

INDIAN MOUNDS
ROCK & MINERAL CLUB
WYOMING, MICHIGAN
A RROWHEAD
NEWS

*Are You Smarter
than a Seventh
Grader?*
See page 4 for details
JANUARY 20
AT 7PM

CHRISTMAS CHEER



PHOTO BY BRENDA VAN DYKE

NICK VAN DYKE STARTED OFF OUR DECEMBER CHRISTMAS PARTY WITH A REFRESHING PUNCH BOWL

VOLUME 46 #1
January 2009

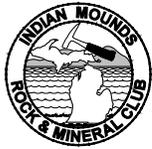
*The Indian Mounds Rock and Mineral Club
is a nonprofit organization, incorporated under the laws of the State of Michigan.*

*This club's objective is to develop and encourage interest in, and to further the study of minerals, gems,
fossils, rocks, lapidary arts, and earth science.*



AFFILIATED WITH THE MIDWEST AND AMERICAN FEDERATIONS OF MINERALOGICAL SOCIETIES

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or other non-profit organizations only, as long as proper credit is given (unless stated otherwise.)*



Welcome to the *ARROWHEAD NEWS*, official publication of the Indian Mounds Rock & Mineral Club of Wyoming, Michigan.



Visitors are welcome at all Meetings!

WHEN & WHERE

Club Meetings are held at 7:00 PM on the 3rd Tuesday, September through May, in the fellowship hall located in the basement of the Wesley Park United Methodist Church. The church is on the corner of Michael and 32nd Street, south of 28th Street, in Wyoming.

At 6:30 PM, on the 3rd Tuesday, June through August, our club has a **picnic** at Pinery Park in Wyoming, which is on DeHoop just north of 28th Street. Our usual spot is behind the north parking lot on the west side of DeHoop. Bring a dish to share, your own drinks, and table service.

Board Meetings are held right after the club meeting, or by special announcement on the 4th Tuesday of the month.

Club Membership dues are \$15 per family, \$10 per individual and \$5 per junior. Payment is due by the 3rd Tuesday of September and is for the following January – December. **New** members that join at or after the annual show, pay only one-half of the yearly dues. Membership includes 9 issues of the Arrowhead News.

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The **subscription rate** for the **Arrowhead News** is \$8.00 per year.

Emailing is encouraged - just ask!

Article submission is due to the Editor **before** the 1st of the month.

The Arrowhead News is also available on our website.

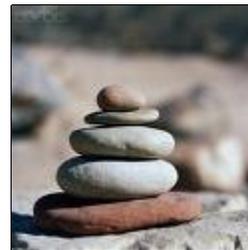
Send **exchange newsletters** to the Editor.

All articles without a byline have been written by the Editor.

**FROM MY ROCK PILE
(ACTUALLY MORE LIKE A MOUND)**

By Jim Elliott, President

As the New Year drew near, and the time for me to assume a new role in our club kept getting closer, I was often wondering how I could ever fill the shoes of our outgoing past president, Don Van Dyke. In his last "From My Rockpile" article in the Arrowhead News, he talked about scrambling to the top of his rock pile. It must have been a wonderful and very satisfying sight from up there with an unobstructed view of all of his accomplishments during the last three consecutive years serving as president. Three years – that is a long time without a break. I would like everyone to thank Don when you see him next, for the outstanding service he has performed. Our club membership has grown, as has the meeting attendance. So has our treasury. So has the fun level. We also had some really good programs during the past year, thanks to Nancy Spalenka's role as Program Chair. We also had the best Silent Auction and special sales events ever. We have discussed some great ideas that should result in several new events this year, including the Mini Silent Auction and a children's program or event. And our bulletin just keeps getting better all the time. It seems to me that we are doing the right things that members of a rock club want. If there is something else, different, or additional that you want to do or have an interest in, please let any of your Board members know.



Back to filling Don's shoes... Nothing is insurmountable, if you just take one step at a time. I urge you all to take that step forward this year to contribute to your club by helping out, by talking with other members, by sharing the leadership roles and by showing up for all of the club events that you possibly can. And by having fun!

