

Tar Heel Tailings

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

Special Interest Articles:

- President's Report
- Ancient Spiral Ring Reveals Ancient Complex Machines
- Upcoming Events
- Fire Agate Information

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President's Report

So What's Rockin',
There's only one thing Hotter than July, and that's August!

I hope some of you are planning to get to some of the shows in the mountains these next few weeks, to not only view the latest in rock related merchandise, but to beat the heat.

We are sorry that our last
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Ancient Spiral Ring Reveals Ancient Complex Machines

Journal reference: Science (vol 304, p 1638)

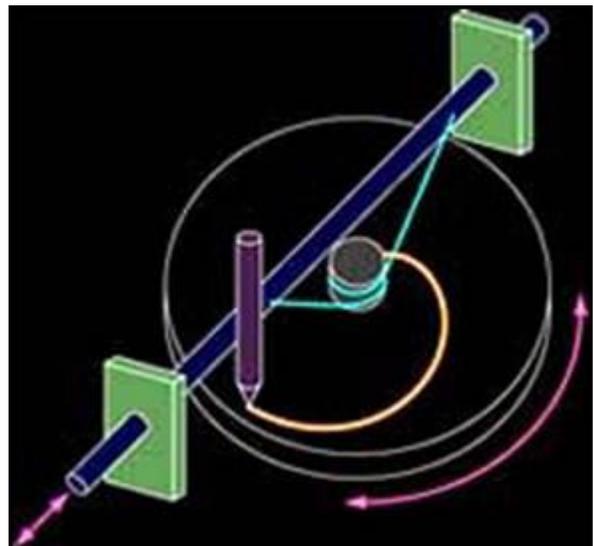
Distinctive spiral patterns carved into a small jade ring show that China was using complex machines more than 2500 years ago, says Peter Lu, a Harvard graduate student in physics.

The ring was among the goods found in high-status graves from China's "Spring and Autumn Period" from 771 to 475 BC. Most archaeological attention has focused on larger and more spectacular jade and bronze artifacts. But Lu identified the

patterns on the small rings as Archimedes' spirals, which he believes are the oldest evidence of compound machines.

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We're on the Web!
See us at:
www.tarheelclub.org

Program & Refreshments

REFRESHMENT SCHEDULE:

Coordinator: Jeanette Baugh (919) 522-9044
villagegems@yahoo.com

July	Open
August	Ice Cream Social
September	Walt Milowic
October	Cyndy and Corinne Hummel
November	Jerry and Deborah Miller

PROGRAM SCHEDULE:

July	Jeff Schlotman - Types of Quartz
August	Ice Cream Social
September	Open
October	Open
November	Open

We still need a volunteer to bring refreshments for this meeting. Remember the club will reimburse you for up to \$40 (bring your receipts). Please call me, if you are willing to delight your fellow club members. August will be the Ice Cream Social again so start thinking about what special goodies you might bring. We need everyone to participate and bring something to make this a really spectacular summer social! Thank you, Jeanette Baugh

July B-Day Members
Becky Davenport
John King
Walter Milowic
Penny Rosser
Vickie Shore
Barbara Todaro



May Treasurer's Report

May 2011 Financial Report
April Ending /
May Beginning Balance \$17,801.10

Checks Written
N & O Adv Show \$1081.71
IMP Newsletter 53.88
Staples Labels 38.75
Class Supplies Craft Ctr. 544.00
Meeting Food 83.96
SS Storage 93.00
MV Trailer Tags 24.00
Staples Copy Card 35.00

Sub Total \$1954.30

Deposits
Members \$95.00
Auction \$529.00
Money Returned
Upstairs Food 12.35

Sub Total \$636.35

May Ending /
June Beginning Balance \$16,483.15



Membership applications may be mailed to:

Tarheel Gem & Mineral Club
Attention: Treasurer
10609 Chelsea Drive
Raleigh, NC 27603

Tar Heel G & M Club June Meeting Minutes

Tuesday, June 21, 2011

The business meeting started at 7:48 pm. by Joe Moylan. Joe read the minutes. Cindy moved to accept the minutes as read, and the move was seconded by Mickey.

