

The Pineywoods Rooter

Newsletter of
PINE COUNTRY GEM & MINERAL SOCIETY
of Deep East Texas

September 2014

Volume 22 Number 9

Page 1

Club Officers

President, Bill Talcott 384-8244
Vice President, Joe Griggs 381-1123
Secretary, Michelle Talcott 384-8244
Treasurer, Sharon Stalsby 382-5314

Membership & Publicity,
Jonetta Nash

Newsletter Editor

John D. Nash 737 FM 254 S
Jasper TX 75951-9580
(409) 384-3974

johnnash1937@yahoo.com

Member News, Michelle Talcott
fizzycola@sbcglobal.net

Membership

Club Membership is open to all who
are interested in the Earth Sciences
and the Lapidary arts.

Dues are \$24 yearly for families,
\$18 for single adults and \$2 for kids.

Meetings

The regular monthly meeting is held
on the third Thursday of every month
at 7 p.m. in the Club Building at 110
N.Zavalla St. in downtown Jasper.

Visitors are invited to attend any of
the regularly scheduled meetings.

Club Purpose

Pine Country Gem & Mineral Society
was formed for the purpose of
encouraging interest and a better
understanding of all phases of the Earth
Sciences and Lapidary Arts and to
promote fellowship and cooperation
among members and with other
groups with like interests.

Member Club

South Central Federation of
Mineralogical Societies
and
American Federation of
Mineralogical Societies

PRESIDENT'S MESSAGE

All I got to say is the annual show was a success..... thanks to everyone who contributed and spent the time making sure everything and everyone was felt welcomed. I think that this is the first show I have been part of that the majority of club members showed the interest and participated in all aspects of putting this thing together. We had a great crew that was eager to fill in when someone needed a break and do what was necessary. I know that Ann as show chairperson appreciated it and I as president appreciated it. I was especially proud that most all of our newest members were present and willing to do a job or any job.

This is what it takes to make events such as this a success. I know our vendors could see the work put into this show and this is what makes them want to come back each year.

Thanks again to everyone.

Bill Talcott

**NEXT MEETING: Thursday, September 18, 2014
7:00 P.M.**

102 Zavalla Street, Jasper, Texas

Program: Robbie Smith

"A Surprise From Robbie"

+++++

REMEMBER POT LUCK SUPPER

BRING YOUR FAVORITE DISH

UP-COMING SHOWS &

OCTOBER 3-5 AUSTIN, tEXAS
Austin Gem & Mineral Society
Palmer Events Center

OCTOBER 11-12 TEMPLE, TEXAS
Tri-City Gem & Mineral Society
Mayborn Civic & Convention Center
3303 North 3rd Street
Chip Burnette

NOVEMBER 1-2 AMARILLO, TEXAS
Golden Spread Gem & Mineral Society
Amarillo Civic Center, 400 S. Buchanan

NOVEMBER 7-9 HUMBLE, TEXAS
Houston Gem & Mineral Society
Humble Civic Center
8233 Will Clayton Parkway

NOVEMBER 22-23 MESQUITE, TEX.
Dallas Gem & Mineral Society
Rodeo Center Exhibit Hall
1800 Rodeo Dr.

2014 Officers

PresidentBill Talcott
Vice President . . .Joe Griggs
SecretaryMichelle Talcott
TreasurerSharon Stalsby

Board Appointees

Activity - Field Trips . . . Fred Brown, Paul James
Membership - Publicity . . Jonetta Nash
Web Page . . . Linda Lang
Programs . . Bill Talcott & Others!
Historian . . . Imogene Mitchem
Auction . . . John Nash
Education . . . Janice Herron
Chamber of Commerce...Ann James
Show Chairperson . . .Ann James
Hostess...Donna Ducote
Building Chairman...Bill Talcott
Address Correspondence to:
Pine Country Gem & Mineral Society
P O Box 2513, Jasper TX 75951

CLUB WEB SITE: www.pinecountry-gms.org

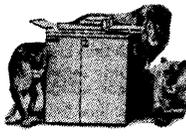
ANNIVERSARIES

Albert & Joyce Weissbohm
Thomas & Ramona Howell
Scott & Laurie Cordray

BIRTHDAYS:

- 1 Sonja Richard
- 5 Brian Bowles
- 7 Linda Gober
- 8 Dawn Foxworth
- 9 Charlottee Beebe
- 16 Julia McCormick
- 20 Michael Lang
- 21 Roger Page
- 22 Linda Talcott

