

# Tar Heel Tailings

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

## Special Interest Articles:

- Prez Sez
- Curiosity Finds A Melted Metal Meteorite On Mars
- New Images Reveal the Anatomy of an Active Volcano
- Mount Hekla was called Gateway to Hell

## Individual Highlights:

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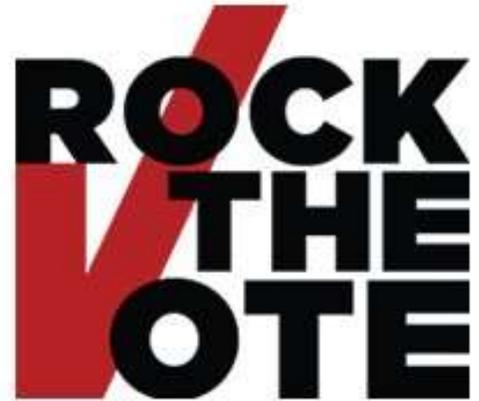
## Prez Sez By Cyndy Hummel

A Special Election Edition of Prez Sez

The November meeting will be election of officers and Auction of rough and minerals, including gem quality opal and hand sized geodes. Our refreshment chairperson, Loretta will be baking turkey pot pie in honor of the season.

By club by-laws, when there is more than one person running for an office, the vote will be by secret ballot.

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## Curiosity Finds A Melted Metal Meteorite On Mars by Matt Williams

Since it landed on the surface of the Red Planet in 2012, the Curiosity rover has made some rather surprising finds. In the past, this has included evidence that liquid water once filled the Gale Crater, the presence of methane and organic molecules today, curious sedimentary formations, and even a strange ball-shaped rock.

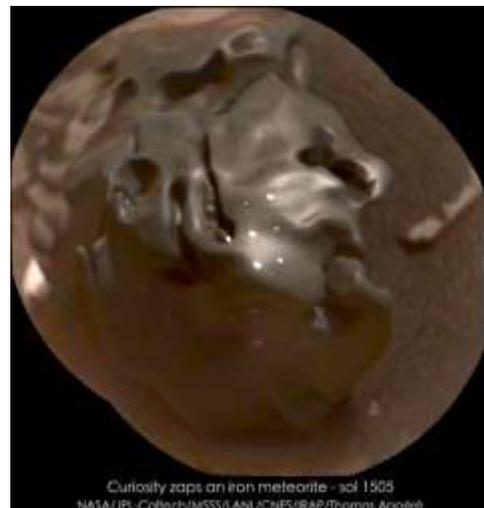
And most recently, Curiosity's Mast Camera (Mastcam) captured images of what appeared to be a ball of melted metal. Known as "Egg Rock" (due to its odd, ovoid appearance) this object has been identified as a small meteorite, most likely composed of nickel and

iron.

Egg Rock was first noticed in an image that was snapped by Curiosity on Oct. 28th, 2016, (or Sol 153, the 153rd day of Curiosity's mission). The rover then snapped a two-frame portrait of the meteorite (seen below)

two days later (on Sol 155) and studied it using its ChemCam's Remote Micro-Imager (RMI). This provided not only a close-up of the strange object, but also a chance for chemical analysis.

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Curiosity zaps an iron meteorite - sol 1505  
NASA/JPL-Caltech/MSSS/LANL/CHES/RAP/Thomas Aparé

**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

November Loretta Turcotte

PROGRAM SCHEDULE:

November Field Trip General Safety Session,  
Elections & Thank You from The  
Club

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

**November Treasurer's Report**

November Treasurer's Report

Sep. Ending /	
Oct. Beginning Balance	\$4,898.34
-----	
Deposits (+)	
Members	\$20.00
-----	
Sub total	\$20.00
-----	
Checks Written (-)	
Newsletter	\$230.05
Meeting food	85.00
Refund Auction item	45.00
Correction # Check #2273	.82
-----	
Sub Total	\$360.87
-----	
Oct. Ending /	
Nov. Beginning Balance	\$4,557.47

**November B-Day Members**

- Rick Baldwin
- Dan Cathy
- Kelsey Cox
- Brian Johnson
- Scott LaBorde
- Jerry Miller
- Debbie Miller
- Eric wilkinson



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. - September Meeting Minutes

Tuesday, October 18, 2016

No Minutes for October

Respectfully Submitted

Melissa Whitfield,

Secretary, Tar Heel Gem and Mineral Club, Inc.