There was a discussion about the recent field trip and Joe thanked Tom for his work in making it such a success. Tom spoke about the upcoming field trip, in a quarry which was new to all, on 6/25/2011.

Barrett Redpath gave a presentation about a recent trip to Rock City, up north somewhere in yankee country, complete with pictures. It was quite nice.

Fall '11 Class Brochure

It's Time to Register for Fall 2011-2012 Classes!!!

Our studios have been refreshed and the jewelry studio now sports a new Durston roll mill. In support of the campus WolfWheels initiative, any NC State student who completes one of the Crafts Center's bicycle repair sessions will have access to our new Park Tool bicycle repair station ...for the duration of their college career! And, the newly introduced Stafford camera loan program offers NC State students the use of six Nikon D3000 cameras in support of Crafts Center photography classes! The Crafts Center is the place with the space for making things happen.

Especially for NC State students, look through our brochure and check out the expanded offering of classes and activities. You will quickly see that there's no better deal on campus! And this year, the NCSU Photo Club and the Crafts Center will expand the pinhole photography challenge to include two \$100 prizes.

The Crafts Center really is the perfect place to unwind, make new friends, and have fun exploring the other side of your brain! Whether working on an academic project or just eager to dirty your hands in the creative process, come join us through participation in classes, studio usage, and special events such as the Annual Crafts Fair and a special presentation by jeweler Marlene Key. And, thanks to the generosity of our student body, this wonderful facility is also made available to the community at large. Welcome all!

Listen up and act soon as NC State students have priority in registration starting July 25 through August 7. Come as you are, or grab a friend and sign up for a class together. Give yourselves a little quality "we" time sharing in the fun of learning a new craft. Whether taken for pleasure or in support of personal artistic aspirations, our classes are

Sad News

Please let the members know that Wayne Jessee passed away on March 25, 2011.

As many of you know that he battled a lung disease (COPD) for many years. Although he was not able to be a very active member, he cherished his friends and

Barbara made a motion to end the business meeting and it was seconded by Obsidian.

A mineral auction followed with a large quantity and variety of specimens. It was quite clear that one member thinks in half dollars, and that Barrett clearly got the best deals. Joe anxiously bid on two lots but was only able to win one. Sorry Joe!

The auction ran until closing at 10:00pm.

Respectfully submitted, Bob Bendelow

healthy in providing a 'cool' respite from the demands of academic life.

If you are not an NC State student, keep in mind that registration for everyone else begins on Monday, August 8.

Tour our studios, see demos and enjoy refreshments at our Open House on Tuesday, August 16, from 4-6 pm. The Crafts Center opens for fall semester on Wednesday, August 17.

How to Register. A copy of the brochure has been emailed to you and classes are now listed on our website www.ncsu.edu/crafts. The website includes printable copies of the registration form. You can mail in your registration or drop it in our "drop box" located in the gray door to the right of the main entrance. Remember, fees must be paid by cash or check only; we cannot accept credit cards.

Studio Passes. Those who've previously held passes can renew for fall semester while registering for classes. Simply fill out the appropriate information on the registration form. For others who have not previously had studio access, passes can be obtained following a brief orientation after we reopen in August.

Planning your Studio Time. Before leaving home, work or class, go online to see if your studio space is available. The schedule of all Crafts Center classes and events can now be found on a Google calendar linked from our home page.

A special thanks goes out to the many participants and volunteers who will make this year a huge success.

The Crafts Center Staff:

George Thomas, Jo Ellen Westmoreland, Dusty Fletcher, Gaines Bailey & Michael Gallagher

acquaintances that he made through the club.

Thank you for the part you played in enriching his life. May each of you be blessed in your spirit as you remember Wayne.

Thank you, Debbie Jessee

President's Report

Continued from page 1

fieldtrip to a slate quarry in the Asheboro area was cancelled last month. We hope to see that re-scheduled soon and will have to wait and see what other places of interest Tom can come up with for us to visit.

