MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

MAGS Rockhound News

Volume 63 ◊ Number 03 ◊ March 2017 ◊ A monthly newsletter for and by the members of MAGS

Rock Hunting Downunder

Geology and gemstones, fossils, and culture — *Dave Clarke*

In this talk there will be something for everyone; I will give an overview of the riches and peculiarities of New Zealand geology, and the gemstones, minerals, and fossils that may be found there. The indigenous people (Māori) relied heavily on several different mineral resources (most notably nephrite jade), and I will talk about the cultural importance of some of these in pre-European New Zealand. Moving across the ditch, lastly I will introduce the Jurassic-aged Talbragar Fish Beds in New South

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In this issue

BE INVOLVED—IT'S MORE FUN

CAROL LYBANON

Look for email invitations from SignUp Genius. Every Member with email has already gotten an invitation to volunteer for the Memphis Mineral, Fossil, and Jewelry Show. Have you signed up?

We need volunteers for Thursday, Friday, Saturday, and Sunday (April 20-23). The shifts are set up in two-hour blocks; you can sign up for more than one shift.

If you are having a problem signing up, call or email Carol ((901) 757-2144 or sgcarol@earthlink.net). **We need every Member to support the Show, so please volunteer.**

2017-2018 MAGS BOARD

President–Charles Hill
1070 Park Swain Road, Grand Junction, TN 38039 ◊ (901) 626-4232 ◊ hunter3006@aol.com

1st VP (Field Trips)–James Butchko
4220 Dunn, Memphis, TN 38111 ◊ (901) 743-0058 ◊ butch513j@yahoo.com

2nd VP (Adult Programs)–W. C. McDaniel
2038 Central Avenue, Memphis, TN 38104 ◊ (901) 274-7706 ◊ w.c.mcd@att.net

Secretary–Mike Baldwin
367 North Main Street, Collierville, TN 38017 ◊ (901) 853-3603 ◊ mbaldwin05@gmail.com

Treasurer–Bonnie Cooper
8695 Baylor Road, Arlington, TN 38002 ◊ (901) 444-0967 ◊ rocks4us@hotmail.com

Director (Asst. Field Trips)– Kim Hill
4755 Royal Elm Cove, Memphis, TN 38128 ◊ (901) 388-7572 ◊ earthsis@aol.com

Director (Asst. Adult Programs)–Dave Clarke ◊
456 North White Station Road, Memphis TN 38117 ◊ (901) 308-0334 ◊ dclarke@fieldmuseum.org

Director (Youth Programs)–Open

Director (Asst. Youth Programs)–Open

Director (Librarian)–Leah Gloyd
2151 Dogwood Creek Court, Apartment 202, Collierville, TN 38017 ◊ (270) 847-3170 ◊ leahgloyd@outlook.com

Director (Asst. Librarian)—Jane Brandon
4384 Castle Avenue, Memphis, TN 38122 ◊ (901) 374-0366 ◊ jjbrandon@yahoo.com

Director (Membership Services)–Bob Cooper
8695 Baylor Road, Arlington, TN 38002 ◊ (901) 444-0967 ◊ rocks4us@hotmail.com

Director (Historian)–Carol Lybanon
2019 Littlemore Drive. Memphis, TN 38016 ◊ (901) 757-2144 ◊ sgcarol@earthlink.net

Newsletter Editor–Matthew Lybanon
2019 Littlemore Drive. Memphis, TN 38016 ◊ (901) 757-2144 ◊ lybanon@earthlink.net

Webmaster–Mike Baldwin
367 North Main Street, Collierville, TN 38017 ◊ (901) 853-3603 ◊ mbaldwin05@gmail.com

Show Chairman–James Butchko
4220 Dunn, Memphis, TN 38111 ◊ (901) 743-0058 ◊ butch513j@yahoo.com

Past President–W. C. McDaniel
2038 Central Avenue, Memphis, TN 38104 ◊ (901) 274-7706 ◊ w.c.mcd@att.net

MAGS AND FEDERATION NOTES

Memphis Archaeological and Geological Society, Memphis, Tennessee

The objectives of this society shall be as set out in the Charter of Incorporation issued by the State of Tennessee on September 29, 1958, as follows: for the purpose of promoting an active interest in the geological finds and data by scientific methods; to offer possible assistance to any archaeologist or geologist in the general area covered by the work and purposes of this society; to discourage commercialization of archaeology and work to its elimination and to assist in the younger members of the society; to publicize and create further public interest in the archaeological and geological field in the general area of the Mid-South and conduct means of displaying, publishing and conducting public forums for scientific and educational purposes.

