

Special Interest Articles:

- Prez Sez
- Door Prize
- Well Preserved Dinosaur Fossil
- Boy Finds Fossil While Playing Outside

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

Prez Sez By Melissa Whitfield

Dear Members,

I wanted to thank those of you who have stepped up to volunteer and help the club in its various activities. There is a lot of behind the scenes work and effort that goes into bringing you the exciting club lectures, news and activities. Please consider contacting one of our officers and asking how you can put your special skills and experience into making the club work.

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Dinosaur So Well Preserved, It Looks Like a Statue By Ed Yong

In March 2011, a construction worker named Shawn Funk visited an impressive dinosaur collection at the Royal Tyrrell Museum in Alberta. As he walked through halls full of ancient bones, he had no idea that a week later, he'd add to their ranks by finding one of the most spectacular dinosaur fossils of all time. It's an animal so well preserved that its skeleton can't be seen for the skin and soft tissues that still cover it.

When we look at dinosaurs in museums, it takes imagination to plaster flesh and skin on top of the bones. But for the dinosaur that Funk unearthed—a 110-million-year-old creature named *Borealopelta*—imagination isn't

necessary. It looks like a sculpture. And based on pigments that still lurk within the skin, scientists think they know what colors the animal had. "If someone wants to come face to face with a dinosaur, and see what it

actually looked like, this is the one for that," says Caleb Brown from the Royal Tyrrell Museum, who has studied the animal.

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We're on the Web!

See us at:

www.tarheelclub.org

Program & Refreshments

REFRESHMENT SCHEDULE:

Coordinator: Loretta Turcotte
(919) 771-6366

August N/A (Due to Ice Cream Social)

PROGRAM SCHEDULE:

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).

August Treasurer's Report

May Ending /	CORRECTED	
Jun. Beginning Balance	\$12,279.69	

Deposits (+)		
Canceled check	\$63.76	

Sub total	\$63.76	

Checks Written (-)		
Meeting Food	85.00	
Field Trip Gifts	47.50	

Sub Total	\$132.50	

Jun. Ending /		
Jul. Beginning Balance	\$12,210.95	

Deposits (+)		
Miscellaneous	\$78.00	

Sub total	\$78.00	

Checks Written (-)		
June Newsletter	\$106.71	
July Newsletter	85.37	
Stamps	245.00	
Tags for trailer	53.39	
Food & etc.	140.19	
Field Trip Gifts	25.00	

Sub Total	\$655.66	

Jul. Ending /		
Aug. Beginning Balance	\$11,633.29	

August B-Day Members

Julie Niederkorn
James Tunney
Kenny Williams



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. - July Meeting Minutes

Tuesday, July 18, 2017

Attendees = 27

Opening of Club Meeting:

The President Melissa Whitfield opened the meeting at 7:38pm.

Several new visitors were introduced and they told us how they got started or was introduced to rocks and rock hounding.

Bob discussed faceting classes and how quickly they fill up. Each class can handle a limit of 6 – 8 students. Classes are open for registration to NCSU students first; then registration is open to the general public. Since there is great interest from the club for faceting classes, Melissa will be seeing if the Craft center will be receptive to having open registration for club members only a week or so before the registration is opened to the general public.

Program:



Cathy Young – Mid-Atlantic Nature and Fossil Adventures: Fossil Collecting in the Mid-Atlantic

For more information and interest in field trips, contact Cathy Young, 610-209-0758, cathy@fossilandnaturetrips.com, <http://www.fossilandnaturetrips.com>

Old Business:

Kids night for August 15 – 7:00pm – 8:00pm, grab bags for kids, door prize for kids - door prize information, coloring table, for all age groups, show and tell. Are extra grab bags in shed or trailer?

Prez Sez

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On the flip side, I'd like to hear from members about what the club CAN DO to make the experience even better! What activities would you like to see? What topics would you like to hear about? Are there changes you think the club needs to make? Last year we found ourselves blindsided during elections by an avalanche of feedback. Let's get talking throughout the year about how we can make this great club even better. I encourage you to email your suggestions, ideas, even your complaints and criticisms to myself or any of the officers. Thank you for your participation and don't forget to spread the word about our wonderful club!

Also, a reminder that this coming Tuesday we will be having a lot of special activities at our meeting.

First, our meeting will start earlier at 7PM for our Kid's Night. Please bring your kids, grand kids, nephews, nieces for a fun time designated just for them to learn about rocks and get excited about sharing our hobby. PLEASE EMAIL me if you are bringing a child (age and how many) so we can make sure we have enough of our goody bags.

