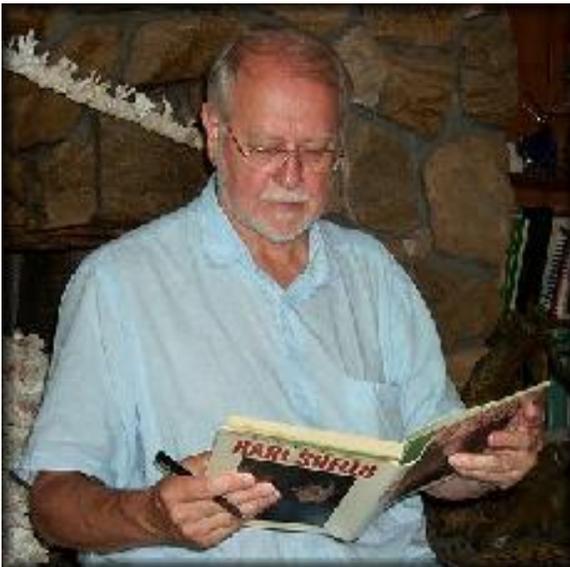
SHELL-O-GRAM

Official Publication of the
JACKSONVILLE SHELL CLUB, INC.

March, Apr., 2018

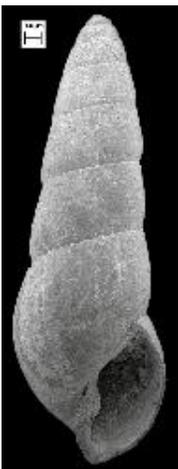
Volume 59 (no. 2)

Upcoming meetings



The **March** meeting of the Jacksonville Shell Club (JSC) will be held at the usual venue, the Southeast Branch of the Jacksonville Public Library <<http://www.yelp.com/biz/jacksonville-public-library-southeast-regional-jacksonville>>, on the customary fourth Thursday (the **22nd**) in Function Room **D** (vs. the historical A) at 7:00 PM. Paul Jones will surprise us with a Sanibel Island Shell-of-the-Month. New member Mercedes Lawler, who is a fully-ordained Bailey Matthews National Shell Museum Ambassador <<https://www.shellmuseum.org/shell-ambassadors>>, exemplified her services by showing Paul how to collect on Lighthouse Beach and elsewhere on the shores of America's most famous shelling destination. Harry Lee will discuss Peter Dance's *Rare Shells* [**both L**], a compendium of fifty legendary species of marine mollusks published nearly 50 years ago. Although all

remain conchological icons, innovations in collecting methods, facilitated international travel, and the impact of the Computer Age on the conchological marketplace have put all but a very few within the reach of many modern-day collectors.



The **April** meeting will be on the usual Thursday date (the 26th), time and place (see above). Harry Lee will discuss the pyramidellid genus *Sayella*, which is represented by a very few rather small species living in the shallow waters of the eastern US seaboard (and southward), where it has been resident, probably on molluscan hosts, for at least three million years, to wit like this congener from northeast Sarasota County, Florida [**L**]. Rick Edwards has agreed to take us on a tour of the Jadachi Fish Market in Busan, South Korea, a city than was a household word (as Pusan) over 50 years ago. Rick's son, William, who has joined us on several shelling field trips and often serves as Rick's dive buddy during family forays in the Caribbean and elsewhere, taught school in this port city a decade ago. As you might expect, there won't be much talk of fish. Koreans have an appetite for mollusks, and they're far less biased toward bivalves than we Americans. This "picture walk" will display many marine organisms that are consumed by Koreans and the shells that collectors could collect if they ate their way through the market.

