



TIDELINES

Celebrating our 80th
year!

May 2016

St. Petersburg Shell Club, Inc.

Web site: speteshellclub.org

Shell Club meetings are held on the first Friday of the month, except June, July and August, at the **Seminole Recreation Center, 9100 113th Street North, Seminole**. The doors open at 6:30p.m. and the meetings start at 7:00 p.m. The public is always invited.



A fluffy mammal? A furry tail? Believe it or not, this is a mollusc!

Posted by [Anatomy to You](#) on April 14, 2016

Well, this certainly isn't the image that springs to mind when you think of molluscs – but the more recognizable snails, oysters and octopus only represent three out of the eight living groups. This beautiful creature is a solenogastre, one of the two vermiform (worm-like) molluscan groups. Solenogastres are found in oceans across the world, from depths ranging from about 30 meters down to the abyssal. They have a long, slender body covered in a chitinous cuticle, bearing the thousands of spicules which give the glossy, furry appearance seen here. Beneath the fuzz, solenogastres have a small foot, like a snail's, tucked away in a groove on their ventral ('belly') side. They too produce mucus to help them glide across sandy surfaces, in search of their cnidarian prey. They have no eyes, and arguably, not even a head, giving them an almost tribble-like appearance!

Image courtesy of Elena Gerasimova.

More on page 4



A MESSAGE FROM THE DESK OF YOUR PRESIDENT

Even though shell club season is coming to an end, there are still shell events happening this summer. The Molluscs in Peril forum hosted by the Bailey-Matthews National Shell Museum in May looks to be a wonderful event. In July, the annual Conchologists of America convention will be taking place in Chicago. Come on up and say hello to Sue at the Field Museum.

Molluscan diversity is extreme going beyond the "normal" shelled molluscs we all collect and admire. The fuzzy critter on the cover of this issue is a great example of the variability found in the second largest phylum on Earth. I encourage everyone to learn about the other classes besides gastropods and bivalves. You'll be amazed at the wonderful shapes and colors exhibited by these fascinating animals. Enjoy!

I want to wish everyone a great summer and happy shelling. For those traveling back up north, safe journey.

A fossil collecting trip is planned for January; details will follow once the trip is finalized.

May you always have shells in your pocket and sand between your toes.

John



Club Officers and Committees

President John Jacobs; Vice President Robert Gould; Recording Secretary Sandy Boddy; Treasurer Betty Lipe; Newsletter Editor Cheryl Jacobs; Directors at Large: Peggy Dill, Marilyn Wall, Jane McKinney, Meredith Myers; COA Representative John Jacobs; Refreshments Conrad Forler; Photographer John Jacobs; Field Trips Entire Board; Corresponding Secretary John Jacobs; E-mail contacts John Jacobs; Director of Education Open; Shell Show Betty Lipe; Webmaster Bill Hofer; Annual Picnic Conrad Forler; Raffle/Door Prizes Cheryl Jacobs

Tides are for Mullet Key Channel (Skyway). Other specific locations may be up to 2 hours later or earlier. Listings from saltwatertides.com .

Forecast Minus Tides

May

5 Thu 6:24PM -0.1
6 Fri 7:13PM -0.3
7 Sat 8:02PM -0.4
8 Sun 8:52PM -0.5
9 Mon 9:45PM -0.4
10 Tue 10:40PM -0.3
11 Wed 11:38PM -0.1
20 Fri 6:53PM -0.1
21 Sat 7:26PM -0.1
22 Sun 8:00PM -0.2
23 Mon 8:37PM -0.2
24 Tue 9:18PM -0.2
25 Wed 10:03PM -0.2
26 Thu 10:52PM -0.1
27 Fri 11:45PM -0.1

June

2 Thu 5:30PM -0.1
3 Fri 6:21PM -0.3
4 Sat 7:10PM -0.4
5 Sun 7:57PM -0.5
6 Mon 8:44PM -0.4
7 Tue 9:29PM -0.3
8 Wed 10:15PM -0.2
18 Sat 6:39PM -0.1
19 Sun 7:14PM -0.2
20 Mon 7:50PM -0.2
21 Tue 8:26PM -0.2
22 Wed 9:04PM -0.2
23 Thu 9:44PM -0.2
24 Fri 10:27PM -0.1

July

1 Fri 5:27PM -0.1
2 Sat 6:18PM -0.3
3 Sun 7:05PM -0.3
4 Mon 7:48PM -0.3
5 Tue 8:27PM -0.2
6 Wed 9:05PM -0.1
18 Mon 6:56PM -0.1
19 Tue 7:32PM -0.1
20 Wed 8:07PM -0.1
21 Thu 8:42PM -0.1
31 Sun 6:09PM -0.1

**UPCOMING SHELL SHOWS &
RELATED EVENTS**

Upcoming Shell Shows & Related Events

May 22-24 **MOLLUSKS IN PERIL 2016 FORUM** Bailey-Matthews National Shell Museum on Sanibel Island, Florida see pg 6.

