Rocky Reader

The Monthly Newsletter Of The

Toledo Gem And Rockhound Club

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JUNE MEETING

Don't miss Jack Schatzley's presentation on "Fascinating Gems" at the June 16th meeting, 7PM. There is also a Show Committee meeting that night starting at 6:30 for those assisting with Show planning.

PRESIDENT'S MESSAGE

Well it finally feels like summer out there. It's time to dig into field trips, outdoor activities and more. A few of us are going on a three day trip through Indiana and to Missouri for Memorial weekend, so hopefully I'll have a few things to show at the June meeting. A lot of the info that I am using to plan this trip, I got from members of other clubs. I just looked on the MWF Website to find clubs in the locale I was planning to visit, and emailed them for suggestions. I didn't get responses all the time, but did get enough to fill out the itinerary. If you are planning a trip anywhere in the country, and want to do some collecting while you are there – email other clubs! The only thing rockhounds like to do more than dig and collect is to talk about digging and collecting!

The Show Committee is getting into full swing with Show planning and gathering. Remember as you get out this summer, check out your garages and rock piles for good material to donate for the club sale, auction, kid's games and raffle. We depend on you all to provide the materials to help the club activities be successful. If you are out collecting, pick up an extra flat or bucket of material for the Show. Variety is the spice of life and the more variety we have in these Show areas the better we do!

Juniors are planning a trip to Flint Ridge in July. I am working with the Museum for activities and have the info of two collecting sites in the area. They are fee sites, but the cost is well worth it for our prized Flint Ridge material. If anyone would like to join us on Saturday, July 24, let me know and I will keep you updated with the details.

I have also been looking at another possible field trip across Ohio, taking in sites in Huron, Richland, Mahoning and Columbiana Counties. The minerals we would be looking for would be Gold (panning), Septarian minerals, Wurzite and Gypsum/Selenite. For more info on these sites, check out the ODNR webpage: http://www.dnr.state.oh.us/Portals/10/pdf/GeoFacts/geof09.pdf, and Joe Vasichko's website: http://www.vasichkominerals.com/. If anyone is interested let me know, and I'll proceed to work something up.

Happy Summer!
Jerri Heer, President

TG&RC MEETING MINUTES – May 19, 2010

President Jerri Heer called the meeting to order at 7:09 p.m. with recitation of the Pledge of Allegiance.

Secretary's Report: Anne Mills moved to accept the minutes as printed in the Rocky Reader. Linda Maiani seconded. The motion carried.

Treasurer's Report: Steve Shimatzki said the treasury is healthy. As a non-profit group, the club has to certify to the federal government that the club made less than $25,000 income within a calendar year. Pete Peterson said that form now has to be filed every year or clubs and organizations can lose their non-profit status and have to re-apply.

Vendor checks for the fall show keep coming in. Steve said there have only been normal expenses with the exception of a display case Jeff Wheeler brought in which the club has purchased. Bonnie Wheeler moved to file the Treasurer's report for audit. Ed Reynolds seconded. The motion carried.

Old Business: Jerri made further mention of a discussion at last month's meeting about getting club shirts with the logo on. She said since the club's colors were royal blue and gold that possibly the shirts should be royal blue shirts with gold lettering. Bonnie Wheeler asked if there could also be a tee-shirt as well as a polo shirt for field trips. After discussion, the consensus was to get some quotes on set up costs and silk screening prices as well as embroidery costs. Several people gave Jerri suggestions on places to contact.

New Business: None

TBG: Chet King said the plant sale on Mothers day weekend had fewer plants but they were all TBG grown so the gardens made a higher percentage of profit. The next event for volunteer hours is the Arts Festival on June 26-27. Club members who can help should call the volunteer scheduler.

Gemcrafters: Steve reported that the Gemcrafters auction in April was a success. Jerri announced that Thursday afternoon sessions from noon-4pm will be open for public viewing and will count towards volunteer hours.

Metalcrafters: Deb Hoffmaster said the report would be published.