**Jacksonville Shell Club, Inc.
4132 Ortega Forest Drive
Jacksonville, FL 32210-5813**

**Editor: Harry G. Lee ... Email: shells@hglee.com
Circulation Manager: Rick Edwards ... Email: edwar1@hotmail.com**

This club meets monthly at the Southeast Branch of the Jacksonville Public Library, 10599 Deerwood Park Blvd., Jacksonville, Florida <<http://jpl.coj.net/lib/branches/se.html>>. Please address any correspondence to the club's address above. Annual membership dues are \$15.00 individual, \$20.00 family (domestic) and \$25.00 (overseas). Lifetime membership is available. Please remit payment for dues to the address below and make checks payable to the Jacksonville Shell Club. The club's newsletter and scientific journal, the *Shell-O-Gram* (ISSN 2472-2774) is issued bimonthly and mailed to an average of 15 regular members and friends by specific request and no less than ten scientific institutions with permanent libraries. An electronic (pdf) version, identical except for "live" URL's and color (vs. B&W) images, is issued the next day and sent to about 200 individuals who have demonstrated an interest in malacological research. These pdf's (ISSN 2472-2782) have also been posted to <<http://jaxshells.org/letters.htm>> since November, 1998. We encourage members and friends to submit articles for publication. Closing date for manuscript submission is two weeks before each month of publication. Articles appearing in the *Shell-O-Gram* may be republished provided credit is given the author and the *Shell-O-Gram*. As a courtesy, the editor and author should receive a copy of the republication. Contents of the *Shell-O-Gram* are intended to enter the permanent scientific record.

From the Editor's desk

As the yearly frenzy of shell shows here in Florida winds down and spring approaches, we shell collectors feel the yen to reprise our field work - not that winter's chill discouraged the JSC hearties as Paul Jones lured groups of us into the shallows near Matanzas Inlet more than once this winter. I don't think anyone came away from those forays without some prized specimens and happy memories. Paul and Rick Edwards have been investigating new (and old) collecting sites and other logistics, e.g., solunar tables, to make collecting the warmer months enjoyable and provident. They will soon let us know.

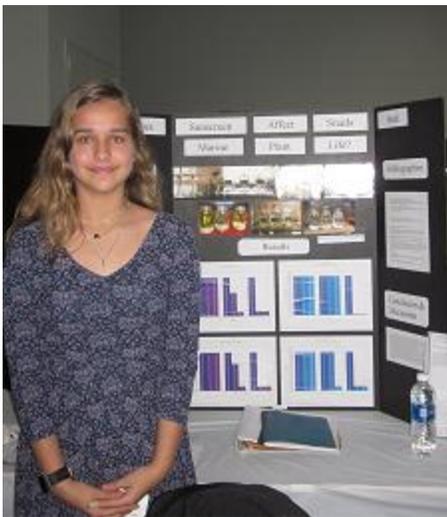
I want to thank members Lori and Jeff Schroeder (KY), Alice and Ken Piech (TN), Karlynn Morgan (NC), Helen Gardner (Ponte Vedra), and Esther Romeu (Jax) for remitting JSC dues despite not being able to attend meetings. JSC programs, such as the Science Fair Awards (pp. 3-4) and the *Shell-O-Gram*, depend on such support.

**Membership Dues are payable in September each year.
If you're not paid up, please send in your dues: Individual \$15.00; Family \$20.00, to
Harry G. Lee, Treasurer, JSC
4132 Ortega Forest Drive
Jacksonville, FL 32210-5813**

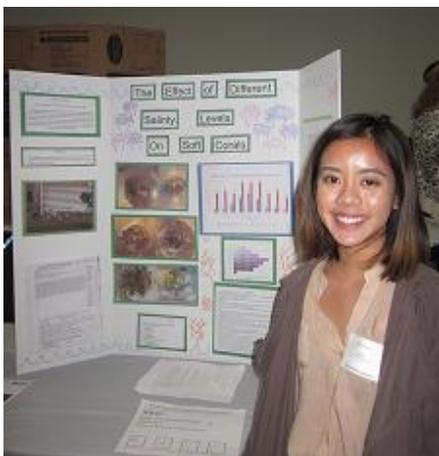
The JSC Award winners at the Northeast Florida Regional Science and Engineering Fair

