THE BADGER DIGGIN'S

The Badger Lapidary and Geological Society, Inc.
Monroe, Wisconsin

Devoted to the Earth Sciences

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Meeting Minutes

The January meeting was held at the Monroe Public Library on the 10th. After much discussion between Badger members and a local Boy Scout troop, the meeting was moved from a very small meeting room downstairs to our regular room upstairs. We packed up all of our supplies and food, and members then headed upstairs where we were entertained, enlightened and inspired by a wonderful program given by Charles Ramsayer. He explained the cold forge process he uses in making jewelry, chiefly out of silver metal, and showed many fine examples of his work. He also talked about the destructive mining practices that are currently used to extract various precious metals. It really was an honor for Charles to take time out of his schedule and come to do such a wonderful presentation for us. Thanks, Charles!

The business meeting was called to order at 12:10 p.m. Dave Zimmerman made a motion to approve the December minutes, and Teri Marché seconded it. The motion was passed. We then did a quick round of introductions and welcomed some visitors from the Milwaukee club.

Daisy Peterson presented the *Treasurer's Report*. We have over $1000 in checking and $104 in savings. We have received some checks for the show, but are still waiting on the advertising grant from last year. Hopefully the problems with the grant will be resolved this coming month.

Dave presented the *Show Report*. He said that we had one dealer drop out and that he/she will be replaced by Mystic Morraine Minerals from Whitewater. The advertising mailing will be put together at next month's meeting and the fish pond material will be set up at the March meeting. Please sign up to help out at the show. So far, we have commitments from four museums to provide displays for the show. They are the UW-Madison Geology Museum, Burpee Museum, Platteville Mining Museum, and the Milwaukee Public Museum.

[Minutes – cont. next page]

Next Meeting

Our next meeting will be held at 9:45 a.m. on Saturday, February 14, 2009, at the Monroe Public Library, 925 16th Avenue, Monroe, WI. Take the elevator to the second floor.

Program: Lapidary Talks/Demos

Because of restrictions placed upon our advertising budget, Show Chairman Dave Z. has decided to forego the expected bulk mailing of show advertising. Instead, updated flyers will be given to members for local distribution.

For an alternate meeting program, several members have agreed to share their knowledge about such club lapidary machines as the rock tumbler, flat lap, trim saw, and Genie. If you have wanted to learn how to make cabochons, or simply wish to slab and polish or tumble some specimens, this is your chance to learn how.

Snacks: Provided by the Westbys.

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Meeting Minutes – cont.

Old Business: Membership dues are needed ASAP. Please send them to Daisy Peterson. The Club's edit grid (i.e., spreadsheet) will then be updated to reflect the 2009 membership roster.

The first door prize was a wonderful piece of petrified wood that was won by Dan Trocke.

We then moved on to *Announcements*. Teri explained that the field trip on January 24th was originally planned for Chicago's Field Museum, but since that is a fairly expensive trip and pretty far away, we could change it to something else. The options that she listed were: 1) to go to the Field Museum as planned; 2) to go to the Milwaukee Public Museum; or 3) to go to the Platteville Mining Museum. The mining museum will have a model train display and open the mine for us if we choose that option. Teri said that there would be sheets in the back on which to 'vote' after the meeting. [The Platteville Mining Museum was the choice selected – see the trip report and photos in this month's newsletter. Ed.]

The 2nd door prize was won by Neil Trickle. He won a very nice polished thunder egg.

The next topic was *New Business*. Teri went through the box/flat order and passed around the order forms. We will try to have an order together and ready to be sent in by the next meeting. She said that the larger the order, the lower the price per item. Daisy explained that future meetings would be held upstairs in our regular meeting room, except for possibly the March meeting.

The final door prize was won by Cindy Ramsayer. She won a very pretty, framed pair of ammonite halves.

Jacob Norquay made a motion to adjourn, Daisy seconded it, and the meeting was adjourned at 12:45 p.m.