Beaders: Nancy Grove said the group has projects set up for the next three months and will continue to meet at 6pm on the third Monday.

Extreme Beaders: Kathy Peterson said they won't be meeting until June 8th and then will meet on Tuesdays.

Faceteers: no report

Faceteers II: Elie Ghanime had a class two weeks ago.

Juniors: Jerri said the next meeting date is Sunday, May 23rd at noon. Mike Burcewicz is presenting a program on flintknapping.

Rocky Reader: The deadline is Monday, May 24th.

Membership: Tonia Wallace said 37 members were present and 1 visitor.

Sunshine: no report

Thelma Postlewaite's Family News

June Birthdays:

1	Harry Snodgrass
4	Dawn Pfotenhauer
7	Carolin Dion
7	Linn Petersen
8	Carol Lake
8	Coleen Shaw
16	Stephanie Mahoney
18	Candee Ellsworth
19	Linda Maiani
20	Jade Davis
25	Gene Wallace
27	Kathy Crahan
29	Jessica Chekal
29	Zoe Howard
29	Benaiah Varner

Field Trips: Harold Burleson said the next Joel Vicary trip was May 28th to NE lower Michigan. There will be a MSHA class June 5 offered by the State Line club. A field trip to Flint Ridge may be possible if enough people are interested. Jerri said she and Ruth Jacobs are traveling to Indiana and Missouri to rockhound for geodes and quart on Memorial Day weekend. There was some discussion about the club sponsoring our own field trips.

Fall Show: Nothing new to report, vendor checks are coming in regularly. The 2011 show and Midwest Federation convention will use the Holiday Inn on Dussel Drive in Maumee as the host hotel. Jerri said the cost for 6 tables to a vendor is $460. Dealers who want fewer tables are charged $65 per table less.

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Open House: Carla Burleson said it went well and she will begin the sign up for the November Open House in August at the general meeting.

Nancy Grove asked about volunteer forms. Jerri said TBG wants the club to use their forms and she will pick some up at the office.

Chet King announced there is a June weekend of seminars and classes in Lansing at MGAG. Jerri is teaching a gem tree class and there are sessions on a great many topics.

There being no further business, Linda Maiani moved to adjourn. There being no objection, the meeting adjourned at 7:46 p.m.

Respectfully submitted, Lyn Kalinoski Secretary

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 June 6, 10 and 24. Sunday meetings are from 1:30-3:30 and Thursday meetings are from 6:30-8:30. We will not be meeting on Father's Day, June 20, and, looking ahead, we will not meet on July 4th or August 1st (ARTS) either.

If you **HAVE NEVER ATTENDED**, please call or e-mail me to schedule a three meeting slot to complete your instructional pendant. When you do so, **PLEASE LEAVE YOUR FULL NAME AND CONTACT INFORMATION.**

In keeping with the recently inaugurated enameling workshop, I am recommending the following for this month's reading: Enameling for Beginners, Enameling on Metal and Copper Enameling.

Debby Hoffmaster, Metalcraft Moderator

ROCKY READER

Submissions for the July Rocky Reader **must be received by noon on Monday, June 21st**. Many groups are not sending regular notices. From now on, 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.

JUNIORS

Our May meeting was another flint knapping lesson from Mike Burcewicz, the kids really enjoy this kind of stuff. There's something about making something yourself and reproducing artifacts the way the Native Americans did that really excites! Because this is something they enjoy so much, we are planning a one day field trip to Flint Ridge on July 24. We will visit the Flint Ridge Museum and collect some of our own material from one of the last collecting sites left in the area.

Our June meeting will be a Show and Tell, bring in items you want to share or identify, projects you liked best and we will talk about how to work those into a Junior Exhibit for the big Show! The June meeting will be Sunday, June 27 at Noon in the Craft Center.