Speaking of club events, the Christmas potluck meeting was well attended, the decorations were stupendous, the punch was outstanding, and the food was very good as usual. If you couldn't make it to this meeting, you certainly missed out on a great time. These potlucks are an exceptional opportunity to learn more about the members of our club, learn different aspects of our hobby, share ideas, and oh, how could I forget ... eat.

I am looking forward to a great New Year with our club. New growth with more new members. New ideas. More members displaying and participating at our annual show. A new children's program or children's events. More field trips. More Fun!

And I am looking forward to more smiles on all of your faces. See you at the next meeting.

Best to All,

Jim

ROCK & GEM NOW OUR "OFFICIAL" MAGAZINE!

From Shirley Leeson, AFMS Past President; via the AFMS Newsletter, January 2009

I'm delighted to share some exciting news with all of you. The AFMS Officers and Directors have selected *Rock & Gem* Magazine as the official magazine of the American Federation!

Rock & Gem is published by Miller Magazines and our own International Relations Chair, Bob Jones is its Senior Editor. He and his "boss" Lynne Varon, Managing Editor of the magazine have been actively promoting the AFMS and several of its activities for the past year and plan to continue doing so in years to come.

Rock & Gem is the last of the true "rockhound" magazine now that Lapidary Journal has been morphed into Jewelry Arts/Lapidary Journal. *Mineralogical Record* and *Rocks & Minerals* of course continue as outstanding publications, but their focus is on minerals, not on rockhounds. Each issue of *R & G* contains articles on field trips, minerals, projects and a series of kids activities.

The November issue includes an editorial by Lynne Varon entitled "Find Your Voice" touting the AFMS Conservation & Legislation program, plus information about our efforts to get the U.S. Postal Service to produce a series of commemorative stamps featuring birthstones and an early plug for the AFMS 2009 Convention in Billings, MT by Bob Jones.

If you're not already a subscriber, and thus a supporter of the magazine, you can easily get information by visiting their website <www.rockngem.com> or by calling them at 760-291-1549.

Not yet had the opportunity of meeting our International Relations Chair Bob Jones? He's always at the club show in Tucson each February, the Denver Show each September, the Springfield show each August in W. Springfield, MA and many, many local club shows. He's also scheduled to be the speaker at the EFMLS Wildacres Workshop in 2010.

Our association with *Rock & Gem* can truly be a symbiotic relationship - we subscribe and the magazine supports the efforts of the American Federation and our local clubs.

INDIAN MOUNDS ROCK & MINERAL CLUB EVENTS

January 20

IMRMC MEETING

Wesley Park United Methodist Church
 Tuesday - 7 PM
 Program: "Are You Smarter Than a Seventh Grader?" (see page 4)
 presented by Kreigh Tomaszewski

OTHER THINGS TO DO

January 24

ANNUAL INDOOR SWAP

Lincoln Gem and Mineral Club; Lincoln, NE
 Bethany Park Shelter House, 6500 Vine Street (65th and Vine Streets)
 Saturday 1 - 5 PM
 Contact: Pat Akins, Jr., 5017 NW 6th Street, Lincoln, NE 68521 (402) 477-1322

February 9

GEOLOGY DAY

Lincoln Gem and Mineral Club; Lincoln, NE
 Pioneer Park Prairie Bldg, W Van; Dorn & Coddington
 Sun, 1:00 - 4:00 PM.
 Contact: Terry Anderson, 1113 County Rd.