Star graphics  AUTHORIZED **Konica** COPIER FACSIMILE DEALER



- Sales
- Rentals
- Lease
- Service
- Supplies

892-0672
TOUGH CUSTOMERS, TOUGH COPIERS.
(1-800-444-7827) 4785 Eastex Frwy

Notice to Exchange Bulletin Editors:

You may reprint any article in this newsletter in non-commercial club publications, provided that credit is given to the author of the article copied and to the Pineywoods Rooter. Editor

**BIRTHSTONE FOR SEPTEMBER
SAPPHIRE OR LAPIS**

Pine Country Gem & Mineral Society Meeting

Pine Country Gem and Mineral Society Meeting
P. O. Box 2513 – Jasper, Texas –

MINUTES FOR JULY 19th and AUGUST 21st 2014



The PCG&MS met on July 17, 2014 at the clubhouse for the regular monthly meeting. There were thirty-three members including new member Dawn Foxworth and two visitors, Ken and Pam Duhon.

The meeting was called to order by Bill Talcott. The program was presented by Ann James on “The Many Faces of Crystals.” She explained how to identify unique traits of quartz crystals and had beautiful examples to show everyone.

After a short break, the business meeting began with a motion by Joe Griggs and a second by Ron Ducote to accept the minutes as recorded in the bulletin. The motion passed. The Treasurers report was given by Sharon Stalsby with a motion to accept by Paul James and seconded by Garry Stubblefield, the motion passed.

Committee reports were presented. Paul James/Fred Brown (field trip) are working on a trip to a Gilmer rock shop. Keith Harmon will have his rock sell on September 6. Jonetta Nash (membership/publicity) reported that everything is gearing up for the annual show. Everyone should take show postcards to distribute to promote the annual show. Linda Lang (webpage) reported the newsletter is on the website and notices about the annual show are on Facebook. Ron Ducote (programs) said that there will be no program next month. Ann James (Chamber activities) reported there will be no meeting next month. Linda Talcott (hostess) requests volunteers for snacks for the meetings. Bill Talcott (building) announced there will be a work day on July 19. Ann James (Annual Show) all vendors are set. Committees are finalizing their details for the various areas. The August meeting will be devoted to the annual show.

Winner of the half and half drawing was Roger Page and Lori Horne won the door prize drawing that was provided by Michelle Talcott.

On a motion by Joe Griggs and seconded by Ron Ducote, the meeting was adjourned.

Attendees at the Meeting: Bill Talcott, Lonnie and Sharon Stalsby, Paul and Ann James, Michelle Talcott, Ron and Donna Ducote, John and Jonetta Nash, Joe Griggs, Maxine Wagner, Charles and Sharon Kerr, Julia McCormick, Fred and Janice Herron, Ron Carpenter, Mike and Linda Lang, Fred Brown, Garry Stubblefield, George Wells, Keith Stephens, Roger and Wanda Page, Shari Gunter, Lori Horne, Al Weissbohm, Gloria Lamkin, Vance Beaver, Sonya Richard, and Dawn Foxworth.

Submitted by Michelle Talcott, Secretary

The PCG&MS met on August 21, 2014 at the clubhouse for the regular monthly meeting. There were thirty-two members and one visitor, Tina.

The business meeting began with a motion by Rich Geist and a second by Sharon Kerr to accept the minutes. The motion passed. The Treasurers report was given by Sharon Stalsby with a motion to accept by Ron Ducote and seconded by Charles Kerr, the motion passed.

No program was presented to give time to finalize the Annual Show details. Ann James reported there were 13 vendors with one outside. Someone conducting gem identification has volunteered his time.

(continued on page 4)

(continued from page 3)

25 people will participate in the field trip on Saturday. The vendors breakfast will be at 8:00 a.m. on Sunday with the Rolling Rock Club meeting following at 9:00 a.m. Club Members are encouraged to wear their name lanyards. Everyone should help where they can. Each committee announced that things were in order for the weekend.

Winner of the half and half drawing was Rich Geist and Roger Page won the door prize drawing that was provided by Lori Horne.

On a motion by Joe Griggs and seconded by Charles Kerr, the meeting was adjourned.

Attendees at the Meeting: Bill and Linda Talcott, Lonnie and Sharon Stalsby, Paul and Ann James, Michelle and Carter Talcott, Ron and Donna Ducote, Joe Griggs, Maxine Wagner, Charles and Sharon Kerr, Julia McCormick, Tom and Ramona Howell, Ruth Howell, Jay and Bobbi McDonald, Fred Brown, Imogene Mitcham, Keith Stephens, Roger and Wanda Page, Lori Horne, Al and Joyce Weissbohm, Gloria Lamkin, Frances Perry, Rich Geist, and Dawn Foxworth.