MAGS General Membership Meetings and MAGS Youth Meetings are held at 7:00 P. M. on the second Friday of every month, year round. The meetings are held in the Fellowship Hall of Shady Grove Presbyterian Church, 5530 Shady Grove Road, Memphis, Tennessee.

MAGS Website: memphisgeology.org

MAGS Show Website: www.theearthwideopen.com

We aren't kidding when we say this is a newsletter for and by the members of MAGS. An article with a byline was written by a MAGS Member, unless explicitly stated otherwise. If there is no byline, the article was written or compiled by the Editor. Please contribute articles or pictures on any subject of interest to rockhounds. If it interests you it probably interests others. The 15th of the month is the deadline for next month's issue. Send material to lybanon@earthlink.net.

March DMC Field Trip

WHERE: Hammett Gravel Pit, Redwood, Mississippi

WHEN: Saturday, March 25, 9:00 A. M.-2:00 P. M.

COLLECTING: Agates, coral, geodes, petrified wood, more

INFORMATION: Rosina Echols, (601) 825-5752 or rosinae@bellsouth.net

Links to Federation News

- AFMS: www.amfed.org/afms_news.htm
- SFMS: www.amfed.org/sfms/
- DMC: www.amfed.org/sfms/_dmc/dmc.htm

President's Message

Hi again, everyone. It has been another good month for MAGS. With all that I am seeing and hearing, we are speeding in the right direction. We had two very good field trips in January: one to Blue Springs, Mississippi, and the other to Parsons, Tennessee. I have received both calls and texts regarding those trips. Everyone has reported finding fossils and generally having a good time. Remember, if you have not paid your dues, you cannot go on field trips. In the newsletter you will find that we have great speakers and new topics scheduled for our Membership Meetings. We've been having big turnouts, too. Don't worry, we have plenty of chairs! Please come and bring something for a display. Finally, the MAGS gem, fossil, and mineral extravaganza is coming up, so don't miss the boat. As I write this, the Show is only 55 days away. Sign up and get aboard. We have a lot of work to do!

Thanks,
Charles

New Members

John Mark Clark

Danny Baker

Jennifer and Jon Flores, daughters Jade and Jalynn

Rock Swaps

Carol Lybanon

Do you have a nice back yard you'd like to show off? MAGS holds three rock swaps during the summer months. One of them is our annual indoor picnic and rock swap at our August meeting. We need two families to agree to host the other rock swaps, one in May or June and one in September or October.

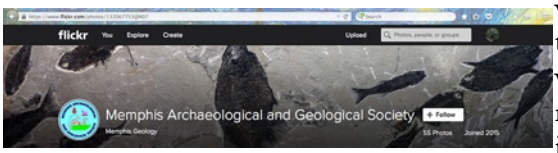
All the host supplies is the location and a couple of tables for food. Our Members bring food and drinks to share. MAGS supplies plates, napkins, etc. Those who want to sell or trade bring their own tables.

Our rock swaps are occasions to meet Members in a social setting, share some food, and sell, trade, or swap extra material we've collected. If you would like to help, call me at (901) 757-2144 to offer your yard or ask any question.

This Flickr Was Made For You

Mike Baldwin

There's a great little place on the web that you might want to see. It's the MAGS Flickr website. Flickr is a social media collection unlike any other that I have seen. It's a place where photographers (amateur and professional) hang out, share likes and comments, and document life on this big blue marble through pictures. The MAGS Flickr collection is in its infancy. We only have 70 photographs displayed there so far. The pictures were taken by MAGS Members. There are ammonites and calcite, agates and fluorescent minerals, field trips and rock swaps. I hope that you will want to share some of your MAGS adventures and the memories you have made with the rest of us.



To visit our Flickr site, just click this link and enjoy (https://www.flickr.com/photos/132067753@N07/); or go to flickr.com and put "Memphis Archaeological and Geological Society" in the Flickr search box; or go to the MAGS website (memphisgeology.org) and you will find a link to our Flickr site right at the top of the homepage. To get your photos onto our Flickr site, email them (along with details like where the photos were taken, what you photographed, and when the photos were taken) to me (mbaldwin05@gmail.com) and I will post them. If you want to get more involved in making this a great MAGS photo album, contact me and I will send you a user name and password so you can upload your images directly to our Flickr site. This is a great archive. Help make it even better.