<http://mollusksinperil.org>

Jun 18-19 **GULF COAST SHELL SHOW** Panama City Beach Senior Center, 423 Lyndell Lane, Panama City Beach, FL

Jul 27-31 **CONCHOLOGISTS OF AMERICA ANNUAL CONVENTION** Chicago IL, Crowne Plaza Chicago O'Hare Hotel, 5440 River Road, Rosemont, IL. Registration forms at <http://conchologistsofamerica.org>

Aug 19-21 **JERSEY CAPE SHELL CLUB SHOW** Stone Harbor, NJ The Wetlands Institute www.jerseycapeshellclub.com

Sep 17-18 **NORTH CAROLINA SHELL CLUB SHOW** Cape Fear Museum, Wilmington NC, 814 Market St. www.ncshellclub.com

Oct 22-23 **PHILADELPHIA SHELL SHOW** Academy of Natural Sciences, 19th and Benjamin Franklin Parkway, Philadelphia, PA www.phillyshellclub.org

Courtesy of Donald Dan and others

Upcoming Club Meetings

6:30pm Meet and Greet, 7pm Meeting

May 3 Meeting of Suncoast Conchologists

May 6 Regular Meeting John Jacobs will be speaking on past trips to Williams Farm, we are trying to get a field trip set up for this area and want you to know what it is like.

May 8 Picnic at South Skyway see page 5 for more information.. So mark your calendars.

May is our last meeting of the season and we will start back up in September.

Have a great Summer.

COA 2016

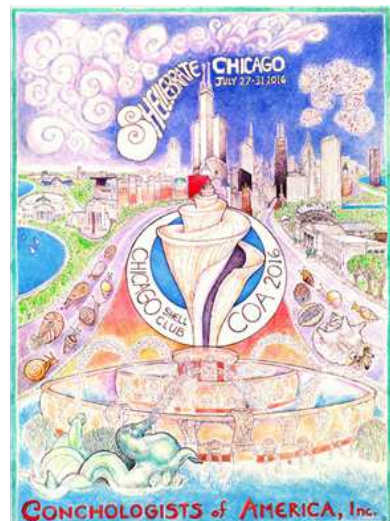
Hotel: Crowne Plaza at the Airport
Convention Rates
\$148—Regular room
\$248—Suites
Rates valid 3 days before and after

Reservations
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<https://goo.gl/nhuhJC>

Reservation code:
Conchologists of America

Deadline July 6, 2016
Regular room rates apply after this date.

Free Parking
Free Wi-Fi



THE SHELL COLLECTOR'S CODE OF ETHICS

I realize that molluscs are part of our precious national wildlife resources, therefore:

I WILL make every effort to protect and preserve them not only for my own future enjoyment, but for the benefit of generations to come.

I WILL always leave every shelling spot as undisturbed as possible.

I WILL take only those specimens needed for my collection and for exchange at the time... Shells in a box cannot reproduce while I am waiting for a place to send them.

I WILL leave behind the damaged and the young specimens so that they may live and multiply.

I WILL **NOT** collect live egg cases unless they are to be used for study, and then, only in small quantities.

I WILL **NEVER** "clean out a colony" of shells.

I WILL practice and promote these conservation rules in every way possible.

Some more information on Solenogasters:

Kingdom: Animalia

Phylum: Mollusca

Class: Aplacophora

Subclass: Solenogastres (The World Register of Marine Species (WoRMS) lists this as a class.)

Continued from page 1

Aplacophora are considered ancestors of modern molluscs. They are shell-less, worm-like, small (5-30cm), marine, benthic molluscs found in all the oceans.

Solenogasters never developed a shell but have a tough skin which is reinforced with calcareous spikes which gives them a furry appearance. Most solenogasters have radula and they eat jellys (cnidaria) and comb jellys (ctenophore). Solenogasters are hermaphrodites and start out as male, and the older ones are female.

Bibliography:

Wikipedia, The Living World of Molluscs, Marine Species Identification Portal

MARINE SCIENCE IRELAND

Antarctic octopuses

Posted on March 18, 2016 by Louise Allcock

I spent St Patrick's day far from Galway: I am still in Antarctica on board the British Antarctic Survey research vessel RRS James Clark Ross. One of my (many!) jobs on board is to identify any octopuses. Octopuses are some of the coolest animals in the Southern Ocean. Apart from being cute, they reveal fascinating information about Antarctica, its history, and its connection with other oceans.