I am sorry to have to report that the rare Beryl specimen found by Bob Bendelow at our last fieldtrip to the Knightdale quarry turned out to be some form of Feldspar. I hope we all will be able to look at this specimen closer to try and figure out just what type of Feldspar it might be. Even though Beryl and "Bendelowite" may no longer be possibilities it is still an interesting specimen and one we can learn a lot from.

Auctions are over for now. Thank you all for coming and showing your support for the club. We will have a speaker for this months program.

I hope everyone has great summer vacations and are recording them for reports to the group. Remember, if you can't share it, you probably shouldn't be doing it to begin with.

See You at the Meeting,

Joe Moylan

Ancient Spiral Ring Reveals Ancient Complex Machines

Continued from page 1

475 BC. Most archaeological attention has focused on larger and more spectacular jade and bronze artifacts. But Lu identified the patterns on the small rings as Archimedes' spirals, which he believes are the oldest evidence of compound machines.



The spiral-patterned ring is 27 mm in diameter and was probably a body ornament

Specialists believe most ancient Chinese jades were hand-carved, but Lu thought the spirals on the jade rings were machine-made as soon as Jenny So, an art historian at the Chinese University of Hong Kong, showed him one at the Smithsonian Institution.

"I said I bet you could do it with a modified bow drill, and she looked at me as if I had two heads," Lu told New Scientist. Challenged to prove he was right, Lu built a spiral-carving machine around an old record player. It resembles the bow drill that Boy Scouts traditionally use to start fires without matches.

He wrapped a string tightly around the spindle on the turntable, and attached its ends to a rod that ran between mounts on either side of the turntable (see diagram). Holes in the mounts held the rod so it could move back and forth along its length, but not sideways. A stylus attached to the rod rested on the turntable. Moving the rod back and forth

turned the turntable, so the fixed stylus wrote a spiral on the surface.

"There is no prima face evidence that this is how they did it," Lu admits. But the circumstantial evidence is strong. The spirals neatly match the Archimedian shape, and their center is at the centre of the ring, which could be cut that way by turning the jade with the stylus fixed in place. The spiral carvings are also noticeably more uniform than other jade patterns.

The rings date from at least 552 BC, and while there is no evidence of earlier spiral rings, Lu says nobody has been looking for them. Meanwhile, Lu is turning back to his graduate work in physics. On Friday he has to talk to astronauts on the International Space Station about an experiment he has on board to study how liquids and gases change phase.

Ancient Chinese jade workers had an arsenal of lapidary tools that evolved from very early Neolithic times. These tools varied with the use of simple hand tools to machines that used torque, pressure and high RPM. It is known that hydraulic technologies were employed by the Greek and Roman civilizations, so it is not conceivable to deduct that the Chinese also had hydraulic lapidary technologies long ago?

There is mounting archeological evidence that sheds light on the fact that these ancient people were not primitive. My teacher believes that ancient Neolithic Chinese had discovered the use of hydraulic energy to turn ancient star metal steel drill bites that had embedded garnet chips for drilling large holes in hard jade gem-stone. If one examines the complexity of Liangzhu jades that were created 5,000 years ago, then it becomes apparent that these most ancient people of China possessed sophisticated, technologically advanced lapidary machinery.

Fire Agate Information

By Joan Reinbold

Fire agate is a rare iridescent gem in the quartz family, a variant of chalcedony. It can be found in the south-western area of North America and in Mexico and is collected by mineral enthusiasts and used in jewelry.



Fire agate is a gem made from concentric layers of colored silica and iron oxide, and before being cut, it also has a covering of chalcedony. The layers of silica and iron oxide allow light to pass through them in such a way as to display a metallic luster, called 'schiller'. The appearance of this mineral is similar to opal.

In the gem world, a mineral's hardness is rated using the Moh's scale, a relative scale for testing hardness wherein a diamond receives a 10. On this scale fire agate receives a 7, meaning it is a hard gem. Another important aspect of gems is how they break, which is called cleavage. Some gems break in symmetrical shapes, while others fragment, and these different ways are given labels. Other gems, such as

fire agate, are labeled as having no cleavage, as they do not form a crystal lattice.

