VOL 27 NO 7 • August 2005

Mid-TENN Gem'ers

Newsletter of
The Middle Tennessee Gem and Mineral Society, Inc.
P.O. Box 1256
Murfreesboro, TN 37133-1256

Inside this issue:

The Prez Rambles On...

……and a terrible thing happened…… with too little information to fill a newsletter, there was no newsletter for the month of July.

The newsletter is the backbone of our great organization. It is our means of communication and information. It is the informer of things to come and reminder of things past. We rely on this newsletter to get us thinking about the club and setting aside the time to attend. Now, luckily, we have so many members who remembered, and have been coming for such a long time, that we had a nearly full meeting for Kim Cochran's presentation. BUT, I am sure that several of you missed this fabulous meeting because you forgot to put us on your schedule. You also missed some great Stamp Fund prizes that Kim brought along with him.

SO, I am asking everyone for articles for the newsletter. They can be ones that you have written, or a copy of one that you read and cut out of a magazine at your dentist's office. It can be a list of books that you recommend or a list of ones that you bought and wish you had not, or something that you found on the Internet. Now, I do recommend that the article be about rocks, mineral, gemstones, jewelry making, silversmithing, etc. as articles about cats or raising chickens may be interesting but may not be well received by the other club members.

However you submit the article, handwritten, typed, email or by regular mail or just by handing it to the nearest officer of the club, we will make sure that it gets to the Newsletter editor and gets in the newsletter for all to enjoy.

June: The picnic was GREAT!!! Thanks to everyone who showed up and brought lots of extra food for me….eh… us to eat. Everyone had a good time eating

~ cont'd on page 2

The MTG&MS, Inc. is a non-profit educational society dedicated to the study and enjoyment of the earth sciences. We are open to the public for the education of all who wish to attend. Society membership is open to persons interested in the earth sciences. Applications are available on request.

Meeting Dates 2005:
August 18th
September 15th
October 20th
November 17th
December 15th

2006 will be here before you know it!

Dues are Due!!!

Dues are $12.00 for the first person of each household and $2.00 for each additional family member. Dues are payable January 1st and are prorated in April, July and October. Check the upper right hand corner of your address label for the year you are paid through.

Send dues to:
Will H. Smith
5304 Bellcrest Dr
Antioch, TN 37013

and the fellowship is always great. Afterwards a number of us went to visit the Mineral, Gem and Fossil Museum over at MTSU… Thank you Lewis, for going over and opening that up for those who had not had a chance to see it yet. Even though I had been there once, I was amazed a number of new specimens that had been added. I was told at the time that there were still a number of items that had not been prepared for display. SO, I am anxiously waiting for the official opening date, so that I can go back again to see what has been added.

July: Mr. Kim Cochran of Atlanta, Georgia was our guest speaker. Kim is a frequent guest speaker in the Rock, Gem and Minerals clubs through out the southeast. He has been a student of geology since he was four years old. He is an active member of six Rock and Mineral societies, in and near the Atlanta area. He was the curator of the Wieman Mineral Museum in Cartersville, Georgia for 11 years. He currently has 75 different topics and we got to hear his latest speech on Pyrite. Everyone enjoyed the presentation and we are looking forward to getting him back up to Murfreesboro for another one of his speeches.

Go ahead and mark your calendars now for the rest of the year:

Murfreesboro Meeting Dates

08/18/05
09/15/05
10/20/05
11/17/05
12/15/05

Donelson Meeting Dates

08/21/05
09/18/05
10/23/05
11/20/05
12/1805

John R. Martin

MTGMS BOARD MEETING Thursday, July 21, 2005

Meeting was called to order at 6:54, a quorum was present. Discussion was initiated re revising our charter to include further delineation of responsibilities of board members, renaming the club to be more inclusive, etc. Noted that Vandy has a Geology Dept. person who lives in Murfreesboro, who may be willing to participate in our club including speaking. Her name is Brenda Brean (sp?).

New members were approved: Lisa Lessard of Nolvensville, John Abbott of Nashville. Lewis reminded us of the geode dig in Woodbury in September as part of the Dixie Mineral Group. Ken Swann would like some qudoes for Josef Meierbacher, our program chair in the Tullahoma gruop, for doing a GREAT job with programs. Meeting was adjourned at 7:24 there being no further business.

