

SHELL-O-GRAM

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The **July 27, (Wednesday) 2011 meeting** of the Jacksonville Shell Club (JSC) will be at the usual time and place (7:00 PM; Southeast Branch Public Library). The Shells-of-the-month will be presented by Harry G. Lee and will be composed of those marine mollusks added to our NE FL inventory since the May, 2009 publication of *Marine Shells of northeast Florida*. The main program will be delivered by Charlotte Thorpe, who will tell us of her latest exploits diving off Duval Co. shores. She promises to lavishly illustrate her talk with new and original photos.

The JSC will meet on **August 24 (Wednesday)** at the usual time and place. Mary Reynolds will present the Shell-of -the-month, *Echinolittorina placida* Reed, 2009, the Calmwater Periwinkle. There is an interesting backstory on this little snail. Harry Lee will present a talk on the marine mollusks of Kice Island, which is near Marco in SW FL as the main program.

"Handedness" in Pelecypoda

by Harry G. Lee

Unlike the gastropods, bivalve mollusks maintain a shell plan which can be very close to bilaterally symmetric. Since they have a front, back, top and bottom, thus a right and a left side, one can apply one of the latter two terms to each of their shells. The two valves, while often appearing to be mirror images of one another, differ in a varying number of respects, most consistently in the arrangement and number of hinge teeth, but in some cases in other respects: the morphology of the beaks, ligament, and lunule, as well as the valve convexity, sculpture, and color pattern to name a few. Within taxonomic groups, this asymmetry is quite stereotypical, yet here follows a small assortment of observations on reversal of, even indifference to the phenomenon.

(A) The case of Unionidae [Pelecypoda: Unionoidea: Unionoidea]:

Henry van der Schalie (1936) reported finding 13 instances of reversal of lateral hinge teeth among nine species of North American naiades. None of these instances were among those mentioned by Isaac Lea (1860; six specimens of five species). Marian Havlik (personal communication, 30 March, 2007) reported one more naiad specimen thus afflicted (species not given). That's 20 naiads with reversal of hinge-tooth symmetry. It is noteworthy that the hinge teeth of *Alasmidonta heterodon* (I. Lea, 1830) are **normally reversed** from that of all other confamilial species (2 right laterals and 1 left lateral vs. the opposite placement).

Lea, I., 1860. Remarks on abnormal shells. *Proc. Acad. Nat. Sci. Phila.* 12: 51-53.

Schalie, H. van der, 1936. Transposed hinge teeth of North American naiades. *The Nautilus* 49(3): 79-84.

(B) The case of *Corculum cardissa* (Linnaeus, 1758) [Pelecypoda: Veneroidea: Cardioidea]:

I recently had the opportunity to contemplate *C. cardissa*, the well-known Heart Cockle. Despite having an unusual conchological orientation - and a plasticity in valve convexities, this bivalve does display a consistent upward-facing aspect in order to expose the translucent "windows," more numerous and concentrated that side, to solar radiation. This energy source is necessary to drive the metabolic machinery of its mutualist endosymbiont zooxanthellae deployed among various tissues. Because there is a conspicuous "lunule," normally a structure anterior to a clam's umbones, on this upward-facing

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This club meets each month at the Southeast Branch of the Jacksonville Public Library, 10599 Deerwood Park Blvd., Jacksonville, Florida. Please address any correspondence to the club's address above.

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President's Message

Hello everyone,

We had a good turnout at the Hanna Park field trip. Though the shelling was not great, we were able to use a nice grouping of picnic tables that were pretty well filled with food and hungry people. We were forced to leave early by rain and lightning, but we need rain. Thank you to Brian Marshall for coordinating this outing.

We had a good sharing time about the Hanna Park trip at the May meeting. Everyone participated. (See the field trip report on Pages 4-5.)

What a great start to our more relaxed summer activities and programs. Next is the swim party at Claire's. I look forward to the fun. Let's keep it up.

Barbara Cathey

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Below is the Jacksonville Shell Club's display at the Pablo Creek Regional Library on Beach Blvd., which will be in place from June 1, 2011 thru August 31, 2011.

On display is Harry G. Lee's book "Marine Shells of Northeast Florida". In addition you will find information on the Florida State Shell - the Horse Conch, interesting facts about mollusks, where our club meets, our educational programs, and Club activities.

