



# SHELL•O•GRAM

Official Publication of the  
**JACKSONVILLE SHELL CLUB, INC.**

March-April, 2014

Volume 55, no. 2

The club will convene at the usual time, date, and place (7 PM, fourth Thursday, SE Branch Jax Public Library) on March 27. Charlotte Thorpe will present the Shell-of-the-month, *Charonia variegata* (Lamarck, 1816), the Triton Trumpet. Among other aspects its natural history to be revealed by Char, this regal natural history object can actually be found in local waters. Harry Lee will present the scientific program, which will deal with a family of micromollusks, the Tornidae. Unlike his earlier discussions of this kind of shells, these are all fossil species - 3,000,000 year-old ones.

The April meeting will be held on the 24th (details above). The Shell-of-the-month will be presented by Brian Marshall: *Euglandina rosea* (Férussac, 1821), the Rosy Wolfsnail. Although most of us have seen this critter in our backyards, aspects of its lifestyle are very special will probably prove to be surprising to many of us. For the main program Rick Edwards and Harry Lee will give us a report on their volunteer work at the Florida Museum of Natural History's Invertebrate Paleontology Department.

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## Crystal 'Eyes' Let Simple Mollusks Called Chitons See Predators



Using eyes made of a calcium carbonate crystal, a simple mollusk may have evolved enough vision to spot potential predators, scientists say. Daniel Speiser, a postdoctoral fellow in the Department of Ecology Evolution and Marine Biology at UC Santa Barbara, studied mollusks that he collected in the Florida Keys. His research of their vision, performed during his graduate studies at Duke University, resulted in a study published by *Current Biology*. *continued on Page 2*

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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. The *Shell-O-Gram* is issued bimonthly and mailed to all regular members. Annual membership dues are \$15.00 individual and \$20.00 family (domestic) and \$25.00 (foreign). Lifetime membership is available. Please send checks for dues to the above address and made out to the Jacksonville Shell Club. We encourage members to submit articles for this publication. Closing date for article submission is two weeks prior to the first of each month of publication. Articles may be republished provided full credit is given the author and this newsletter and one copy of the complete publication in which the article appears.

**PRESIDENT'S MESSAGE:**

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As of the moment I write this months message it is a beautiful sunny day in Florida and 80 degrees outside. I stepped out back and checked our small pond to see if our pet banded water snake had come out from hibernation. Sure enough, there he was basking in the sun on a small log floating in the pond. This is my indicator that winter is over and warmer days are upon us. I am so grateful the extreme cold is a thing of the past After all, I became a resident of Florida, probably much like most everyone else, to avoid the cold and enjoy warm sunny days!

With the new year well in gear, the shell club has another shell show approaching. Members met in late February to delegate the various responsibilities associated with the upcoming show. We had a great turn out for this meeting and everyone was more than willing to take on assignments. Additionally, we have strategically planned the dates of the show to not coincide with a family holiday and also assigned Chere Bernard as our Chairman of publicity. With her enthusiasm and leveraging assistance from various members, we will have much emphasis added on publicity this year. Thank you to all that attended and offered their assistance. Arrangements have already been secured for the show to take place at the Morocco Shrine Center. Setup date will be on Thursday, July 10th and the show will take place from Friday, July 11th through Sunday, July 13th. If any members need assistance with advance preparations or any of those planning to attend have any questions, please contact myself or Charlotte Thorpe. I look forward to seeing everyone this summer!

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**Chitons See Predators.....**

The three-inch-long mollusks, called chitons, have hundreds of eye-like structures with lenses made of aragonite, a type of rock. It's the first time scientists have found an animal that makes eye lenses from aragonite and not the rock's close cousin, calcite. Scientists discovered the chitin's unique eyes decades ago. But it wasn't clear whether chitons used these eyes to see objects overhead, or simply to sense changes in light. "Turns out they can see objects, though probably not well," said Speiser..

"It's surprising how these creatures make their eyes from rocks," said Sönke Johnsen, associate professor of biology at Duke. Most animals make their eyes from cells with proteins and chitin. "But it seems like an easy way to evolve eyes, by using what you've already got," he said. Chitons also make their shells from aragonite.

Johnsen and Speiser studied West Indian fuzzy chitons, or *Acanthopleura granulata*, which have flat shells made of eight separate plates. Hundreds of tiny lenses on the surface of the plates cover clusters of light-sensitive cells beneath.

Speiser and his colleagues also tested whether the chitons' eyes work in both air and water, since some species spend time in both. The experiments made a strong case for the chiton lens being able to focus light differently, depending on whether the animal is above or below water, Land said.

He added that chiton eyes are still an anomaly in the evolution of vision. The retinas are structurally similar to snail and slug retinas. But snail and slug retinas respond to the appearance of light, while chiton retinas may only respond to the removal of light, a difference that might be worth another look, Land said.