GENERAL MEETING July 21, 2005

General Meeting was called to order by VP John at 7:38 with the promise of no bad jokes. Visitors were welcomed from Pennsylvania - Joe Zosky and Elaine Wakeman (who promptly joined the club following the meeting - congratulations and welcome to our circus!). Members were reminded of our satellite meetings, Donelson the following Sunday at 3:00 pm, and the Tullahoma meeting each second Monday of month. Will Smith announced that the classes at Donelson are on hiatus for the summer, with lots of plans for new classes in the near future. He further admitted to being an actual "student" at a recent William Holland School session, proclaiming the school is GREAT.

Stamp fund was conducted with great items donated by: Joe Powell, Bill Buckner, Ruth and French Gothard, John Stanley, Phil Herren, and Paula to the Max. Thank you all for your generosity. Phil (PLEASE tell me how to spell your last name correctly, my apologies for all the variations!) was supposed to be Person on the Rockpile this month, but was excused until the August meeting as he forgot to bring the crystal with him. Lewis told the group of a phone call he received from the SE Fed. president, thanking us for hosting the 2006 National (AMFED) show.

John then introduced our featured guest speaker, Kim Cochran, whose passion for pyrite in all its forms made for a fascinating and very educational program. Thank you Kim, I sure learned a lot about pyrites!

Meeting was adjourned to the usual social rumble some time around 9:00 (I was so excited about the presentation that I forgot to note the time we adjourned.....).

Respectfully as usual,
Paula Vance - Secretary

The Southeast Federation of Mineralogical Societies, Inc
The Friendly Federation
Founded in 1976 to serve.

DMC Program of the SFMS Field Trip Committee

An Official Field Trip of the
Middle Tennessee
Gem and Mineral Society
(HOST!!!!!)

Saturday, September 10th, 9:00 a.m.

Tennessee quartz geodes

MTSU Gem, Mineral and Fossil Museum Woodbury, Tennessee

FEE Site: $5.00 per person

The site is four miles from the square in downtown Woodbury and will only take a few minutes to drive. We will park on the owners property and then "hay ride" on a tractor and trailer to the site. This is a new site! The owner has recently bull dozed the hills. When I last visited the site there were a number of geodes showing at the surface. After a few rains there should be more visible! As always, there are some solids, but hollows are to be found. Even the solids are attractive when slabbed. I will have some opened geodes to show the group what is available.

We can stay as long as we wish. No breaking of the geodes on site as this leaves very sharp fragments that can ruin tires and injure livestock. There will be a disclaimer sheet for all to sign and a $5.00 per person charge to be given to the owner. I will check everyone in at the parking site and will handle the payments to the owner.

SPECIAL TRIP: After the hunt there will be an added attraction. We now have a Gem, Mineral and Fossil Museum in Murfreesboro. It is on the campus of Middle Tennessee State University which is a few miles from the geode site. I will provide directions to the museum and will open it for anyone who desires to visit. This museum has one of the world's finest displays of exquisite calcite, fluorite, barite, and sphalerite specimens from the now closed Tennessee Elmwood zinc mine.

BRING: You may want to bring a rock pick if you need to dig out any larger geodes that are mostly beneath the surface. As always, bring, sunscreen, a hat, gloves, sturdy shoes, newspaper, 5 gallon buckets w/lids, bug spray, plenty of water/fluids and lunch or a snack.

DIRECTIONS AND WHERE TO MEET:

Where: We will meet at the town square in Woodbury Tennessee.

When: 9:00 AM, on SATURDAY, September 10, 2005

Contact:

Lewis F. Elrod, CFE
lfelrod@yahoo.com
615-893-8270
Cell 615-579-1386

World Wide Web site for the DMC is:

http://www.gamineral.org/dmc.htm

NASA-Funded Scientists Discover Tenth Planet

(reprint from http://www.nasa.gov/vision/universe/solarsystem/newplanet-072905.html written on 07.29.05)

A planet larger than Pluto has been discovered in the outlying regions of the solar system.

The planet was discovered using the Samuel Oschin Telescope at Palomar Observatory near San Diego, Calif. The discovery was announced today by planetary scientist Dr. Mike Brown of the California Institute of Technology in Pasadena, Calif., whose research is partly funded by NASA.