by Harry G. Lee and Rick Edwards

The annual Northeast Florida Regional Science Fair (NEFRSEF) convened for the 63rd time on Monday, February 4, 2018 at the Morocco Shrine Auditorium, St. Johns Bluff Rd., which familiar edifice served the JSC for two decades as a our show venue. Representing our club as “special judges,” the authors arrived at a little after noon, checked in with Fair Director, Marion Zeiner, a science teacher at Episcopal High, picked up our programs, clipboards, and score sheets. Over three quarters of the exhibited projects were the work of single individuals, the rest were produced by twosomes. The competitors came from twenty-five schools in Duval, Baker, and Nassau Counties and were entered in one of a dozen categories in either the junior (grades 6-9) or senior (10-12) divisions. For years we have used the criteria “best project dealing with a problem involving mollusks, invertebrate zoology, or marine science.” Experience had taught us that qualifying exhibits could be found in any one of the 24 categories – including astronomy (think tides)! Accordingly we proceeded to look, often just briefly, at every one of the 272 exhibits. We composed a short list, returned to re-interview those exhibitors, and came up with our two winners in a little over two hours.



Alexis Graves is a sixth-grader at Christ the King Middle School. She used an aquatic snail, the golden form of the Spiketop Applesnail *Pomacea diffusa* Blume, 1957, as her test organism <<http://www.jaxshells.org/bridge.htm>>. Setting single snails up in small aquaria, she added a small amount of a sunscreen creme to one, twice that to the next, etc. so that each save the control vessel had a graduated concentration of the substance. She observed the animals at daily intervals for two weeks and found that the snails’ activity, including feeding on vegetation, was impaired to a degree roughly proportional to the concentration of the sunscreen. The snails receiving the highest doses had expired within the two week trial. She concluded that human-induced pollution of our fresh waters can originate in unexpected sources and produce potentially devastating effects As winner of the JSC Junior Award, Alexis received a check for fifty dollars. Mr. Underhill served as her faculty preceptor.



The winner of the JSC Award in the senior division of the 2018 NEFRSEF is Audrey Jolavar, a twelfth-grader senior at Darnell-Cookman Middle/High. She did her work at home using a gorgonian (soft) coral obtained from the marine aquarium trade. She maintained the animals in artificial seawater, some samples of which she intentionally formulated at variously stronger or weaker salt concentrations by varying the volume of distilled water used in the solutions. She then observed the color and other characteristics of her in vitro colonies at regular intervals over several days. Gradually many of these explants lost their coloration and surface integrity, a process known as “bleaching.” As it turns out, the test subjects maintained at ~37 parts per thousand sea salt fared better than those kept at other concentrations. She found that even a relatively small perturbation in salinity, on the order of five parts per thousand, exerted a deleterious effect on her test animals. On further interview, she reported her findings are relevant to changes in coastal ecosystems

subject to freshwater intrusion, an increasing problem with unprecedented changes, most notably increases, in rainfall, which are a conspicuous part of global climate change. In recognition of her work, Audrey was presented with check for seventy-five dollars at the awards ceremony on Wednesday, February 6. Her faculty sponsor was Scott Sowell.

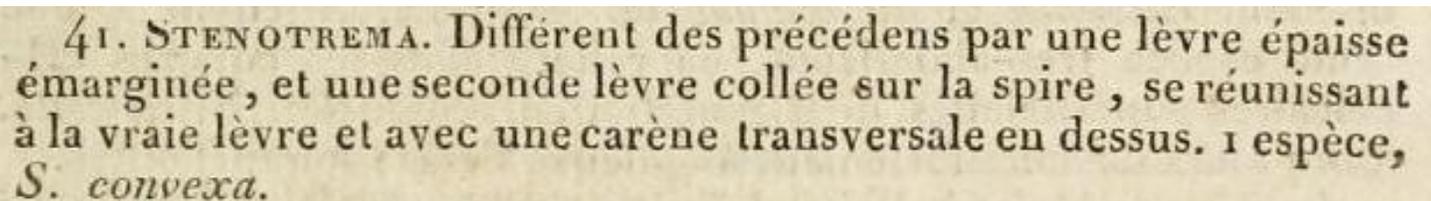
The Slitmouths, *Stenotremi* Emberton, 1994 (Pulmonata: Polygyridae: Polygyrinae)

by Harry G. Lee, Bob Winters, and Bill Frank

The terrestrial pulmonate family Polygyridae is the most speciose and widespread such group in North America, occurring in 45 of the 49 continental states of the USA, stretching into Canada and Mexico and straggling into the outskirts of Central America and the West Indies. Thus defined, the family conforms with remarkable precision to the political boundaries of North America as any natural lineage of organisms ever has – and from the late Cretaceous Period (Pilsbry, 1940; Hubricht, 1985).