Composition: The chemical formula for fire agate is SiO_2 , meaning that it is made up of silicon and oxygen molecules. This chemical formula is shared by the whole quartz family. Metallic impurities in the silica result in the rainbow of colors in fire agate.

Formation: The most current understanding of how fire agate forms involves hydrothermal environments. Extremely hot water super-saturated with iron oxide and silica flows into subterranean spaces and is stopped, where it cools down. Then, chalcedony begins to form from iron oxide, lining the surrounding rock. Within this layer of chalcedony, concentric layers of iron oxide and silica form on top of each other. Limonite also forms, coating these inner layers. This coating of limonite causes the colors of the fire agate to flash like a diamond.

Sources: Fire agate has only been found in the southwestern United States and parts of Mexico. Within the U.S. fire agate has been discovered in the area between Needles, Calif. and Kingman, Ariz. It has also been found in the vicinity of the Colorado River. In Mexico, fire agate has been found in two states, Aguascalientes and San Luis Potosi.

Significance: Gem quality fire agate is rare. It is so scarce that the most sought-after gems, including ruby, emerald and diamond, are less rare by comparison.

[Editor's Comment: Fire agate is often called fire opal; however, unlike opal, the play of color in fire agate does not come from refracted light through water-filled, close-packed lattices of silicon spheres. This article is in the public domain at http://www.ehow.com/about_5212803_fire-agate-information.html]

Storage Unit

If someone needs a storage unit, and they rent one from the Raleigh SecurCare Self Storage, and they say the TG&MC referred them, the club gets a free month's rents. This place has 24 hour access with a locked gate, there are inside as well as outside with garage type door units of various sizes available. They sometimes have deals such as: first month for half price (currently) or what I got: first month for \$1.00 (lock, insurance and fees actually made that first month \$37 but still well worth it).

Raleigh SecurCare Self Storage
6501 Hillsborough Street
Raleigh NC 27606
919-679-0009

<http://www.securcareselfstorage.com/self-storage-locations/self-storage-raleigh-nc-2/#!#units>



Upcoming Events

2011 SFMS WORKSHOP CLASS SCHEDULE

One of the unique facets of the Southeast Federation of Mineralogical Societies is the Workshop Program, which offers members the opportunity to gather for week-long, hands-on seminars taught by experienced instructors. Whether you are a newcomer to the lapidary arts and want to learn the basics, or whether you're an old hand who wants to learn something new or move on to the next level, the Workshop Program has something for you. We look forward to seeing you in 2011.

The Southeast Federation of Mineralogical Societies, Inc. sponsors four Gem, Jewelry and Mineral workshops each year. These are held at Wildacres, near Little Switzerland in North Carolina, and at the William Holland Retreat near the small town of Young Harris in northeast Georgia. Both facilities offer double accommodations with a private bath. Twin bed rooms and a number of rooms with a double bed and a twin bed arrangement are available.

A broad range of courses related to the lapidary arts are taught by qualified instructors from throughout the Federation. All instructors are volunteers who are not paid for the highly skilled and professional experience that they bring to the workshops.

The workshops are well equipped for common lapidary activities such as cabochon cutting, faceting, and silversmithing. Additional equipment is brought in when new or special courses are taught.

The intermediate and advanced classes listed with an asterisk (*) require some prior experience by the student. Experience in a class provided by your local club, Workshop class, or self-study may be enough. If you're interested in one of these classes, please do not exclude yourself without contacting the instructor first.