Respectfully submitted,

Laurie Trocke

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Tentative Calendar of Club Events – 2009

February 14 **Regular meeting (lapidary talks/demos)**

February 28 **Field trip: Milwaukee Public Museum**
[Details given at next meeting & by e-mail]
Trip leader: Teri Marché

March 14 **Regular meeting: Fish pond bags (prep.)**

March 28-29 **39th Annual Mineral, Gem, & Fossil Show, Monroe High School, 1600 26th Street.**

Theme: *Driftless Treasures of the Badger State*
9a.m. – 5 p.m., Sat. & Sun.

April 11 **Regular meeting: Micro-mounting**
(presented by Dan Trocke)

April 25 **Field trip: Geodes – Jacobs and St. Francisville, Missouri**
Trip leader: Dave Zimmerman

May 9 **Regular meeting: Arkansas diamond discovery**
(presented by Dave Zimmerman)

May 23–? **Field trip: Southern Illinois fluorite collecting**
Trip leader: Dan Trocke

June 13 **Regular Meeting: Annual Club Picnic**
Host: Norquays

June 27 **Field Trip: Agate collecting (new place)**
Trip leader: Dave Zimmerman

July 11 **Field Trip: Reedstown Quarry (calcite, onyx)**
Trip Leader: Flannerys (?)

July 25 **Field Trip: locality open**
Trip Leader: open

August 8 **Field Trip: Canada (?)**
Trip Leader: Dan Trocke?

August 22 **Field Trip: Wisconsin River canoe trip**
Trip Leader: Teri Marché

What's Rockin' by Teri Marché

What a meeting! For a snowy day in January, we had quite a crowd. There were plenty of beauties on the table. Dave Zimmerman took the cake this month. Between the honey-colored calcite and the large Vesuvianite, gifts from Canada, and the recently collected quartz and deep green wavelite from Arkansas, not to mention several slabs of lovely pink rhodonite collected in Silverton, CO, Dave filled a fair portion of the table.

Not to be outdone, Dan Trocke brought several trays of his choice fluorite octahedrons, mostly from Illinois, but also two of the deepest turquoise-blue specimens from Africa. Dan also set out a box of octahedrons for members to choose from. They went right beside the box of Arkansas quartz points, as well as rhyolite pieces (with quartz and sphaelerite) from Creede, CO donated by Dave for members' choice. Speaking of which, Johanne Paradis set out a tray of fine pink dolomite crystal clusters from Canada for members to sample. It was a very rewarding day for all who came out. Many thanks to Johanne, Dan, and Dave for their generosity!

Neal Trickle displayed a Canyon Diablo iron-nickel meteorite from Arizona, which really caught the eye of our astronomer, Jordan Marché.

Cathy Romeis, one of the day's visitors from Milwaukee, brought a selection of what she calls "Wanna-bes," small cobbles collected on the shores of Lake Michigan. They have some fascinating colors and patterns!

Last of all, Teri Marché displayed the Mexican Laguna agates she has been polishing. The variety of colors to be found in these agates is amazing!

The Mining Museum and Rollo Jamison Museum, Platteville, WI

Teri Marché

What a day! It was gorgeously sunny with a clear blue sky as we ventured off to Platteville on January 24th for a BLGS club field trip to the Mining Museum. The only problem was the bitter cold; but, hey, we're Badgers, right? Fifteen members joined for the special off-season tour of the historic Lorenzo Bevans Lead Mine. The good news was that it was warmer in the mine than it was above ground. The bad news was that it was still below freezing in the mine. We were encouraged to hear our guide say that she had never been in the mine in winter, so she had no idea what to expect! However, they *had* successfully gotten all the doors opened. The main door to the mine staging area was thickly encrusted with frost, and the hardhats stored there for visitors' use were equally chilly.

After descending ninety steps, we were fifty feet underground to see the 1845 lead mine. With all the timbering reconstructed, equipment carefully replaced, and life-sized mannequins dressed in miner's garb, it was easy to get an idea of what miners faced and accomplished every day in the mine. The natural ice sculptures were also attractive. From ore buckets to torpedos to "bear holes," everything contributed to the educational mission of the Museum. Of course, Dan Trocke had to provide a distraction with his portable black light, which illuminated everything from cave onyx (a beautiful blue) to [modern] candle wax drippings.