SEPTEMBER SHOW

The Show is less than 4 months away! There is still a lot of work to do. The Committee will now meet every month at 6:30 before the general club meeting. If interested in helping with the planning, contact Jerri (419-389-9204, jheerx6@aol.com) or Suzanne (419-861-0147, sshimatzki@gmail.com).

We still have library display cases to fill for the month of August. These local libraries graciously let us use their display case to educate and entertain their patrons. Let's show them what a great club we have! All displays will be removed by the end of August so you'll have plenty of time to get them ready for the Show. Don't forget to turn in your exhibitor's form to Nancy Grove. The form can be obtained in last months Rocky Reader. Remember, there is a People's Choice Award for show exhibits and the top three winners receive $25, $15, and $10 prizes respectively. Please contact Suzanne for the list of libraries or for an exhibitors form.

CLASSES

June 19th, 10AM. Enameling Workshop. This is a workshop open to members who have independent working skills with enamels. There is no formal instruction and there is a limit on the number of members who can work. Participants will need to supply their own copper and enamels can be purchased from Su Drake. There will be a $10.00/person charge for the services of the kiln. Just to keep track, please call or e-mail Su Drake or Debby Hoffmaster to let us know you will be participating.

CONDOLENCES

Our thoughts and prayers are with the family of Tom Marok whose father passed away May 19th at age 85.

WELCOME

NEW MEMBERS

James & Margaret Chagnon
(Woodville, OH)
Laurie Maycrovich (Luna Pier, MI)
Tom & Vicki Reiman (Port Clinton,OH)
Janice Schmidt (Waterville, OH)

COMING EVENTS
from Chetty King's Flyer Table

June 4-6: Wauseon, OH, Stateline Jewelry, Rock, Gem, and Mineral Show "Forty Niner Miners," Fulton County Fairgrounds, Wauseon, OH. For more info call (517)263-1669 or email *rychard@tc3net.com*

June 12-13: Webberville, MI, Michigan Geology and Gemcraft Society's 36th Rockhound Seminar and Midwest Faceters Guild Seminar, Hands-On Workshops, Demonstrations, Illustrated Lectures. Sat. & Sun. 9:00-5:00, Webberville High/Middle School, 309 E. Grand River, Webberville, MI (approx. 12 mi east of Lansing). Contact Don Brown, (313) 421-8159, *webmaster@mgags.org.* For info on faceting workshops go to: www.*midwestfacetersguild.org*

June 12: Skokie, IL. Chicago Rocks & Minerals Society's Geodefest; St. Peter's United Church of Christ, 8013 Laramie Ave; Sat. 1-5; CONTACT: Craig Heinze, 1131 Hampton Harbor, Schaumburg, IL 60193.

June 25-27: Bloomington, IN, Lawrence County Rock Club, Inc.'s 45th Annual Show & Swap; Monroe County 4-H Fairgrounds, Airport Rd. & Hwy. 45; Fri. 10-6:30, Sat. 9- 6:30, Sun. 10-4; CONTACT: Dave Treffinger, 13101 E. 250 N., Loogootee, IN 47553, (812) 295-3463.

BGSU Students Thank YOU!

Bowling Green University Scholarship Winners sent the club thank you letters for their scholarships that came from the funds directly maintained by the proceeds from the scholarship raffle at the annual show. The Winners were: Trina Dennison, Devin Neal, Megan Smith. All of them expressed great gratitude for the scholarship that will directly help them further their college education. Trina is planning on attending field camp next summer and going on to graduate school. Devin is a geology Undergrad student. Megan is also planning on graduate school for environmental geology and will be spending her summer as an intern for Brownfield Restoration Group, LLC. We wish these three many years of success in an enjoyable field and look forward to crossing their paths in the future. Just a reminder that everyone in the club deserves a part of these thank-you's. Without each and every volunteer for our annual show that pulls in the donations for the scholarship fund raffles, these gifts to touch these young lives would not exists. So on behalf of Trina, Devin, and Megan, Thank you Toledo Gem and Rockhound Club. You DO make a difference.

