

# Tar Heel Tailings

*A newsletter for Gem and Mineral enthusiasts in and around the Raleigh, North Carolina area.*

## Special Interest Articles:

- Prez Sez
- Door Prizes
- Earth has a new "quasi-satellite"

## Individual Highlights:

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## Prez Sez By Melissa Whitfield

Dear Members,

I wanted to give you my heartfelt thanks for putting your trust in me as your new President. We have had quite a year so far with a few ups and downs, but I remain ever enthusiastic and excited about the club and its purpose. And I know that no matter what disagreements may occur, we all are united in the goals of the Tar Heel Gem and Mineral Club:



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## May Door Prize –Apatite By Karen Santala

Apatite is best known for its use as an index mineral with a hardness of 5 in the Mohs Hardness Scale. It is usually green in color, but can be yellow, brown, blue, purple, pink, or colorless. These colors are often so vivid that apatite has frequently been cut as a gemstone. Apatite is brittle; it breaks by both fracture and cleavage, but the cleavage is generally indistinct. Hexagonal apatite crystals are sometimes found in igneous and metamorphic rocks.

Apatite forms under a wide variety of conditions and is found in igneous, metamorphic, and sedimentary rocks. The most important deposits of apatite are in

sedimentary rocks formed in marine and lacustrine environments. There, phosphatic organic debris (such as bones, teeth, scales, and fecal material) had accumulated and was mineralized during diagenesis. Some of these deposits contain enough

phosphorus that they can be mined and used to produce fertilizers and chemical products.

Apatite occasionally occurs as well-formed hexagonal crystals in hydrothermal veins and pegmatite pockets.

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**Tar Heel Gem & Mineral Club, Inc.**

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**We're on the Web!**  
See us at:  
[www.tarheelclub.org](http://www.tarheelclub.org)

**Program & Refreshments**

REFRESHMENT SCHEDULE:

Coordinator: Loretta Turcotte  
[rosevilla@nc.rr.com](mailto:rosevilla@nc.rr.com)  
(919) 263-8523

June TBD

PROGRAM SCHEDULE:

June	Rachel Smith – NC Museum of Natural Sciences: Meteorites and Search for Life in the Solar System
July	Cathy Young – Mid-Atlantic Nature and Fossil Adventures: Fossil Collecting in the Mid-Atlantic
August	Ice Cream Social
September	Fletcher McDonald-Micro-mineral Collecting and Preparation
October	Nominations, Grab Bags
November	Elections

Remember, the club will reimburse you for up to \$85 (bring your receipts to the treasurer).

**June Treasurer's Report**

Apr. Ending /	
May Beginning Balance	\$14,518.10
-----	
Deposits (+)	
Members	\$140.00
Craft Center Material	100.00
-----	
Sub total	\$240.00
-----	
Checks Written (-)	
Shed Rental (One Year)	\$1,545.00
Newsletter	106.71
Geode expense*	153.48
Meeting Food & Plates	100.00
Craft Center Material	523.22
Field Trip Gifts	50.00
-----	
Sub Total	\$2,478.41
-----	
May Ending /	
Jun. Beginning Balance	\$12,279.69

\*Show Items

**June B-Day Members**

Clea Gallian  
Vanessa LaPiana  
Wade Rosar  
Melissa Schaufler  
Seward Shaddock  
Angie Tunney  
Loretta Turcotte



Membership applications may be mailed to:

Tar Heel Gem & Mineral Club, Inc.  
Attention: Treasurer  
10609 Chelsea Drive  
Raleigh, NC 27603

## Tar Heel Gem and Mineral Club, Inc. - May Meeting Minutes

Tuesday, May 16, 2017

Attendees = ??

### Opening of Club Meeting:

Jack Fried, Acting President, opened meeting at 7:30pm.

Minute notes graciously taken by Susan Montana, a new member – thank you!

