



# Rocky Reader

The Monthly Newsletter Of The  
**Toledo Gem And Rockhound Club**

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May 2011

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Happy May to Everyone!

Hopefully, by the time you read this, we will have finally seen a few bright spring days. As I am writing this, a dreary rain is coming down, making me anticipate the exciting events we have coming in May all the more. And we do have a lot going on, both with our club and with the Toledo Botanical Gardens.

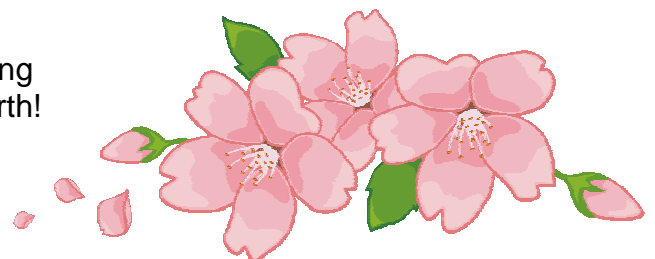
The TBG May Plant Sale is the first weekend in May. This one of our biggest opportunities to perform volunteer hours to support our chartering organization, and let's face it, our continued existence depends on their success. We owe a lot to the Gardens. Many of the overhead costs that we would have to pay in a separate location are lessened or eliminated because of the privilege that we enjoy under the TBG umbrella.

In a conversation with Karen Ranney-Wolkins, TBG's new Executive Director, our discussion revolved around our club helping out TBG and ourselves by offering regular events, programs and projects that would draw in the public during the busy summer months. For example, I am trying to arrange a "gemtree" project for the public during the plant sale. Karen would also like to have us do similar projects during summer weekends. If we provide info in advance, TBG will arrange for advertising to try to bring traffic in. A Win-Win of exposure for both organizations.

I have already told her about our Thursday daytime Gemcrafters sessions that are open for public observation. Of course, we also have our Spring Open House during the following weekend. Our club's greatest strengths are our members' diversity and willingness to pitch in both to help the club and each other. Every time we encourage a new member to join, we expand that diversity and bring in more opportunity to share, teach and learn from each other.

Let's face it – we belong  
to the best club on earth!

Jerri Heer, President



## TG&RC MEETING MINUTES – April 20, 2011

President Jeri Heer called the meeting to order at 7 pm and the meeting began with recitation of the Pledge of Allegiance.

**Secretary's Report:** Moved for approval: Tom Marok. Seconded by: Kerry Myers. Motion carried.

**Treasurer's Report:** Steve Shimatzki presented and Tom Marok moved to accept and seconded by Kerry Myers. Motion carried.

**Old Business:** Herb Society shed. No decision regarding move planned at this time.

**New Business:** Potluck move from May to June because many members will be on the Bancroft trip in May. Tom Marok moved to accept and seconded by Kerry Myers. Motion carried.

**TBG Liaison:** TBG plant sale during the first week of May held Thursday through Sunday. Several days available for members to volunteer and gain hours for the club. Please Contact Toni Moore at TBG to schedule your hours.

### Group Reports

**Gemcrafters, Metalcrafters, Beaders, Extreme Beaders, Faceteers:** Check calendar for times and dates.

**Faceteers II:** Next class May 28-29. One slot left – Contact Elie Ghanime.

**Juniors:** Juniors will have a field trip to Fossil Park May 1<sup>st</sup>.

**Field Trips:** Tom Marok to NJ Sterling Hills Mining & Franklin Mineral Museum, April 28 – May 1<sup>st</sup>. Bancroft trip, May 19 -22.

**Open House:** Open house May 13 – call Carla for info at 419-356-4502. Important: If you need to cancel email Harold at [hburle@msn.com](mailto:hburle@msn.com).

**Show:** Need volunteers to place August displays in Maumee, Rossford, and Washington Libraries. Need volunteers to bring flyers to area Shows, contact Jerri if you plan to attend any.

**Fossils:** Tom Marok has several 3 D fossil images online-see [www.3dtoad.com](http://www.3dtoad.com).

**Membership:** 50 members plus several visitors.

Meeting adjourned at 7:22pm followed by Gemcrafter auction.

Respectively submitted by Secretary, Mike Mayers

## CONGRATULATIONS!

Congrats to Shirley Stieb, (Monthly Beader, Extreme Beader, Metalcrafter, Gem Crafter and Club VP) winner of the local bead store's Bead Hop Grand Prize. And Good Luck to Kathy Petersen (Monthly Beader, Extreme Beader, Metalcrafter, and Gem Crafter) whose "Field of Poppies" piece was selected for the Convergence III exhibit by the International Society of Glass Beadmakers.