Recreation of 1840s lead mining (with ice stalagmites) at Mining Museum, Platteville.

One half of the mine is dedicated to authentically recreating the early lead mining process with hand drills, sledges, and black powder, while the other half presented the later, and deeper, zinc mining accomplished with compressed air drills, ore trains, and dynamite. Forty-five minutes and many photos later, we were out of the mine and into the added chill of the headframe to see the hoists, the grizzly, and the track leading to the mine dump, now invisible under a blanket of snow. However did those miners work through the winter?

Finally, it was into the welcome heat of the Mining Museum proper to see some great displays on mining history and minerals, including several informative models and maps. Afterwards, Steve Kleefisch, our host, opened up the basement for all of us to see. Like perhaps most museum basements, it was an amazing room full of "treasures," containing mining artifacts of all sorts and ages, with many unexpected surprises tucked into corners. One whole corner of the basement was piled almost to the ceiling with hundreds of pounds of galena!

After a quick look through the Rollo Jamison Museum, and some time to view the Wisconsin Garden Railroad Association's displays of "toy" trains (I was assured that is how their owners see them), we were off to the local Pizza Hut for some good food and conversation. All in all, a great winter's day.

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Backyard Fossil Find a Real Treasure

Dan Trocke

[Door prize article compiled from *The Kenosha News*, December 11, and *The Journal Times*, December 14, 2008 accounts.]

Andy Feldpausch didn't have far to look for what might be the paleontological find of a lifetime. It was right in his own backyard in Kenosha. Move over Schaefer mammoth. Kenosha County may have another prehistoric treasure to celebrate – his daughter Cait's fossil.

In April 2008, seven-year-old Cait Feldpausch was digging for worms in the family garden when she dislodged a rock just a few inches in diameter. She knew there was something special about the rock, based on her outings with her dad on

previous archaeological digs. “Dad, I got a fossil,” are the words Cait, a second-grader at Racine Montessori School, used to alert her dad to the find. Andy washed the rock under the hose to clean it off, and said, “Oh, this is interesting . . . Oh my gosh; I think we’ve got a jellyfish here!”

He took it to work at Case High School the next day, and while his students were working in a lab, Andy looked at Cait’s rock under a microscope. Ironically, as the students were studying jellyfish, Andy saw on the rock what appears to be the rare side impression of a prehistoric jellyfish. Indeed, the sandstone fossil has a well-preserved jellyfish in the shape of a tiny, ash-colored letter “P”. Andy said that dark streaks coming from the marking could also be fossilized tentacles.

Andy Feldpausch is a chemistry, physics, and earth science teacher at Case High School in Mount Pleasant, Wisconsin and president of the Kenosha County Archaeological Society. Recently, Andy recounted the story of Cait’s discovery to a crowd of nearly seventy people attending the Society’s afternoon meeting at the Dinosaur Discovery Museum in downtown Kenosha. Close-up photos that Andy took of the fossils were used in Saturday’s presentation.

Cait and Andy Feldpausch and their fossil rock.

Andy is trying to learn more about the fossil jellyfish and other impressions preserved on the rock. About 525 million years ago, a shallow sea covered much of Wisconsin during the Cambrian Period, and jellyfish were typical of the earliest life forms. Thus, Cambrian fossils, dating from between 525 and 490 million years ago, could be deeply buried in the Kenosha area. Finding them is rare, however, because their bodies easily decomposed or were consumed by prey. More likely, he said, “this fossil was probably pushed in from the glacier, but it’s possible that it was right there all the time; we’re not sure.”

An inland sea also persisted across eastern and southern Wisconsin during the Ordovician and Silurian Periods (stretching from about 490 to 415 million years ago). But during these later periods, this sea received little clastic (or sandy) material, and the sea bottom instead was covered by thick carbonate deposits. These deposits are represented by beds of limestone and dolostone that lie directly underneath Kenosha and the eastern part of Wisconsin, including the Door Peninsula. Silurian-age reefs, containing an abundance of fossil organisms, are also common to the area.