Submitted by Michelle Talcott, Secretary

DID YOU KNOW

Gemstone Legend, History, and Lore

by Mike Jackson

Roman Emperor Nero is said to have watched gladiator combat through a pair of glasses with emerald lenses. Due to the calming effect emerald was said to have, he thought that it would keep him from getting to excited watching all of the bloodshed in the arena.

Ancient Christians believed that the Holy Grail was cut from an emerald that had fallen from Satan's helmet. It was believed also that emerald originated in Hell and due to that was said to be quite effective at dispatching evil.

The 12th century Catholic church decided to choose sapphire as the supreme emblem representing the light of God. Bishops and Cardinals were advised to wear sapphire on their right hand as a token of the power of Heaven.

DRIFTWOOD

by Jody Dorman, member PCGMS

Driftwood is wood that has been washed onto a shore or beach of a sea, lake, or river by the action of winds, tides or waves. It is a form of marine debris or tide wrack. In some waterfront areas, driftwood is a major nuisance. However driftwood provides shelter and food for birds, fish and other aquatic species as it floats in the ocean. Gribbles, ship worms and bacteria decompose the wood and gradually turn it into nutrients that are reintroduced to the food web. Sometimes, the partially decomposed wood washes ashore, where it also shelters birds, plants, and other species. Driftwood can become the foundation for sand dunes. Most driftwood is the remains of trees, in whole or part, that have been washed into the ocean, due to flooding, high winds, or other natural occurrences, or as the results of logging. There is also a subset of driftwood known as drift lumber. Drift lumber includes the remains of man-made wooden objects, such as buildings and their contents washed into the sea during storms, wooden objects discarded into the water from shore, lost cargo from ships and the remains of wooden shipwrecks and boats.

Erosion and wave action may make it difficult or impossible to determine the origin of a particular piece of driftwood. Driftwood can be used as part of decorative furniture or other art forms, and is a popular element in the scenery of fish tanks.

source from Wikipedia and Smithsonian Gem And Mineral book



From British Columbia Rock & Gem
via T-Town Rockhound 7/97 & others

A discussion was overheard during our show about Oxalic Acid and its use in cleaning minerals -(the first question was how to spell it).

A few days later the following article was printed in the September edition of the A.F.M.S. Newsletter. Some of you may be fortunate enough to go to Arkansas to dig for crystals and come home with lots of quartz crystals to clean and this information would be of value to you.

Duane Leavitt is a chemistry teacher, mineral collector and contributor to the Mineralogy of Maine Volume II, published by the Maine Geological Society. The following is a copy of an article reprinted with permission of the author.

Some Notes and Safety Tips on Using Oxalic Acid
by Duane Leavitt

One often reads about and sees reference to oxalic acid (wood bleach) in publications when the topic of cleaning minerals is discussed. This chemical, while an excellent cleaner for some types of minerals, poses some serious health risks which are not widely understood and can be confusing when considered in light of other acids that are sometimes used for cleaning purposes.

Oxalic acid, chemically $H_2C_2O_4$, is an organic acid, which means that it contains, among other things, the element carbon. At room temperature it is a white, crystalline, odorless, solid looking a lot like granular sugar in physical appearance. It melts at 101 degrees C and will vaporize at around 150 degrees C.

When we look at oxalic acid, strictly as an acid, we find that as acids go it is quite weak. Acid strength is measured by how much hydrogen acids give up in water solutions; a convenient measure of this is what is known as the K_a value, ionization constant value, of the acid. In a standard water solution oxalic acid has ionization constant (K_a) values of 0.0054 (primary) and 0.0000523 (tertiary). Compare this to K_a values of hydrochloric acid, K_a : 1; and nitric acid, K_a : 27.79 and it is obvious that oxalic acid is nowhere near as strong or as soluble in

water as these last two acids, which are also used in mineral cleaning.

This last statement is very true and is a BIG part of the problem with understanding oxalic acid. There is NO CORRELATION between acid strength and how poisonous it is, it's TOXICITY.

As an organic acid, oxalic acid, and/or it's water solutions, can be absorbed directly through the skin into the bloodstream, powders from the dry acid and vapors from solutions can be absorbed into the body through the lungs - this has serious implications for those who like to clean specimens in a crock pot of simmering oxalic acid solution in their basement; residues from improperly neutralized and rinsed specimens may be absorbed through later handling. Dust from the solid acid can damage the cornea of the eyes.