Feb. 28 & March 1

37TH ANNUAL SPECIAL AUCTION

Roamin Club, Livonia, MI
 Schoolcraft College, Visatech Center Bldg; 18600 Haggerty Rd; Livonia, MI
 Hourly oral and silent auctions, hourly and daily door prizes
Free parking and admission
 Saturday 11 AM - 6 PM, Sunday noon to 6 PM
 Contact: Clarence Sterling (248) 969-2196 or Don Brown (734) 421-8159

March 7

EASTERN INDIANA GEM & GEOLOGICAL SOCIETY INC. ANNUAL SHOW & MWF SPRING MEETING

Wayne County Fairgrounds, N. Salisbury Rd.; Richmond, IN
 Fri. 9:00 AM - 6:00 PM, Sat, 10:00 AM - 6:00 PM, Sun. 11:00 AM - 4:00 PM
 Contact: Lucille Mays, 158 SW 15th St., Richmond, IN 47374, (765) 935-5574

March 14 - 15

GEODELAND EARTH SCIENCE CLUBS, INC. ANNUAL SHOW

W.I.U. Student Union Ballroom, Murray St.; Macomb, IL
 Saturday 10:00 AM - 6:00 PM, Sunday 10:00 AM - 5:00 PM
 Contact: Dennis Bomke, dbomke@comcast.net

March 20 - 21

CEDAR VALLEY ROCKS & MINERALS SOCIETY ANNUAL SHOW

Teamsters Union Hall, 500 J St. SW; Cedar Rapids, IA
 Saturday 8:30 AM - 6:00 PM, Sunday 9:30 AM - 5:00 PM
 Contact: Marve Houg, 1820 30th St. Dr. SE, Cedar Rapids, IA 521403,
 (319) 364-2868, mhoug@yahoo.com

March 28

37TH ANNUAL METRO ROCK SWAP

Midwest Mineralogical & Lapidary Society
 Democratic Club of Taylor, 23400 Wick Rd; Taylor, MI
 Swap, sell or buy minerals, fossils, jewelry, lapidary items, slabs and crystals
Free parking and admission
 Saturday 10 AM - 5 PM; Contact: (734) 525-1684

TREASURER'S REPORT FOR NOVEMBER

By Dave Lehker, Treasurer

Beginning Balance:	\$9021.32
<u>Expenses:</u>	
Silent Auction Checks:	\$1610.80
Sunshine:	\$15.00
Newsletter:	\$175.68
Total Expenses:	\$1801.48
<u>Income:</u>	
Raffle:	\$57.00
Sunshine:	\$28.75
Newsletter:	\$170.00
Total Income:	\$255.75
Ending Balance:	\$7475.59



A LIGHT IN THE SKY*by Judith Washburn, Geology Chair; via the AFMS Newsletter, January 2009*

Residents in Manitoba, Saskatchewan and Alberta, Canada, witnessed a huge fireball that lit up the night sky over the three provinces on November 20th. Many reported hearing sonic boom rumblings and said the fiery flash was as bright as the sun.

University of Calgary scientist Alan Hildebrand, who also coordinates meteor sightings with the Canadian Space Agency, estimated the flash, a meteor, could have been seen from as far as 434 miles away, into the northern United States.

Widely broadcast video images of the meteor showed what appeared to be a speeding fireball that became larger and brighter before disappearing as it neared the ground. The meteor contained about one-tenth of a kiloton of energy when it entered the earth's atmosphere, roughly the equivalent of 100 tons of the chemical explosive TNT.

"It would be something like a billion-watt light bulb," said Hildebrand. The meteor has captured the imagination of sky watchers around the world. People telephoned the CBC newsrooms in Edmonton and Calgary to talk about what they saw.

"It was a really big flash, lit up the sky, and there was this huge, flaming fireball falling from the sky," said Rowyn Windsor, 12, who lives on the Canadian Forces base in Cold Lake, Alberta, about 350 kilometers northeast of Edmonton.

"This huge light in our kitchen window lit up our whole kitchen," said Sabrina Schneider, who lives just outside Lloydminster on the Saskatchewan-Alberta border. "It kinda flashed a couple of times. It was really bright. It was a different light than lightning. We weren't really sure what happened ... got up to look out the window, and all of a sudden, we heard this rumbling."

Schneider said her sister saw the meteor while she was driving past North Battleford, Saskatchewan. Hildebrand and a graduate student, Ellen Milley, have recently found several meteor fragments near the Battle River along the rural barren land, with few inhabitants.

– Adapted from various newspaper articles and Internet sites.