When I first visited Antarctica in the 1990s, there were only a handful of described species of octopuses. I worked alongside scientists who were doing important fish stock assessments for CCAMLR (pronounced 'cam-lah') – the Commission for the Conservation of Antarctic Marine Living Resources. CCAMLR regulates all commercial fishing activities in the Southern Ocean and their research surveys catch not only fish, but also octopuses. It soon became apparent that there was a large number of different octopus species in the Antarctic. This begs the question as to why?



Antarctic octopuses in the genus Pareledone. Clockwise from top left: Pareledone felix, Pareledone serperastrata, Pareledone aequipapillae, Pareledone aurata, Pareledone cornuta, Pareledone charcoti, Pareledone albimaculata, Pareledone panchroma. Photos by Mike Vecchione, Uwe Piatkowski, Louise Allcock.

Continued on page 6



Registration is Now Open!

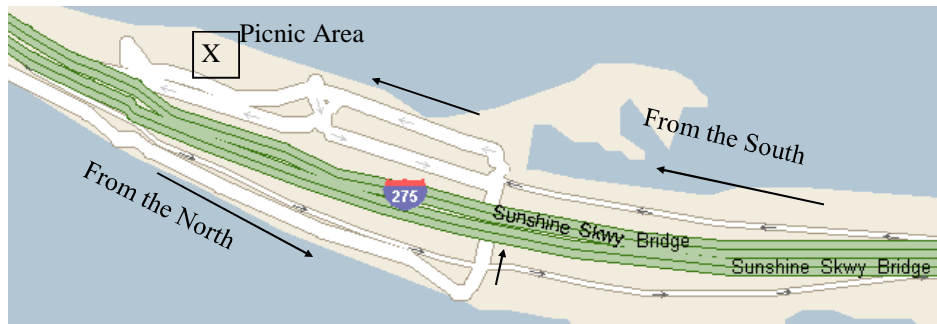
May 22-24, 2016 the **Bailey-Matthews National Shell Museum** on Sanibel Island, Florida, will be hosting a 2.5 day forum titled "Mollusks in Peril." We will bring together some of the country's foremost experts on current large-scale threats to molluscan populations to discuss, through presentations and panels, the challenges

facing the second most diverse group of animals on earth.

As our planet is subjected to unprecedented rates of human-induced environmental change, populations of mollusks inhabiting a wide range of habitats are being exposed to exceptional amounts of ecological stress. These stressors include, but are not limited to, alterations caused by climate change and other large-scale environmental disturbances. **Mollusks in Peril** will provide a forum for discussion on the possible ecological drivers of extinction risk, the synergies that enhance ecological stress, and the taxonomy, ontogeny, and geography of change in and risk to marine, freshwater, and terrestrial mollusks.

We hope to see you there!

<http://mollusksinperil.org>



End of Year Picnic

Date: Sunday, May 8

Time: 3pm (Board meeting starts at 2pm)

Location: South end of Sunshine Skyway Bridge (I-275) picnic area, just past the rest area. There is a \$1 toll for the bridge. The picnic area has tables and small shelters. Take the exit for the rest area and follow the signs, go thru the parking lot, pass the restrooms and you will see a road for the picnic area.

Bring: Sign up to bring a side dish, beans, fruit, salads, vegetables, or desert. Something to share with everyone and your own drinks. The chicken will be purchased by the club, so we need a count of people. Be sure to sign up at the meeting or contact Betty Lipe. Phone: (727) 391-2197 The Meeting on May 6 is the last chance to sign up.

HOPE TO SEE YOU THERE!

Seashell Armor Could Offer Transparent

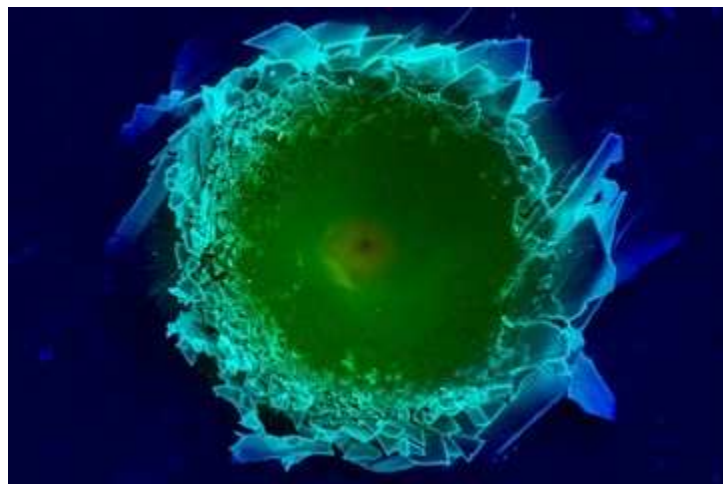
Protection for Troops

by Charles Q. Choi, Live Science Contributor | March 31, 2014

New transparent armor to protect U.S. troops on the battlefield could be inspired by the structure of seashells, researchers say. Scientists would love to develop tough, hard, lightweight materials for applications such as body armor. Increasingly, researchers seek to create materials that mimic structures found in nature, a strategy known as biomimetics.