Tables set for rock ID and grab bags. Need volunteers for table. Need a Dr. Mike table, Shirley Green – field trips, trip safety, more families / kids. Get word out via YMCA, net, flea market.

Auction to last about 1 hr.

New Business:

Fossil Project by North Carolina Fossil Club

An opportunity to help in a research project led by the distinguished Dr. Bruce MacFadden of the University of Florida. Do you have any Oligocene terrestrial animal fossils from the **Belgrade Quarry**? They would just like to take a scan of the fossil in order to make a 3D print to use in their research. They are also interested in keeping records of terrestrial Miocene and Pliocene fossils from the Belgrade Quarry. The North Carolina Fossil Club is coordinating this effort with Dr. MacFadden. If you have questions, you may contact at ncfossilclub.org Linda McCall, President of NCFC,

Research Fellow - University of Texas at Austin [512-422-2322](tel:512-422-2322) , Indmccall02@yahoo.com

Clean out of storage – members can claim, otherwise, items left will be recycled.

Refreshments:

Provided by Melissa. August meeting will be the Ice Cream Social – members should bring ice cream and toppings. Club to provide paper goods and beverages.

Door Prize:

The Winner is: Becky Hill who chose a Celestite Geode

Membership tag mineral ID hint

When exposed to air, it turns into another mineral.

Close of Meeting:

Melissa called the meeting closed at 9:20pm.

Respectfully Submitted

Linda Searcy,
Secretary, Tar Heel Gem and Mineral Club, Inc.

Next I SCREAM FOR ICE CREAM! Since this is our Ice Cream social, please be social and bring something to contribute to our dessert feast. So far I've got people tell me they are bringing toppings. We need ice cream too! It would be AWESOME if everyone could respond to this message with what they are bringing so I can make sure all the bases are covered.

Next... HELP! I am still in need of clean up volunteers and at least 1 or 2 more setup volunteers. AND someone to sit behind the table at our "What is this?" Rock identification table. Our young and old folks alike want to find out what they have (especially the kids with the grab bags) and we need 1 or 2 people to sit and examine and tell them about their treasures. Please let me know if you can help man this table.

Thank you everyone for your help! See you Tuesday at 7!

Thank you,
Melissa Whitfield
President

Tar Heel Gem and Mineral Club, Inc.

Field Trip Information

By Shirley Green

Martin Marietta Clark's quarry in New Bern, NC

When:

Friday, August 11, 2017 from 8 am to 4 pm.
EVERYONE NEEDS TO ARRIVE BY 7:45 AM.
Under 18 allowed with parent

Where:

1315 Old US Hwy 70 W, New Bern, NC
Google maps says to: Take the SR 1225 exit from US-70 E

Required:

THIS QUARRY IS EXTREMELY STRICT. PLEASE FOLLOW ALL THE RULES.

- Long pants (Quarry manager said this was an absolute must.)
- Hard Hat
- Steel Toe Boots
- Safety Vest

July Door Prize – Celestite Geode

by Becky Hill

My husband and I recently joined the Tar Heel Gem and Mineral Club. The July meeting was our first one and I won the door prize. What a welcome! There were many interesting choices, but the pale blue crystals of the celestite Madagascar geode caught my eye. I found that celestite was first discovered in 1791 in Pennsylvania and is the state mineral of that state (another source credits New York). The name of this mineral comes from the Latin word caelestis meaning of the sky or heaven. It is famous for its sky blue color. Because it burns with a bright red color, it is used in fireworks. It also has other uses in the chemical and pharmaceutical industries. Some myths say that celestite was created from the singing of angels so not surprisingly it is purported to have healing powers. So if I keep it by my bedside I can reduce nightmares and have greater dream recall – maybe even clairvoyance.

Celestine is found worldwide mostly in sedimentary rocks, but a large deposit of pale blue Celestite was discovered in Madagascar by a cattle herder in the 1960's along the bay. There has been continuous mining of celestite geodes there since the 1980's except during the rainy season when the pit mines flood.

Sources:

<https://www.madagascandirect.com/article/1/Celestite/>

<http://www.treasuremountainmining.com>

<https://en.wikipedia.org/wiki>

National Audubon Society Field Guide to North American Rocks and Minerals

Tools (Recommended):

- Plenty of fluids to drink
- Snacks
- Long Flat tip screwdriver
- Pick & hammer for rock area
- Shovels & screen for dirt area
- Gloves
- Sunscreen, Sun protection, including shade cloth
- Bug spray - not sure if we will need or not
- Backpack or bucket or both
- Newspaper to wrap your specimens in

Collecting:

This is a fossil quarry. I'm not sure the contents but I understand there's quite a few fossils there.