The metropolis of the group is east of the American Rockies, where 18 (15 endemic) of its two dozen genera occur (Schileyko, 2006), generally prospering in humid deciduous forests. These 140-odd species constitute over one quarter of the eastern US landsnails (Hubricht, 1985). Because of their size (adults 5-45 mm; median ~ 15 mm), diversity, elaboration of the aperture, and general eye-pleasing form, polygyrids caught the fancy of collectors, e.g., Martin Lister (Lister *et al.*, 1685) well before its first three species were formally described by the America's founding conchologist, Thomas Say (1817a: *Helix albolabris*, *H. thyroidus*, and *H. tridentata*). A year later Say erected the taxon *Polygyra*, the etymon of the family and the first exclusively American landsnail genus, collected during his FL expedition a few months before <<http://www.jaxshells.org/414x.htm>>.

Hardly another year had passed before Constantine Rafinesque, as bizarre a figure as has ever stepped into/out of the annals of American conchology, produced a grandiose paper describing no less than 70 genera of American animals for the first time - including a few snails placed in the Polygyridae: among them three (sub)genera regarded as valid today *Triodopsis*, *Stenotrema* [see below from Rafinesque (1819) by way of Binney and Tryon (1864)], and *Toxotrema*.



41. STENOTREMA. Différent des précédens par une lèvre épaisse émarginée, et une seconde lèvre collée sur la spire, se réunissant à la vraie lèvre et avec une carène transversale en dessus. 1 espèce, *S. convexa*.

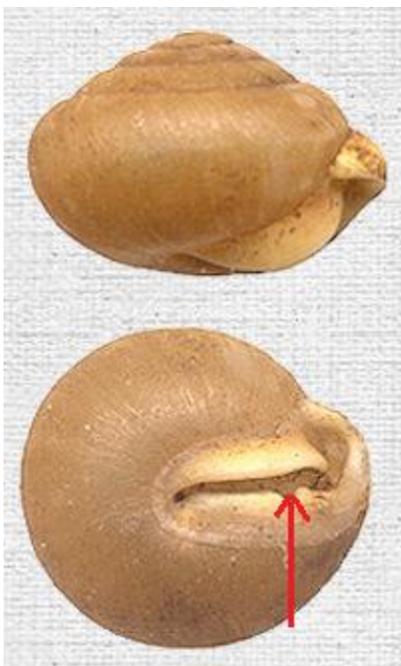
As usual, very little of Mr. Rafinesque's taxonomic work was rigorous enough for immediate comprehension and application. Pilsbry (1940: 640) wrote: "Rafinesque composed no less than four etymologically excellent names for this group, perhaps all based on *S[tenotrema] stenotrema*, though about ten years ago I selected *S. hirstum* as type of two of them. This however was a mere guess, not really a valid type designation, as the species was not recognizable from the generic description, as the rules require. It is only by the subsequent work of [L.] Pfeiffer on Férussac's collection that *S. convexa* Raf. was recognized as *S. stenotrema*, though Rafinesque's account unmistakably indicated the genus." It turns out there's a close phylogenetic kinship between Say's *Polygyra* and Rafinesque's *Stenotrema*. Nowadays they are placed in the subfamily Polygyrinae Pilsbry, 1895 but in separate tribes, Polygyrini and Stenotremi (Schileyko (2006).

The tribe Stenotremi, or slitmouths, share at least four conchological features, a long flat parietal tooth parallel to a apico-basally compressed aperture, a close application of the basal lip to the body whorl and a sinuous inflection of its lateral aspect, Other features frequently present are a notch in the midportion of the basal lip; the fulcrum, a callous expansion of the interior of the columellar base; a small tooth on the labrum near its sutural end; and finally, the buttress, a ridge of callus running from the lateral aspect of the parietal tooth to the inside of the end of the suture (see Pilsbry, 1940). The shells range from six to 15 mm in diameter.

