



# THE AGATEER

The Newsletter of the Madison Gem and Mineral Club

Volume 8, Issue 4

April 2008

*Burnie Franke*

## **April 22 Program: Sweetwater Moss Agates and Dryhead Agates**

As most of you know, Burnie is our program chairman and is responsible for arranging the many fine programs that we always have. But, this month he is taking over center stage for himself. As a young man working in the Yellowstone, Wyoming area, Burnie became enamored of agates, hunting for them on his days off. And the hunt has continued up to the present time, making Burnie one of the experts on this resource. His talk will feature two varieties of agates found in that region – the Sweetwater Moss Agate of Wyoming, and the Dryhead Agate of Montana. Some agates can be found ‘in situ’ – that is in the host rock in which they formed. Other times the agates have been weathered out of the source rock and then scattered by rivers or glaciers over a wide region. It is the later that allows rock hounds to successfully hunt for agates on public lands. Of course what had originally been a fairly concentrated occurrence is now spread out over hundreds of square miles, so you better know what you are looking for. And water-worn rocks are notorious for all looking alike. So be sure to attend our April

meeting as Burnie shares some of his stories about the agates of the northern Rockies.

### **Past and Future**

How can one describe last month’s unveiling of the Greiner mineral collection? **WOW!** It was the largest turnout the club has ever had, as there were only a few empty seats. Museum Curator Rich Slaughter revealed some of professor Greiner’s interests and hobbies ranging from solid state electronics, to music and acoustics, to astronomy and remote controlled telescopes, to glass blowing, to ceramics, and of course minerals and crystals. And what a gift that mineral collection was! Rich and his co-workers had a difficult time deciding on which specimens to display because they were all fantastic, and there was no way all 866 specimens could be displayed at once. The museum is unlikely to see another donation of this magnitude. It was simply fantastic. See additional story on page 3.

### **Coming in May**

Never been to the Tucson show? Our May program by member Bill Koch will be a slide show of his experiences at this Mecca for rock hounds. It is the biggest rock show on the planet with dealers and buyers taking over the entire town.

Next Meeting:

**Tuesday, April 22, 7:00 PM**

**AB20 Weeks Hall**

**UW Department of Geology and Geophysics  
1215 West Dayton Street**

## 2008 Member Competition

All members are urged to bring specimens for the monthly competition.

**April - petrified wood, palm, etc**

May - self-collected mineral or crystal specimens

June - organic material (amber, ivory, shell, pearl, bone etc)

Questions may be directed to Metje Butler, Education Chairperson, at 244-3659.

### Meteorite Web Site

Our February meeting featured Tom Schaarf speaking on meteorites. Tom has a very fine web site showing some of his specimens. So if you didn't copy the address down at the meeting, here it is again:

<http://www.iamtypingwithonefinger.com/meteorites/fra mes.html>

### Welcome New Members

Erik Snyder  
Steven Streich

### Field Trip Info

*Megan and Ken Woodford – Trip Chairpersons*

Megan and Ken are working on a spelunking field trip either June 7 or June 21. Which cave and other specifics are not yet worked out. More information will follow as it becomes available, but pencil in these dates on your calendar.

### SWARF...AND HOW TO TAME IT

Swarf is that milky liquid you get when you cut cabochons or facet stones. Although it appears to be harmless, swarf can be deadly to your plumbing system and lapidary equipment if not handled properly. When you grind rocks to make cabochons or faceted stones, you're removing tiny bits of the rock and carrying them away from your work with water. When the water evaporates, the tiny rock bits are left behind as a sort of concrete gunk. Over time, this gunk will harden like concrete. So how do you tame the swarf? Never, never, ever, dispose of your swarf in your plumbing system. Don't pour it down a sink or toilet because eventually that gunk will harden and eventually narrow your pipes. Because it's concrete-like when hardened, it will be almost impossible to remove! Instead, take your swarf outside to a non-important part of your garden and dump it there - or if there is no garden handy, allow the swarf to settle in the bottom of a bucket for a day or two, then carefully pour off the now clear water, and scoop out the swarf, put it in a plastic bag and toss it in the trash.

*from Gem Cutters News, Nov. 1984*

## Calendar

Apr 18-20: Decatur, IL. Central Illinois Gem and Mineral Club; Annual Mineral, Gem, & Jewelry Show, Lutheran High School, 2001 E. Mound Road. Fri. 3:00-6:00, Sat. 9:00-6:00, Sun. Tony Kapta (217) 233-1164, arwilliams@insightbb.com.