Thanks to Billie Brown for installing this display so the public can learn more about our club.



***Murexsul zylmanae* (Petuch, 1993)**
Maximum Reported Size: 46 mm
Distribution: Bahamas: Great Bahama Bank, Cay Sal.
Type Locality: Great Isaacs Cay, Bahamas
Range: 26°N to 24°N; 80°W to 79°W

Photo by Charlotte Thorpe

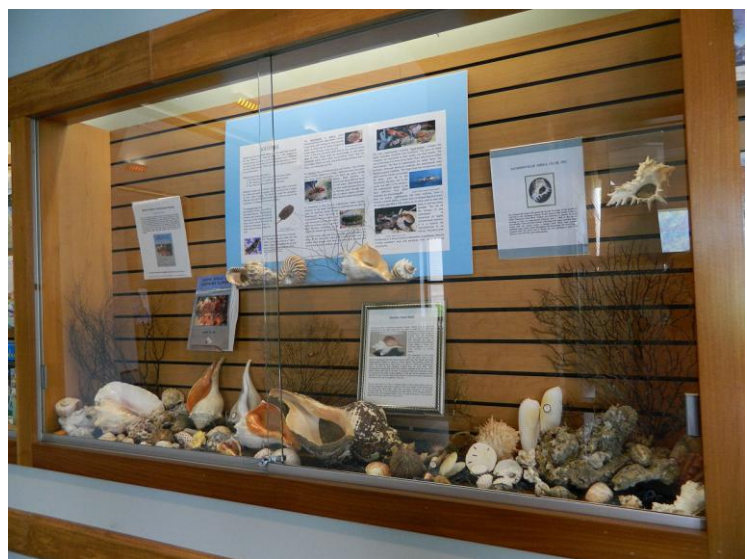


Photo by Billie Brown

side, I initially thought this was the cockle's anterior. However, descriptions of the internal organs indicate that this is not true; this is the animal's posterior (e.g., siphons are on this side). I suspect that this apparent violation of conventional asymmetry is due to the fact that the "lunule," thus situated in all of several dozen specimens examined, is in fact not homologous to that structure in other bivalves.

Anyway, in July, 2010, Phil Dietz, an astute shell dealer from Cape May, NJ, USA, sent me a specimen which differed from all I had ever seen previously. It involved the positioning of radial keel so characteristic of this species. Near the umbones, the area of the "heart's cleft," the keel on the right valve (now identifiable as we know anterior from posterior) characteristically passes in front of that of the left valve, but in this specimen the opposite was the case! Other asymmetries such as the morphological relationships of hinge teeth and the location of the "lunule" were not altered in this specimen.

Phil indicated that such a reversal was rare indeed - on the order of less than one in a thousand. Now that is a testimonial to Phil Dietz's powers of conchological observation and the powers of ontogenetic constraint.

Here is my take on *Corculum* asymmetry:

- (1) There are consistent and inconsistent asymmetries.
- (2) Certain conchological landmarks allow one to determine dorsal, ventral, L, R, anterior, and posterior despite the antero-posterior compression of the valves that characterizes the genus.
- (3) Unlike most cardiids, in life the shells consistently deploy with a surface-facing and a bottom-facing aspect - like scallops. It is important not to confuse this spatial orientation with the classical dorsal (hinge) and ventral (opposite of dorsal) paradigm.
- (4) The surface-facing aspect has (more) translucent windows (to allow solar radiation to nourish the symbionts)
- (5) The surface-facing side is the one with the lunules, therefore it is comprised of the anterior "half" of the left and of the right valve. The shell is lying (vestigial) foot up/(vestigial) siphons down.
- (6) The radial sculpture is stronger on the posterior (bottom-facing, generally windowless) side of each valve.
- (7) The posterior margin of each valve is more abruptly arched than that of the anterior margin - especially on its dorsal aspect.
- (8) Either the posterior (bottom-facing) or anterior (surface-facing) ends may be the more convex.
- (9) There are two erect cardinals in each valve. The R anterior cardinal fits into a socket dorsal and anterior to the L anterior cardinal; the R posterior cardinal fits into a socket ventral and anterior to the L posterior cardinal.
- (10) The R laterals insert into sockets dorsal to the L laterals
- (11) There is a dorso-ventral keel which may curl anteriorly or posteriorly.
- (12) This keel is present from the earliest stage of growth. At the umbones the keel of the right valve is anterior to that of the left EXCEPT in his "odd ball." None of my 50 odd specimens belonging to all the so-called Recent "species" exhibits this anomaly.