### New Business:

Since Daniel Cathey resigned his position as President due to family health issues, a special election was called. Nominations were taken from the floor. Jack Fried was nominated as President. If Jack were to become President, then the Vice President position would be vacant; therefore, Cyndy Hummel and Susan Montana were nominated for Vice President. There became more discussion on duties and responsibilities of the President resulting in Jack taking himself out of the running when Melissa Whitfield was nominated. There was a short discussion on how to do a secret vote for electing the Vice-President since there were two nominations – with a suggestion from Tom Todaro for a “blind” vote, shut eyes and raise hand for voting. Members voted Melissa as President and Jack will stay as Vice-President – so no need for election of a new VP. With Melissa as President the position of Member-at-Large came open. George Harris was then nominated for Member-at-Large.

### Old Business:

Gem Show:

Cyndy Hummel reviewed volunteer hours from the gem show and compared them to the last 3 years. Winners of the scholarship drawings for one week classes at William Holland and Wildacres:

#### William Holland:

Winner – Janet Jones

1st runner up – John Guerriero

2nd runner up – George Harris

3rd runner up – Suzanne Love

#### Wildacres:

Winner – Lindsey Bradsher

1st runner up – Cindy Sanchez

2nd runner up – Fredora Jones

3rd runner up – Anthony Andreoli

## Prez Sez

### Continued from Page 1

to investigate, preserve, and share knowledge of rocks, minerals, and precious stones, and to promote interest in mineralogy, paleontology, earth sciences, and lapidary techniques, among club members and among the general public.

With that in mind our hardworking volunteers and officers have scheduled some amazing speakers for our meetings this year and some great field trips. There is a LOT going on so tell your friends, coworkers, and family about the club and bring a guest! Let's get the word out about what an incredible club we have going.

Treasurer's report noted in the newsletter – show funds will be in the June report.

Tom Todaro spoke about his trip to Arkansas and shared his crystals he found there.

Many new members introduced themselves.

### Program:

Linda Searcy, Journey into Faceting

### Refreshments:

It was pizza night – brought by Loretta Turcotte.



### Door Prize:

Winner: Karen Santala chose Opal, Ceino del Mercado?

### Close of Meeting:

Meeting adjourned at 9:15pm

Respectfully Submitted

Linda Searcy

Secretary

Tar Heel Gem and Mineral Club, Inc.

As for myself, I hope to continue the work of my predecessors which includes initiatives in public education and communication, leading the effort for needed updates to the bylaws, continued improvements to the website, and my favorite initiative: recruiting new members and getting young people excited about gems and minerals!

Thank you,  
Melissa Whitfield  
President

Tar Heel Gem and Mineral Club, Inc.

## May Door Prize - Apatite

Continued from Page 1

These crystals often have a very high clarity and a vivid color and have been cut into gems for collectors. Mineral collectors also enjoy these well-formed apatite crystals, and the prices paid for them often exceeds their value as gem rough.

### Physical Properties of Apatite

<b>Chemical Classification</b>	Phosphate
<b>Color</b>	Green, brown, blue, yellow, violet, pink, colorless. Transparent specimens with excellent clarity and vivid color are used as gemstones.
<b>Streak</b>	White
<b>Luster</b>	Vitreous to subresinous
<b>Diaphaneity</b>	Transparent to translucent
<b>Cleavage</b>	Poor to indistinct
<b>Mohs Hardness</b>	5
<b>Specific Gravity</b>	3.1 to 3.3
<b>Diagnostic Properties</b>	Color, crystal form, and hardness. Brittle, often highly fractured. Can be scratched with a steel knife blade.  A group of calcium phosphates.
<b>Chemical Composition</b>	Fluorapatite: $\text{Ca}_5(\text{PO}_4)_3\text{F}$ Hydroxylapatite: $\text{Ca}_5(\text{PO}_4)_3(\text{OH})$ Chlorapatite: $\text{Ca}_5(\text{PO}_4)_3\text{Cl}$ Carbonate-rich apatite/francolite: $\text{Ca}_5(\text{PO}_4, \text{CO}_3)_3(\text{F}, \text{O})$
<b>Crystal System</b>	Hexagonal
<b>Uses</b>	Fertilizer, phosphoric acid, hydrofluoric acid, gemstones, ore of rare earth elements, pigments, gemstone. Serves as a hardness of 5 on the Mohs Hardness Scale.