Apr 19-20: Eau Claire, WI. Chippewa Valley Gem and Mineral Society Annual Show, Eau Claire Expo Center, Lorch Avenue off Wisconsin Route 93. Sat. 10:00-6:00, Sun. 10:00-5:00. Roger Goss, 922 Dover Street, Chippewa Falls, WI 54729, (715) 723-0196, rgoss@cvol.net.

May 17-18: Wauwatosa, WI. WISCONSIN GEOLOGICAL SOCIETY 51ST ANNUAL GEM, MINERAL, & FOSSIL SHOW, Muellner Building in Hart Park, 7300 W. Chestnut Street. (The Hart Park entrance is at 72nd & W. State Streets.) Sat. & Sun. 10:00-  
Paul Schmidt, 8213 Red Arrow Court, Wauwatosa, WI 53213, (414) 771-8668, pvs@wi.rr.com.

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*Richard Slaughter*

## **A Brilliant Gift: The R.A. Greiner Mineral Collection**

In its 160 years of existence, the UW Geology Museum has never before received a mineral donation like the one recently gifted by Dr. R.A. Greiner, a retired professor of electrical engineering from the University of Wisconsin - Madison. With 684 specimens and an appraised value in excess of \$115,000, the R.A. Greiner Mineral Collection is the most impressive set of minerals the museum has ever received.

While he began accumulating minerals at age ten, Dr. Greiner started collecting in earnest after retiring from the University of Wisconsin fifteen years ago. However, some specimens even date back to the 1920's and were acquired by Dr. Greiner's parents during their honeymoon.

This impressive collection reflects Dr. Greiner's fondness for bright, colorful, crystalline minerals as well as specimens that have minerals of different shapes and colors that grew side by side. The array of colors and crystal shapes represented in this collection is staggering. Dr. Greiner is fascinated with the marvelous complexity of form that nature creates, and this is evident in his mineral selections.

Dr. Greiner earned three degrees at UW-Madison between 1954 and 1957. He completed a bachelor's degree and a master's degree in physics, and then a doctorate in electrical engineering. His doctoral research focused on photoconductivity and electrical conductivity in solids, and was pioneering work in elucidating the behavior of semiconductor devices.

After finishing his dissertation, Dr. Greiner joined the Department of Electrical Engineering at UW-Madison as an assistant professor. He was appointed to full professor less than four years later in 1961 at the age of thirty. In the same year, McGraw-Hill published Dr. Greiner's *Semiconductor Devices and Applications*, one of the first textbooks ever written on these subjects. Later in his career, Dr. Greiner established an extensive laboratory for conducting research on

acoustics and high fidelity sound reproduction. His work on power amplifiers and loudspeakers led to his election as a Fellow of the Audio Engineering Society in 1984.

In total, Dr. Greiner was a professor for thirty-six years during which time his research program produced ninety-three advanced degrees. He also spent twenty-five years as the faculty advisor for the Electrical Engineering Fraternity. It was these students, incidentally, who provided him with the enduring nickname "Doc."

Photography, music, gardening, and astronomy are also long-time interests of Dr. Greiner's. He is an active member of the Madison Astronomical Society and since retiring has founded an observatory in Middleton. The telescopes at the Greiner Research Observatory can be controlled remotely by computer, including a station in Dr. Greiner's basement - which also sports one of the most incredible stereo systems in the state.

Each year about 40,000 people visit the UW Geology Museum with 14,000 school children receiving guided tours. Dr. Greiner loved looking over and studying the minerals in his collection, and thanks to his generosity, thousands of others will be dazzled by their beauty as well. Thank you, Doc.

### **Dues Paid for 2008?**

Membership dues for the Madison Gem and Mineral Club are due Jan. 1. Your mailing label will indicate whether your dues are current or in arrears. If the date shown on the label is 2008, your dues are current.

### **Belvidere, IL Auction April 19**

Saturday April 19 there is an auction of lapidary equipment/supplies at the County Fairgrounds in Belvidere, IL. The auction starts at 9 am.