PROGRAM REVIEW AND PREVIEW*By Nancy Spalenka, Program Chair***REVIEW**

Thirty-nine people were signed in at our annual Christmas party on Dec. 16. The tables were beautifully decorated with poinsettias, greens, and selenite-gypsum specimens, thanks to Gladys and Skip Schipper. Nick Van Dyke prepared the delicious punch, Jim Elliott managed the coffee machine, and Gordon and Nancy Spalenka prepared the ham, which was provided by the club. A time of fellowship, sharing experiences, and a gift exchange followed the potluck.

PREVIEW

"Are You Smarter than a Seventh Grader?" is the theme for the 7:00 PM meeting on January 20, 2009.

For the past 25 years, Science Olympiad has led a revolution in science education. What began as a grassroots assembly of science teachers is now one of the premiere science competitions in the nation, providing rigorous, standards-based challenges to more than 5,300 teams in 48 states.

Last year Club member Kevin Devries approached the Club for specimens to use in the Regional Science Olympiad competition in Rocks and Minerals to be held at Allendale in February. Don Van Dyke and Kreigh Tomaszewski loaned Kevin the 90 some specimens and he put together the test. We also provided each student with a labeled specimen and a flyer about the Club's Annual Show.

This is your chance to take last year's Science Olympiad Rocks and Minerals test. You will need to identify common rocks and minerals and answer questions about them. The Junior High School students had only a few minutes at each station to answer a handful of questions, and most of them did very well. Bring a field guide, a hand lens, a pencil, and find out if you are smarter than a seventh grader.

~Preview provided by Kreigh Tomaszewski

LOST AND FOUND

A large box with a large pink towel and a smaller tan towel were left at the church following the December Christmas potluck. Contact the Spalenka's if these are yours.

Also an oval reed basket with newsletter 'stuff' in it, contact Brenda Van Dyke if you have found it.

CAN YOU HELP?

Does anyone have a laptop or portable DVD player that we could use on the club table at the April Gem and Mineral Show? If you do, please contact Nancy Spalenka. She has a nice DVD that would be nice to play during the show.

THERE IS STILL COPPER IN THEM-THERE HILLS*By Don Van Dyke*

As some of our Club members know, the Van Dykes, (Don & Lois) have had a long-lasting 'love affair' with Michigan's 'Copper Country.' Almost every year we try and spend a week or so up there, trying to discover the elusive treasures buried in the mine dumps, beaches and other locations.

In years past Lake Superior Agates, datolite, thompsonite, and chlorastrolite (Michigan's official gemstone) as well as copper were the top attractions. Now age has caught up with us, 'hard-rock mining' and tailing pile scrambles have become difficult, so copper has become our number one quest.

Copper in its native form, was mined in our UP 'copper belt', for over 150 years. Over 12 billion pounds were mined before the last mine closed at White Pine about 20 years ago. Much is still waiting quietly to be found. The mine dumps are still a source, especially if material is being removed for road construction etc. Areas where material from the tailing piles has been deposited for rip-rap, fill for construction, road reconstruction etc. should be checked out. Other areas that in the past have provided good specimens include old railroad grades, roads and trails to old mine sites etc. are still good areas to check and recheck. It is surprising how much can still be found, in areas we searched years ago.

In the last two years we've enjoyed detecting with several members of our Club. 2 years ago we joined with Roger & Arlene King and Ken Koster. Last year we met and detected with Dave & Julia Lecker, oh what fun, a friendly rivalry just increases the enjoyment. On these 'excursions' copper crystals, half breeds, (copper and silver) chisel chips, (narrow strips of copper created when miners cut up large masses of copper in the mines) and interesting shaped pieces of copper were found. And not all of them were small, last year we found a 25-pound piece and an 8-pound piece within 3 feet of each other, as well as a nice crystallized specimen.

What is needed to have an enjoyable, productive trip? An inquisitive mind, ask questions, do some research, the desire to spend time outdoors 'exploring', and some basic equipment.