Slitmouths are almost exclusive to the USA, only three species straggle into Canada, and one may be found in drift on the Mexican side of the Rio Grande. No slitmouth occurs within sight of the Rocky Mts., and their metropolis is in eastern TN and northeastern AL; 25 of the 35 species occur in at least one (mostly in both) these states (Hubricht, 1985). One of us (BW) has found nine species in river drift at a single place in Jackson Co., northeastern AL. Most are species of the montane, some being rock-dwellers; very few occur on the Coastal Plain, and, as we'll see, only one occurs in FL.

Following Schileyko (2006: 1862-1867), we parse the slitmouths (Stenotremi) taxonomically as follows:

- *Stenotrema* Rafinesque, 1819
 - *S. (Stenotrema) stenotrema* (L. Pfeiffer, 1842) ~ 15 (sub)species.
 - *S. (Archerelix) Emberton, 1995) barbigerum* (Redfield, 1856) four species.
 - *S. (Cohutta) Archer, 1946) cohuttense* (G. Clapp, 1921) one species [maybe two; read on].
 - *S. (Pilsbrelia) Emberton, 1995) exodon* (Pilsbry, 1900) four species.
 - *S. (Toxotrema) Rafinesque, 1819) hirsutum* (Say, 1817b) four species.
- *Euchemotrema* Archer, 1939
 - *E. monodon* (Rackett, 1829) ~ nine (sub)species.

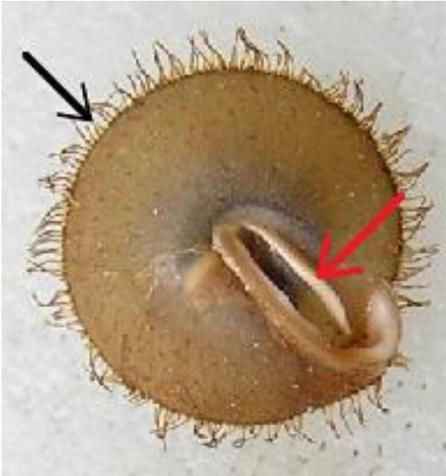


Beside showing some aspects of the conchology of the slitmouth (**sub**)genera, the following vignettes will allow gradual elaboration of the shared – and a few unshared – features associated with the group as a whole.

Along with being the **type species of the tribe**, *Stenotrema (Stenotrema) stenotrema* [L; R] is arguably the most abundant and widespread of the slitmouths, reaching from the shores of Lake Erie to MO, OK, the Gulf Coastal Plain (exclusive of FL) and upland GA, the Carolinas and VA. It has a basal notch [red arrow], a moderate spire, high, rounded periphery, convex base, and is rather large, occasionally exceeding 12 mm. The lateral end of the parietal tooth bends only slightly into the aperture. Like most slitmouths, during life the shell is



usually covered with a periostracum bearing hairs, in this species rather short, i.e. 0.3 mm, ones [above].