Respectfully submitted by Steve Shimatzki via Mike Mayers, Scholarship contact

Seeking Annual Crosby Festival Volunteers

June 26 and 27 marks the 45th annual Crosby Festival of the Arts. The Gardens is looking for volunteers for all types of helpers. From Setup, Teardown, Artist Services (booth sitters, etc), Admissions, Parking, Visitor Services. Setup is June 23 - 25th. Tear-down is June 28. If you are interested in helping, please call for information 419-536-5592 or email volunteer@toledogarden.org. Please make sure to mention you are with the Toledo Gem and Rockhound Club and make sure your hours are counted.

from Toledo Botanical Gardens Flyer

Build Your Own Hardness Kit

by Don Peck

Hardness is usually the first actual test that a field collector makes to identify an unknown. Usually, a scratch with the tip of a knife is the extent of the testing, but we can do better.

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It is fairly easy to collect suitable small pieces of the first nine minerals in the Mohs' Scale of Hardness. The pieces can be small crystals of cleavage blocks. As long as they have smooth flat surfaces that can be scratched and points with to scratch they are useful.

A short length of stiff copper wire, sharpened on one end, is useful also. With the hardness of about 3.5 it substitutes for a penny (which since 1984 is not copper). So your thumb nail at 2.5, the copper wire at 3.5 and a knife blade at 5.5 provide good estimates of hardness; but for actual determination one should use the minerals that Frederick Mohs proposed nearly 200 years ago.

via GCLFS 11/09, via ETumbler, 9/09, via The Quarry, 8-9/09; via Canaveral Moonstone, 9/09; via the New Jersey Mineralogical Society newsletter; from Chips & Deposits, 5/09

POPULAR MINERALOGY

Interesting mineralogy and earth science for the amateur mineralogist and serious collector - #27

How Rare is a Rare Earth?

by Andrew A. Sicree

The Rare Earth Elements

Of the 118 elements known to mankind, only 91 are stable enough to be found naturally on the Earth. Many of these elements are plentiful enough to occur as components of minerals – that is, they show up in the mineral's chemical formula – but some elements have no discrete mineral species of their own, either because they are too rare or because they mimic the chemistry of other elements. These elements can only be found as trace constituents within chemically compatible minerals. Included in this trace element group are the so-called "rare earth" elements.

The rare earths are a block of fifteen chemical elements, ranging from lanthanum (element 57) to lutetium (element 71), plus scandium (element 21) and yttrium (element 39) thrown in for good measure. The chemical (and thus mineralogical) behavior of these elements is so similar that they tend to "co-travel" (i.e., when you find one, you find others).

Gadolinite

In 1787, in a quarry at Ytterby, Sweden, Carl Axel Arrhenius discovered a black mineral tentatively called "ytterbite". Johann Gadolin, a professor at the University of Turku, investigated the mineral, chemically extracting a previously-unknown metal oxide compound from it, which he called "ytteria." This was the first production of a rare earth oxide chemical. Ytterbite was later renamed to gadolinite in recognition of Gadolin's pioneering work among the rare earths.

It is interesting to note that the little village of Ytterby, Sweden, has *four* elements named after it. They are yttrium, terbium, erbium, and ytterbium. This reflects that fact that, at the turn of the 18th Century, the Scandinavian Peninsula was the Happy Hunting Ground for scientists seeking new elements.

How Rare Are They?

The rare earths aren't really all that rare. For instance, the rare earth element neodymium is more abundant than gold in the Earth's crust, and cerium, the 25th or 26th most plentiful element, is more abundant than neodymium. The term "rare earth" comes from the now obsolete use of the word "earth" to indicate a metal oxide that couldn't be smelted (reduced) to the pure metal. The first rare earths were discovered in unusual and uncommon (i.e., rare) oxide minerals (i.e., earths) such as the mineral gadolinite (Y2FeBe2Si2O10).