Now days a metal detector is a must! A top of the line unit is not necessary, in fact we have found that our best detector is 'too good', it is too sensitive. A good mid price range 'turn on and go' detector works well. It is very helpful if your detector shows you a 'size.' (A coin range, cent, dime, quarter, half dollar, etc.) Unless you are looking for micro-mounts or thumbnail specimens you will want to ignore the 'small stuff.' You will need a 'rock pick', masons hammer, or similar tool. We use a 4 tined 'hook' similar to a garden hoe. In the woods you need to have a hatchet available for cutting roots, and occasionally a shovel would be handy in case you come upon that big, deep one. Don't forget a rock bag so you can carry your finds back to the car!

Water, snacks, and insect repellent should be brought along, and plan the trip later in the summer, or in the fall. Earlier in the season the black flies and biting stable flies can drive you right out of the woods. Also be aware that south and west of Houghton ticks can be a problem. Rarely poison ivy is encountered.

So you are out and finding copper, what do you take back home? Remember, what you dig will look nothing like those 'gleaming' specimens at the show. The copper you dig will be greenish, maybe gray-brown and dirty, it's been exposed to moisture and air for a hundred years or more. Often it will be part of a 'rocky lump' or unexposed in a mass of calcite, no matter what, take it all home.

Next time...you are home, now what?

WANTED: AN EDITOR*Via the AFMS Newsletter, January 2009*

The Midwest Federation is looking for a newsletter editor. We can promise to fill up your empty, spare hours with the creative task of putting together a newsletter that will reach thousands of members across the Midwest.

Qualifications include: a sense of dedication, a desire to help the Federation, modest computer skills, and a willingness to be a team player. Knowing a little bit about putting together a newsletter would be helpful.

If you think you might be interested, please contact:

Rose Blue, MWF President
16155 Shurmer Road
Strongsville, OH 44136
(440) 238-4412
jblue@n2net.net

NO BOARD OR CLUB MEETING MINUTES

KIDS CORNER

For 'Pups' of All Ages

By Don Van Dyke

This month we are going to think about some of the colors of quartz.

Kids, can you pick out the correct color?

1. The color of Amethyst is:
A) brown B) violet C) green
2. The color of citrine is:
A) brown B) red C) yellow
3. The color of smoky quartz is:
A) black B) white C) brown
4. The color of rose quartz is:
A) orange B) blue C) pink
5. The color of milky quartz is:
A) gray B) white C) clear
6. The color of Chrysoprase is:
A) blue B) yellow C) green
7. The color of Carnelian is:
A) red B) blue C) brown



Adults, can you select the element(s) or other agents that cause the color?

Match the coloring element(s) or other cause with the question number:

nickel

air bubbles or water

Iron & aluminum

radiation

titanium

iron oxide

ferric iron

The answers are on page 8 in this issue of the Arrowhead News

CRAFTER CHATTER

by Ed Wagner, via the LOESS Bulletin, April 2008

Have you ever cracked open a solid geode? If not, you are defying all the laws of rockhounding! My pile of 'solids' was getting rather large, so I decided to do something about it - make them work for me. With a little hard work (and a lot of mess) you can turn 'duds' into something your neighbor does *not* have - landscaping geode bricks! Mine are 4" x 4" x 9", but you can custom size them too.

Making the pieces

You will need a 2x12, 4' long, and 2- 1x6s, 8' long. Cut one 1x6 into two 4' pieces. Cut grooves across the board (Figure 1) with a radial arm saw, router, or table saw. The grooves are 3/4" wide, 3/8" deep, and 4" apart.

If you do not have the capability to make the grooves, you can always screw each divider through the outer sides (my first form was this way.) It will just take longer to set up and tear down, with having to remove and replace those screws every time. The other grooved 1x6 and second 8 foot 1x6 are ripped lengthwise to 4" wide. The 8' one was then cut into dividers 9 - 3/4" long.

If you want to maximize your form and make 9 cells, you will need a small scrap to make one more divider.