### Prez Sez

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I will provide these ballots for every club member that has paid dues to date. Attendance is required to vote. You may come to vote and leave, if that is your wish.

Nominations that occurred in October are – President – Dan Cathey, Vice President – Jack Fried and Treasurer – Eileen Breckstein. In November, Cyndy Hummel will run for President again and Corinne Hummel will run for Treasurer. I had hoped to pass these duties to someone else, but you will come to understand why I cannot do so at this time.

Unfortunately for me and the club, if elected President, Mr. Cathey will remove me as Chairperson of the show. According to the unofficial by-laws of the club, this position can be appointed by the President. So in theory, the club could have a new person as the Show Chairperson every year. There would be no continuity from year to year. The quality of the show would suffer.

I have not asked to be relieved of my duties. I have done a quality job for 15 years. I have held the “title” of Dealer Chairperson for most of that time, but have done

## CURIOSITY FINDS A MELTED SPACE METAL METEORITE ON THE SURFACE OF MARS

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Image from Curiosity's Mast Camera (Mastcam), which captured a small rock believed to be a meteorite on Sol 153. Credit: NASA/JPL-Caltech/LANL/ASU

The chemical analysis revealed that the rock was composed of metal, which explained its melted appearance. In essence, it is likely the rock became molten as it entered

all of the duties of Show Chairperson for these years. It takes someone dedicated who cares about the integrity of the club to handle these duties. It can be hard work.

Who do you see year after year at the show all 4 days? Who is there on Thursday to set up and Sunday to pack up? Who is there all 4 days – all the chairpeople are there.

As difficult as it is to get quality volunteers, why would Mr. Cathey remove said volunteer? No explanation has been given other than “according to the by-laws, this position is appointed by the President”.

So I ask the voting membership to choose on our election night. Do you wish for continuity of the club show or the tossing away of a quality volunteer?

Most Sincerely,

Cyndy Hummel

President,

Tar Heel Gem and Mineral Club, Inc.

Mars' atmosphere, leading to the metal softening and flowing. Once it reached the surface, it cooled to the point that this appearance became frozen on its face.

Such a find is quite exciting, if not entirely unexpected. In the past, Curiosity and other rovers has spotted the remains of other metallic meteorites. For instance, back in 2005, the Opportunity rover spotted a pitted, basketball-sized iron meteorite that was named “Heat Shield Rock”.

This was followed in 2009 by the discovery of “Block Island”, a large dark rock that measured 0.6 meters (2 feet) across and contained large traces of iron. And in 2014, Curiosity spotted the mostly-iron meteorite that came to be known as “Lebanon” which measured 2 meters (6.5 feet) wide – making it the largest meteorite to ever be found on Mars.

However, “Egg Rock” is somewhat unique, in that its appearance seems more “melted” than meteorites spotted in the past. And as George Dvorsky of *Gizmodo* indicated, other aspects of its appearance (such as the long hollows) could mean that it lost material, perhaps when it still molten (i.e. shortly after it reached the surface).



Image of the iron meteorite found on Mars by the Opportunity rover on the Sol 339 (Jan. 6th, 2005). Credit: NASA/JPL/Cornell

And such finds are always interesting because they provide us with the opportunity to study chunks of the Solar System that might not survive the trip to Earth. Given its greater proximity to the Asteroid Belt, Mars is better situated to be periodically struck by objects that get kicked out of it by Jupiter's gravity. In fact, it is theorized that this is how Mars got its moons, *Phobos* and *Deimos*.

In addition, meteorites are more likely to survive passing through Mars' atmosphere, since it is only about 1% as dense as Earth's. Last, but certainly not least, meteorites have been striking Earth and Mars for eons. But since Mars has had a dry, desiccated atmosphere for all of that time, meteorites that land on its surface are subject to less wind and water erosion.

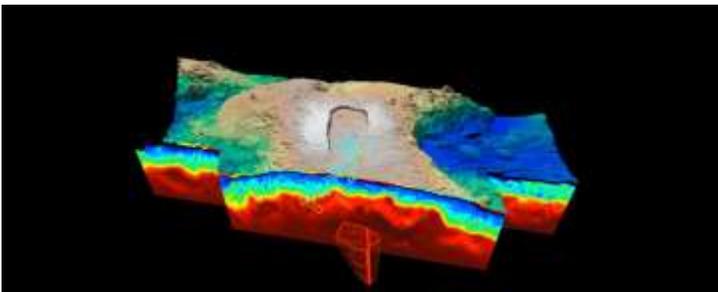
As such, Martian meteorites are more likely to be intact and better preserved over the long haul. And studying them will give planetary scientists opportunities they may not enjoy here on Earth. Now if we could just transport some of these space rocks home for a more detailed analysis, we'd be in business! Perhaps that should be something for future missions to consider.

