THE LAKE AGASSIZ ROCK HOUND

Volume 18, Issue 05 May 2018

Football field-sized Asteroid Near Miss!

Story found at LiveScience website. See full article at: https://www.livescience.com/62313-asteroid-flyby-not-detected-sooner.html

Earth received a cosmic close shave on Sunday (April 15, 2018) when a football field-size boulder passed by at half the moon's distance from our planet. Named 2018 GE3, the asteroid was detected only a few hours before its flyby, spotted by the automated Catalina Sky Survey.

Why did astronomers pick up the object only at the last minute?

An artist's concept of a "generic" asteroid flyby.
Credit: Shutterstock

At its closest approach, at 2:41 a.m. EDT (0641 GMT), 2018 GE whipped by Earth at a distance of only 119,500 miles (192,300 kilometers), according to EarthSky. That's a close call, given that the asteroid has an estimated diameter of 157 to 361 feet (48 to 110 meters), making it much larger than the cosmic object that exploded over Chelyabinsk, Russia, in 2013.

While a football field-size asteroid is a small rock in the context of the larger universe, it's still big for an object passing by Earth. Back in February, NASA issued a public statement about a smaller, close-flying asteroid, called 2018 CB, which was estimated to be from 50 to 130 feet in diameter.

"Asteroids of this size do not often approach this close to our planet — maybe only once or twice a year," Paul Chodas, manager of the Center for Near-Earth Object Studies at NASA's Jet Propulsion Laboratory in California, said in a statement at the time.

Most asteroids reside in the asteroid belt, which lies between the orbits of Mars and Jupiter. There are, however, some asteroids that pass by Earth. Sometimes astronomers don't pick them up until a few hours or days before the flyby. Other objects likely pass by us unseen, Michael Busch of the National Radio Astronomy Observatory, told Space.com in 2013.

Why? Asteroids are small and dark and therefore very difficult to track. The largest known asteroid is Vesta, which is pretty tiny compared with a planet; it is only 329 miles (530 km) in diameter — roughly the distance from New York City to Buffalo, New York.

Vesta, however, isn't representative of asteroid size in general. Many of these small worlds are only a few dozen feet in diameter, making them hard to see but still big enough to cause damage if they hit Earth.

Not only are asteroids small, but they're also pretty dim, at least when perceived in visual wavelengths. The most common kind of asteroid, called a carbonaceous type, is very dark. This kind of space rock may not reflect enough light for an optical telescope to spot it.

A near-Earth asteroid also moves quickly in the sky compared with a planet, because the rock is much closer to us. So, a telescope needs to be looking in just the right area, at the right time, to catch it.

The best way to find these asteroids is to have many telescopes scanning the sky at once, and, fortunately, NASA does have such a program. Run through the agency's Planetary Defense Coordination Office, the program uses a large network of telescopes to scan the skies. These instruments, however, are optimized to search for much larger asteroids, which would have a catastrophic impact across huge regions of Earth. (Fortunately, NASA hasn't spotted any imminent threats of this kind; the agency publishes all results publicly at the Small-Body Database Browser.)

NASA's focus right now for near-Earth objects is on cataloging 90 percent of asteroids that are larger than 460 feet (140 m) wide and that will come to within about 4.65 million miles (7.48 million km) of Earth, or about 20 times the distance from Earth to the moon, according to the agency. The largest estimate for 2018 GE3 would make it only about three-fourths that size.

Please Come to the LARC

May 2018 Meeting

Wednesday May 2nd, 7:30 pm
Stevens Hall Room 136, NDSU

Program:

Not just **Show & Tell** but also
Trade & Swap Meet!
Equal Barter -value for value-
or add a little cash to even it up.

Silent Auction:

Don't forget items for the Pebble Pups.

Guests are always welcome!

Lake Agassiz Rock Club

President: Frank Svezia
Vice President: James Zinke
Secretary Chris Patenaude
Treasurer: Terry Mallick
Silent Auctions: Jerry Loegering
and/or other members as happens
Program planning ideas/volunteers welcome

What is our Purpose?

To create an interest and promote a knowledge of all phases of geology in an informal setting.

Where and When Do We Meet?

The Geology Lab, Room 136, on the lower level of Stevens Hall, NDSU, Fargo. Time: 7:30 p.m.