Mine in Durango, Mexico

Attractive translucent stones of excellent color are cut as cabochons. Rarely, translucent apatite contains a fine silk of parallel rutile crystals. When cut as a cabochon with the silk oriented parallel to the bottom of the stone, these specimens will often exhibit a chatoyance known as "cat's eye."



© geology.com

As a gemstone, apatite is more popular with gem collectors than it is with jewelry buyers. The mineral has a Mohs hardness of 5, breaks with parting, and is very brittle. These characteristics make it too fragile for use in most types of jewelry.

Transparent specimens of apatite with vivid green, blue, yellow, or pink color and excellent clarity are often cut into faceted gemstones. Some stones are heat treated to improve their color.

## Field Trip Information

By Shirley Green

### Castle Hayne Quarry, Castle Hayne, NC

#### When:

Friday, June 23, 2017 from 1 pm to 3 pm.

EVERYONE NEEDS TO ARRIVE BY 12:45 PM.

LATE COMERS WILL BE ASKED TO LEAVE!!!! (NO EXCEPTIONS)

#### Where:

The address is 5635 Holly Shelter Rd, Castle Hayne, NC 28429

#### Requirements:

- HARD HAT
- STEEL TOE BOOTS
- SAFETY VEST
- SAFETY GLASSES
- Everyone must comply with any and all safety requirements or directions as set forth by the owner and staff.
- We are guests of this site so please do not leave any litter behind.

#### Tools:

- Plenty of fluids to drink
- Snacks
- Long Flat tip screwdriver
- Pickaxes
- Shovels
- Rock hammer
- 3 pound hammer or sledgehammer
- Chisel or pry bar
- Gloves
- Sunscreen
- Bug spray - not sure if we will need or not
- Backpack or bucket or both
- Newspaper to wrap your specimens in
- Hand truck

#### Collecting:

Hopefully we will be finding fossils here!

#### Who:

Please RSVP to Shirley Green. [richard60green@yahoo.com](mailto:richard60green@yahoo.com)  
(919) 848-1085

## Earth has a new "quasi-satellite" — an asteroid that will follow us for centuries

By Brad Plumer

Earth has a new buddy. NASA astronomers have detected an asteroid that is constantly circling the Earth as part of its orbit around the sun. This "quasi-satellite," known as 2016 HO3, has been with us for nearly a century — and will probably stay with us for centuries to come.

Like many objects in the solar system, 2016 HO3 orbits the sun. But almost a century ago, it wandered close enough to us that it's now constantly getting tugged by Earth's gravity, forcing it to make loops around our planet.

As NASA explains:

In its yearly trek around the sun, asteroid 2016 HO3 spends about half of the time closer to the sun than Earth and passes ahead of our planet, and about half of the time farther away, causing it to fall behind. Its orbit is also tilted a little, causing it to bob up and then down once each year through Earth's orbital plane. In effect, this small asteroid is caught in a game of leap frog with Earth that will last for hundreds of years.

We don't have to worry about this asteroid crashing into us — 2016 HO3 never gets closer than about 38 times the distance of the moon and never gets further away than about 100 times the distance of the moon. (It's still unclear how big the object is, but NASA estimates between 40 and 100 meters.)

Because it's so far away, the asteroid isn't technically considered a satellite of Earth. "We refer to it as a quasi-satellite of Earth," said Paul Chodas, manager of NASA's Center for Near-Earth Object (NEO) Studies, in a statement. "One other asteroid — 2003 YN107 — followed a similar orbital pattern for a while over 10 years ago,

but it has since departed our vicinity. This new asteroid is much more locked onto us."