*Further Reading: ASU – Red Planet Report*

<http://www.universetoday.com/131731/curiosity-finds-melted-space-metal-meteorite-surface-mars/#>

## New Images Reveal the Anatomy of an Active Volcano

By Mario C. Aguilera



Magma reservoir the size of Yosemite Valley is the thickest ever imaged beneath a 'hot spot'

With modern computing power and innovative analytical skills, scientists at Scripps Institution of Oceanography at UC San Diego and their colleagues have constructed the most detailed imagery to date of a massive active magma chamber located off the Pacific Northwest where Earth's plates are spreading the seafloor apart.

Scientists including Scripps postdoctoral researcher Adrien Arnulf and researcher Alistair Harding, both based at the Cecil H. and Ida M. Green Institute of Geophysics and Planetary Physics at Scripps, tapped into a trove of seismic data to uncover a magma reservoir comparable in size to California's Yosemite Valley.

New details of the internal structure beneath Axial volcano, which erupts roughly every decade, are presented in a recent issue of the journal *Geology*.

Arnulf said Axial's magma chamber, centered at the intersection of the Juan de Fuca Ridge and the Cobb hotspot chain, spans 14 kilometers (8.7 miles) long, three kilometers (1.8 miles) wide, and one kilometer (0.6 miles) thick.

"It's the best picture of a volcano anywhere on the planet," said coauthor Graham Kent, a Scripps alumnus now based at the University of Nevada, Reno.

Since the data were collected in 2002 from the research vessel *Maurice Ewing*, Kent said transformative new imaging and computing techniques have allowed the researchers to construct images with unprecedented fidelity. Kent likened the process to comparing details of a 20th century X-ray to a modern MRI.

The new images revealed a geometrically complex magma system that includes several never-before-imaged pathways that may transport magma to eruption sites on the earth's surface and help relieve stress within the volcano. The images also revealed that only a small fraction of the magma in the giant reservoir is used during an eruption event.

The National Science Foundation and the Cecil H. and Ida M. Green Foundation supported the study. Coauthors include Suzanne Carbotte of Lamont-Doherty Earth Observatory; Juan Pablo Canales of Woods Hole Oceanographic Institution; and Mladen Nedimovic of Lamont-Doherty Earth Observatory and Dalhousie University.

<https://scripps.ucsd.edu/news/research-highlight-new-images-reveal-anatomy-active-volcano>

## Mount Hekla was called Gateway to Hell

By Deanna Connors

Mount Hekla is Iceland's 3rd most active volcano. A large eruption in 1104 earned it the moniker Gateway to Hell. Is Mount Hekla overdue for another eruption?



The ice-covered volcano in the distance is Mount Hekla in Iceland today. Image via [Ulrich Latzenhofer](#).

Volcanoes can be really scary. After all, they spew out fiery lava, searing ash, and toxic gas. Take Mount Hekla, for example, which is a 4,891-foot-tall (1,491-meter-tall) [stratovolcano](#) located in Iceland. In addition to the above hazards, giant [lava bombs](#) weighing nearly 12 tons have been found in the surrounding region and its fluorine-rich deposits are poisonous to sheep and other animals. So it wasn't surprising that, following a very large eruption in the year 1104, Mount Hekla became known as the Gateway to Hell.

According to a nice writeup in [IceNews](#), one of the earliest references to Hekla's ferocity can be found in a 12th century poem written by monk Benedeit about the voyages of Saint Brendan. In it, he refers to Hekla as the "eternal prison of Judas."