(C) The case of Chamidae [Pelecypoda: Veneroidea: Chamoidea]

This is one of a heterogeneous assortment of bivalves (Ostreids, Gryphaeids, Anomiids, the Pectinid *Hinnites*, Spondylids, etc.) which spend their adult life with one valve cemented to hard substrate. Typically the left valve of the type genus, *Chama* Linnaeus, 1758, is attached. However, the genus *Pseudochama* was erected by Odhner (1917) to accommodate a widespread group of species typically attaching to the substrate by their right valve. Campbell *et al.* (2004) found reason to fault that dichotomy on taxonomic grounds (polyphyly), but the consistency of this reversal at the species level is indisputable.... except for the enantiomorphic *C. inezae* as demonstrated by Work (1970) and confirmed by me.

Campbell, M. R., G. Steiner, L. D. Campbell, and H. Dreyer, 2004. Recent Chamidae (Bivalvia) of the western Atlantic Ocean. *Malacologia* 46(2): 381-415.

Work, R. C., 1970. Comments on *Pseudochama inezae* F. M. Bayer. *Seafari* [Palm Beach Co. Shell Club] 12(1): 1-2. Jan.

(D) The case of *Angulus fabulus* (Gmelin, 1791) [Pelecypoda: Veneroidea: Tellinoidea]:

There can be reversal of the right valve-only striping of *A. fabulus*. Martin C. Cadée of the Netherlands (personal communication, 27 Feb., 2011) informed me [his translated abstracts]:

Bruyne, R.H. de, 1985. Een linksgestreepte plaatschelp. *Het Zeepaard* 45(4): 144.

[Among 750 hinged pairs of *A. fabulus* (Gmelin, 1791) from the island Terschelling, Netherlands, he found one left-striped specimen. This specimen showed no reversal of hinge-tooth asymmetry. In other material also from Terschelling (where this species is common) he found 4 specimens with some stripes on the left valve and a normally-striped right valve.]

Visser, G.J.M., 1969. Het zout van de waddeneilanden 3. De in de winter 1968/1969 op Terschelling aangetroffen mariene mollusken. *Het Zeepaard* 29(5): 56.

[Of 400 specimens of *Angulus fabulus* one left-striped specimen was found and a specimen with stripes on both valves.]

(E) The case of Anna Children's Lucine, *Miltha childreni* (Gray, 1824) <<http://www.jaxshells.org/childa.htm>> [Pelecypoda: Veneroidea: Lucinidae]: Here Gray (1825: 136) remarked on the fact that the two type specimens were of opposite asymmetry. That is, the left valve was the more deeply cupped in one, and the right in the other. I have two specimens: in both the right valve is the more deeply-cupped. We'll explore this behemoth Brazilian clam [Fig. 1]: its nomenclature, taxonomy, and biology in the next issue of the *Shell-O-Gram*. Gray, J.E., 1825. A list and description of some species of shells not taken notice of by Lamarck. *Annals of Philosophy New (2nd) Series* 9: 133-140. February. <http://www.biodiversitylibrary.org/item/53938#page/150/mode/1up>



[Fig. 1]

Hanna Park Shell Trip

by Mary Reynolds

Saturday May 14 was a day I looked forward to for a long time. It was our Jacksonville Shell Club outing to Hanna Park.

I am quite a ways inland and don't get to the beach too much especially with high gas prices. They had predicted rain, and we were all praying that it would at least hold off until later that day. Since Hanna Park was a long way out, Claire Newsome invited me to meet at her house and ride out with her.

Along with my mother, Mary, I went out that Saturday under a bright sky to Claire's house. We were going to meet Carmella (who had the directions to where the club was gathering) at her house and then go on with her. However, Carmella had called earlier and could not make it because her husband was ill. We had a pleasant drive through some of Jacksonville's older neighborhoods that had not been spoiled by over-building. A setting where you could see neighbors walking their dogs, sitting on porches, tending their gardens and running to the hardware store.