The various rare earth elements are not equal in their abundance. For instance, the lighter rare earths (elements 57-62), also called the "cerium earths," are more enriched in the Earth's crust relative to what are called "chondritic" abundances than are the heavier rare earths. The heavy rare earths (elements 63-67) are also called the "yttrium earths" because they mimic yttrium. Chondritic abundances refer to the concentrations of elements in certain types of undiffentiated meteorites. These undifferentiated meteorites are thought to be representative samples of the materials making up the early nebula from which our Sun and the planet Earth formed. By comparing the ratios of elements in crust with their chondritic abundance, scientists can gauge the enrichment or depletion of an element relative to the "starting point," so-to-speak, for our planet. Slight differences in chemistry between the light and heavy rare earths lead to mineralogical differences. For instance, xenotime (tetragonal

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YPO4) incorporates the yttrium earths, while monazite, monoclinic (Ce,La,Nd,Th)PO4 favors the cerium earths.

Note how the chemical formula for monazite has cerium, lanthanum, neodymium, and thorium in parentheses separated by commas – this means that monazite could contain any of these four elements. Monazite from one locality might be predominately cerium phosphate with minor amounts of lanthanum, etc. Other monazites might contain greater concentrations of lanthanum. Other elements, particularly other rare earths such as neodymium, may also be present. Elements present only at trace levels are not listed in the mineral's chemical formula. Even some non-rare earths can fit into the structure of monazite. Monazite may contain thorium – monazite sands have, in fact, been mined for thorium.

Rare Earth Mineralogy

Mineralogically, the rare earths are quite similar in their behavior. Because their ionic charges are typically the same (usually 3+) and their ionic radii are similar, one rare earth element can easily substitute for another in a crystal's structure. Slight differences exist between the mineralogy of the yttrium rare earths and the cerium rare earths.

The chemical mimicry of the rare earths explains why one does not, for instance, find a "lutetiumite" mineral in nature. Lutetium has to be obtained from minerals such as monazite, a rare earth phosphate mineral that typically contains only about 0.003% lutetium. The rare earths are quite difficult to separate chemically and even Mother Nature appears to have some trouble with their separation. Thus, for example, a yttrium mineral such as gadolinite will also include a raft of other rare earth elements in varying concentrations. These elements are not an essential part of the gadolinite structure, but they are present nonetheless.

Minerals containing yttrium (and thus, minerals that tend to also contain the yttirum earths) include gadolinite, xenotime, samarskite, euxenite, yttrialite, fergusonite, yttrotantalite, yttrotungstite, thalenite, and yttrofluorite (a variety of fluorite). Minerals that contain cerium and the cerium earths include bastnäsite, monazite, allanite, loparite, lanthanite, cerite, and britholite. The principal ore minerals for rare earth elements include bastnäsite, monazite, loparite, and lateritic clays with strong ion absorption properties.

China currently leads the world in rare earth element production – most of the world's current supplies of yttrium come from the "ion absorption clays" found in southern China. Some pegmatites (extremely coarse-grained igneous rocks with a granitic composition) have high levels of rare earth elements concentrated in their centers in large crystals of usual and rare minerals.

Neodymium

Among the rare earths is the element neodymium (Nd). Neodymium has been in the news recently because of concern about the world's supplies of the element. Neodymium is never found in nature as the native element; it must be extracted from cerium minerals such as monazite or bastnäsite, $(Ce,La)(CO_3)F$.

Neodymium is of interest because it is used in high strength magnets. Neodymium rare earth magnets are the strongest permanent magnets for their weight. This fact makes them desirable for use in computer hard drives, loudspeakers and microphones, and in small, high output electric motors such as those used in model airplanes.

Rare earths are important in the production of electric vehicles and hybrids, too. For instance, every Toyota *Prius* car consumes about 1 kg (2.2 lbs.) of neodymium in the magnets in its electric motor. Additionally, each *Prius* also utilizes 10 to 15 kg (22 to 33 lbs.) of the rare earth lanthanum in

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its battery. These high-tech uses of rare earths make it apparent that the rare earth elements are going to play an increasingly important role in the more energy-efficient future.