[From N.University Dr. turn West on 12th AveN. Turn North on Bolley Dr. Drive just past Centennial Blv. See **Stevens Hall** on west side of Bolley, 2nd hall from the corner. To park, go into next driveway ahead, on the left. Drive west, then left again behind a laboratory building to Stevens Hall back-lot.]

How Much Are the Dues?

Single person—$20.00; Family—$30.00; College (any school) students and youth (if not a family member)—$10.00 per year. Send dues to Terry Mallick, Treasurer; 416 3rd Avenue S., Moorhead, MN 56560.

What Happens at Meetings?

We cover business; then the main program; a silent auction of rocks, minerals, and fossils; and "lunch".

What are some of our Club Activities?

Members and their families enjoy many exciting activities. Youth are always welcome. Field trips are taken to collecting areas in ND, SD, and MN. We do exhibits at the R.R.V. Fair and other events. LARC sponsors an award to an outstanding Geology student at NDSU each year. Often we offer info-lessons given just before the scheduled meetings.

What are Our Club Affiliations?

We are affiliated with the Midwest Federation of the Mineralogical and Geological Societies and the American Federation of Mineralogical Societies.

How Do We Keep in Touch?

The *Lake Agassiz Rock Hound* is our monthly bulletin mailed one week before each meeting. Non-members may subscribe to it for $10.00 per year. Members are urged to send news tips and articles to the editor: Chris Patenaude P.O.Box 434, Perley, MN 56574 or email LakeAgzRC70@yahoo.com.
Rock Hound articles may be reprinted if full credit is given, unless otherwise noted.

Minutes from April 4th, 2018 Meeting

Submitted by Chris Patenaude, Secretary

For this meeting, President Frank S. is not able to attend. Other officers present: VP **James Z**., Treas. **Terry M**. Sec/Ed. **Chris P**.

New members, **Daniel O**. and his daughter **Ansley**. Welcome!

The very first official meeting of the LARC Pebble Pups chapter was collected by **Nena F**. and parents, and traipsed upstairs to a nice exhibit-filled lounge. The adults meeting began.

Terry M. and **Dan E**. simultaneously move to accept the Minutes for March 2018 meeting to stand as printed in the April Rock Hound. **Joe S.** seconds the motion. Ayes.

Terry M. gives the Treasurer's report. Bills to Copy Kat printers have been paid. We have enough funding to go into the RRVFair action with confidence. **Frank S**. took some Club funds with him to Arizona for the big convention and returned with 5 kilos of the small prospecting "gemstones" as starter material.
Tony F. was not able to attend the meeting, so there was not an update or report on the Website progress.

Gratitude and thanks were again expressed for **Rick N**'s generous donation of our Club transport trailer. License and insurance are still being worked out. The Trailer is currently parked at **Merle & Susan H's**. place. We will need to coordinate a crew of members to move all our "stuff" from their trailer into ours.

What to do for "program" next meeting? SWAP MEET!!!! Show & Tell and barter-shopping on tap. **Dan E**. says he has a bunch of "prime" material for trading at straight out, equal value for what it cost him. Bring your own caches & a little cash to facilitate swaps across the room.

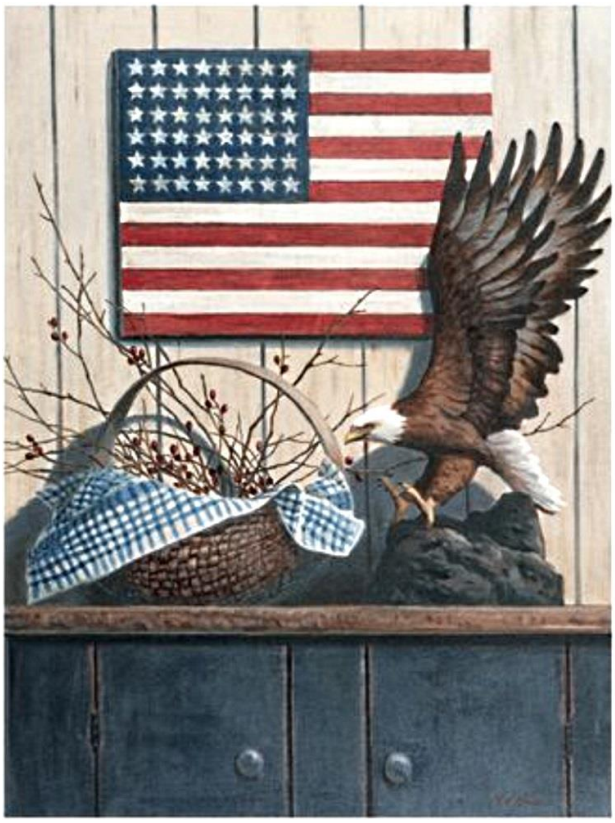
Coordinating several volunteers to scout out good sites for our Summer Picnic, new member **Tim T.** will get details on W.Fgo's Armor Park. **Terry H.** will scope out what it takes to do a freebie gathering in Lindenwood Park, so long as the weather holds. August can be fairly stable, but for something with a roof, it takes reservations and park fees. Terry says he's done Lindenwood groups before, and has some good ideas. **James Z**. says he'll do a sweep of Mhd parks in general and bring back some options.