This asteroid isn't a threat to Earth — but NASA is looking for others that might be

The trail of the meteorite that burned up over Chelyabinsk, Russia, in February 2013. (Oleg Kargopolov/AFP/Getty Images)

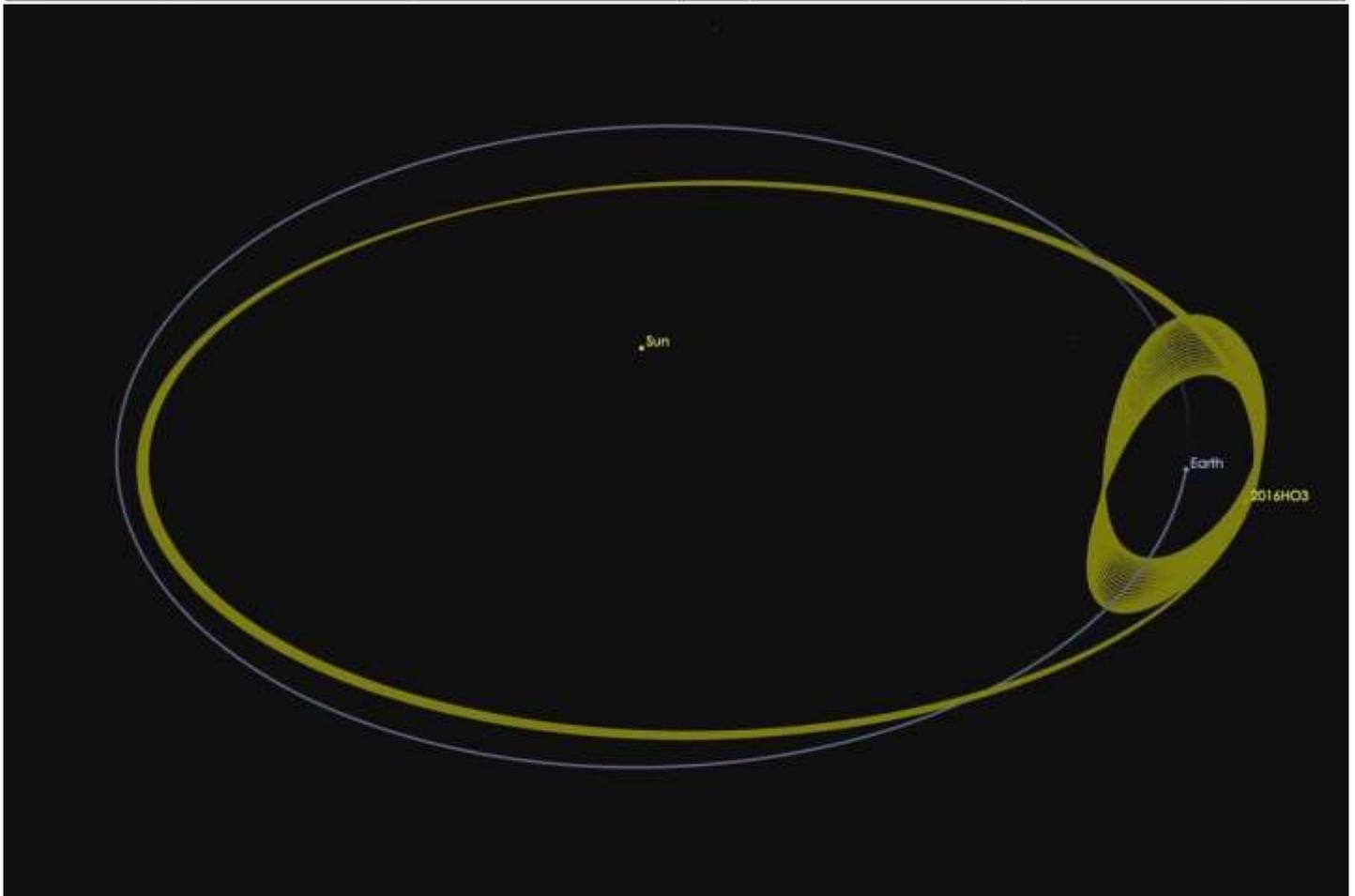
NASA found this particular asteroid as part of its ongoing search for objects in space that could conceivably crash into us — and wreak widespread havoc. And there's good news and bad news about this search.