Jewelry Bench Tips by *Brad Smith*

BENCH SHEARS

When cutting sheet metal, it's quicker and easier to use a set of shop shears as

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Everyone Should Know a Rockhound

David A. Day, the Stonenchanter

My older brother has lived on Old Hickory Lake in Nashville since the early eighties. Both he and his wife have walked daily for exercise around the roads in his neighborhood among the numerous limestone outcroppings. Familiar with my wife Beth and my knowledge about rocks and fossils, he recently emailed me a snapshot of a piece of that limestone embedded in the embankment of the roadway, with a note that read, "Is this anything of interest?" Remember, he has walked by, stepped on, or over this rock literally many thousand times without noticing or thinking about it. Perhaps that day the lighting was perfect.

Both Beth and I have been collecting more than sixty years. We have never found such a complete and detailed example of a Crinoid Calyx as his discovery which now thankfully is in our collection.

I decided to photograph the piece and share the story here because sooner or later one of YOUR friends or family is going to say to you, "Is this something?"

Everyone should know a rockhound.

Size: 10.5 × 5.5 × 2 inches

March Birthdays

1	Danny Crumbliss
3	Debi Stanford
4	Chris Hill Ragan Medlin
5	Walter Davis
7	Payne Wilson River Johnson Kristen Erickson
8	Stacy Cowell
9	Jalynn Flores
10	Pat Scott Kathleen A. Eglsaer
11	Claudia Reed Nancy Folden
14	Danny Baker
15	Kay MacLaughlin Amelia Herrington
16	David Loyd
17	Bob Cooper
18	Laura Brem
23	Cree Morphis Nathaniel Reid
24	Kalissa Bearden
26	Stephany Rainwater
27	Steve Lewis
28	John Mark Clark Hudson Herbert
30	Hisami McNeil
31	Hunter Hill Emilia Stockwell

January Board Minutes

Mike Baldwin

Called to order 6:34 P. M. Present: Charles Hill, W. C. McDaniel, Mike Baldwin, James Butchko, Kim Hill, Leah Gloyd, Carol Lybanon, Matthew Lybanon, Bob Cooper, Bonnie Cooper.

Nominated Mike Baldwin and Matthew Lybanon as webmaster and newsletter editor, respectively. Approved.

Secretary: Copies distributed electronically and hardcopy. Report approved with one correction.

Membership: One new Member since December meeting. January will be the drawing for the renewal prize. The membership application was updated with new membership fee structure, and uploaded to website.

Field Trips: February 11 field trip will be to Blue Springs. We will meet there at 9:30. January field trip to Parsons is still on target. Members signed up for the January 21 trip will be advised if the trip is on schedule the day before the trip. Everyone found good materials on the Livingston field trip.

Show: Show Committee meeting Tuesday at the Agricenter. All but one contract have been received. Marc Mueller will update the website this weekend. We need to get together soon to figure out how to display the fluorescent minerals. Mike will research photo tent options.

Treasurer: Bonnie distributed summary pages and *Continued, P. 5*

January Board Minutes Continued from P. 4

copies of December bank statement. Rent is paid through June. Also SFMS insurance and fees. Web hosting fee paid to Mike. We still have 2 outstanding checks. Receipts received for party necessities. Bonnie, W. C., and Charles will take care of check signing changes. Report accepted.

Adult Programs: W. C. talked about a new element, the tabletop safari. Concerning displays, W. C. is thinking about putting the names of all those who have presented displays throughout the year into a container and drawing a name at the end of the year. The January program: "Mapping Prehistoric Tool-stone Use with Ryan Parish, PhD. The February program: "Vikings and Memphis: Recreating the Osberg Burial" with Rendy Hunt. February tabletop display: "Tools of Beading" by Cornelia McDaniel. March tabletop display: "Digging Up Memphis" by Lou White.

Newsletter: The February issue will be ready a few days early because the Lybanons will be out of town. January 15 will be the deadline for articles. Matthew asked W. C. to request article information from our speakers.

Junior Programs: W. C. proposed developing a structure for presenting programs. He will do specimen of the month for the first three months. Mike will help with creation of specimen cards. January program will be 901 Rocks.