Assembly

Line up the grooved 1x6 to the edge of the 1x12, with 4" sticking above the 2x12. Attach with screws every 8", using pilot holes to prevent cracking (Figure 1.) I then treat everything with either spray lubricant (WD-40) or a rag soaked in motor oil, to work as a release agent to ease brick removal. The form is assembled by sliding the dividers into the grooves between the side boards. Set the assembled form on sawhorses, making sure that it is nearly level (Figure 2.)

Eyeballing this is usually close enough. I use clamps to hold the whole thing together, but you could use screws as well.

The messy part!

I buy 60 pound bags of premixed concrete from the lumberyard, which I find makes 6 bricks - maybe 7 if I have large geodes or have to add a little dry powder from a second bag (when the mix is too wet.) Mix the concrete until it just starts to flow.

At this time, I add coloring to mine, which can be purchased at the lumberyard as well, and mix until uniform, unless you want mottled bricks (I did some too.)

The can says to add the 1 pint to the one bag of concrete. I find this is way too much color... and gets expensive too. I use one can per 3 to 4 bags. Concrete consistency is important. If the concrete is too wet, it is a pain because the geodes sink. If it is too dry, it will not flow and the brick will have a rough, pocketed exterior.

Start by filling each of 6 cells half way full. Then shake the form vigorously to settle the concrete against the walls and into the corners. Properly mixed concrete should just start to get a little water on the surface. Add more concrete to each cell, stopping about 3/4" to 1/2" from the top. This takes practice, as larger geodes displace more concrete. Shake the form again, just enough to level the concrete. At this time, I take the geode halves and wiggle them into a little extra concrete in the mixing barrow or bucket to 'wet and prime' the outside. Then you gently wiggle the geode into the cell, leaving it sticking up about half an inch or a little less.

After all of them are in, shake the form again - LIGHTLY - to flow the concrete out and also settle the geodes in a little farther (Figure 3.)

The hardest part here is keeping the coloring off the face of the geode. Just be neat when handling them is all I can say. Also, if the geode is stuck in too far, the bleed water of the concrete will flow into the cavity - so keeping them sticking out a little is important.

After the water has disappeared off the surface of the concrete, and it starts to get firm, cover the form with a tarp or plastic and gently weight it down. Clamps can be removed once the concrete is stiff. I leave the plastic on for 2 days to help hold the moisture. Concrete gets hard by taking in water, thus keeping them wet makes the bricks harder. Be careful of air temperature - do not let it get below 55 or 60 degrees! Conversely, letting them dry out on a hot summer day is not a good idea (unless in the shade.)

Almost there...

After two days, remove them from the form. Tap the unfastened side off first, and then tap the end partition board to the side - this releases it from the brick. (Figure 4)

Then lift it or pull it straight out of the other groove. Prying the board up from the start may result in 'dragging,' or chipping, the top corner off the brick. Tap the second board to the side and this will loosen the first brick. This tap may need to be quite firm. Continue until all bricks are free. Form pieces should be scraped down to remove dried-on concrete and may need to be retreated, especially if spray lubricant was used.

Now, Rock On (the flower garden!)



Figure 1. The grooved boards, with one attached to the 2x12



Figure 2. The assembled form on sawhorses



Figure 3. Pouring the concrete, with one half settled in



Figure 4. Removing the bricks



THERE IS STILL COPPER IN THEM-THERE HILLS II*By Don Van Dyke*

So, you have returned home from your copper hunting vacation with a collection bag or box with an assortment of copper specimens, now what?

First dump them out on the drive, hose them off, and carefully examine them. Mostly they will be lumpy-bumpy ugly mixtures of rock and green copper. Check them over very carefully, if you are very-very fortunate, you may find that the tips of some of the protrusions are silver! A half breed! Or, you can make out crystal faces, a prize find.

Now, decision #1, to further clean, or leave as is. To me it is a no-brainer. Some collectors believe that they should be left in a 'natural state'. No one can convince me that the copper we find today, after being exposed to air and moisture for up to 150 years is in the state it was in when it was mined. I found a large boulder in the woods that rang out loud and clear, with no copper showing, upon beating it open, bright copper specimens were revealed, including crystallized copper. Last summer, in Wisconsin, a friend showed me a beautiful copper spear point that he had recently found in the bed of a stream. It was lost many years ago, possibly several thousand years ago, and it was as bright as a new cent! The water had prevented contact with the air so it was as bright as when the early copper miner had made it.