### Your Local Source!

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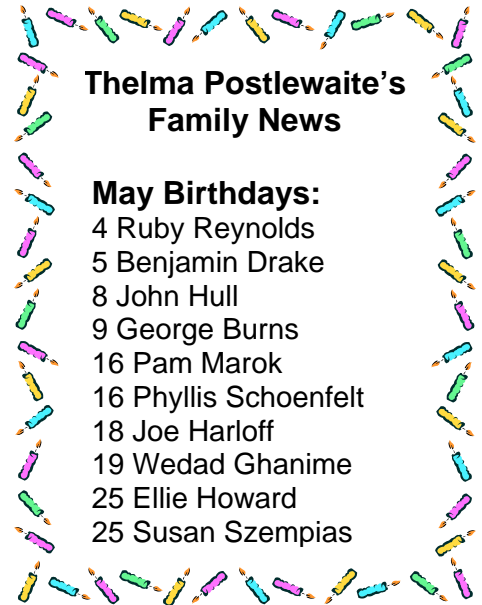


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## 2011 SHOW & MWF CONVENTION

Things are starting to move now, we have eleven libraries asking for August displays, and we have eight of them already filled by our members. This is a great way to “get your feet wet” setting up displays. We want to encourage more of you to enter displays for the Show this year, to show off our club to our visitors from the Midwest Federation. Keep thinking about donations you can make of small specimens, tumbled stones and crystals for Kid’s Games and Kid’s Kits. Our Club Sales will need larger specimens, and our Scholarship Raffle can use high quality items as prizes to encourage Raffle Sales. Remember, this event funds our year and allows us to provide the equipment, training and services that we can to our members. Do your part to support your club! For more information about volunteer opportunities and donation needs, contact Jerri Heer, 419-344-9999.



### Thelma Postlewaite's Family News

#### May Birthdays:

4 Ruby Reynolds  
5 Benjamin Drake  
8 John Hull  
9 George Burns  
16 Pam Marok  
16 Phyllis Schoenfelt  
18 Joe Harloff  
19 Wedad Ghanime  
25 Ellie Howard  
25 Susan Szempias

## SPRING OPEN HOUSE

The spring open house will be held May 14-15. Setup will be Friday, May 13 from 6-8 pm only. Table space is full. You MUST contact Carla Bureson (419-533-7341) ASAP if you need to cancel, so she can fill your spot.

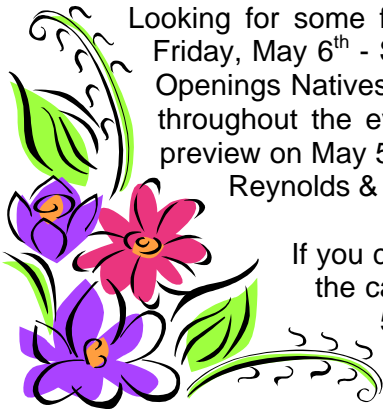
## MAY POTLUCK POSTPONED

Traditionally the club holds a potluck before the May meeting. This year, the meeting on May 18 conflicts with a scheduled fieldtrip to Bancroft, ON. It doesn't seem fair to make people choose between rocks and food, so we have decided to postpone the potluck until the June meeting.

## McCaw COMPANY OPEN HOUSE

The McCaw Company is happy to announce their spring open house. The event takes place Sunday, May 15<sup>th</sup> from 9:00 am to 2:00 pm. McCaw's is located at 1722 Madison Ave. in downtown Toledo. Need directions? Call us at 419-243-3720 or 1-800-537-0343. There will be specials and discounts so mark your calendar!

## TOLEDO BOTANICAL GARDENS PLANT SALE



Looking for some fresh plants? The 2011 Toledo Botanical Gardens Plant sale will take place Friday, May 6<sup>th</sup> - Sunday May 8<sup>th</sup>. Check out their selection of Perennials, Hanging Baskets, Oak Openings Natives, Vegetables, and Herbs. Also get Expert Advice on the plants, and workshops throughout the event. Hours of sale are 10am - 5pm. If you are a TBG member, there is a preview on May 5<sup>th</sup>, 4pm - 8pm. Note: the sale will be held at the Bancroft St. Entrance, between Reynolds & Holland-Sylvania Rd.