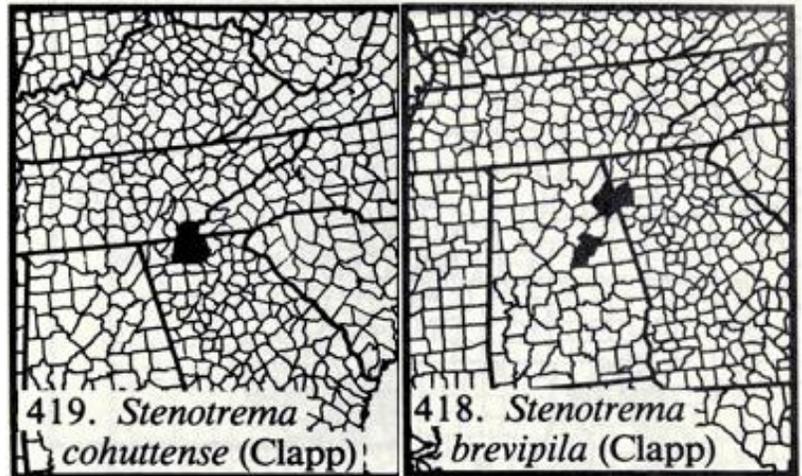


The type species of *Archerelix* Emberton, 1995 is *S. barbigerum* [L]. Members of this group are lenticular, or lens-shaped, with a flattened profile, angulate or carinate periphery, unflexed parietal tooth [red arrow], and weak or absent basal notch. Typically the periostracal hairs on the periphery are longer than all others [black arrow]. *S. (A.) spinosum*, a close relative with a larger shell (14 vs. 9 mm), owes its name to this periostracal feature rather than a strictly conchological trait. As with all slitmouths, cabinet specimens are often destitute of periostracum, and the relevance of the species epithet is often not properly appreciated by armchair collectors. The evolution of the lenticular shell is often said to allow landsnails easier access to narrow crevices, e.g., in rocks. However, *Archerelix* species prefer a life on/under deadfall wood (Hubricht, 1985; Lee, personal observation).

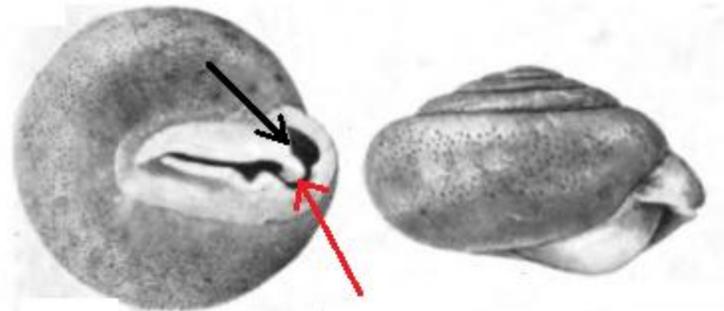


The type species of *Cohutta* Archer, 1946 is *Stenotrema cohuttense*. Both the subgeneric and specific epithets refer to a rather small mountain range along the middle third of the GA-TN/NC border. A prominent feature of its shell [L] is the wide, shallow, arcuate basal notch and the absence of tooth-like projections at its margins. Although the principal character in the diagnosis is the penial anatomy, the shells resemble those of *S.*

brevipila (G. Clapp, 1907) closely. Both species have restricted, nearly contiguous ranges in AL and/or GA [R] in areas that support very few other slitmouths (Hubricht, 1985: 155; *passim*). Could *S. brevipila* belong in *Cohutta*?



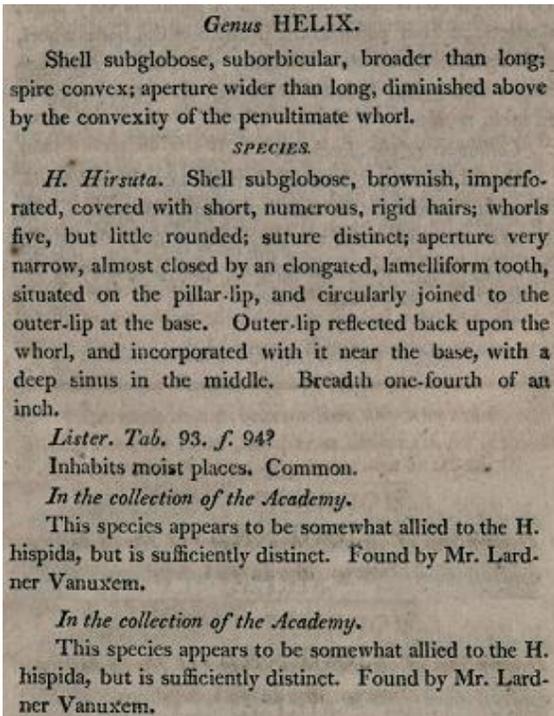
Stenotrema exodon [R; after Pilsbry, 1940: 667; pl. 414 a, b] is the type of *Pilsbrelia* Emberton, 1995. Members of the subgenus have a deeply inflexed lateral terminus of the parietal tooth [red arrow] and a prominent butress [black arrow]. This species and two other *Pilsbrelia* have considerably overlapping ranges, and one of us (BW) has found them together in fair abundance in drift along the Paint Rock River in NE Alabama.