Web: Updates completed. Discussion followed about images on Flickr. Matthew will put an announcement and newsletter article about Flickr and sending images to upload in a future newsletter issue.

Rock Swaps: The first swap will be in May. We talked about the possibility of a public rock swap at Shelby Farms. Carol suggested a tailgate swap. Other suggestions for swap locations: Court Square and Overton Park.

Library: Marc has a flash drive with all the digital library information. Leah distributed a Book Review form. Carol mentioned that we used to have a youth section in the newsletter. Children who write reviews could be entered in a contest. Leah will have a monthly display of books: some pertinent to the program, some pertinent to youth. She is continuing to scan MAGS historical documents.

Old Business:

- Charles will contact Lori Carter re 2018 Sandfest and let her know that we will not be able to host this time.
- Board voted to help Peru. We did.
- Bonnie asked W. C. if he wants the Bingo cards laminated.
- We need to use the microphone for future events.

New Business:

- We will do holiday gifts again this year. W. C. will look for gifts in Tucson.
- Hospitality: We need 2 people for each month. We need to publish the list of volunteers as a reminder and send an email (Charles will send) to remind.
- We will judge at the Shelby County Schools Science Fair again this year;
- School programs: Need to send out post cards to schools promoting the Show and programs.
- Discussion followed about updates to the RockZone.

Adjourned 7:47.

January Meeting Minutes

Mike Baldwin

Called to order 7:00 P. M. 44 Members and 8 visitors present.

January field trip is still on schedule. Jim Butchko will contact participants if the trip gets rained out. The February field trip will be to Blue Springs to collect Devonian fossils. The Junior Program Director is currently vacant.

Charles Hill asked members to volunteer to conduct a program sometime during the year; several members volunteered. One member volunteered to coordinate the volunteers for the year. Leah Gloyd introduced the Book Report form to the Members and encouraged them to check out the library. Rock and Gem magazines are for sale in the library. The first rock swap will be inApril or May. Carol Lybanon may contact Members to help, and is contemplating doing something different: maybe a mini sale or a tailgating swap. Jim Butchko passed out the 2017 Show postcard. The Show is about 100 days away. Hospitality will be by Debbie Schaeffer and Bebe Buck. There will be a Friday night dinner. Bring a side dish, drinks, and snacks for vendors.

Displays: Kim-Livingston treasures. Alan-Mt. Ida quartz crystals. Kathy-projectile points and knives from Perry Co., TN. Petrified wood from Olive Branch. Leo and Jan-Richardson's Landing agates, petrified wood. Dale Hollow crinoids and other specimens.

Tabletop Safari: Petrified wood presented by W. C.. He mentioned that each time a Member presents a display throughout the year, their name will be put in a drawing at the end of the year for a Monte Cristo Crystal.

Juniors dismissed to their program (Kim Hill). The adult program was "Mapping Prehistoric Tool-Stone Use" by Ryan Parish, PhD., Department of Earth Sciences at the University of Memphis.

Adjourned 7:47 P. M.

52 days until the Show!

Don't forget to volunteer for the Show on SignUpGenius

Rock Hunting Downunder
Continued from P. 1

Wales, Australia, and will discuss the scientific importance of this remarkable fossil site—one I recently collected at. On a display table there will be specimens of New Zealand carnelian and other gemstones, as well as a large collection of New Zealand nephrite jade.

Jewelry Bench Tips
Continued from P. 3

compared with using a hand saw. The cut is not as precise, but many times you don't need that. Shears will easily cut up to 24 gauge sheet, and some will cut 22 or even 20 gauge.

Current prices for shears run from $13 - $22 in jewelry catalogs, and the Joyce Chen scissors recommended on some jewelry blogs run more than $20. But we found a cheaper alternative at the 99 Cent Store—some gardening utility scissors that were only $1.07

I buy a half dozen of them at a time for use in my jewelry classes. They're great for cutting bezels, trimming around a bezel cup and cutting a piece off a larger sheet.

BEZEL CLOSER

A bezel closer is a steel punch that makes quick work out of pushing the metal down over a round stone and burnishing it. The working end is a concave cavity that fits over your bezel or prong setting and is pushed and twisted to capture the stone. Sets can be purchased but are expensive and contain many sizes you will probably never use. If all you need is one or two sizes, here's how you can make them yourself.