If you can spare some time to help volunteer, they are looking for help to carry plants to the cars for customers and sort, etc. Please contact Toni Moore via phone: 419-536-5592 or email: [Toni.moore@toledogarden.org](mailto:Toni.moore@toledogarden.org). These hours will count towards the club so make sure you mention you are with the Toledo Gem and Rockhound Club and fill out a volunteer form for your hours worked.

## ROCKY READER

Submissions for the June Rocky Reader **must be received by noon on Monday, May 23<sup>rd</sup>**. If I do not receive a submission from your group or event, I will assume you have nothing to report. Submissions must be in writing and written as you wish it to be published. Email submissions to [editor@rockyreader.com](mailto:editor@rockyreader.com).

## JUNIORS

Because Easter fell on the 4<sup>th</sup> Sunday, we had our April meeting on Sunday, May 1<sup>st</sup> and took a field trip to Fossil Park. Our group is earning their fossil patch through the AFMS Junior Program. Our May meeting will be on Sunday, May 22, 2011. For more information, contact Jerri Heer, 419-344-9999.

## DAYTIME GEMCRAFTERS

Every Thursday from Noon – 4 PM. This is a great opportunity to cut and polish as we are open for a four hour block of time, and often have fewer people working. We are open to the public for observation, so TBG may be advertising our availability. For more information, contact Jerri Heer, 419-344-9999.

## GEMCRAFTERS

All new members or existing members that need to work in the Gem-craft center to cut and polish cabochon **for the first time**, please call or email Elie or Chet to schedule a meeting slot for your training to complete your first cabochon AND PLEASE LEAVE YOUR FULL NAME AND CONTACT INFORMATION.

## METALCRAFTERS

The metalcrafters will meet May 1, 12, and 26. The regular meeting on the 15th occurs during the Club Open House. All metalcrafters who have finished their basic pendants may work for free that day but no basic pendant students will be scheduled. Sunday meetings are from 1:30-3:30 and Thursday meetings are from 6:30-8:30.

If you **HAVE NEVER ATTENDED**, please call or e-mail me ([debhoffmaster@gmail.com](mailto:debhoffmaster@gmail.com)) to schedule a three meeting slot to complete the instructional pendant. When you do so, please **LEAVE YOUR FULL NAME AND CONTACT INFORMATION**.

In keeping with the recent class on vessels and to encourage the use of the new hammers and stakes, I am recommending the following books: 1) *Metalwork for Craftsmen* by Kronquist has projects for raising household items, 2) *Metal* by Hack has general jewelry making plus chapters on raising vessels, 3) *Metalwork and Enameling* by Maryon has chapters on raising, repousse and enameling on raised vessels.

Deb Hoffmaster, Metalcraft moderator

## CLASSES

The following schedule is a listing of upcoming classes. To enroll, please send fees to the instructor. Fees must be received **THREE WEEKS** prior to the class to allow time for ordering materials.

**May 14, 2011. 10AM. Woven bracelet.** Instructor Su Drake. Fee \$75.00. 4 openings left, don't delay! Make a woven copper and silver bracelet. This is a beginner-friendly class and will take place during the Spring Open House. No soldering is required. See Picture.



**May 28-29, 2011. Faceting Class.** Saturday and Sunday. Fee \$40 includes class material and one stone to cut "clear quartz". 1 opening left. Please email Elie Ghanime at [eghanime@bex.net](mailto:eghanime@bex.net) to register (First come first serve). If you need to rent, borrow or buy a new or used machine, please contact Ed Reynolds at 419-340-8801 or email him at [ereynolds4@aol.com](mailto:ereynolds4@aol.com)

## TG&RC 2011 CABOCHON CONTEST

The club will be holding a cabochon contest during our club meeting on **Wednesday, June 15, 2011**.

All cabs will be submitted on the contest form to Steve Shimatzki, the cabs will be numbered, categorized and recorded; the judges will judge the numbered cab as categorized.

Judging and awards presentation will be completed during the meeting.

Any changes or adjustments to the above will be posted in the Craft Center.

Contestant can only apply in one of the following categories:

- Advance
- Intermediate
- Beginners
- Juniors

Judging will be based on the following:

- Cut
- Finish
- Colors & Patterns
- Geometrical shape and balance for (Freehand cuts)
- Size for standard cuts

This year judges are:

Chet King, Jerri Heer & Elie Ghanime



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Please fill out the form on the next page and submit to Steve Shimatzki. Forms will be accepted up to the start of the June 15 meeting. To save time, please complete the form in advance.