The planet is a typical member of the Kuiper belt, but its sheer size in relation to the nine known planets means that it can only be classified as a planet, Brown said. Currently about 97 times further from the sun than the Earth, the planet is the farthest-known object in the solar system, and the third brightest of the Kuiper belt objects.

"It will be visible with a telescope over the next six months and is currently almost directly overhead in the early-morning eastern sky, in the constellation Cetus," said Brown, who made the discovery with colleagues Chad Trujillo, of the Gemini Observatory in Mauna Kea, Hawaii, and David Rabinowitz, of Yale University, New Haven, Conn., on January 8.

Brown, Trujillo and Rabinowitz first photographed the new planet with the 48-inch Samuel Oschin Telescope on October 31, 2003. However, the object was so far away that its motion was not detected until they reanalyzed the data in January of this year. In the last seven months, the scientists have been studying the planet to better estimate its size and its motions.

"It's definitely bigger than Pluto," said Brown, who is a professor of planetary astronomy.

Scientists can infer the size of a solar system object by its brightness, just as one can infer the size of a faraway light bulb if one knows its wattage. The reflectance of the planet is not yet known. Scientists can not yet tell how much light

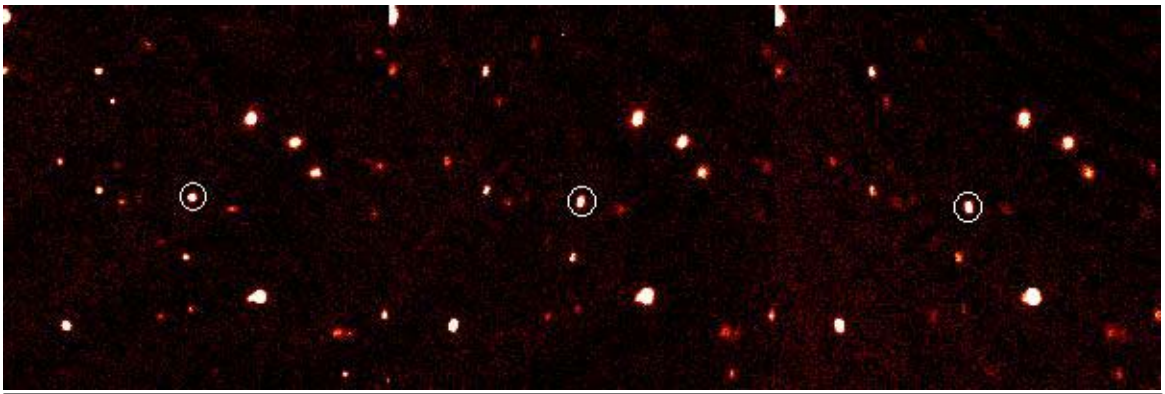


Image above: These time-lapse images of a newfound planet in our solar system, called 2003UB313, were taken on Oct. 21, 2003, using the Samuel Oschin Telescope at the Palomar Observatory near San Diego, Calif. The planet, circled in white, is seen moving across a field of stars. The three images were taken about 90 minutes apart. Scientists did not discover that the object in these pictures was a planet until Jan. 8, 2005. Image credit: Samuel Oschin Telescope, Palomar Observatory

from the sun is reflected away, but the amount of light the planet reflects puts a lower limit on its size.

"Even if it reflected 100 percent of the light reaching it, it would still be as big as Pluto," says Brown. "I'd say it's probably one and a half times the size of Pluto, but we're not sure yet of the final size.

"We are 100 percent confident that this is the first object bigger than Pluto ever found in the outer solar system," Brown added.

A name for the new planet has been proposed by the discoverers to the International Astronomical Union, and they are awaiting the decision of this body before announcing the name.

For more information and images see:

http://www.nasa.gov/vision/universe/solarsystem/newplanet-072905-images.html

or

http://www.astro.caltech.edu/palomarnew/sot.html

Aug. 2, 2005

Scientists and humanists join forces to use X-ray technology to shed new light on ancient stone inscriptions

By Franklin Crawford

ITHACA, N.Y. -- In an unusual collaboration among scientists and humanists, a Cornell University team has demonstrated a novel method for recovering faded text on ancient stone by zapping and mapping 2,000-year-old inscriptions using X-ray fluorescence (XRF) imaging.