On heading through Mayport I saw where I had my sea school experience and pointed the landmarks out to Mom and Claire. It looked very much the same 6 years later.

Then on to Hanna Park. We asked at the gate if they knew where the club was meeting. When none of the rangers knew, we started looking for the place. We looked at all the pavilions and other places and finally came upon the Dolphin, where we did not see anybody gathering. I recalled something briefly on the online map that we were to go to some dead end, but I have no printer so I couldn't bring it along. We went to the lifeguard station and called Carmella and had her call Brian Marshall since he was heading up the trip. There we waited since Claire had to leave a message for Carmella, and it took a goodly part of an half hour. Eventually Brian came, and we went to where we had looked once before. You could not see it from the road. After parking we had a goodly walk past the building and some showers/potties to an uncovered area with picnic tables and a nice view of the water.

Most of the club members were already on the beach, and we quickly joined them. I hoped we were not too late, but, as it turned out, we had a good amount of time to head out there. I made sure we had plenty of sunscreen.

I was glad to encounter the pleasant aroma of the water and see the muted pastels of the beach and hear the surf. The tide was out, and there was a wide expanse of sand. I was surprised how flat it was so far out, including a few sand bars. When somebody has collected shells for as long as I have, you are less inclined to pick up the common varieties so I looked for bivalves with the snail-drilled hole in the umbone for a project I am working on. The rain held off, and the clouds kept the sun from being too hot. I spoke to several members about their experiences and finds but mostly we were all enjoying a good day at the beach.

After a while it was time to head back to the tables to a goodly chow down on dishes people brought. I had fried chicken, beans, and the "hoarder salad" I brought. This was a macaroni and pea salad with my own additions that I saw somebody make on a hoarder show recently. I made mine with shell macaroni.

As the club gathered around the table, Harry told of some periwinkles that expanded their range from the Yucatan due to the prevalence of man-made structures. The littorinas live on hard surfaces as opposed to *Littoraria irrorata*, which uses plants. He said they were on the posts that divided off the Naval Base so I went down and got a few. Jeff Ward said that the lay of the land was all change from several blows we have had over the years, Interesting to see how the habitat changes. While

we were all finishing up our lunch and everybody looked as if they were well fed, the wind suddenly kicked up and started blowing sand. Soon came the rain that was predicted, and everybody said their quick goodbyes as we scrambled to our cars. The rain hit as we were passing back through Mayport.

Mom and I waited it out at Claire's house before it petered out enough for us to go home.

Among others, the following species were observed and/or collected (preceded by the species no. in Lee [2009]).