## Agate Show 2008

The **Wonderful World of Agates** celebrates the world's most beautiful and varied gemstone. This international event will be held July 10-13, 2008, at the University of Wisconsin – Fox Valley in Menasha, Wisconsin. Sponsored by the Weis Earth Science Museum, Wisconsin's official mineralogical museum, the four-day celebration will feature entertaining and educational presentations, displays of some of the finest agate specimens in the world, special activities for families, a silent agate auction, and an international array of dealers selling agate, jasper, petrified wood, and thunderegg specimens, agate fossils and geodes, and agate-related jewelry and art. An area will be reserved for agate books and signings by authors, with some new titles expected to be unveiled at the time of the show. Stanford University historian and agate expert, Dr. Robert Proctor, will present a keynote address on Saturday, July 12, following the banquet. Registration to the event is \$75 per person, which includes all programs, the silent auction and an early-bird visit to vendors. The banquet is an additional \$18.00. All registrants may attend Dr. Proctor's keynote address, whether or not they attend the banquet.

Due to space restrictions, attendance at the day-long educational seminar and the banquet will be limited, so participants are encouraged to register early.

The displays and vendors will be open to the general public on Friday-Sunday for a nominal fee.

The organizers of "The Wonderful World of Agates" envision an event that will bring together agate aficionados and amateurs alike, to celebrate and explore the beauty, science, history and mystique of these remarkable gemstones.

The Wonderful World of Agates is the brainchild of Weis Museum Educator Gary Richards, who recognized that Wisconsin, Minnesota and Upper Michigan seem to have an inordinate number of internationally-recognized "agateers." For example, Roger Clark from Appleton, Wisconsin, is the author of *Fairburn Agate, Gem of South Dakota*; Eugene Mueller, owner of The Gem Shop in Cedarburg, Wisconsin, mines agates and jasper at his claims in Mexico and Oregon, and Bob Barron, a scientist at Michigan Technological University's Seaman Mineralogical Museum, extracts agate specimens from bedrock 40 feet beneath the waters of icy Lake Superior.

Please check this website regularly for updates on events, speakers, activities, accommodations, travel information and links to other resources. Click on the buttons at the left for more information on specific topics.

<http://www.uwfox.uwc.edu/wesm/agate/>

## Which weighs more: a pound of lead or a pound of feathers?

There is currently running on television an ad for an automobile company that asks this question of several precocious children. The children answer the question correctly – they weigh the same. But if it is not weight that distinguishes lead from feathers, what does? It is 'density' (or a closely related concept called 'specific gravity'). Density is defined as mass (or weight) per volume. So while a small piece of lead has a small weight, and a big piece of lead a correspondingly larger weight, all lead – no matter its size – has the same density - 11.3 grams per cubic centimeter. These sorts of properties that are independent of how much of the substance you have are called 'innate or 'intrinsic' properties. Why do we care? They allow us to distinguish one mineral from another.

One can get a crude estimate of the density of a material by 'hefting' it – bouncing it up and down in your hand. Lead (density = 11.3 g/cc) feels 'heavier' than say granite (density of 2.7 g/cc). With a little practice with objects of known density, one can get pretty good at estimating density this way. So fool's gold, iron pyrite, has a density of 5.0 g/cc while real gold has a density of 19.3 g/cc and this significant difference allows one to distinguish between the two. There is also a major difference in hardness and malleability – gold being very soft and malleable, while pyrite is hard and brittle.

A more accurate determination of density requires us to determine the mass of the specimen and its volume. The mass can be determined by placing it on a scale or balance. The volume can be determined via water displacement – as long as the specimen is not water soluble. Dividing the former by the latter gives density.

Still a third way of determining density involves Archimedes Principle. As the story goes Archimedes stumbled on his 'eureka' moment while lounging in a bathtub. Why is it that one weighs less while submerged in the tub? It's because the water provides a buoyant force – it helps support you against the pull of gravity. And this buoyant force is equal to the weight of the water that you displace. This is Archimedes Principle – 'an object immersed in a fluid (any gas or liquid) is buoyed up by a force equal to the weight of the displaced fluid'. So

whenever you weigh something in a fluid, the weight you measure is always less than the object's true weight because the fluid helps to support it. If the fluid is real dense (like mercury), it provides a large buoyant force; if the fluid is less dense (like air) it provides a lesser buoyant force. This is why it is easier to float in sea water (density = 1.03 g/cc) than in fresh water (density = 1.0 g/cc), and easier still to float in the Dead Sea ( density 1.35 g/cc). My intuition tells me that nobody has ever drowned in the Dead Sea - unless they had filled their swimming suit with rocks.