## This year's JSC Science Fair Winners

by Harry G. Lee and Rick Edwards

On Monday, February 10, the authors attended the Northeast Florida Regional Science and Engineering Fair, which was held at the Morocco Temple on St. John Bluff Rd., a familiar venue since our shell shoe has been held there for the last dozen years. Our job was to select two projects, one each from the junior (grades 6 through 8) and senior (9 through 12) divisions, that best treated a problem involving mollusks and/or marine science. Two hours later, having at least glimpsed at every one of the 400+ exhibits, we had consensus winners.

Our Junior Division winner was Chloe Newell, an 8<sup>th</sup> grader at San Jose Catholic. She demonstrated that metallic copper stopped the migration of Spike-top Applesnails, *Pomacea diffusa* Blume, 1957 [our website treats this species; see

<<http://www.jaxshells.org/bridge.htm>>] toward

lettuce, a food for which they have a distinct affinity, normally travelling over an inch a minute in its direction over substantial distances. The closer the copper was placed to the target the further the snails, all placed in the same starting position, would travel.

Since certain copper salts are potent molluscicides, Chloe's study seemed of particularly interest. In

discussing her project she mentioned the importance of mollusks to human health as well as agriculture and veterinary medicine.



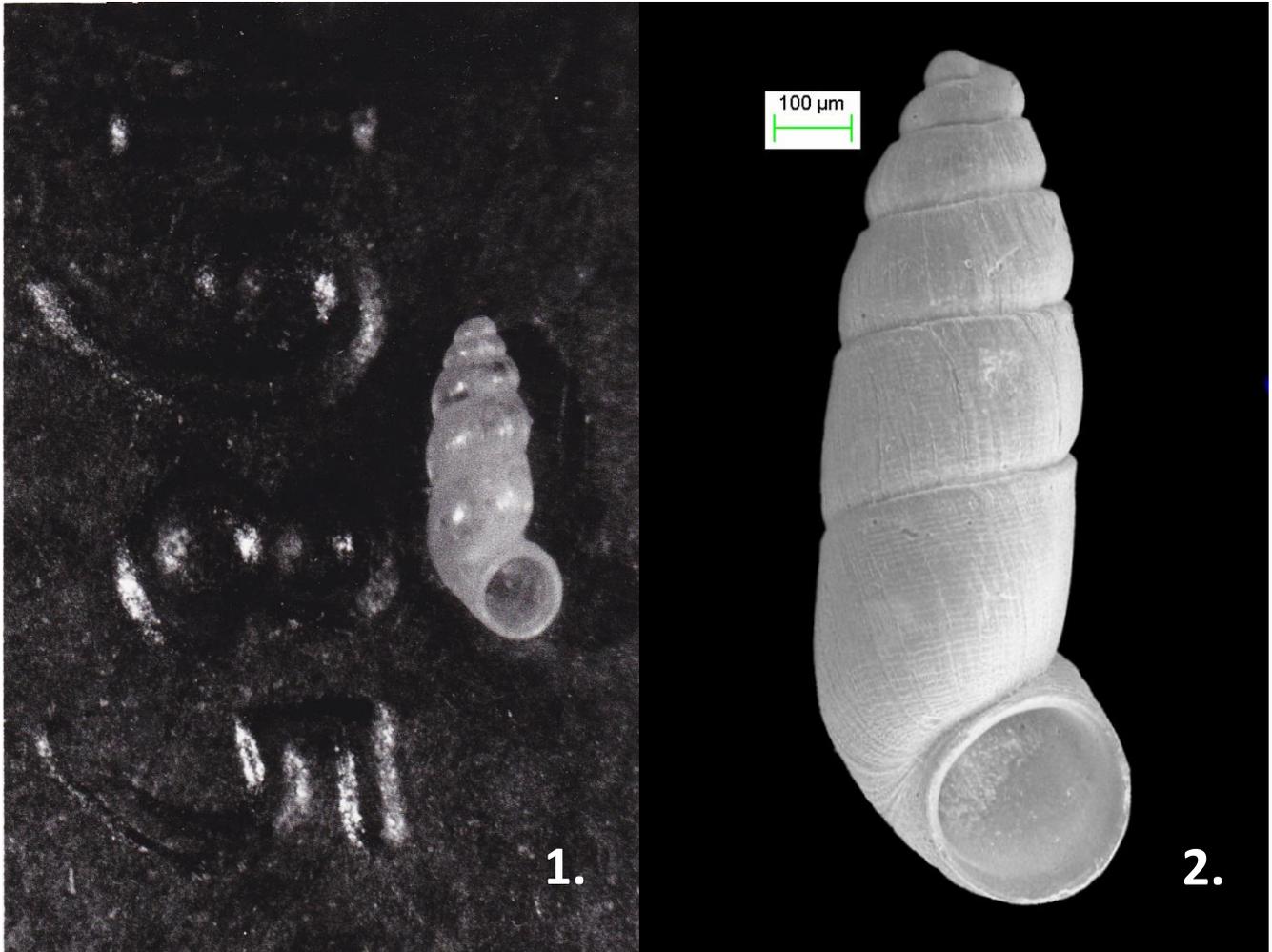
John Norcross, a ninth-grader at the Bolles School, won the Senior Division. His project was entitled "The effects of the lunar cycle on the salinity of the St. Johns River." John systematically measured the both the sodium content and depth of the water in an estuarine station (his family's dock) at critical points during predicted tidal cycles for a month. He showed an impressive correlation between depth (height of the tide) and salinity. However, there were certain exceptions to the otherwise consistent relationship. By reviewing his data and reconciling them with recorded precipitation levels, he found that these aberrant findings were due to rainwater diluting the saltier water of the incoming tide. We discussed the