Signup:

Sign up is required

Who:

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



Well Preserved Dinosaur

Continued from Page 1

Borealopelta was one of the ankylosaurs—a group of heavy-set, low-slung, tank-like dinosaurs. It lacked the shin-thwacking tail clubs that some of its relatives wielded, but its back was covered in heavy, armored scales, and a pair of 20-inch-long spikes jutted from its shoulders. It weighed 1.5 tons and was 20 feet from foot to tail. And it probably couldn't swim very well.



Somehow, this particular individual ended up at sea. Perhaps it got careless on a shoreline. Perhaps it drowned in a flood and was washed out to sea. Either way, gases started building up in its body, causing it to float belly-up. As those gases released, the dead dinosaur sank, and hit the ocean floor hard enough to leave a small crater. Before sharks had a chance to nibble it, or worms had a chance to bury into its bones, it was quickly smothered by fine sediment and sealed off from the outside world. There it remained for millions of years, until March 11, 2011, when an excavator bit into it.

By then, the ocean floor that had swallowed the dinosaur had become the Millennium Mine—a huge oil sand quarry in northern Alberta. Funk, a heavy-equipment operator, was digging in the mine when he noticed a change in the texture and color of the underlying rock. Alberta is rich in fossils, and construction crews know that any dig could potentially yield fresh bones. Funk called his supervisor, and they alerted the Royal Tyrrell Museum.

Two days later, Donald Henderson and Darren Tanke flew over, expecting to find the bones of a marine reptile—a long-necked plesiosaur, perhaps, or a dolphin-like ichthyosaur, fossils of which are commonly found in Alberta. But on arrival, they realized that the miners had actually uncovered something special—a dinosaur. Excavators had already smashed through the animal's tail and rear end, which were permanently lost. But most of the creature was still there, and even then, it was clear that it had rare features like fossilized skin. "I don't think anyone realized how magnificent the specimen was going to be," says Brown.

After three days of intense safety training, the team began to liberate the dinosaur—a process that took two weeks of laborious 12-hour shifts. "All the mine staff from every level and department were tripping over themselves offering to help," Henderson later wrote in *The Guardian*. They eventually isolated a single 15,000-pound block that contained the animal, and that was jacketed in burlap and plaster. But as they lifted the block, the jacket split and the block collapsed—a horrifying moment, immortalized on video.

Fortunately, everything broke cleanly and in big pieces, all of which were shipped to the museum. One might think that a large team would process the fossil, but the museum's team of a dozen technicians is already stretched thin. Every year, Alberta discovers more dinosaur specimens than the Royal Tyrrell can possibly collect, so many are just left in the ground. Of those that are recovered, many linger in warehouses. The ankylosaur clearly deserved special attention, but because of its delicate state, it was assigned to a single pair of steady hands.

Those hands belonged to technician Mark Mitchell, who compares the process of separating dinosaur from rock to chipping concrete chunks from a surface as soft as compressed talcum powder. It took him 7,000 hours over 5.5 years, during which he did little else. For that reason, the dinosaur carries his name—*Borealopelta markmitchelli*. (The first half comes from the Latin for "northern shield.")

"It really helps us visualize what these weird dinosaurs would have looked like while alive."

The finished specimen, now on display to the public, is both breathtaking and reassuring. It's hard to reconstruct what animals look like based on bones alone—an elephant's skeleton bears no obvious trace of its trunk, and a bird's skeleton offers few clues about the thick overlying plumage. So paleontologists have debated whether giant dinosaurs had trunks, or whether all species were covered in some form of feathers. But for *Borealopelta*, "what we thought this animal looked like based on the skeleton is what is actually looked like," says Brown. "And it probably mostly had scaly skin."

It's a good time to be interested in ankylosaurs. Another new and well-preserved species was unveiled last month—*Zuul crurivastator*, named after the monster from *Ghostbusters* and the Latin for "destroyer of shins." "It's so wonderful to have two amazing new ankylosaur skeletons with the armor in place," says Victoria Arbour from the Royal Ontario Museum in Toronto, who named and described *Zuul*. "It really helps us visualize what these weird dinosaurs would have looked like while alive."

The shape of *Borealopelta*'s face and body are plain to see, but its remains have long lost their natural color, and are now tar-black with ochre spots. Still, they contain chemical clues about their original hues. To interpret those clues, the Royal Tyrrell team turned to Jakob Vinther from the University of Bristol.

In 2007, Vinther started studying tiny pigmented structures called melanosomes, found in fossilized dinosaur feathers. These come in two types—spherical ones that are reddish-brown, and sausage-shaped ones that are black or gray. By looking at the spread of melanosomes over a dinosaur's body, Vinther could reconstruct the palettes of these extinct animals. He worked out that the small hunter *Anchiornis* had a black-and-gray body with a red crest, while the four-winged *Microraptor* shared the glossy black plumage of a modern starling, and that the parrot-faced *Psittacosaurus* had a dark back and light belly.