Archaeology, anthropology and geology are avocations for Andy, but he is no stranger to science. A microbiology and chemistry major at Central Michigan University, Andy worked for more than twenty years as a chemist in the automotive industry. He turned to teaching after being laid off from the PPG plant in Oak Creek. Now holding a master’s degree in education from Carthage, Andy also teaches the philosophical foundations of education at Carthage.

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“Old School” Acid Party

David Zimmerman

We Badgers are starting to get a reputation for being acid folks, so I thought I would relay my most recent acid trip for you! By the way (and as the bumper sticker says), if anyone wants to get stoned . . . go to Burnie’s Rock Shop! OK, now I will put all of this into context. I just returned from Arkansas a few weeks ago with maybe 150 lbs. of quartz to clean. The purpose of this article is to relay all of the problems that I had, so that I can hopefully save you MUCH time whenever you decide to have an acid party of your own.

Let me start off by saying that the “old school” way of using oxalic acid has many problems. The “new school” way of using Super Iron Out® (SIO) seems to have far fewer problems.

There is currently MUCH debate about these two acid treatments on the Internet, and I have not seen an article by a professional quartz miner that endorses SIO. It is said that this is because of cost reasons alone.

I recommend SIO for many reasons, but first, here is the comparison with oxalic. Oxalic acid is only cheaper in quantities of 50 lbs. or more. The casual collector is going to pay about $3/lb. for the powder at rock shops in Arkansas. SIO costs about $2.50/lb (in 10-pound quantities) at most home improvement stores. Oxalic is slow and needs heating to be most effective (costing more money). SIO is fast and no heat is needed. Oxalic can attack other minerals such as the carbonates. SIO does not affect many of those carbonates; but please, do a test piece first before running a batch on carbonates. The professionals are typically heating their oxalic acid over a wood fire, and thus their fuel expense is minimal, but many of us do not have that option or time, and it is not suited for Wisconsin winters!

In turn, I found the oxalic more likely to produce nasty yellow stains on the sandstone matrix, of which the SIO did much less. I am currently on my sixth washing/ soaking/ acid bath cycle on the crystals and I think it is actually getting worse! This is commonly addressed in the resource documents, and is brushed off as the reality of working with oxalic acid. SIO would save me much time and many headaches right now. As my largest matrix piece could not be fit into my oxalic cooker, I had to put it into a five-gallon bucket with SIO and it has turned out fine with three soakings. I am guessing that the oxalic pieces will now take about eight soakings for the same material, collected from the same hole.

When using either type of acid, there are some general tips that will make your experience better. First, clean the quartz as best as you can before soaking it in acid. I found the best method was to let the quartz completely dry in the sun, then soak it in warm water for one minute, and use a steel pin/ needle to pick the clay out of the cracks. Alternately, use a good water spray bottle (one for household chemicals, not the little ones for your hair!) to flush the clay out with warm water. An old toothbrush will be needed too, but a toothbrush will not clean off the large chunks of clay, as it will just smear them. When you have done as much as you can, let the pieces dry for a few days, and repeat again. There is no instant gratification when cleaning clay-filled quartz! I would repeat this step at least three times for clusters, but only do it one time for clear points. The cleaner you can get the material with water, the less acid you will use and the less expense is accrued. I can assure you that the same process of soaking and picking out the clay is used, whether it is acid or water in which the minerals are soaked! Also, at some point in the water phase, trim your specimens to size, removing areas that detract from the final piece.

One should also talk about water quality. Our (hard) water around here has much dissolved calcium carbonate (or ‘lime’). I read on one website that they suggested using only distilled water for cleaning minerals and for mixing with acid. I didn’t go that far, but next time, I will boil the minerals in distilled water for an hour before I put them in any acid. The steps would be to boil, let stand for an hour, and then place in warm acid. The sandstone matrix is very porous, and has much iron locked into it. When minerals are heated up, the material expands, thus drawing the liquid into the pores. The problem that I had was that I put cool minerals into warm acid, and thus drew the acid into the matrix, and the specimens have been leaching out iron and sulfur ever since! I believe that this process will keep calcium-carbonate-rich water from getting behind the crystals, as well as prevent the acid from getting behind them.