So, we'll clean it, but what should we use? There is vinegar & salt, tomato juice, muriatic (hydrochloric) acid, citric acid, nitric acid & sulfamic acid. Vinegar & salt (3 tablespoons salt and a pint of vinegar) or tomato juice may clean a small, rock-free piece of sheet copper. Commercial citric acid is not readily available, and nitric acid is too dangerous to use. That leaves muriatic and sulfamic acid. For years muriatic acid was my favorite, you can get it at most hardware stores. I used it diluted, about a pint of acid added to a 10-quart pail of water. (WARNING, ALWAYS ADD ACID TO WATER, NEVER WATER TO ACID!!) It works well, too well, it will 'eat up' the fine wire copper, and unless extreme care is taken, enough acid is absorbed by the rock, that then leaches back onto the copper, turning it green again. Sulfamic acid is milder, and does not dissolve the copper like the muriatic acid does.

Keep your eyes open for the unusual, we have found copper specimens with datolite, thompsonite and chlorastrolite attached to the copper, as well as beautiful copper crystals, and half-breeds.

WARNING-WARNING! THE USE OF ANY ACID IS HAZARDOUS, USE IT OUTDOORS, WITH ADEQUATE AIR MOVEMENT. USE EYE PROTECTION, WATERPROOF GLOVES, AND AN APRON. QUICKLY RINSE ANY SPILLS, OR SKIN THAT CAME INTO CONTACT WITH THE ACID. DO NOT BREATHE THE FUMES. ALWAYS USE PLASTIC OR GLASS CONTAINERS, NOT METAL. DISPOSE OF THE USED ACID PROPERLY, NEUTRALIZE IT WITH LIME OR BAKING SODA.

After soaking the copper for 20 minutes or so, pour the acid solution into another container, and 'power rinse' the specimens, then rinse again and again. Use a wire brush to remove loosened rock. Examine your specimens, if they are still grubby, or have calcite in/on them, return them to the acid bath. (You may need to add some additional acid). Some may not need additional soaking, if so, rinse them in running water for 15-20 minutes.

Some specimens can be enhanced by the removal of rock adhering to the copper. I have found that by using a Dremel engraving tool VERY carefully, much of the rock can be removed (NEVER IMPACT A CRYSTAL FACE!) Using this process, keep the Dremel point from direct contact with the copper, and soak the specimen occasionally in a dilute acid 'bath' until it is cleaned to your satisfaction.

If you wish to keep that bright appearance, you should again rinse the specimen and dip it into Copper Brite, THEN RINSE AND RE-RINSE FOR AN HOUR OR MORE. The next day you can spray with a clear acrylic lacquer.

PLEASE NOTE, I TAKE NO RESPONSIBILITY FOR PROBLEMS/HAZARDOUS SITUATIONS THAT MAY OCCUR WHEN FOLLOWING THESE SUGGESTIONS!

Notes:

Sulfamic acid is found in some coffee pot cleaners.

Not all copper will clean up well, the copper may be 'alloyed' with arsenic, etc. and stay dull or 'black.'

Dremel points come with a silicon-carbide tip, which wear out. Manufacture supply companies may carry 'grinding points' that are all silicone-carbide. They can be shaped and resharpened on a diamond grinding wheel. Sometimes a tool & die shop may have 'worn' ones available. Iron-basalt and quartz are very hard to remove.

Check out <http://www.gamineral.org/copper-cleaning.htm>

Happy hunting AND cleaning.

Answers to Kids Corner from page 6

1. B - iron & aluminum. (Answer from Wikipedia)
2. C - ferric iron
3. C - radiation
4. C - titanium
5. B - air bubbles or water
6. C - nickel
7. A - iron oxide (Answers for questions 2-7 are from the Color Encyclopedia of Gemstones by Joel E. Arem)