Tim G. ("Gootch") from Jamestown had an update on Rockvana and other sites. Pipestone Dam, previously a modest spot to watch for petrified wood, has become a more popular tourist patch and 'hounding has fallen off, there. Too many people milling around. On the flip side, Rockvana itself is looking up. The current leasing farmers used a different tilling technique last fall, looking forward to soybeans and quicker thawing results. More ground was opened up so this long spring should bring more samples to the surface. Keep in mind that once mid-June arrives, the beans will canopy out and the farmers won't want us tramping into their crop. The earth will be obscured anyhow. So long as we are respectful, don't damage the plants, dig no holes, and leave no litter, we have permission to hunt.

Tim G. motions to close Business meeting, **Joe S**. 2nd s. Ayes.

Perfect timing; the Pebble Pups returned to see September H's presentation of Steven Universe, a new-generational, animated program based on exciting minerals, their complex qualities and adventuring through science-based character interactions.

Nena H. will send an article into the Rock Hound for publication on the introductory first meeting of the Pebble Pups.
See the insert !



A nice greeting card from the Hollinsheads in Rogers, ND came in with their membership check:

Hello
Everyone,

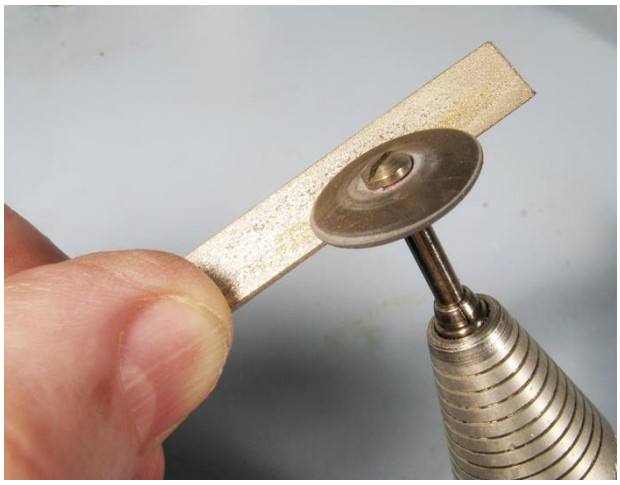
Spring is around the corner and soon the outdoor life of digging will begin. Keep in mind we would love to have you explore the grounds anytime.

Tues & Wed's are church nights for us & g. kids, so we enjoy reading the newsletter.

Maybe will free ourselves to tag along & learn a bit more this summer.

Mary, Ed & T.J.