I also made the mistake of using too much powder when mixing the acid with water. I come from the school of ‘more is better, and more is faster’ . . . right? Not in this case. Remember, by removing all of the clay from the minerals to begin with, the acid should perform a quicker cleaning of the iron stain . . . the acid will not *remove* the clay. It is much better to do quicker soakings in a weak SIO solution, and then discard the acid (after neutralization) once it has gotten colored, and to always use clean acid. When oxalic acid turns a green color, it starts to impart that color into the matrix. It seems tragic to have to neutralize the dark green acid (with barn lime) while it is still very potent, but trust me, you do not want to use dirty acid to make the rocks clean! I recommend many short soakings (half days) in acid, alternating with

soaking in clean water and spraying with the water bottle.

I first put the crystals in plastic pails, then add the water, and finally add the acid to the water, whereby I quickly cover them with a lid! I used about ¾ cup of acid to the gallon bucket (maybe ½ gallon of water and ½ gallon of crystals). I found that a good way to slightly heat SIO was to place it on your stove (the one outside, of course!) and use the residual heat given off by the pilot light to keep the solution warm. This only works with an older gas stove, however.

There is much discussion about boiling the yellowed specimens in water (that has baking soda added) to remove the yellow stains. I have also seen a website that says to use muriatic acid to remove the stains. I am going to try the muriatic myself and hope for the best. It is very funny to see so much conflicting information about cleaning quartz crystals with acid amongst professional cleaners. After every soaking in acid (SIO, oxalic, muriatic, etc.), make sure that you soak the minerals in cold clear water for two hours, to remove the residual acid. Some folks would say to add baking soda to that water to neutralize the acid. But I just used fresh water with every batch of crystals, as well as a good rinsing when transferring the crystals.

So, the next time that I clean quartz, I will spend weeks of my time cleaning them with water and drying them between cycles. I will mix my acid with distilled water, and boil the specimens in distilled water before placing them in warm acid. I will use plastic netting like the kind in which you buy oranges (or else two mated plastic pails where the inner one has been punched with holes), to place my quartz in the acid, so that I am not "fishing" the pieces out by hand all the time. I will only use SIO and not oxalic acid. I will keep my SIO containers in my oven to keep them warm. I will also run all my quartz through a final bath of muriatic acid to remove any calcium carbonate stains for a super clean appearance.

A good quartz specimen holds its value, due to its rarity, aesthetics, clarity, and the labor it took to clean it properly. Below are the references I used, cited in order of most to least accurate (in my opinion). Have fun cleaning!

References:

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http://lists.drizzle.com/pipermail/rockhounds/2006-April/017765.html – *Misc. posters*
http://www.mcrocks.com/images-2/KeokukGeodePage.html - *Good article*
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"Arkansas, Arkansas,
I just love ol' Arkansas.
Love my maw, love my paw,
But I just love ol' Arkansas."

Opening refrain from "Big River," the stage adaptation of Mark Twain's *Huckleberry Finn*. [Ed.]

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11th Annual Paleofest at the Burpee Museum, March 7 & 8, 2009

The Burpee Museum will be hosting its 11th annual **Paleofest**, on Saturday March 7 & Sunday March 8. An impressive lineup of guest speakers has been arranged, which includes Dr. Robert T. Bakker, Dr. Christopher Brochu, Dr. Scott Foss, Dr. John Pojeta, Dr. Robert Reisz, Nancy Englehart-Moore, Mike Triebold, and Holly Woodward. Activities last from 10 a.m. to 5 p.m. each day, and are designed for families as well as adults. Tickets for the events go on sale starting February 1. Admission is $6 per person; museum members are admitted free. For more information, visit http://www.burpee.org. The Museum is located at 737 North Main Street, Rockford, Illinois.

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