The research, carried out at the Cornell High Energy Synchrotron Source (CHESS), applies a nondestructive chemical analysis technique widely used in geology, archaeology and materials science.

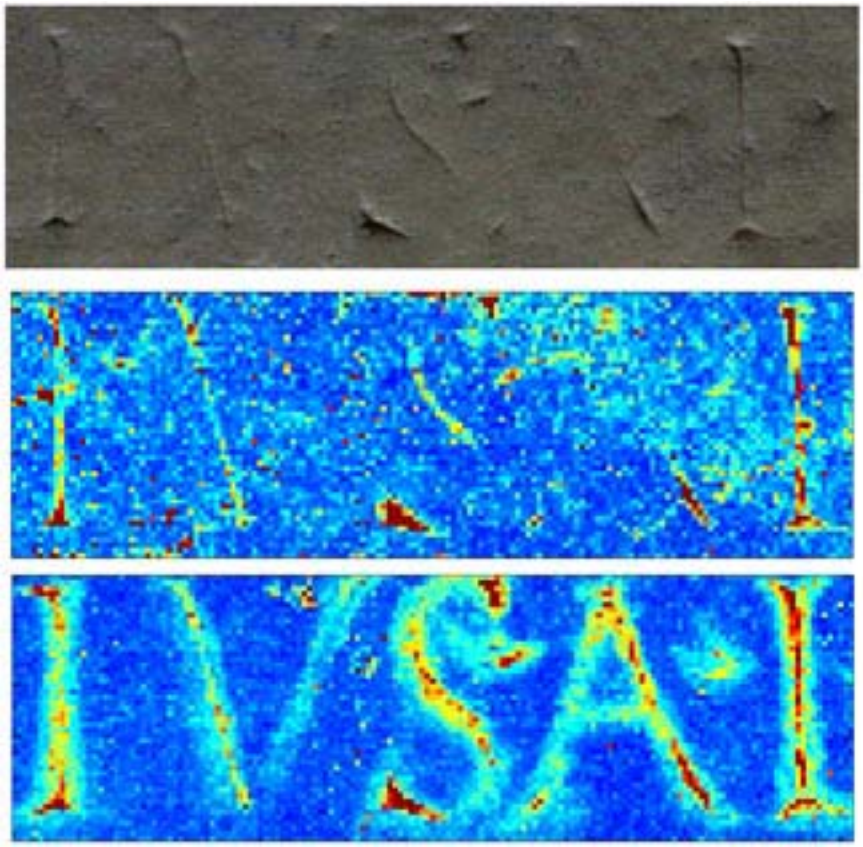
"X-ray fluorescence imaging has the potential to become a major tool in epigraphy [the study of incised writing on various surfaces, including stone]," said Robert Thorne, professor of physics and co-author of an article in a German journal titled "Recovering Ancient Inscriptions by X-ray Fluorescence Imaging." "It's just so much more powerful than anything that's been used in the past."

The article describes the first successful application of XRF imaging to the study of ancient stone inscriptions between 1,800 and 2,400 years old. It will be published in August in Zeitschrift fur Papyrologie und Epigraphik (journal for papyrology and epigraphy) , one of the world's leading journals on ancient texts. The discovery could herald an important breakthrough in the study of ancient cultures.

"Inscribed texts are of considerable interest to the linguist and philologist," said Kevin Clinton, Cornell professor of classics, a co-author of the article. "Because of the information contained in them, they are invaluable sources for the historian, archaeologist, art historian and every student of institutions and life in the ancient world."

The findings result from a multidisciplinary effort among Cornell's faculty and graduate students in the departments of Physics, Applied Physics and Classics, as well as members of CHESS -- where the XRF imaging experiments were conducted.

"A synchrotron is a high-intensity X-ray machine," said Donald Bilderback, associate director of CHESS and a Cornell applied physics professor, also a co-author. "It's



This is a scan of a group of letters on CIL VI 12139. The top panel is the photographic image. The middle panel is the iron fluorescence; while there is iron fluorescence visible, it becomes very weak in areas that have been significantly worn away. The bottom panel is lead fluorescence. Even in areas that have been significantly weathered, the fluorescence is strong enough to clearly read the text.

over a million times more intense than the tube X-ray sources used in medical imaging and in standard XRF analysis."