The first slitmouth formally described is *S. hirsutum* (Say, 1817b: 17, 18) [shell R; text



L]. One might compare Say's description with that of the genus *Stenotrema* by Rafinesque on p. 4. This species was designated the type of *Toxotrema* Rafinesque, 1819 over a century after both it and its subgenus were proposed; see Pilsbry quotation in last paragraph on page 4. These slitmouths have a relatively open aperture, a slimmer, lower parietal tooth, and a prominent fulcrum [red arrow]. The outer lip denticle in *S. hirsutum* is blade-like [black arrow]. Originally described as a subspecies of *S. hirsutum*, *S. barbatum* (G. Clapp, 1904) [below], can be a challenge to identify, but with well-preserved material the two can be easily distinguished by the sparser but longer (up to 1 mm) periostracal hairs, the shallow interdenticular sinus [red arrow], and the slightly longer fulcrum. Note these two *Toxotrema* spp. are more pill-shaped than the majority of the slitmouths.



Allan Archer (1939) introduced *Euchemotrema* as a "section" (an infrageneric taxon at a station a little subordinate to subgenus) in *Stenotrema* based on anatomical characters and the absence of a "subanal" (outer lip) denticle. No type species was assigned, but Pilsbry (1940: 675) restricted it to *Helix monodon* Rackett, 1821, one of two species mentioned by Archer. Pilsbry (Ibid: 676) noted that Férussac introduced the same binomen for a different species at some point the same year, but he regarded *H. m.* Férussac as a *nomen oblitum* (forgotten name) and dismissed the homonymy, certainly a defensible act. Well, bibliographic research now indicates that *Helix monodon* Férussac dates to 1819 (see <<http://www.jaxshells.org/817j.htm>> for collation), clearly rendering the Rackett name permanently invalid. The next available name for this species is *H. leai* A. Binney, 1840, now *Euchemotrema leai*. Images of this species appear at the top of the next page.



This 8 mm specimen of *E. leai* was collected in the Bernheim Forest and Arboretum, Nelson Co., KY. One can see the long straight parietal tooth, and narrow aperture, and, but the buttress, labral denticle and basal notch are absent, and a rimate umbilicus is present. At the point of the interdenticular sinus seen in *Stenotrema*, there is a sinuous inflection of the outer aspect of the basal lip, which feature must have a common origin in these two genera. Of this group, Pilsbry (1940: 675) wrote: "The stenotremes of this group form an intricate maze of variable, closely related races, which are typically distinct enough, but intergrade through many perplexing forms." The taxonomy within this genus is still not fully resolved, but certain lineages appear distinct.

We cannot conclude this slitmouth discourse without reference to portions of a report¹ which first appeared in the July, 1976 issue of the *Shell-O-Gram*:

"The name Charles W. Johnson is a familiar one to many collectors and students of malacology, particularly those who live and collect in our neck of the woods. Johnson lived in St. Augustine as a lad and began his studies of mollusks there. Later he moved to Philadelphia, where he curated several collections and made contributions in malacology, paleontology, and the study of dipterous flies.

"He was an excellent field man, and in 1900 the Philadelphia Academy sent him to his former home state in search of Tertiary fossil material. Johnson collected in the limestone-rich area between the Appalachicola and Chipola Rivers in the Florida Panhandle. He was an inveterate collector, and when the fossil hunting was exhausted, he tried his hand at land snails on several occasions. Near the end of the trip he missed a train connection and was forced to stay over night at Marianna, Florida. Earlier he had noticed a particularly appealing spot on the bank of the Chipola River. He arose quite early on the day of his departure and walked the mile to the river and made a collection. In his report in *The Nautilus* he described the station as '... an ideal collecting ground; limestone, moisture, varied vegetation, a cave and an old quarry with moss-covered rocks in all directions ... just what the snails want, and visions of a new species or variety formed an active stimulant; for I felt sure that Hemphill, Ferriss, and Sargent had not been there.' Johnson had good luck, collecting some fifteen species of land snails With his usual careful attention, he noted that one species, *Polygyra stenotrema*, was a new Florida record. He was nonetheless crestfallen as he went on to say 'But alas, while the snails were thick, a *nov. sp.* was not to be found by 'dis chile.'