8. *Brachidontes exustus* (Linnaeus, 1758) Scorched Mussel
11. *Geukensia demissa* (Dillwyn, 1817) Ribbed-mussel
14. *Ischadium recurvum* (Rafinesque, 1820) Hooked Mussel
20. *Modiolus squamosus* Beuperthuy, 1967 Southern Horsemussel
28. *Anadara transversa* (Say, 1822) Transverse Ark
33. *Lunarca ovalis* (Bruguière, 1789) Blood Ark
34. *Scapharca brasiliiana* (Lamarck, 1819) Incongruous Ark
36. *Noetia ponderosa* (Say, 1822) Ponderous Ark
43. *Atrina rigida* (John Lightfoot, 1786) Stiff Penshell
44. *Atrina seminuda* (Lamarck, 1819) Half-naked Penshell
45. *Atrina serrata* (G. B. Sowerby I, 1825) Sawtooth Penshell
50. *Argopecten gibbus* (Linnaeus, 1758) Atlantic Calico Scallop
61. *Anomia simplex* d'Orbigny, 1853 Common Jingle
64. *Crassostrea virginica* (Gmelin, 1791) Eastern Oyster
75. *Divalinga quadrisulcata* (d'Orbigny, 1846) Cross-hatched Lucine
120. *Dinocardium robustum robustum* (John Lightfoot, 1786) Atlantic Giant Cockle
129. *Trachycardium muricatum* (Linnaeus, 1758) Yellow Pricklycockle
130. *Anatina anatina* (Spengler, 1802) Smooth Duckclam
132. *Mulinia lateralis* (Say, 1822) Dwarf Surfclam
133. *Raeta plicatella* (Lamarck, 1818) Channeled Duckclam
134. *Rangia cuneata* (G. B. Sowerby I, 1831) Atlantic Rangia
135. *Spisula raveneli* (Conrad, 1831) Southern Surfclam
137. *Ensis megistus* Pilsbry and McGinty, 1943 Minor Jackknife
142. *Angulus versicolor* (De Kay, 1843) Many-colored Tellin
144. *Eurytellina alternata* (Say, 1822) Alternate Tellin
158. *Donax variabilis* Say, 1822 Variable Coquina
160. *Abra aequalis* (Say, 1822) Atlantic Abra
167. *Semele proficua* (Pulteney, 1799) Atlantic Semele
173. *Tagelus plebeius* (John Lightfoot, 1786) Stout Tagelus
180. *Dosinia discus* (Reeve, 1850) Disc Dosinia
188. *Mercenaria campechiensis* (Gmelin, 1791) Southern Quahog
189. *Mercenaria mercenaria* (Linnaeus, 1758) Northern Quahog
194. *Puberella intapurpurea* (Conrad, 1849) Lady-in-waiting Venus
198. *Petricolaria pholadiformis* (Lamarck, 1818) False Angelwing
210. *Barnea truncata* (Say, 1822) Atlantic Mud-piddock
211. *Cyrtopleura costata* (Linnaeus, 1758) Angelwing
217. *Pholas campechiensis* Gmelin, 1791 Campeche Angelwing
243. *Diodora cayenensis* (Lamarck, 1822) Cayenne Keyhole Limpet
276. *Cerithium atratum* (Born, 1778) Dark Cerith
286. *Echinolittorina placida* Reid, 2009 Calm-water Periwinkle
289. *Littoraria irrorata* (Say, 1822) Marsh Periwinkle
- 359a. *Crepidula depressa* Say, 1822 Depressed Slippersnail
360. *Crepidula fornicata* (Linnaeus, 1758) Common Atlantic Slippersnail
380. *Neverita duplicata* (Say, 1822) Shark Eye
386. *Sinum perspectivum* (Say, 1831) White Baby Ear
387. *Tectonatica pusilla* (Say, 1822) Miniature Moonsnail
451. *Epitonium angulatum* (Say, 1831) Angulate Wentletrap
502. *Eupleura caudata* (Say, 1822) Thick-lip Drill
506. *Stramonita haemastoma floridana* Conrad, 1837) Florida Rocksnail
508. *Urosalpinx cinerea* (Say, 1822) Atlantic Oyster Drill
522. *Busycon carica* (Gmelin, 1791) Knobbed Whelk
523. *Busycon sinistrum* Hollister, 1958 Lightning Whelk
527. *Ilyanassa obsoleta* (Say, 1822) Eastern Mudsnail
528. *Ilyanassa trivittata* (Say, 1822) Threeline Mudsnail
529. *Nassarius acutus* (Say, 1822) Sharp Nassa
535. *Fasciolaria hunteria* (G. Perry, 1811) Eastern Banded Tulip
546. *Costoanachis avara* (Say, 1822) Greedy Dovesnail
560. *Oliva sayana* Ravenel, 1834 Lettered Olive

565. *Olivella* sp. aff. *prefloralia* Olsson and Harbison, 1953 cf. Rice Olive
577. *Prunum apicinum* (Menke, 1828) Common Atlantic Marginella
601. *Hastula cinerea salleana* (Deshayes, 1859) Sallé's Auger
603. *Terebra dislocata* (Say, 1822) Eastern Auger
633. *Cryoturris dorvilliae* (Reeve, 1845) Dorvill's Mangelia
784. *Melampus bidentatus* Say, 1822 Eastern Melampus



Club Members present at the May 14th Hanna Field Trip: Barbara Cathey, Rick and Roz Edwards and their son William, Harry G. Lee, Brian Marshall and his wife Nickie, son Anton, and daughter Heaven, Claire Newsome, Tab Parker his wife Yvonne, and daughter Tabitha, Mary Reynolds and her Mom, Laura Rowley and Jeff Ward.

Photos by Laura Rowley