At CHESS, a high-energy, ultra-intense X-ray beam is produced by the electrons and positrons that circulate inside the synchrotron at almost (99.9999995 percent) the speed of light. This X-ray beam was fired at three inscribed marble stones loaned from Columbia University's Butler Library. Just as with a fluorescent lighting tube in which higher energy ultraviolet light is converted to lower energy visible light by atoms coating the inside surface, atoms illuminated near the surface of the stone emitted lower energy fluorescent X-rays. By using a spectrometer to analyze the energies and intensities of these rays, the concentrations of trace elements in the stone were determined. Because the synchrotron's X-ray beam was so intense, these trace-element measurements could be quickly repeated as the stone was scanned back and forth in the beam, producing a map or image of each element's concentration.

The chosen inscriptions -- one in Classical Greek and two in Latin -- each presented different levels of wear. XRF imaging detected minute amounts of iron, zinc and lead in the inscribed regions, among other elements. Iron chisels were commonly used to inscribe the stones, and the letters were usually painted with pigments containing metal oxides and sulfides. These may account for the iron and lead, but the source of the zinc is a mystery. In the most worn stone, the trace elements measured by XRF clearly revealed the contours of the original letters, even where they were no longer visible to the eye. For modestly worn stones, XRF imaging will help to decipher texts and may provide new information on how the inscriptions were made.

"This means restoring thousands of stones, including, possibly, part of the law code of Draco," said Clinton. Draco was a seventh-century Athenian politician who codified the law of Athens. "It applies to practically any kind of public document you can think of, including many laws, decrees, religious dedications and financial documents."

What's more, an XRF device can be made portable (though collecting the data will be significantly more time consuming than at a synchrotron X-ray facility).

A brief history of a collaboration

In the Mediterranean alone, there are an estimated half-million Greek and Latin inscriptions on stones in various states of decay and legibility. The collaboration that led to XRF restoration grew from conversations between Clinton and his colleague Nora Dimitrova, a Cornell postdoctoral associate in classics. They asked Cornell physicist Bogomil Gerganov if there were any new scientific methods for deciphering worn text. While teaching at the Weill Cornell Medical Col-

Internet Web Page: http://www.mtgms.org

Next Murf Meeting:
August 18th
7:30 pm

Next Don Meeting:
August 21st, 3 pm

Next Tull Meeting:
Sept 12th, 7 pm

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lege in Doha, Qatar, Gerganov raised the issue with Thorne, who was visiting Doha in March 2003. Thorne, also physics course director for the pred-med program in Qatar, was familiar with Bilderback's success in applying XRF imaging to paintings and immediately saw its potential for inscriptions.

Back in Ithaca, Thorne met with Clinton, Dimitrova, Bilderback and John Hunt, an expert in microanalysis at the Cornell Center for Materials Research. A preliminary measurement by Bilderback and his research associate Rong Huang in March 2004 gave encouraging results. Physics graduate student Judson Powers then joined the team. With help from CHESS staff scientist Detlef Smilgies, Powers took over the lion's share of the work and is first author on the team's publication.

The only thing missing: some ancient inscribed stones. No problem. Clinton and Dimitrova had identified suitable samples at the Butler Library and contacted Columbia colleague Roger Bagnell, who arranged for a loan.

By July 2004 the team had proven the principle of XRF imaging in the field of epigraphy.

Cornell University News Service; www.news.cornell.edu/stories/Aug05/XRF.imaging.stones.fac.html; August 2, 2005. Information used for educational purposes under the provisions of the Fair Use Act of 1976.

Swap and Shop

For Sale: Large selection of yard rocks still available priced by the pound. Petrified wood and quartz $1/lb, other rocks $.50/lb. Call Francis Mangrum to setup a time to visit (615) 228-8577.

For Sale: Rough Rock $1.00/lb - 100 lbs. for $85.00. Your pick, Jasper, Agates, Tampa Bay Coral, etc. June Miller (931) 598-9740.

For Sale: Bargains Galore! Equipment & supplies at close-out prices. Come or call George Jones, 5025 Franklin Rd., Nashville, TN (615) 333-3781 email: georgejones@comcast.net

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