The good: So far, scientists have located more than 90 percent of near-Earth asteroids that are a kilometer wide or larger. Those big asteroids are all capable of causing destruction on a global scale. And, fortunately, none of them are on track to hit us.

But that's not the end of the story. There are also plenty of smaller asteroids out there that could still cause massive damage if they hit us. During the 1908 Tunguska event, a 30- to 60-meter-wide asteroid exploded over Siberia, releasing the energy of 1,000 Hiroshima atomic bombs and flattening some 80 million trees. No one died because it was in such a remote region, but the prospect of a repeat is worrisome.

Such smaller asteroids have collided with Earth once every few centuries or so, on average, and we've only spotted a small fraction of them. Back in 2005, Congress ordered NASA to locate 90 percent of all near-Earth asteroids larger than 140 meters wide by 2020.

Type of Event	Diameter of Object (meters)	Impact Energy (megatons) <sup>a</sup>	Average Impact Interval (years)
High altitude break-up	< 30	<5	1–50
Tunguska-like event	> 30	>5	250–500
Regional event	> 140	~150	5,000
Large sub-global event	> 300	~2,000	25,000
Low global effect	> 600	~30,000	70,000
Medium global effect	> 1,000	>100,000	1 million
High global effect	> 5,000	> 10 million	6 million
Extinction-class event	> 10,000	>100 million	100 million



As of 2014, however, a NASA audit found that the agency had only located just 10 percent of these smaller and midsize asteroids. Not good. The report blamed a lack of coordination and organizational structure.

NASA is currently trying to improve its asteroid detection capabilities. Current ground-based telescopes can't spot as many smaller objects as telescopes in space can (due to interference from the atmosphere). So the agency has proposed launching a space telescope called NEOCam for asteroid hunting. A private organization called the B612 Foundation is also raising \$450 million for a complementary mission called Sentinel.

And, uh, what would we do if we actually spotted an asteroid barreling toward Earth? That's still being sorted out. In 2022, NASA plans to crash a probe into a 550-foot-wide asteroid at more than 13,000 miles per hour to deflect it off its course — as part of a broader plan to figure out how to defend Earth from asteroids more generally. (And if that doesn't work, we can always try sending an intrepid team of oil drillers...)

<https://www.vox.com/2016/6/16/11954010/nasa-asteroid-2016-ho3>

## UPCOMING SHOWS

**April 6 - 8, 2018: Raleigh, NC** – 42<sup>nd</sup> Annual Capital Area Gem & Mineral Show. Tar Heel Gem and Mineral Club, Inc. Kerr Scott Building, NC State Fairgrounds, Raleigh, NC. The show is sponsored by the Tar Heel Gem & Mineral Club and includes 29 dealers. The Hospitality area sells grab bags with mineral specimens. Buy a rock at the Geode booth and be the first to see what is inside. The on-going Silent Auction has new items every hour. Dealers provide minerals, fossils, finished jewelry, gemstones, findings and beads for sale.. Hours: Fri 3-8; Sat 10-6; Sun 10-5. Admission: Free and Free Parking. Contact: Cyndy Hummel; 919-779-6220; [mchummel@mindspring.com](mailto:mchummel@mindspring.com); [www.tarheelclub.org](http://www.tarheelclub.org);