### NOTE:

**PLEASE DO NOT SHOW YOUR CABOCHON TO ANY OF THE JUDGES,  
THE CAB WILL BE DISQUALIFIED.**

# CABOCHON CONTEST FORM

NAME: \_\_\_\_\_

Cabochon No. \_\_\_\_\_

.....  
DETACH BOTTOM PORTION AND SUBMIT TO JUDGES  
.....

Cabochon No. \_\_\_\_\_

CATEGORY (Please check one):

ADVANCE       INTERMEDIATE

BEGINNER       JUNIOR

## CABOCHON INFORMATION

MATERIAL: \_\_\_\_\_

SIZE: \_\_\_\_\_

OVAL       RECTANGLE       ROUND

SQUARE       FREEHAND       OTHER \_\_\_\_\_

DO NOT WRITE BELOW THIS LINE

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## **JUDGING SCORES**

Description	Judge #1	Judge #2	Judge #3	Ave. Score
-------------	----------	----------	----------	------------

CUT: \_\_\_\_\_

FINISH: \_\_\_\_\_

COLORS / PATTERNS: \_\_\_\_\_

SHAPE (Freehand): \_\_\_\_\_

SIZE (Std. Cut): \_\_\_\_\_

Total Score: \_\_\_\_\_

## COMING EVENTS from Chetty King's Flyer Table

**May 7-8: Cincinnati, OH.** Cincinnati Mineral Society's and Dry Dredgers' 46th Annual Gem, Mineral, Fossil & Jewelry Show of Greater Cincinnati; Cincinnati Gardens, 2250 E. Seymour Ave.; Sat. 10-6, Sun. 11-5; Free Parking, Featuring dealers, displays, programs, and family activities. CONTACT : [www.drydredgers.org](http://www.drydredgers.org), [www.mineralsociety.org](http://www.mineralsociety.org), [www.geofair.com](http://www.geofair.com).

**May 7-8: Washington, PA.** Greater Pittsburg Area Jewelry, Gem, Mineral, Bead & Gift Show; FM Minerals; Washington County Fairgrounds, 2151 N. Main St.; Sat. 10-6, Sun. 10-5; adults \$4, children 12 and under free with an adult; invited dealers, beads, minerals, fossils, metaphysical items, jewelry, gemstones, hand-made jewelry, wire wrapping; contact FM Minerals, P.O. Box 252, Farmington, WV 26571, (304) 825-6845; e-mail: [frankoz@juno.com](mailto:frankoz@juno.com)

**May 14-15: Berea, OH.** Parma Lapidary Club's 43<sup>rd</sup> Annual Show; Cuyahoga County Fairgrounds, 164 Eastland Rd.; Sat. 9-6, Sun. 10-5, CONTACT: John Zaborowski, 926 Lake Breeze Rd., Sheffield Lake, OH, 44054, (440) 949-8242, [j751@centurytel.net](mailto:j751@centurytel.net).

**May 20-22: Southgate, MI.** The MMLS club will be having its annual Gem and Mineral show in May. We hope to see you there. Location: Southgate Arena, 14700 Reaume Parkway, Southgate Mi. (next to the library, same location as last year). Fri. May 20: 2:00 - 7:00, Sat. May 21: 10:00 - 6:00, Sun. May 22. 10:00 - 5:00. The show will have 18 great vendors, outstanding exhibits, demonstrators, Minerals for Minors and much more. Any questions, contact Rich Williams at 734-374-2279 or [Richinmich53@aol.com](mailto:Richinmich53@aol.com)

**June 3-5: Wauseon, OH.** State Line Gem and Mineral Society's 50<sup>th</sup> Annual Gem, Jewelry, Mineral and Rock Show/Sale, "Rockin' for 50 Years", Junior Fair Building, Fulton County Fairgrounds. FREE ADMISSION. Fri. 12-7, Sat. 10-7, Sun 11-4, Featuring a MSHA Mine Safety Class on Saturday from 10-3. MSHA Class cost is \$15 + an additional \$15 for the manual. Sandy Cline will teach a soap stone carving class on Saturday from 1-6. Soapstone class is \$15 with limited class size, so register early. For additional info, contact Doris Brzezicki at (517) 263-1669 or [rychard@tc3net.com](mailto:rychard@tc3net.com). Club website: <http://stateline.freewebspace.com>.