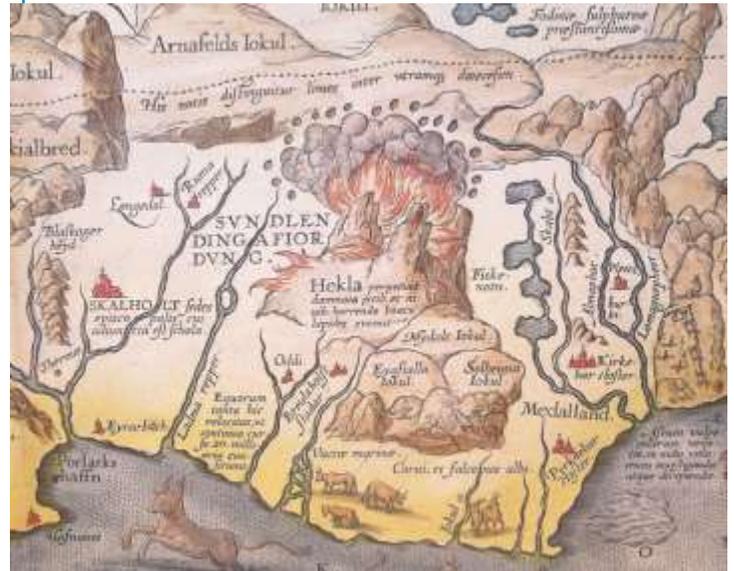
In the 16th century, Caspar Peucer of Germany wrote that the Gates of Hell were located in "the bottomless abyss of Hekla Fell."

Birds flying around Hekla were once thought to be lost souls, and witches were thought to gather at the volcano on Easter.

Clearly, Hekla is not the Gateway to Hell, but it is a dangerous volcano that some people think might be [overdue for an eruption](#).

Hekla has erupted more than 20 times over the past 1,000 years. It's Iceland's third most active volcano. In recent years, the volcano has erupted at a frequency of approximately once every decade. The latest eruptions occurred in 1970, 1980–1981, 1991, and 2000. Thus, 16 years have passed since the volcano last erupted.

However, prior to 1970, [longer periods of quiescence](#) were not uncommon.



Mount Hekla figured prominently on this 1585 map of Iceland, created by Abraham Ortelius. Image via [Wikimedia Commons](#).

The [Icelandic Met Office](#) monitors activity at the volcano with a network of sensors and posts notices of any eruptions and unusual seismic activity. Heightened seismic activity is often a sign that magma is moving within the volcano's magma chamber, and it can give scientists an advanced warning of an imminent eruption.

The early 1104 eruption at Hekla is estimated to have been a [5](#) on the scale of the Volcanic Explosivity Index (VEI), which ranks eruptions based on the amount of material that they eject. For comparative purposes, the 1980 eruption at Mount St. Helens was also a 5 on the VEI.

On Earth, eruptions of that magnitude tend to occur once every [10 to 100 years](#).

Bottom line: Mount Hekla is one of Iceland's most active volcanoes. A very large eruption in the year 1104 earned it the title "Gateway to Hell." In recent years, the volcano has erupted at a frequency of approximately once every decade. Since it has been 16 years since it last erupted, some people think that an eruption at Hekla is now overdue.

<http://earthsky.org/earth/mount-hekla-was-called-gateway-to-hell>

## November Birthstone - Topaz

November's birthstone, the topaz, was thought to have the power to cool boiling water, as well as excessive anger.

The word 'topaz,' birthstone for the month of November, comes from a Sanskrit word meaning "fire." And in ancient lore, the topaz could be used to control heat. It was said to have the power to cool boiling water, as well as excessive anger. As medication, topaz was used to cure fever.

Topaz occurs in a range of magnificent colors – blue, pale green, varying shades of yellow, pink, red, brown and even black. Pure topaz itself is a colorless stone. Red and some pink topaz get their colors from chromium that is substituted for aluminum in the crystals. But most other colors occur due to minor element substitutions and defects in the crystal. Some colors are unstable and can fade away; for example, brown topaz mined in Siberia can be bleached by sunlight. In other stones, color changes can be induced by heating. High energy irradiation and moderate heat treatment of colorless topaz can transform it to blue gemstones.



Photo credit: [Orbital Joe/Flickr](#)

Chemically, topaz is known as aluminum silicate fluoride hydroxide. Because of strong chemical bonds within this mineral, topaz is the hardest of silicate minerals. Topaz gemstones occur in a large variety of sizes, from tiny crystals to large rocks. The biggest uncut stone, a specimen found in Brazil weighing almost 600 pounds, is on display at the American Museum of Natural History in New York. A famous cut topaz in history is found among the crown jewels of Portugal, a magnificent yellow stone weighing 12 ounces.