Find a good quality, round steel rod a little larger in diameter than your bezel cup or prong setting. Cut a 5 inch length. File both ends flat. Locate the center of one end, center punch a divot, and drill a small pilot hole about 5 mm deep. Remember to use a little oil as lubricant when cutting steel.

Select a ball bur a bit smaller than the steel rod but slightly larger than the bezel. Enlarge the pilot hole to a full hemispherical cavity. Test for proper fit with your bezel. Bezel should first contact the cavity about a third of the way in. When the size is correct, polish the cavity using Zam on a length of chopstick in your flexshaft. If the tool is not polished, it will leave scratches on your bezel or prongs.

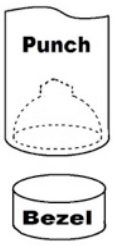
When using the tool, the first step is to capture the stone correctly. I usually work by hand and push the punch straight down over the bezel or prongs. This causes the metal to start bending over the stone. Next I inspect with a lens to be sure the stone is staying level. This is repeated until the stone is seated on its bearing and can't move anymore.

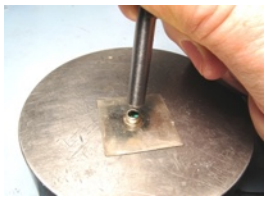
Next you want to force the metal down onto the stone uniformly all the way around. While this can be

Continued, P. 7

Jewelry Bench Tips done by hand, I often gently tap the punch with a hammer. Finally, burnish the bezel by twisting the punch around.

Continued from P. 6





See all Brad's jewelry books at Amazon.com/author/bradfordsmith.

Fabulous Tennessee Fossils

Dr. Michael A. Gibson, University of Tennessee at Martin

FTF 26
Biogeopetal Structures

Fabulous Tennessee Fossils #9, volume 61, issue 10 was devoted to portion of the anatomy of a particular group of very common Paleozoic fossil, namely the stalked echinoderms (e.g., crinoids). You may wish to pull that copy out of your archives to review as this essay is a follow-up to that one. Recall from that essay the term "*pelmatozoan*" ("*pelma-*", meaning "*stalk*", and "*-zoan*" referring to being an animal) was used for any roughly "life-saver" shaped stem segments (*ossicles*) that come from any stalked echinoderm. Each stem ossicle is round with a hole in the center (sometimes star-shaped), hence the resemblance to life-savers and the common name "Indian money". In general it is not possible to identify a species of crinoid by the stem plates; however, that does not mean that the stalks, and their roots, are not useful to paleontologists.

Many of us have found loose slabs of limestone, especially from our favorite Vulcan Materials quarry in Parsons, just loaded with the bits and pieces of pelmatozoans: stems, roots, plates, etc. Sedimentologists even note that often entire slabs of limestone may be composed almost entirely of sand-sized pelmatozoan grains glued together by a calcite cement or mud and thus call these rocks "pelmatozoan limestone" or perhaps "pelmatozoan packstone". The occurrence of pelmatozoans in the famous Holston "Marble" of Ordovician age in East Tennessee, used in so many buildings across Tennessee and in Washington, D. C., attests to its aesthetic appeal. Tennessee must have been a truly spectacular place to snorkel back during the Paleozoic! Gardens of gently swaying crinoids with their arms outstretched to receive the microorganism bounty of food that the oceans provided. Carpets of dead pelamtozoans forming rippled sand on the seafloor for other organisms to inhabit.

Aesthetics aside, pelmatozoans are useful indicators of paleoenvironment (always marine as all crinoids inhabited only salt water), and have a practical use when collecting samples in the field. Often, we collect limestone slabs that are in spoil piles. Which side is the "stratigraphic up" side and which is the bottom? When the limestone slab is uniform throughout its thickness then there is not much problem, but for the paleoecologist looking at slabs that vary in composition from bottom to top, thus recording a change in the deposition, knowing which way is "up" is critical to our interpretations. There are several tools at the disposal of the paleoecologist; one is what can be termed a "*biogeopetal*" indicator. *Geopetal* indicators are any "way-up" indicator in a rock that helps to orient the specimen, such as fine-grained sediment under a shell piece where gravity makes a flat layer of the settled mud topped by crystal growth in the open space ("umbrella voids"), cross-stratification in layering, sole marks on the bottom of a bed, footprint impressions, and in-living-position fossils (like coral). *Biogeopetal* indicators are *structures formed by a living organism at least indirectly in response to gravity* (Clement, C. R., M. A. Gibson, & T. W. Broadhead, 1987, *Palaios*, 2:189-191) and thus provide "up" information based upon their growth orientation. The Birdsong Shale in Parsons contains many such specimens belonging to several species of stoloniferous crinoids, as well as, coral and bryozoan biogeopetal features.