**June 11-12: Mansfield, OH.** 51st annual show, "Ohio's Fabulous Fossils and Minerals"; Richland Lithic & Lapidary Society; Richland County Fairgrounds, Trimble Rd., north of Rte. 30; Sat. 10-6, Sun. 11-5; admission \$3; exhibits, demonstrations, retail dealers, silent auctions; contact Jay Medici, PO Box 56, Sparta, OH 43350, (419) 768-9128; e-mail: [jmedici@bright.net](mailto:jmedici@bright.net); or Tom Kottyan; e-mail: [themineralhouse@netzero.net](mailto:themineralhouse@netzero.net)

## ATTENTION MICHIGAN COPPER FANS

The annual Copper Country Mineral Retreat will take place August 8-13. Schedule of events are located on the website for the Mineral Museum: [http://www.museum.mtu.edu/copper\\_country\\_mineral/index.html](http://www.museum.mtu.edu/copper_country_mineral/index.html)

Also of note this year is the REOPENING of the A.E. Seaman Mineral Museum. They moved the entire collection into storage in December of 2010 and hoped to have the museum open in May of 2012. The copper country retreat information also mentioned: "On Thursday, August 11th, during the museum's open house, small groups will be able to preview the entire exhibit space (all mess included) as well as the collection management part of the building (not accessible to the public). To make this a fun event there will also be an outdoor picnic. To participate in the food, you must pre-register."

This is a wonderful museum and a great chance for some collecting in copper country. If you've never been to the Keweenaw Peninsula it is a wonderful treat this time of year. Remember this is WAY UP there so plan for appropriate accommodations. Do some planning ahead of time to also setup some beach trips to look for lakers and other agates along the shores.

## Popular Mineralogy

Fascinating mineralogy and earth science for the amateur mineralogist and serious collector - #36

### Harder Than The Hardest

by Andrew A. Sicree

#### Finding a perfect ten

Everyone knows that diamond is the hardest substance in the world, but sometimes something that everyone knows just isn't quite true. Diamond ranks as number ten on the Mohs scale of hardness, but the Mohs scale is only a relative scale. Friedrich Mohs chose diamond to be number ten on his scale because it was the hardest natural mineral substance he knew. Hardness on his scale is determined by scratching one mineral against another. Thus, calcite (H = 3) will scratch gypsum (H = 2) and talc (H = 1), but talc will not scratch either of the other two minerals. On the high end of the scale, diamond is harder than corundum (H = 9) and topaz (H = 8), but the gap between diamond and corundum is really much bigger than the gap between corundum and topaz. It takes correspondingly much more energy to scratch a diamond than to scratch corundum.

In the region between diamond and corundum, we find a number of harder synthetic materials and natural minerals. For instance, silicon carbide (SiC) is harder than corundum but softer than diamond. Hexagonal silicon carbide occurs naturally as the mineral rare mineral moissanite; it is found as tiny crystals in some meteorites.

#### Inventing carborundum

In 1893, Edward Goodrich Acheson patented a process for making synthetic silicon carbide grit, which he called "carborundum." Today, huge quantities of silicon carbide are produced synthetically and it is of major importance in the production of precision-ground interchangeable metal parts. Because it is harder than corundum and considerably cheaper than diamond grit, lapidaries

and stonecutters have long used it as an abrasive, too.

Synthetic silicon carbide is opaque and very dark black in color. In recent years, the discovery of methods of making transparent, colorless silicon carbide crystals has opened up a new market for silicon carbide as a synthetic gem. This silicon carbide is sold as moissanite and is popular as a durable and flashy, but cheaper, diamond substitute.

#### Lonsdaleite and boron nitride

In the gap between corundum and diamond, scientists have long placed the rare mineral lonsdaleite and a substance called "wurtzite boron nitride." Like diamond, lonsdaleite is pure carbon, but lonsdaleite has a hexagonal rather than a cubic crystal structure (note that the mineral graphite is also a hexagonal polymorph of carbon, but lonsdaleite has a *different* hexagonal lattice). It is a very rare mineral. Small crystal blebs of lonsdaleite have been reported in some meteorites, and they are thought to have formed when a graphite-containing asteroid collided with another object (i.e., when it hit another asteroid or when it hit the Earth). Like graphite (hexagonal carbon), lonsdaleite is a polymorph of the mineral diamond. But unlike graphite, lonsdaleite is exceedingly hard – right up there with diamond.