This gem, with its lively fire, clarity, beautiful colors and hardness is ideal for jewelry such as clips, necklaces, brooches and bracelets. Pure topaz, when brilliantly cut, can be often mistaken for a diamond. Because of its rarity, topaz is an expensive gem. The most valued and rarest color is red. Imperial topaz-sherry colored varieties of brownish-yellow, orange-yellow and reddish brown-are the most popular topaz stones and command high prices, as do pink colored stones. Light blue and pale yellow topaz are of less value, but are nevertheless stunning in beauty.

Brazil is the largest producer of topaz, the most notable source being the Minas Gerais region. Gems are also found in Russia, the Ukraine, Pakistan, Scotland, Japan and Sri Lanka. In the United States, the gemstones have been found in Colorado and California.

During the Middle Ages, the topaz was used mostly by royalty and clergy. A 13th century belief held that a topaz engraved with a falcon helped its wearer cultivate the goodwill of kings, princes and magnates.

Topaz was once thought to strengthen the mind, increase wisdom, and prevent mental disorders. It was thought to guard against sudden death. Powdered topaz added to wine was used to prevent asthma and insomnia. A cure for weak vision called for immersing the stone in wine for three days and nights, then rubbing the liquid on the eyes.

<http://earthsky.org/earth/november-birthstone-topaz>

## UPCOMING SHOWS

**Nov. 18 - 20, 2016: Columbia, SC** - The Columbia, SC Gem & Mineral Society will hold its 49th Annual Gem, Mineral, & Jewelry Show. Jamil Temple, 206 Jamil Rd., Columbia, SC 29210. 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. Hours: Fri. 10:00 - 6:00; Sat. 10:00 - 6:00; Sun. 12:00 - 5:00. Admission: \$5.00 for adults, Sixteen & under free with adult. All military & their dependents free. Contact: Sue Shrader 803-736-9317; ashnader@mindspring.com. Dealers; Sharon Sterrett 803-356-1472; ssterrett@sc.rr.com. <http://www.cgams.org>

**Nov. 25 - 27, 2016: Salem, VA** - Roanoke Valley Mineral and Gem Society annual show; Salem Civic Center, 1001 Roanoke Boulevard, Salem, Va. 24153; Friday, Saturday, and Sunday, November 25, 26, 27. Hours, 2pm – 7pm Friday; 10am – 6pm Saturday; 12pm – 5pm Sunday.; Admission \$5.00 good for all 3 days; Door prizes, Fluorescent mineral display and new this year a video room showing videos about rocks and minerals. Door prizes, grand prize drawn Sunday at 4:30pm; Contact: Mark Hodges [markh5@cox.net](mailto:markh5@cox.net)

**March 31 - April 2, 2017: Raleigh, NC** – 41<sup>st</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);

**January 21–22, 2017: Deland, FL** - 46th Annual Jewelry, Gem Minerals & Fossil Show & Sale. Sponsored by the Tomoka Gem & Mineral Society. Sat 10–6/Sun 10–5 at the Volusia County Fairgrounds, 3150 E. New York Ave, Deland, FL 32724. Admission \$4; children under 12 free. Contact: Susan Morris, 386.843.0152; [tgmsshow2017@gmail.com](mailto:tgmsshow2017@gmail.com); \$1-off coupon on the web: [www.tomokagms.org](http://www.tomokagms.org) or [www.tomokafacetersguild.org](http://www.tomokafacetersguild.org)

**February 25–26: Jackson, MS** - 58th Annual Gem, Mineral, Fossil and Jewelry Show. Sponsored by the Mississippi Gem and Mineral Society (MGMS). Sat 9–6/Sun 10–5 at the Mississippi Trade Mart on the State Fairgrounds, Jackson, Mississippi. Adults \$6, students \$3; Scouts and Leaders in Uniform \$2; Children 5 and under, free. Info at [rock2lanes@gmail.com](mailto:rock2lanes@gmail.com) or [www.missgms.org](http://www.missgms.org).

**March 11-13: Augusta GA** - 29th Annual Gem, Mineral & Fossil Show. Co-sponsored by the Aiken Gem, Mineral and Fossil Society and the Augusta Gem & Mineral Society. Fri & Sat 10–7/Sun 11–5. Julian Smith Casino / 2200 Broad St. / Augusta GA. Admission: \$3 per adult or \$5 Weekend pass; children under 12 FREE with an adult. Chair Richard McNutt [www.aikengmfs.org](http://www.aikengmfs.org) or [agam.club](http://agam.club).

**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  
November 15, 2016 @ 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