**July 30 - August 6: Spruce Pine NC** - 33rd Annual Grassy Creek Mineral and Gem Show. Sponsored by the Parkway Fire and Rescue to raise funds for new equipment. 60 worldwide vendors with gems, minerals, fossils, jewelry, lapidary equipment and much more. Address is 136 Majestic View, Spruce Pine NC 28777. This is at the new fire station on top of the hill above the old fire station and show field. Dates are July 30th to August 6th, 2017. Hours are from 10 to 6 with some vendors open earlier or later. Admission and parking are free. Contact Donna Collis at 828-765-5519 or [collisdonna@yahoo.com](mailto:collisdonna@yahoo.com). Website is <http://www.grassycreekgemshow.org>. Applications are available on the website.

## Vugsites

The following are some links to Web-Sites that may interest some of our members:

<http://www.tarheelclub.org> / <https://www.facebook.com/tarheelgemandmineralclub/> These are the official sites for the Tar Heel Gem & Mineral Club. I would strongly urge all members to check them out on a regular basis.

<http://www.amfed.org> / <http://www.amfed.org/sfms> These are the official sites for the organizing body that the Tar Heel Gem & Mineral Club is founded under. I would strongly urge all members to check them out on a regular basis.

[http://www.amfed.org/sfms/lodestar\\_newsletter.html](http://www.amfed.org/sfms/lodestar_newsletter.html) The SFMS Lodestar Newsletter

<http://www.carolinageologicalsociety.org/CGS/Home.html> This site provides numerous downloadable field-trip guide books, maps, and charts of the Carolinas. It will prove to keep any avid rock hound busy for years. Great Site!

[http://www.ncminerals.com/ncmineralswebsite\\_files/page0011.htm](http://www.ncminerals.com/ncmineralswebsite_files/page0011.htm) And while we are on the subject, try this link. Its titled: Links of Interest to Rock hounds in NC. It will take you to a list of links for North Carolina gems and minerals.

<http://www.rocksforkids.com/> Just like the name says, a nice place to steer the younger members.

Information & photographs of over 6300 specimens from the Glenn & Martha Vargas Gem & Mineral Collection.

<http://www.rockhoundlounge.com> Scott Laborde, a club member maintains his own web site that might be of interest to people collecting in and around Wake County.

[http://www.msnbc.msn.com/id/29726500/ns/technology\\_and\\_science-science](http://www.msnbc.msn.com/id/29726500/ns/technology_and_science-science) This site highlights a half dozen of the most recent significant fossil finds.

<http://appmodo.com/13971/mole-quest-for-the-terracore-gem-app-review-for-the-iphone-and-ipod-touch/> If you have an iphone or an ipod touch, this rock-hounding may be the game for you.

[http://diamonddanpublications.net/index\\_files/page0009.html](http://diamonddanpublications.net/index_files/page0009.html) Diamond Dan's Mini Miner's Monthly

I would like to encourage all members of the THG&MC that maintain their own presence on the internet to send me a link to their site to be published in future Vugsites so that other club members may learn and enjoy the craft, the art, the interests that many of us have in common.

Park in the Cates Ave. Parking Deck off Jensen Dr. Enter Thompson Building directly across from the parking lot.

**Our Next Meeting is  
June 20, 2017 @ 7:30PM  
Thompson Building / NCSU Campus.**

***About Our Organization...***

The Tar Heel Gem and Mineral Club, Inc. was formed in 1974 as a nonprofit educational organization for people who enjoy the lapidary arts, earth sciences, and related subjects. The main objectives of the club are to investigate, preserve, and share knowledge of rocks, minerals, and precious stones, and to promote interest in mineralogy, paleontology, earth sciences, and lapidary techniques, among club members and among the general public. The club pursues these goals through publications, meetings, lectures, field trips, exhibits, demonstrations, and other activities.

**Come and be a part of the Fun!**



**TAR HEEL GEM & MINERAL CLUB**  
10609 Chelsea Drive  
Raleigh, NC 27603