Boron nitride has to be made synthetically. No one has found it in nature (yet!). It has simple chemistry, just boron and nitrogen. The interesting fact about boron nitride is that it is "isoelectronic" with carbon, meaning that the electrons forming the covalent bonds in boron nitride are in essentially the same configuration as those in carbon. It implies that boron nitride should have many of the properties of carbon. And we find this is true.

Hexagonal boron nitride (h-BN) is very soft. This is analogous to the softness of hexagonal carbon (a.k.a. graphite). The cubic form of boron nitride (c-BN) has the same “sphalerite-like” structure of cubic carbon (a.k.a. diamond), and is correspondingly extremely hard. And, just as lonsdaleite is a very hard hexagonal form of carbon, so too there is a very hard hexagonal form of boron nitride. This hexagonal form of boron nitride has a “wurtzite-like” structure. Thus the name *wurtzite boron nitride* (w-BN) is quite appropriate.

## How hard are they?

Mineralogists knew that both lonsdaleite and wurtzite boron nitride were very hard. But exactly how hard has been difficult to determine because nothing more than a few small flecks of either substance has been available. Hardness tests are very difficult to do accurately on very small specimens.

Scientists have thus turned to computer models. And they got some surprising results. According to the models used, wurtzite boron nitride is capable of withstanding 18% more stress than diamond is. (Measuring the stress necessary to damage the crystal lattice or scratch a crystal gives a much more precise picture of the true hardness of that material.) And lonsdaleite is predicted to be capable of withstanding 58% more stress than diamond. This means that wurtzite boron nitride is harder than diamond and that lonsdaleite is harder than either wurtzite boron nitride or diamond. Thus, lonsdaleite is now the hardest known substance in the world.

Getting the computer to do for you what you cannot do in the lab is becoming more and more common. We can use computer models to determine everything from the location of an electron in a hydrogen atom up to rates of global warming. However, the question that must be asked of any model is “How well does this model reflect the reality in nature?” In the case of lonsdaleite and wurtzite boron nitride, proof will come when we get

specimens large enough to test with precision hardness testers. Synthetically-made lonsdaleite will have to suffice if large natural crystals cannot be found.

Diamond is in many science books as the world’s hardest substance. The day may soon come when we have to re-write those texts to include data on lonsdaleite and wurtzite boron nitride.

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*Dr. Andrew A. Sicree is a professional mineralogist and geochemist residing in Boalsburg, PA. This **Popular Mineralogy** newsletter supplement may not be copied in part or full without express permission of Andrew Sicree. **Popular Mineralogy** newsletter supplements are available on a subscription basis to help mineral clubs produce better newsletters. Write to Andrew A. Sicree, Ph.D., P. O. Box 10664, State College PA 16805, or call (814) 867-6263 or email [sicree@verizon.net](mailto:sicree@verizon.net) for more info.*

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## Black Swords from Japan

Glistening black swords of stibnite from Japan have haunted dreams of mineral collectors for the past century. The Ichinokawa Mine in Japan’s Ehime Prefecture closed more than 50 years ago and in spite of the newer production of large bladed stibnites from Chinese mines, the Japanese stibnites remain among the world’s mineral classics.

Stibnite has been utilized for millennia. Ancient Greek and Roman authors such as *Pedanius Dioscorides* (circa 40—90 AD) and *Gaius Plinius Secundus* (23 AD – August 25, 79 AD), better known as *Pliny the Elder*, referred to stibnite as *stibi*, *stimmi*, or *platyophthalmon*. The term *platyophthalmon* alludes to the popular use of powdered stibnite, which looks black, as a cosmetic for darkening the eyebrows to make ones’ eyes seem larger.

Stibnite, an antimony sulfide ( $Sb_2S_3$ , orthorhombic) sometimes known by the alternative name antimonite, can occur as long thin striated crystals with sharply pointed ends. Fresh crystals have a black steel luster, making the sword analogy

complete. After prolonged exposure to light, the surfaces of stibnite crystals tend to dull.

Somewhat fantastically, some authors have reported that Japanese gardeners, living in the vicinity of the mines, used meter-long stibnite crystals not as swords (in reality they would shatter if struck), but rather as plant stakes or as fence posts in miniature gardens.