BRAD SMITH'S BENCH TIPS



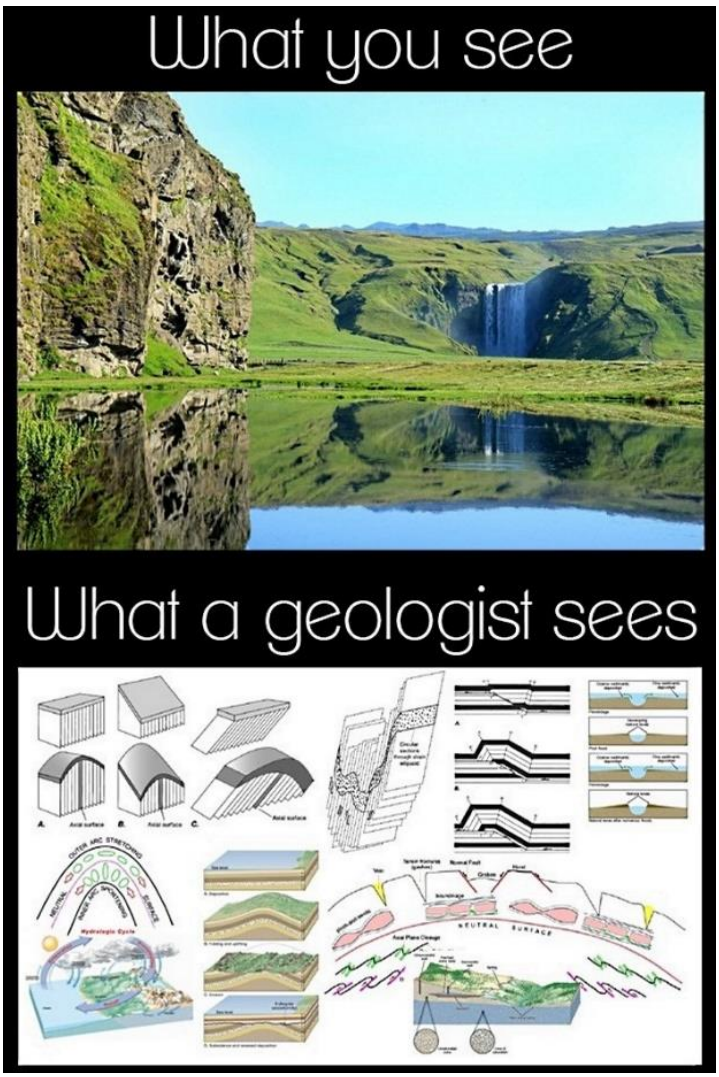
RESHAPING SILICON WHEELS

Silicone polishing wheels in the Dremel or Foredom are a great time saver, but after using them a bit they often need to be reshaped. This is particularly true with the knife-edge wheels.

The natural thought is to grab one of your files and hold it up against the rotating wheel to reshape it. But this gives you a problem. The grinding grit in the silicone wheel is much harder than steel, meaning that you end up grinding down the teeth of your file.

The best way to reshape your polishing wheels is to use a diamond file or a separating disk. If you don't have one and must use a steel file, I sacrifice the area of the file that is closest to the handle. That's an area which is not used in normal bench work.

For more tips or to learn new jewelry skills, see Amazon.com/author/bradfordsmith



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LAKE AGASSIZ ROCK CLUB

Biophotonic crystals

Photonic crystals are tiny repeating structures, each about a billionth of a meter across (one nano-meter). They can control and manipulate how light flows. Depending its facet angles, a photonic crystal will prism only certain waves of light, and blocks all the others. This determines its color.

The *blocked* rays are called "**photonic band gaps**". Wavelengths near these band gaps tend to scatter and interfere with one another. This is what creates the vivid, striking iridescence of some insects, particularly butterflies and beetles.


irridescent Morpho butterfly

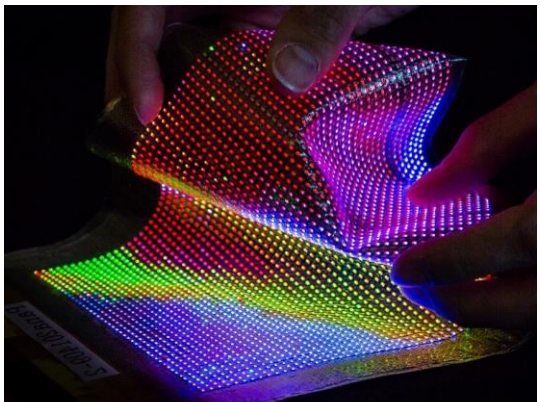
Humans can make simple photonic crystals from synthetic polymers. We use them to create things like reflective coatings for sunglasses.

If only technology could create the more complex photonic structures – like those seen in nature! We could use them to improve everything from fibre-optic technologies to solar cells.

So far, engineers have struggled to build precisely-organised three-dimensional structures on usable scales. However, new research into the way biophotonic crystals take shape in insects offers some promising pointers. The world of beautiful minerals is deeply interwoven with life on this planet. No surprise to active and breathing rockhounds!


Popila japonica
the Japanese Beetle


The spines of this sea mouse (Aphrodita sp.) are photonic.
[credit James King Holmes/SPL]


Humans can make simple photonic fabrics