Vinther couldn't find any melanosomes in *Borealopelta*'s skin. But he did find traces of chemicals called benzothiazoles, which are part of reddish-brown pigments. Based on the distribution of these chemicals, the team thinks that their ankylosaur had the same pattern as *Psittacosaurus*—a rust-colored head and back, and a light-colored belly.

This pattern—dark on top and light below—is called countershading, and is one of most common forms of camouflage in nature. If an animal was evenly colored all over, its own shadow would render its bottom half darker than its top half, making it easy to spot. Countershading, by lightening the bottom and darkening the top, cancels out the effect of the shadow and makes animals look flat and inconspicuous.

On land, countershading is a common trick among animals that need to hide from predators, like deer, antelope, and wild horses. But once prey animals get big enough, their bulk provides them with enough defense—that's why rhinos and elephants are just uniformly gray. *Borealopelta* bucks that trend. It's rhino-sized, and much bigger than any countershaded land animal around today. "The fact that this massive armored dinosaur with these huge spines still had countershading tells us that it was a common meal for the predators of the time," says Brown. Such predators might have included *Acrocantosaur*, as long as *Tyrannosaurus* but more lightly built.

It might seem obvious that plant-eaters like *Borealopelta* were hunted by large predators. But "some people believed that an animal like this was predator-proof," Brown says. "To get into the animal, you would have had to flip it onto its belly—and it's huge." Clearly, though, enough predators were doing that to drive the evolution of a camouflaged color scheme.

But Alison Moyer from Drexel University, who studies ancient molecules, isn't convinced for several reasons. For example, she

notes that benzothiazoles are naturally found in the sea, and it's not clear if the traces found in the *Borealopelta* specimen came from the dinosaur itself. It's also unclear how the animal's pigments would have changed as it floated belly-up on the ocean surface. "We know a lot about what happens to human skin in a bloat-and-float, and there are drastic changes between the side exposed to the water and the side exposed to the air," says Moyer. For a dinosaur, "we don't know anything about how their soft tissues degrade."

"There's still a lot of healthy scientific skepticism around the interpretation of ancient biomolecules like pigments," says Arbour. "It's just really hard to collect enough data to let us reconstruct color patterns on extinct dinosaurs. But for now, I am just excited about the exceptional preservation of this specimen and what we'll be able to glean from it in the long run. It's just so beautiful!"

The team is now trying to analyze the ankylosaur's gut contents, to see if they can identify its last meal. They're also trying to analyze its bones. That's usually the easy bit when it comes to studying dinosaurs, but with *Borealopelta*, the skeleton is obscured by skin! "We've tried to use CT-scanners but so far that hasn't been successful. The rock is too dense, but we hope future technology will let us look inside. Ironically, it's too well preserved!"

<https://www.theatlantic.com/science/archive/2017/08/a-dinosaur-so-well-preserved-it-looks-like-a-statue/535782/>

Boy finds 1.2 million-year-old fossil while playing outside

By Nicole Pelletiere

A piece of history has been found thanks to a boy stumbling upon a rare, 1.2 million-year-old animal fossil.

In November 2016, Jude Sparks, now 10, was on an outing with his family near their New Mexico home when he tripped over what he thought was a cow skull.

Now, researchers at New Mexico State University are preserving the discovery, which was identified as a *Stegomastodon* -- a mastodon-like or elephant-like animal.



PHOTO: Professor Peter Houde of New Mexico State University, confirmed the fossil to be that of a *Stegomastodon*—a mastodon-like or elephant-like animal. (Peter Houde)

"I imagined through my own mind of being 9 years old and finding something like that and how incredible it would be," dad Kyle Sparks. "Like most kids, he had this really strong phase, maybe 5 or

6 years old, where he'd be reading every dinosaur and fossil book you can imagine. He's ecstatic about it."

Sparks, a father of three, said he left what to do with the fossil up to Jude, who decided he wanted to call an expert.

Sparks reached to Peter Houde, a professor at New Mexico State University, who had experience with the same type of fossil in the past.

The next day, Houde came out to see the remains for himself.



PHOTO: Professor Peter Houde of New Mexico State University estimated the fossil to be 1.2 million years old. (Peter Houde)

"I was real excited," Houde told ABC News. "I really like to encourage people to be aware. It was really fortuitous that this particular family did what they did. Had they tried to dig up something themselves, it really takes a great deal of technical know-

how without destroying the specimen in the process. They were really responsible to try to get in touch with somebody.