Stoloniferous pelmatozoans are stalked echinoderms in which the lower part of the stem, just above the attachment roots, will eventually become recumbent onto the seafloor as the stem grows, at which

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Fabulous Tennessee Fossils Continued from P. 7

point it begins to grow small rootlets ("cirri") down into the seafloor or attached to object on the seafloor (Figure 1). The upper part of these stem segments, above the surface with cirri, begin to grow additional layers so that there is an asymmetry with the central hole (lumen) in the stem. In other words, the "life-saver" is fatter on one side than the other. This unique growth form readily can be used to identify which way is up in a slab of limestone by finding the preponderance of upward oriented stems on the slab. Of course, even these pieces can be broken from a stem and moved by currents into a variety of orientations, so care must be taken to only use stem fragments clearly attached to the substrate or another object and to avoid fragments that are short, rounded by abrasion or have epibiont encrustations growing on the edges. And now you have another reason to collect even more fossiliferous limestone!

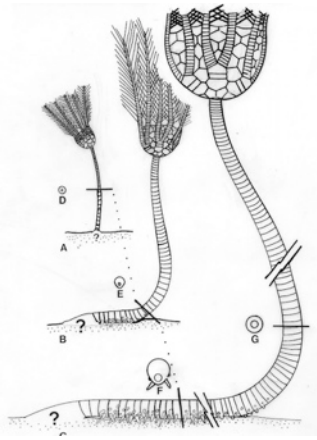


Figure 1. Cartoon of a typical stalked pelmatozoan echinoderm (MAG, 1986) that is used as a biogeopetal "up" indicator. Notice the stem is composed of individual "Life Saver" shaped disks and that segments would resemble macaroni. Trailing recumbent stems become asymmetrical with thicker growth on top, lumen shifted off center toward substrate, and cirri rootlets on the sediment surface side.

Figure 2. Two biogeopetal specimens, one growing on top of the other illustrating the cirri on lower specimen and sediment surface (*Photo by Michael Gibson using specimens from UT Martin Vanderbilt Fossil Collection*).

Figure 3. Cut through upright oriented bedding showing asymmetric growth and off-center lumen of a biogeopetal pelmatozoan stem. (*Photo by Michael Gibson using specimens from UT Martin Vanderbilt Fossil Collection*).

Have Enough Rocks?

Of course not. But don't despair. MAGS has a field trip coming up, on Saturday, March 11. You won't have far to go. This field trip is to Nonconnah Creek. It's a good place to find agates, petrified wood, and other minerals and fossils. We will meet at Halle Stadium at 9:30 A. M.

The April 29 field trip is to another creek, a little farther away: Turkey Creek, in Starkville, Mississippi. This is a favorite site to find marcasite, and sometimes pyrite. There are also occasional mosasaur bones. You may need to dig marcasite out of the creek bed, so bring a small digging tool such as a screwdriver, and buckets to put the marcasite in. You can expect to get wet. And remember, marcasite is heavy.

Contact field trip chair Jim Butchko ((901) 743-0058 or butch513j@yahoo.com) for more information on either field trip. Remember, MAGS field trips are restricted to paid-up Members, so if paying your 2017 dues has slipped your mind until now, send a check to Membership Chair Bob Cooper today.

Wire Wrapping

Carol Lybanon

If you wire wrap and would like to help make Rocks Around the Clock prizes for the Show, please call me at (901) 757-2144. We are working on setting up a wire wrapping group for March 21. Let's get together and have some fun.