So to determine density one only has to weigh the object twice – once in air and again when it is suspended in water. The density in g/cc is then the weight in air divided by (weight in air – weight in water).

## **TRI-FEDERATION ROCKHOUND RENDEZVOUS AND FIELD TRIP MAY 21 - 26, 2008 TEXAS SPRINGS, NEVADA**

The Northwest, Rocky Mountain and California Federations of Mineralogical Societies are hosting a Tri-Federation Rockhound Rendezvous and Field Trip to Texas Springs, NV, over Memorial Day Weekend 2008 and all AFMS members are invited. The Texas Springs area is well known for spectacular pink agate limb casts, as well as, other agate and petrified wood. Texas Springs Canyon is located approximately 25 miles southeast of the town of Jackpot in the northeast corner of Nevada. In addition to the collecting trips we will have potluck dinners, happy hours, speakers, evening campfires, tailgate displays, map exchange, and a great rockhound get-together.

### **Directions:**

The Texas Springs area is located about half way between Wells, NV and Twin Falls, ID, south of Jackpot, NV, and east of Hwy 93. From the south, take I-80 to Wells and go north on Hwy 93. From the north take Hwy 93 south out of Twin Falls. About 2.5 miles south of Jackpot turn east on to the California National Historic Trail and follow the orange plates to camp.

### **Camp:**

Our camp will be located about 6 miles from Hwy 93 on Trout Creek. Roads to campgrounds and collecting sites are typical desert roads. OK for motorhomes and trailers to campgrounds. This is a dry camping area: no services, no hook-ups. We will set up camp starting Tuesday afternoon, May 20th. Please try not to arrive before Wednesday, May 21st; this is due to our BLM camp permit.

### **Schedule:**

Wednesday, May 21 Arrive at camp.

Thursday, May 22 Daily Field Trips

Welcome potluck dinner and get together

Friday, May 23 Daily Field Trips

Tailgate displays

Saturday, May 24 Daily Field Trips

Tailgate displays

All Rendezvous Potluck Dinner

Sunday, May 25 Daily Field Trips

Monday, May 26 Break camp to head for home  
or other adventures

Plan on several potluck dinners, and daily happy hours. Bring firewood for evening campfires. We plan on having a good time and collecting some good material.

### **General Information**

#### **1. Daily Field Trips:**

- All trips will leave at 8:30 AM (Mountain Time), SHARP, from the campgrounds. Assemble at 8:15 for details and instructions for each day's trip. High clearance vehicles recommended to collecting areas.

- All participants are requested to read and sign a Waiver of Liability.

- We will collect at 4 to 6 different sites: pink limb casts, small limb casts and bogwood, snakeskin agate, jasp/agate limb casts, geodes, and more.

- We will divide up into small groups, each group going to a different site each day. Everyone will be able to collect at least once at each site. There will be a sign-up sheet each day for each site.

- Much of the collecting will be float. Two sites involve some digging, but not too deep. Bring the following tools: rock bags, rock hammer, shovel, small picks, hoe, rock scoop, spray bottle, safety equipment and what ever else you usually bring.

- High clearance vehicles highly recommended to collecting sites. We will help arrange rides for those who need them.

2. This trip is open to all members of the American Federation of Mineralogical Societies and their guests. This trip is hosted by Northwest, Rocky Mountain and California Federations of Mineralogical Societies. Everyone who agrees to adhere to the American Federation of Mineralogical Societies Code of Ethics, abide by the direction of the field trip leaders, and practice safe rockhounding is welcome to attend.

3. There are two full hook-up campgrounds in Jackpot: Saguaro

RV Park - 800-821-1103 and Spanish Gardens – 800-422-8233. There

are several casino/motels also in Jackpot: Cactus Pete's – 800-821-

1103, Western Star Resort – 800-655-0643, Four Jacks – 800-251-6313,

Barton's "93" – 800-258-2937.

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Membership is open to all individuals, and applications for membership will be accepted upon payment of annual dues, which are \$12.00 for adults (18 and older), \$5.00 for junior members (ages 6-17), and \$16.00 for families.

**Visit the official website of the Madison Gem and Mineral Club at [www.madison.com/communities/madisonrockclub/contact.php](http://www.madison.com/communities/madisonrockclub/contact.php) for more information**

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