"It is great for the community because now everybody can appreciate it," he added.

Houde said the university was granted permission from the landowner where the fossil was found to perform an extrication in late May.

Prior, Houde confirmed the fossil to be that of a Stegomastodon.

Houde extricated the remains of the species with his fellow faculty members and a geologist.

Houde said one of the tusks is missing from the animal, suggesting that there could be more skeletons near the site where Jude found the skull. He hopes to return to the site with geologists for an additional search, he added.

Jude and his family have been invited to visit the fossil as researchers preserve it at the university, his father said.

<https://www.yahoo.com/gma/boy-finds-1-2-million-old-fossil-while-212704033--abc-news-lifestyle.html>

UPCOMING SHOWS

April 6 - 8, 2018: Raleigh, NC – 42nd 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 ongoing 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; www.tarheelclub.org;

October 6, 7 and 8, 2017 (Fri. Sat. Sun.): Dallas, NC - Gaston Gem, Mineral & Faceters' Show. Presented by the Gaston Gem, Mineral & Faceters Club of Gaston County, NC. Hours: Friday & Saturday: 9 AM TO 6 PM; Sunday 9 AM TO 5:00 PM; Address: Gaston County Park, 1303 Leisure Lane (Hwy 279 [Dallas-Cherryville Hwy]), Dallas, NC. FREE ADMISSION. Jewelry, wire wrapping, faceting and rough materials. Minerals from around the world! Hourly raffles and a grand prize awarded Sunday at 5:00PM. Grab bags and gem buckets for sluicing. Contact: Dealers Interested In Participating, Please Contact David Long, Show Chairman Phone 704-860-1025. E-Mail david28054@att.net

November 17 - 19, 2017: Columbia, SC - The Columbia Gem & Mineral Society will hold its 50th Annual Gem, Mineral, & Jewelry Show. Hours: Fri. Nov. 17, 10:00 - 6:00; Sat. Nov. 18, 10:00 - 6:00; Sun. Nov. 19, 11:00 - 5:00; Address: Jamil Temple, 206 Jamil Rd., Columbia, SC 29210. Admission: \$5.00 for adults, Sixteen & under free with adult. All military & their dependents free. Jewelry, beads, loose stones, fossils, minerals, gold, silver, & tools for sale. Geodes sold & cut. Club member's rock collections on exhibit & lapidary demonstrations. Lots of fun for the whole family. South Carolina amethyst on display. Sponsored by The Columbia Gem & Mineral Society. Contact: Sue Shrader 803-736-9317; ashrader@mindspring.com; Dealers; Sharon Sterrett 803-356-1472; ssterrett@sc.rr.com; www.cgams.org

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 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 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 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 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.

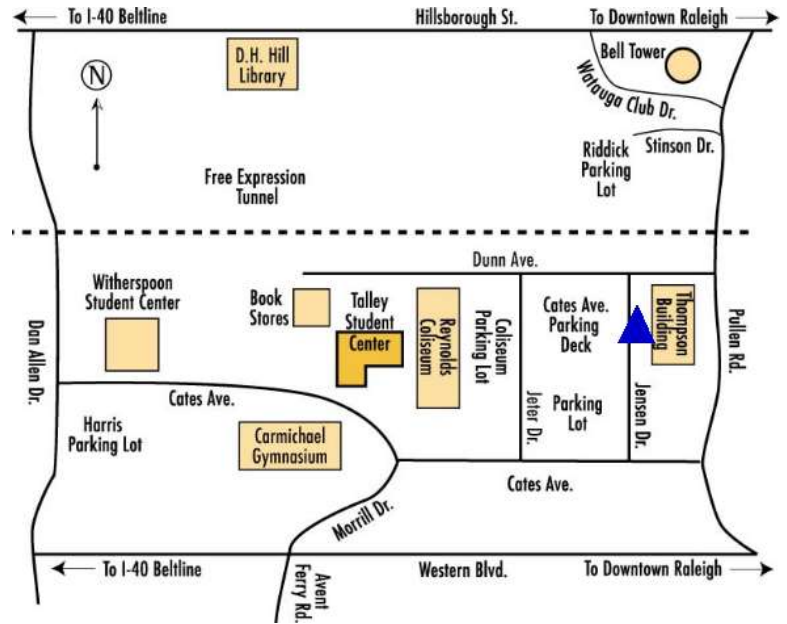
Park in the Cates Ave. Parking Deck off Jensen Dr. Enter Thompson Building directly across from the parking lot.

**Our Next Meeting is
August 15, 2017 @ 7:00PM
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