Wilkes Land Gravity Anomaly

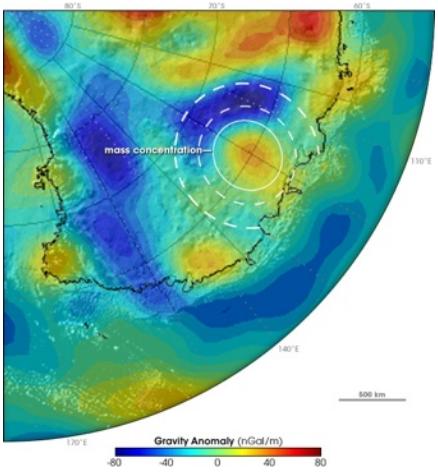
Matthew Lybanon (Editor)

Something big is hiding under the ice in Antarctica. The huge and mysterious "anomaly" is thought to be lurking beneath the frozen wastes of an area called Wilkes Land, in northern Victoria Land in the Pacific Ocean sector of East Antarctica, 1400 km west of the Ross Sea and centered at 70°00'S-140°00'E.

It was first reported in 1959-60, based on ground-based seismic and gravity surveys, and was initially described as being 243 km across. In 2006 NASA satellites spotted gravitational changes which indicated the presence of a huge object sitting in the middle of a large impact crater. Supplemented by airborne surveys, the observations reveal that the structure has a diameter of some 510 km, is accompanied by ice streams and a chaotically disturbed region of the continental ice sheet, and has a subglacial topographical relief of ≥1500 m.

Some of the more colorful ideas about this massive "Wilkes Land Gravity Anomaly" are that it's a massive UFO base or—even better—a portal to a mysterious underworld called the Hollow Earth. But the scientist who first spotted the anomaly in the NASA data believes it is actually evidence of a massive impact crater. Ralph von Frese, a Professor in the Division of Earth & Planetary Sciences of the School of Earth Sciences at The Ohio State University, thinks it is the remains of a truly massive asteroid four to five times the size of the Chicxulub space rock that wiped out the dinosaurs.

If this explanation is true, it could mean this killer asteroid caused the Permian-Triassic (P-T) extinction event, which killed 96 percent of Earth's sea creatures and up to 70 percent of the vertebrate organisms living on land about 252 million years ago. It is the only known mass extinction of insects.



(Image courtesy of NASA)

In 2006, researchers from Ohio State University were studying gravity fluctuations measured by NASA's GRACE satellites, and discovered a 200-mile wide section of land that appeared to be made of high-density material from earth's mantle, rather than the typical crust material that makes up most of the planet's surface. These mass concentrations ("mascons") occur when large amounts of matter rise up from beneath the crust, and often indicate an impact from a large object.

Because the earth is geologically active, mascons eventually get cleared away, even before the craters that house them disappear. This property of the earth's geology allowed the researchers to estimate the time of the impact at about 250 million years ago.The researchers became excited when they realized that 250 million years ago is the time at which the Permian-Triassic mass extinction event occurred.

"This Wilkes Land impact is much bigger than the impact that killed the dinosaurs, and probably would have caused catastrophic damage at the time," von Frese said.

"All the environmental changes that would have resulted from the impact would have created a highly caustic environment that was really hard to endure. So it makes sense that a lot of life went extinct at that time."

The scientists also noticed that the crater is bisected by a rift valley that extends into the Indian Ocean. It was the expansion of this rift that, 100 million years ago, caused Antarctica to separate from the Gondwana supercontinent. This led the researchers to suggest that perhaps the asteroid that produced the Wilkes Land mass crater actually created this rift in the first place, thus beginning the eventual breakup of Gondwana.

More information is in the reference listed below.

Ref: Weihaupt, J.G., Van Der Hoeven, F.G., Chambers, F.B., Lorius, C., Wyckoff, J.W. and Castendyk, D. (2015) 'The Wilkes Land Anomaly revisited', Antarctic Science, 27(3), pp. 291–305. doi: 10.1017/S0954102014000789.

MAGS At A Glance

March 2017

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
26	27	28	1 Show Countdown: 52 days	2 Board Meeting, 6:30 pm, St. Francis Hospital	3	4
5	6 Show Committee Meeting, 6:30 pm, Agricenter	7	8	9	10 Membership Meeting, 7:00 pm, 'Rock Hunting Downunder'	11 MAGS Field Trip, Nonconnah Creek
12	13	14	15	16	17 	18
19	20	21 Wire Wrapping Workshop	22	23	24	25 DMC Field Trip, Hammett Gravel Pit, Redwood, Miss.
26	27	28	29	30	31 Show Countdown: 22 days	1

Memphis Archaeological and Geological Society
2019 Littlemore Drive
Memphis, TN 38016