An unusual property of stibnite is the development of “kinks.” Natural crystals sometimes display a bend or kink in an otherwise straight crystal. It is possible to create these kinks yourself. Hold a small crystal pinched between the thumb and forefinger of each hand, then apply a firm but gentle shearing force to the crystal. You’ll feel the crystal move slightly and you’ll see that a kink has developed in the crystal. Don’t try this with an expensive specimen as the kink cannot be reversed and any attempt to straighten the kink may result in the crumbling of the stibnite crystal.

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### *The World’s Oldest Amber*

Scientists recently discovered some of the world’s oldest amber in 320-million-year-old coals from Illinois. This amber has only been found in small blebs about one-quarter of an inch (5 mm) across, but analysis of the amber yielded some surprising results.

Amber from the Dominican Republic is about 30 million years old. The world’s largest sources of amber are the shores of the Baltic Sea; ambers from there are probably about 42 to 54 million years in age. New Jersey amber ranges approximately 65 to 95 million years old. Amber from Lebanon goes back nearly 130 million years. The Illinois ambers were found in coals from the Tradewater formation, Pennsylvania-age rocks about 320 million years old.

Amber forms from fossilized tree resins. Trees produce resins to seal damage and to protect themselves against insect invasions and to discourage animals from chewing on them. We are familiar with the dark reddish-brown resins that ooze from the barks of conifers and other gymnosperms – it sticks to your hand and is almost impossible to wash off. Gymnosperms are trees that have “naked seeds,” and the group includes trees such as pines, firs, spruces, and ginkos. Other trees are angiosperms (flowering plants with encased seeds, including trees like apple, maple, and oak). They also can produce ambers. It is possible to identify various types of ambers using a process called pyrolysis-gas chromatography-mass spectro-metry (Py-GC-MS). Put simply, this process takes a sample of amber, burns it to break it down, separates the chemicals produced during the break-down, and then identifies the break-down chemicals. Ambers from gymnosperms and angiosperms will produce different patterns of break-down chemicals and so we can distinguish them.

Analysis of the Illinois ambers revealed that they belong to the class “1c.” Ambers in the “1b” class are the most common, and they are thought to form from trees like conifers (gymnosperms). Class 1c ambers are usually thought to come from angiosperms. The problem with the 320-million-year-old Illinois ambers is that they are in class 1c (angiosperms), but angiosperm plants don’t arise in the fossil record until almost 200 million years later. (Plants that formed Pennsylvania age coals were not like those in modern-day forests; there were no grasses and no flowering trees; ferns and fern-like plants predominated.) This class 1c amber puzzle leads scientists to suspect that at least some early plants growing in the coal swamps of the Illinois Basin had resin-making abilities similar to those of modern-day flowering trees.

Ref.: Bray, P. S., and Anderson, K. B., 2009, “Identification of Carboniferous (320 Millions Old) Class 1c Amber,” *Science*, v. 326, 2 Oct. 2009, p. 132-134.

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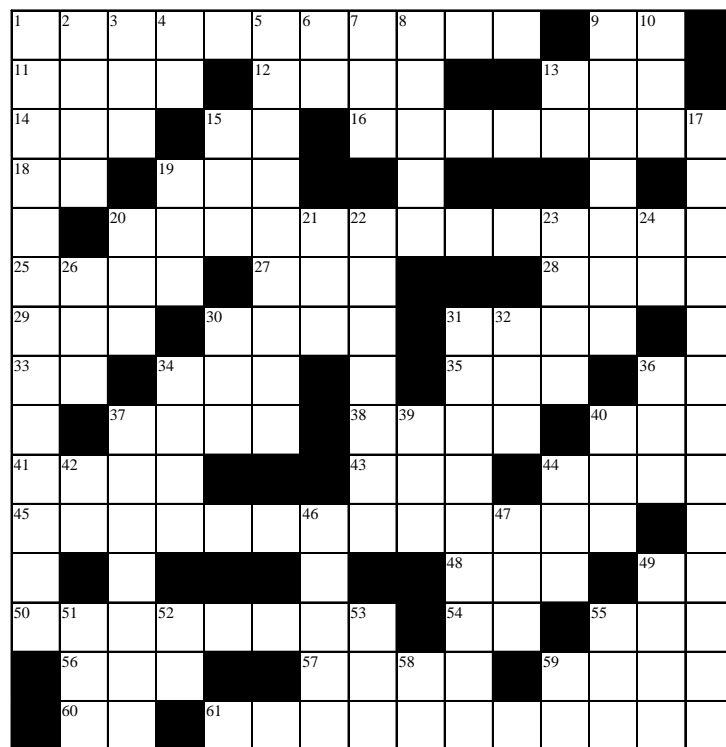
# Arsenic