"We have long studied natural exoskeletons as inspiration for the development of advanced engineered protective systems," said study author Christine Ortiz, a materials scientist at the Massachusetts Institute of Technology. To develop the novel armor, Ortiz and her colleague Ling Li investigated the windowpane oyster, *Placuna placenta*. They were especially interested in this mollusk, because it has a shell that permits 80 percent of visible light to shine through it. The shell sometimes finds use in windowpanes in place of glass in the Philippines, India and other Asian countries. "About five years ago we started searching for natural armor systems, which were also optically clear," Ortiz said. Transparent armor could serve in "soldier eye or face protection, windows and windshields, blast shields and combat vehicles," she said.

This seashell is made nearly entirely of calcite, the main component of relatively fragile rocks such as limestone and chalk. However, the scientists discovered this seashell could dissipate energy from penetrations about 10 times better than ordinary calcite. Scientists have examined mollusk and other shells for tips on how to create armor, but "this is the



The seashell of the windowpane oyster is made of layers of long diamond-shaped crystals of calcite joined together by organic material. When dented, the shell deforms via twinning, when mirror images of calcite crystals formed around the penetration zone. Such twinning helped dissipate energy and localize damage. Credit: Ling Li

Continued on page 6

From page 5 first thorough study of a natural armor that resists mechanical penetration but is also optically clear," Ortiz told Live Science. "We wanted to find out how the material resists penetration but also preserves this unique optical property."

To find out how this seashell could do so much better than regular calcite, the researchers examined its structure on the scale of nanometers, or billionths of a meter. The seashell is made of layers of long diamond-shaped crystals of calcite joined together by organic material.

When the seashell was subjected to microscopic denting from a diamond-tipped probe, the scientists found the shell deformed via "twinning" — crystals of calcite that were mirror images of each other formed around the penetration zone. Such twinning helped dissipate energy and localize damage, by deflecting cracks from spreading farther, for instance. Ultimately, twinning, along with the shell's nano-level structure, confined damage to a small volume and preserved the mechanical integrity of the rest of the structure. Armors based on this strategy of twinning and of nano-level structure could survive multiple hits, researchers said.

"The findings in this work may provide design principles for synthetic engineering of lightweight structural materials with efficient energy dissipation," Ortiz said. "We are continuing to study other armored species that exhibit semitransparent properties and intend to create a library of biological design principles."

From page 4 Top answer: because of glaciation cycles. Every 40,000 years or so there is a 'glacial maximum' — a period when the ice coverage is greatest, glaciers extend far out to sea, and sea ice covers much of the Southern Ocean. Within this ice coverage, small areas of open ocean — polynyas — persist. These are likely the only areas where seafloor animals survive — simply because all the food that reaches the seafloor derives originally from photosynthesis by plankton in the surface layers of water. If the ocean surface is covered by thick layers of ice, no sunlight penetrates, and there is no photosynthesis and no food chain. So, at a glacial maximum, small pockets of life survive in polynyas, isolated from other small pockets of life. Genetic drift leads to these populations gaining their own slightly different characteristics, and, by the time the ice melts, and the populations slowly expand until they come back into contact with one another, maybe the animals from the different polynyas are different enough to no longer be able to interbreed. In other words, they have become distinct species. This 'Antarctic diversity pump' explains the very high number of species found in the Southern Ocean.

Interestingly, the Southern Ocean appears to have influenced the fauna of other oceans too. In the depths of the world's oceans, octopuses are found that are remarkably similar to Antarctic octopuses, and very different from shallow water and tropical

octopuses. The recently discovered 'Casper' from deep water off Hawaii is an example.

Research sequencing the DNA of Antarctic octopuses and their deep-water relatives has shown that the deep-water species had their origins in Antarctica. Around 15 million years ago, when the ice sheets in Antarctica dramatically expanded, the global ocean

circulation changed such that there was a much greater flow of icy Antarctic bottom water out of the Southern Ocean into the other oceans of the world. This allowed relatives of the Antarctic octopuses to spread northwards into the Atlantic, Pacific and Indian oceans. The evolutionary origins of Casper are undoubtedly in the Southern Ocean.