Currently, the major sources of all rare earth production are in China and the Chinese government has been restricting exports. In addition, the Chinese have been attempting to buy controlling interests in other rare earth producing mines around the world. These actions have led to a minor panic that the Chinese may corner the market and establish a rare earth cartel along the lines of OPEC. There are, however, sources of rare earths in Australia, Brazil, Canada, and California, and other potential sources as well. Given that the rare earths really aren't that rare, it is doubtful in the long run that the Chinese will be able to maintain any type of cartel to restrict and control supplies.

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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 *for more info.*

Neodymium Glass

Add neodymium oxide (Nd_2O_3) to molten glass and the result is a beautiful lavender glass. Neodymium-doped glass finds use in high-power solid state lasers used for nuclear fusion, producing a 351 nm laser beam. But this beautiful glass has an additional feature: under sunlight or incandescent lights it is lavender, but under fluorescent light, the glass appears light blue. And under trichromatic (three wavelength) light, the glass looks greenish. This is a synthetic version of the "alexandrite effect" observed in the alexandrite variety of chrysoberyl.

VOLCANIC BOMBS

The Star-Spangled Banner describes the shelling of Ft. McHenry in Baltimore by the British Navy. Francis Scott Key wrote his famous poem describing the "bombs bursting mid-air…" during the bombardment. One might suspect that Key's work also serves to describe the experience of a volcanic eruption. After all, don't volcanoes spit out volcanic "bombs," too?

Volcanic bombs, however, in spite of their names, do not typically blow up. Vulcanologists (scientists who study volcanoes) use the term "volcanic bomb" to describe blobs of lava that are thrown out of a volcano during an eruption and cool mid-air forming aerodynamic shapes. The molten state of the lava when the bomb is lobbed upward separates volcanic bombs from rocks, ash, clinkers, pumice, and dust that might also be ejected from a volcano.

Volcanic bombs come in a wide variety of shapes depending upon the viscosity (fluidity), stickiness, and temperature of the lava. Descriptive names are given to them: spherical, ribbon, almond, spindle, and even cow-pie bombs have been described. Cow-pie bombs, for instance, form when the lava is still molten when it lands. The impact upon hitting the ground splatters the molten lava into a cow-pie-like blob. Depending upon the strength of the eruption, volcanic bombs can be cast hundreds of meters from the erupting crater. Volcanic bombs greater than six meters across have been reported.

One type of volcanic bomb will, occasionally, explode on impact. The so-called bread-crust bombs cool mid-air to form a thin shell incasing their still-molten interior. As the molten lava continues to cool, interior pressures may build up (from escaping gases). When the bomb hits the ground the outer shell cracks and the bomb explodes much like one of Francis Scott Key's bombshells.

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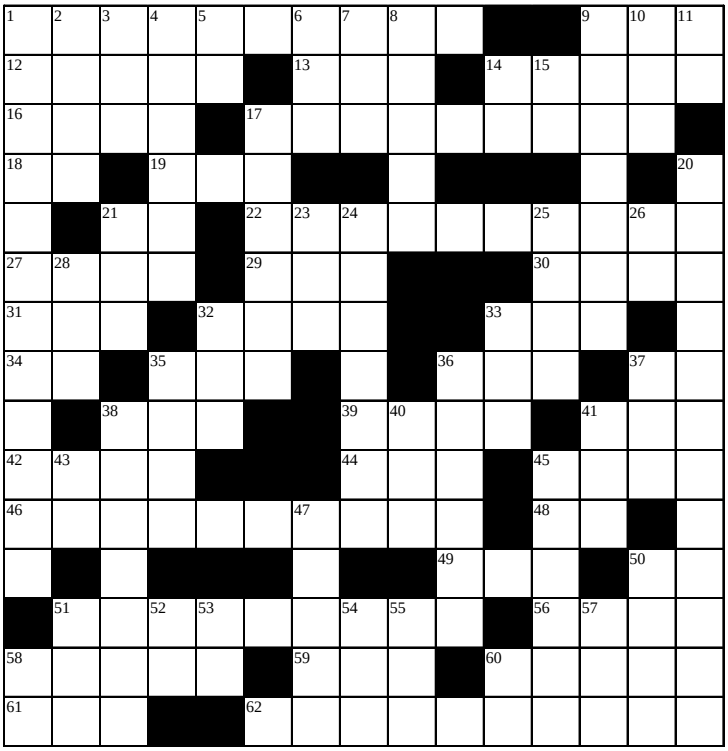
Fossillike