importance of rainfall/salinity in the distribution of certain estuarine mollusks like *Mytilopsis leucophaeta*, (Conrad, 1831), the Dark Falsmussel, which extended its range upstream to Barbara Cathey's dock during a drought a few years ago.



## Shells of the moment:

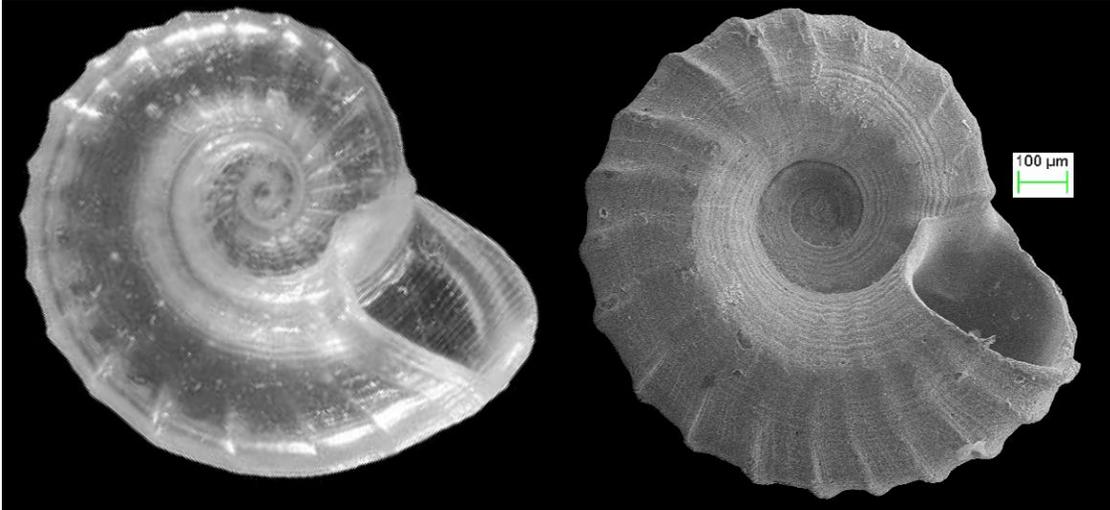
*Pelycidion megalomastoma* (Olsson and McGinty, 1958) Largemouth Tinysnail and ancestor  
by Harry G. Lee



The shells above both come from Florida, but they originated in places separated not only by about 200 miles, but by three million years. For scale, the specimen in fig. 1 is posed on a Lincoln-head penny. It was trawled up from 100 ft. of water 32 miles off St. Augustine by scallop fishermen the same year as the coin was minted. Fig. 2 depicts a shell culled from the spoil at the SMR Aggregates mining operation Phase 10 in Sarasota Co. Last July COA a few dozen conventioners collected the area for fossil mollusks. Although obviously congeneric, the two shells differ in whorl convexity and are probably distinct species, the fossil taxon having become extinct.

One of the amusing aspects of the living species, which averages about 1/20<sup>th</sup> of an inch in height, is that one of its earlier names, *Nannoterretispira megalomastoma*, has no less than 30 letters, placing it well above the 99<sup>th</sup> percentile for length in the lexicon of formal taxonomic mollusk names.

Acknowledgement: Fig. 2, a scanning electronmicrograph, would not exist were it not for the able assistance of Dr. Anne Heatherington, Dept. Geology, University of Florida, Gainesville.



Another pair of Recent (L) and fossil (R; Pinecrest; 3 MYA) micromollusk congeners, these in the Tornidae: *Pleuromalaxis balesi* (Pilsbry & McGinty, 1945) and *P. speci* (un-named). See p. 5 and March JSC program. Credits: Ross Gundersen and Dr. Ann Heatherington respectively.

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