SESSION TWO - WILDACRES MONDAY, August 22 - 28, 2011

Beading, Seed	Barbara Green
Cabochons	Pat Davis
Cold Connections	Kathy Morris
Faceting	Steve Hillenbrand
*Fused Glass, Advanced	Rich Dillon
Gem ID	Mary Lou Kick
*Metalsmithing - Advanced	Jeff Shears
Silver I	Shannon Stafford & Annette Gibney
*Stone Setting	Don Roberts
Wire, Beginning	Velima Lawson

SESSION THREE - WILDACRES MONDAY, September 12 - 18, 2011

Cabochons	Anita Westlake
Casting	John Iacullo
Chain, Beginning	Kathy Morris
Lampwork	Linda White
Mineral ID	Scott Forward
Silver Cold Connection	Charlotte Caughman
*Silver, Filigree	Shannon Stafford & Annette Gibney
Wire, Beginning	Bonita Harris

SESSION FOUR - WILLIAM HOLLAND SUNDAY, October 9-16, 2011

Bead Weaving	Ron Midkiff
Cabochons	Anita Westlake
Chain Making	Dee & Bill Conybear
Enameling	Lynda Williams
Faceting	Mary Lou Kick
Fused Glass	Addy DePietro
Jadeite Bas-Relief Carving	Bill Smith
Lampworking	Cindy Reed
Opals	Joe DePietro
*Silver Filigree	Stafford/Warrick
*Southwest Silver	Dan Haga
*Silver II	Vicki Prillaman
Wire I	Judy Peppers

The SFMS workshop classes are ONLY open to current members of SFMS clubs. Members of other AFMS federation clubs are only eligible on a space available basis.

THE GENERAL PUBLIC CANNOT ATTEND THESE CLASSES!

For more information on rates and registration, go to: http://www.amfed.org/sfms/education_committee.html

UPCOMING SHOWS

Aug 4-7, 2011. Grassy Creek Gem & Mineral Outdoor Festival. Parkway Fire Department, Spruce Pine, N.C. Each year, running concurrently with the Mineral and Gem Festival is the Grassy Creek Festival, presented outdoors at Parkway Fire Department (in the Grassy Creek area of Spruce Pine). <http://sprucepine.com>

Sep 2-5, 2011: Raleigh, NC. Treasures of the Earth Gem, Mineral & Jewelry Show. NC State Fairgrounds, Scott Building. Show includes 14K gold and sterling silver jewelry, loose gems, pearls, beads and findings, minerals, crystals, fossils, remounts and wire wrapping by jewelers on site. Jewelers and wire wrappers on site that can do remounts, design or repair jewelry. Admission: Adults \$4 - under 16 admitted free. Show hours: Friday: noon - 7, Saturday: 10 a.m. - 6 p.m.; Sunday: 11 a.m. - 6 p.m.; Monday: 10 a.m. - 5 p.m. (804) 746-7663 tote1523@treasuresoftheearth.net

Sept 3-6, 2011. Hendersonville, NC—Henderson County Gem & Mineral Society. 29th Annual Gem, Mineral, Jewelry Show & Sale, Whitmire Activity Building, Lily Pond Road, Hendersonville.

Sept 9-11, 2011: Winston-Salem, NC. Forsyth Gem and Mineral Club. 40th Annual Gem and Mineral Show, Educational Building, Dixie Classic Fairgrounds, Winston-Salem#9 from 27th Street only. Hours: Fri & Sat 10-7, Sun 12-5. Contact W. A. Marion, Show Chair at 1163 Bear Creek Rd, Mocksville, NC 27028 or via e-mail at MarionA1@yadtel.net

Sept 30—Oct 2, 2011: Dallas, NC. Gaston Gem, Mineral & Faceters Club. Show & Swap, Resource Center, 1006 Biggerstaff Park, Dallas/Cherryville Highway, Dallas. Free admission. Hours: 9-6 each day. Contact Showchair Jackay McDaniel at (704) 865-6748

Dec 10-11, 2011: Franklin, TN. Mid-Tennessee Gem & Mineral Society. Gem, Jewelry, Mineral, Fossil Show and Sale, Williamson County AgExpo Park, 4215 Long Lane, Franklin, TN 37064. Hours: Sat 9-6, Sun 10-5. Admission \$4 (2-Day Pass \$6.00), students 18 and under \$1, children under 12 free with adult. Show contacts: John Stanley, Show Chair, (615) 885-5704 or Steve Henegar, Dealer Chair, (615) 714-3194. Email contact: show@mtgms.org <http://www.MTGMS.org/Show.htm>

Silent Auction Pictures



Vugsites

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

<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.

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.