ACROSS

1 common in the Cretaceous
9 charged particle
12 approximately
13 plural of is
14 frequency unit
16 what some fish have
17 time of early life
18 light (ab)
19 of the egg
21 arsenic
22 how fossil bones are obtained
27 comet's cloud
29 family
30 Vulgate Edition (ab)
31 poison __
32 better than none
33 done with a bow
34 can be liquid metal
35 peace
36 three parts
37 Galilean star
38 insect that bothers you
39 a bad defeat
41 read only memory
42 weak tide
44 National Wildlife Refuge
45 controls characteristics
46 of duckbills
48 anti-tree tool
49 place of science
50 yep
51 rock made of fossils
56 bad boy, sausage
58 of bones
59 means house, vicinity
60 how to expose fossils
61 mineral last name
62 fossil shelled Crustacean

DOWN

1 bizarre Cambrian fossil
2 next to
3 ___ Quixote
4 horn corals (fossils)
5 overtime
6 auto club
7 universal resource locator
8 fossil __ form limestone
9 found at KT boundary
10 over the counter
11 New Zealand
14 hertz
15 of the dawn
17 digs up fossils
20 covers fossil trees in Yellowstone
21 girl
23 Hilary (nickname)
24 inside volcano
25 fifty seven
26 Netherlands (ab)
28 egg
32 old witch
33 in the eye of the beholder
35 metamorphosis stage
36 ancient reptile
37 child of Apollo
38 aluminum ore
40 to possess
41 big carnivorous dino
43 for example
45 mafic igneous rock
47 gotten from C-14
50 gem gemstone
51 landing ship, tank
52 Maine
53 __cene, recent dawn
54 October
55 neither __
57 long skinny cylinder
58 Cockney "hey"
60 European Community

LAST MONTH'S SOLUTION: Copper +

C	H	A	L	C	O	C	I	T	E			M	O	I
H	A	D	E	S		O	N	E		S	T	E	N	O
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C		B	R		L	I	T	H	O	G	R	A	P	H
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P	I	T		O	A	H	U			A	C	E		L
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R		V	E	T			A	M	P	S		E	V	A
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D	I	N	A	R		A	R	I		D	E	P	O	T
O	R	O			C	H	A	L	C	O	S	I	N	E

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June 2010

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Faceteers II 7:00p	*2* Gemcraft 7:00p	*3* Gemcraft 12-4p	*4*	*5*
6 Metalcraft 1:30p	*7*	*8* Extreme Beaders 9:00a-4:00p	*9* Gemcraft 7:00p Faceteers I 7:00p	*10* Gemcraft 12-4p Metalcraft 6:30p	*11*	*12*
13	*14*	*15* Extreme Beaders 2:00-6:30p Faceteers II 7:00p	*16* **Show Committee** **6:30p** **Club Mtg 7:00p**	*17* Gemcraft 12-4p	*18*	*19* Gemcraft 10a-12p Enameling Workshop 10a
20	*21* Beaders 6:00p	*22* Extreme Beaders 9:00a-4:00p	*23* Gemcraft 7:00p	*24* Gemcraft 12-4p Metalcraft 6:30p	*25*	*26*
27 Juniors 12-2p	*28* Rocky Reader May Deadline	*29* Extreme Beaders 9:00a-4:00p	*30* Gemcraft 7:00p			

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.

Rocky Reader Editor
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