"Exactly forty years later, Johnson's former colleague and friend, Henry Pilsbry, described a new species of polygyrid snail from this same interesting part of our state. In reviewing the Philadelphia Academy collection, Pilsbry noted that Johnson's specimen of "*P. stenotrema*" was in fact not that species but the brand new species, *Stenotrema florida*, the only member of the genus presently known to occur in Florida. In fact, *S. florida* is one of a very small group of non-tropical snails which seems to have its metropolis in our state."

¹ Based on Johnson (1900) and reproduced in its entirety at <<http://www.jaxshells.org/onethat.htm>>

“Thus 'dis chile,' although some eight years posthumously, achieved the feat of which he stood in great awe, discovering a new species of land snail.”

[R] is an 13 mm specimen of *S. (S.) florida* (Pilsbry, 1940: 655) collected in Marianna, FL on a 1990 JSC field trip



We hope the readers don't let the exquisite irony of Johnson's chronicle go to waste. Study up on your basal notches, interdenticu-

lar sinuses, periostracal detail, fulcrums, buttresses, and parietal tooth terminations! If you neglect them, a slitmouth may just come back and bite you!

Archer, A. F., 1939. A new section and a new subspecies of *Stenotrema*. *The Nautilus* 52(3): 98-99. January. <https://biodiversitylibrary.org/page/8284612>

Binney, W.G. and G.W. Tryon, Jr. [eds.], 1864. *The complete writings of Constantine Smaltz [sic] Rafinesque on Recent and fossil conchology*. 1-96 +7 + pls. LXX-LXXII. Bailliere Bros., New York. <https://biodiversitylibrary.org/page/8422707>

Johnson, C.W., 1900. Some notes on the land shells of western Florida *The Nautilus* 13(12): 141-143. April. <https://biodiversitylibrary.org/page/27056940>

Lister, M., S. Lister, and A. Lister, 1685. *Historia sive synopsis methodicae conchyliorum quorum omnium picturae vivum delineatae tur. Liber primus, qui est de cochleis terrestribus*. Published privately, London. [1-6] + pls. [1--42; incl. figs. 1-104] + tab. [1-4 http://gdz.sub.uni-goettingen.de/dms/load/img/?PPN=PPN470143703&DMDID=DMDLOG_0001&LOGID=LOG_0001&PHYSID=PHYS_0001]. [Three volumes [libri; = books] followed: 1686, 1687-8, 1688-1697 to complete the masterwork; see Wilkins, 1957]

Pilsbry, H.A., 1940. *Land Mollusca of North America (north of Mexico) vol. 1 part 2*. Academy of Natural Sciences, Philadelphia. vi + 575-994 + ix. 1 Aug. <http://babel.hathitrust.org/cgi/pt?id=uc1.31822000620245;view=1up;seq=7>

Rafinesque, C.S., 1819. Prodrome de 70 nouveaux genres d'animaux découverts dans l'intérieur des États-Unis d'Amérique, durant l'année 1818. *Journal de Physique, de Chimie et d'Histoire Naturelle* 88: 417-429. June.

Say, T., 1817a. "Conchology" in Nicholson, W., [First] *American edition of the British encyclopedia and dictionary of arts and sciences comprising an accurate and popular view of the present improved state of human knowledge. Volume 2* [of 6]. Mitchell, Ames and White, Philadelphia. [1-15] + plates 1-4.

Say, T., 1817b. Description of seven species of American fresh water and land shells, not noticed in the systems (concluded). *Journal of the Academy of Natural Sciences* 1: 17-18. After May. <https://biodiversitylibrary.org/page/24680214>

Schileyko, A.A., 2006. Treatise on Recent terrestrial pulmonate molluscs 13. Helicidae, Pleurodontidae, Polygyridae, Ammonitellidae, Oreohelicidae, Thysanophoridae. *Ruthenica supplement 2*: (ii) + 1765-1906 incl. numerous text figs. May.



Jacksonville Shell Club, Inc.
4132 Ortega Forest Drive
Jacksonville, FL 32210-5813