But there is one octopus species in the Antarctic that seems to have migrated in the other direction. *Benthoctopus rigbyae*, is more closely related to the giant Pacific octopus found in the Puget Sound, *Enteroctopus dofleini*, than it is to other Antarctic octopuses. There are similar octopuses on the Patagonian shelf and shelf edge at the tip of South America, and likely this little octopus came to Antarctica that way.



Left: The Antarctic octopus *Thaumelodone peninsulae*. Right: The as yet undescribed species of octopus from very deep water off Hawaii, nicknamed 'Casper', photographed by Okeanos Explorer, March 2016.



Antarctic octopus, *Benthoctopus rigbyae*, photographed on the sea floor at 500 m depth during the #SOAntEco cruise on board RRS James Clark Ross. Photo courtesy British Antarctic Survey.

FACEBOOK

Have you checked out our Facebook page. I have been posting pictures of the meetings and the field trips. You can post pictures too if you have them. We would love to see some of the shells you found recently. I would like to know if you enjoy the pictures and want to see more. We have lots of people that check out our page from all over the world, so come join us.

Notes

MEMBER NEWS

New

Gary Weiher
2138 Evans Rd
Dunedin, FL
Ph (727) 286-6727
gweiher@tampabay.rr.com
Gary enjoys beachcombing.

Would you like to have your picture in the Directory? If so please email or send us a picture. We can scan in and return your picture to you. You can also bring it to a meeting. Would love to have everyone pictured. We can then put a face to a name. Thanks.

August

3 - William Turner
11 - Gloria Gould
15 - Bob Linn
27 - Wayne Humbird
29 - Cheryl Jacobs

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Happy Birthdays

May

11 - Gena Cameron
16 - Tina Baldwin
20 - Roger Smith
23 - Mary Ellen Akers

June

5 - Sandy Boddy
7 - Maureen Keefe
12 - Julie Benedict-Dolney
13 - Karla Mason
17 - Roni Mucci

July

11 - Elaine Smith
20 - Debbie Freeman
28 - Peggiann Ankrom
28 - Melanie Thoenes



St. Petersburg Shell Club, Inc.
Founded 1936
Annual Dues: Individual \$15.00
Family \$20 (1 copy of TIDELINES per household)

Meetings are held on the 1st Friday of the month, except June, July and August, at the **Seminole Recreation Center, 9100 113th Street North, Seminole**. Meetings start at 7:00p.m. and include educational short programs, social times, opportunities to identify shells, and a main program on some aspect of the shell collecting hobby. The club publishes "**TIDELINES**" 5-6 times a year with a special edition at Shell Show time. The membership year begins Jan 1st and dues are delinquent after Apr 1st. Please make your check payable to the St. Petersburg Shell Club.

Return the application to the membership chairperson at the address below.

Please complete—Detach and Return

New Member: Individual _____ Family _____
 Renewal: Individual _____ Family _____

Name: _____ Phone: _____

Address: _____ Apt# _____

City, State, Zip: _____

E-mail: _____

Birthday: _____ Shell Interests: _____

If you use another address part of the year, please list where & when here:

Donation to the Awards and Ribbons Fund for the Shell Show

Print as you want to be listed.

Return to: Membership Chairperson
 P. O. Box 3472
 Seminole, FL 33775-3472

	Total Enclosed:
Membership \$ _____	
Awards and Ribbons Fund \$ _____	
Total \$ _____	

E-mail: blipe@tampabay.rr.com
 Web site: stpeteshellclub.org
 Like us on Facebook

Show 'n Tell

Bring that special shell to the meeting and talk for a few minutes about it. What was it that appealed to you about that specimen? Was it the color, the family, the location it came from? Whatever the reason, Blow your horn, show it off.



**Hear
 Ye!
 Hear
 Ye!**



We would like to hear from you on what type of programs you want to see. Do you know of someone that can give a program? Please give us their name.

Who would like to help us with Publicity. We need to get our meetings into the local papers and get the Shell Show out there too.

How about helping us with the Holiday Party. We need someone to help us set up the room at Golden Corall. Do a sign up sheet so we know how many are coming and set up the deserts. Betty Lipe will help you.

Who would like to head up a committee for the Picnic, the Board will help you and it doesn't require much time on your part.

Do you have suggestions about our Shell Show, how can we get better attendance, how can we increase our membership...etc. Send us your best ideas.

E-mail John Jacobs johncheryl@earthlink.net or snail mail is just fine.