## ACROSS

- 1 orpiment \_\_\_\_\_ realgar
- 9 metal that melts in your hand
- 11 composed of mineral grains
- 12 Brits call it a bonnet
- 13 source of fine adularia
- 14 when I dropped my crystal I was \_\_\_\_
- 15 dawn, early
- 16 more than one arsenic sulfides
- 18 Lord or God
- 19 after your money
- 20 killed off by arsenic
- 25 low, woody, and windy
- 27 Chinese name
- 28 geological (ab)
- 29 edible fish
- 30 worse than a dam
- 31 not a paddle but they're ours
- 33 lanthanum
- 34 part of rock drill
- 35 good \_\_\_\_ now, ya'll
- 36 \_\_, that stinks
- 37 used to drop into mine
- 38 inside a tire
- 40 water, salt, and gypsum
- 41 today, maybe in a minute
- 43 Zambezi Resources Ltd.
- 44 covered with native gold
- 45 iridium ruthenium  
arsenide minerals (pl)
- 48 tree resin
- 49 state for quartz
- 50 copper arsenic sulfide
- 54 washboard muscle
- 55 Star Wars
- 56 the \_\_\_\_ Khan
- 57 better than a little
- 59 the play's the thing
- 60 found with sphalerite
- 61 iron arsenide

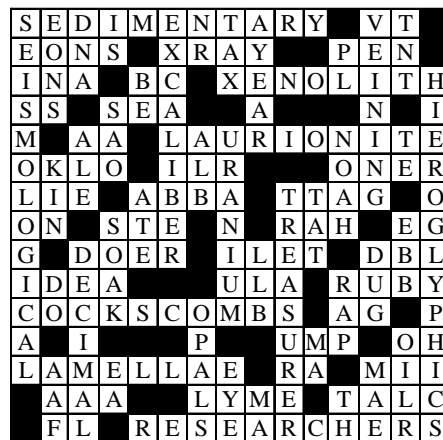
## DOWN

- 1 manganese arsenate
- 2 black organic rock
- 3 charge coupled device
- 4 Okie state



- 5 zinc arsenate hydroxide
- 6 giant mythological Chinese turtle
- 7 neither this \_\_\_\_ that
- 8 an unchipped crystal
- 9 arsenolamprite and galena are arsenic and lead \_\_\_\_
- 10 the fourth month (ab)
- 13 element that tarnishes
- 15 division of geologic time
- 17 palladium arsenide
- 19 end of the mineral
- 20 found covering rocks
- 21 done while cleaning your crystals
- 22 ancient Chinese river
- 23 mean guy
- 24 found in carrollite
- 26 a main squeezer
- 30 best way to find rocks
- 31 indispensable music
- 32 roger
- 34 what agate has
- 36 skinny but not a snake
- 37 made from Cu, Ag, Au
- 39 place for ashes
- 40 your sister
- 42 either ore or \_\_\_\_
- 44 fine hard stone
- 46 gecko foot hairs
- 47 place to wash minerals
- 49 mine entrance
- 51 an old horse
- 52 radium
- 53 nickname for Ellen
- 55 on water or snow
- 58 \_\_ Miss
- 59 Singapore (ab)

LAST MONTH'S SOLUTION: Not Quite



# May

# 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Metalcraft 1:30p	2	3 Extreme Beaders 2:00-6:30p Faceteers II 7:00p	4 Gemcraft 7:00p	5 Gemcraft 12-4p	6	7
8	9	10	11 Gemcraft 7:00p Faceteers 7:00p	12 Gemcraft 12-4p Metalcraft 6:30p	13 Open House Setup 6-8pm	14 Woven Bracelet 10:00a Open House 10-5
15 Metalcraft 1:30p Open House 10-5	16 Beaders 6:00p	17 Extreme Beaders 2:00-6:30p Faceteers II 7:00p	18 Show Mtg 6:30p Club Mtg 7:00p (potluck in June)	19 Gemcraft 12-4p	20	21
22 Juniors 12-2p	23 Rocky Reader Deadline	24	25 Gemcraft 7:00p	26 Gemcraft 12-4p Metalcraft 6:30p	27	28 Faceting Class
29 Faceting Class	30	31				

Group meetings and classes are for members only. Our club meetings are open to the public on the third Wednesday of every month. To learn more about our club, visit us during our Open House held every May and November.



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