In the body, oxalic acid removes calcium from the blood, forming insoluble crystalline masses of calcium oxalate that eventually wind up in the kidneys where they will obstruct and abrade the kidney tubules causing the kidneys to bleed. They may block the kidneys and have to be removed surgically - kidney stones. In respiratory passages the material will cause severe irritation, possible hemorrhaging of these tissues and lungs. When the material gets into the digestive tract it causes severe gastroenteritis and vomiting, shock and convulsions, cardiovascular collapse and/or kidney failure which can lead to death. A lethal dose of oxalic acid is somewhere between 5-15 grams. Severe health problems occur at much smaller levels of exposure. OSHA recommends a TLV (threshold limit value) of no more than 1 mg (that is one thousandth of a gram)/ cubic meter. For comparison, 1 restaurant packet of sugar contains about 1 gram of material or 1000 times the recommended exposure value.

Unlike neutralized hydrochloric, muriatic and nitric acids, the products of "neutralized" oxalic acid are STILL poisonous - they just are no longer acidic. Oxalate compounds of any nature are still a threat to your health.

People wishing to use oxalic acid can do so successfully and safely provided they incorporate the following procedures into their mineral cleaning:

1. Always use long-sleeved rubber gloves, a splash proof apron, and full eye/nose protection when handling either dry oxalic acid crystals or oxalic acid solutions.
2. Avoid heating solutions of oxalic acid.... it will work cold, it just takes longer.
3. Keep containers of soaking specimens covered so that acid vapors stay inside the container. Lids should NOT be airtight.
4. Rinse any specimens cleaned with oxalic acid with copious amounts of water and test with pH paper to ensure that all acid is gone. A post treatment bath in dilute (household) ammonia or sodium bicarbonate solution is a good idea.
5. In the event of a spill removed affected clothing immediately, rinse affected areas with copious amounts of water, rinse and wash affected clothing. If there is any doubt as to the severity of the exposure seek medical help immediately.
6. Small amounts of used solutions of oxalic acid can be disposed of by the following method:
 1. Neutralize the solution with sodium bicarbonate or sodium hydroxide; TEST with pH paper to make sure it is neutral (or slightly basic).
 2. Dilute the solution from step 1 above, 20 fold with water (example, to 1 pint of neutralized acid solution add 20 pints of water.
 - 3.) Pour solution 2 down the drain with plenty of cold water. This disposal technique is identical to Flynn Scientific disposal technique 24A (Flynn, 2006).
7. Read up on cleaning techniques (Cleaning and Preserving Minerals by Richard Pearl is a good place to start) and educate yourself about techniques, materials and alternatives.

WIT AND WISDOM

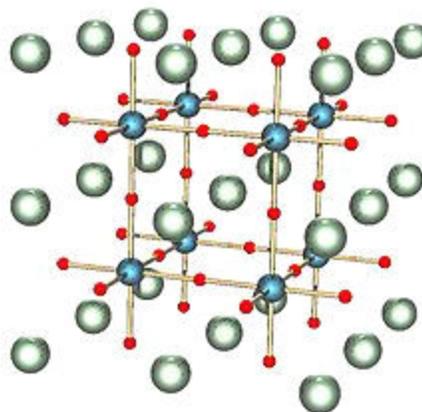
PEROVSKITES

Zeb William Rike III

We may all have run across references to Perovskites but what are they? They are a specific mineral for one thing, or a group of minerals. But for some references, this does not seem to fit, so the definition is broader than this.

THE MINERAL PEROVSKITE

Perovskite, CaTiO_3 is a calcium titanate mineral that occurs in igneous and metamorphic rocks, and in 'Ca-Al rich inclusions' in some chondritic meteorites, and as such is one of the oldest minerals in the solar system. It was discovered in the Ural Mountains in Russia in 1839 in the area we are familiar with from the asteroid impact of 19 February 2013



It varies from black, reddish brown, pale yellow, to yellowish orange. It is in the orthorhombic crystal system but is pseudo cubic—crystals show a cubic outline. It is a heavy mineral (Specific gravity 3.98-4.26) though relatively soft (Moh's hardness 5-5.5). It varies from transparent to opaque and has a luster from adamantine to metallic to dull. (1)

PEROVSKITE STRUCTURE

The crystal structure was determined by x-ray diffraction and published in 1945. A Perovskite is defined by its characteristic unit cell crystalline structure. The typical formula is ABX_3 , where A is a diva-

lent metal ion, B is a tetravalent metal ion and X is a divalent negative ion. The 'A' ions are considerably larger than the 'B' ions. . The relative ion size requirements for stability of the cubic structure are quite stringent with deviations from the ideal ratio giving distortion of the unit cell. (1, 2)

In Perovskite itself, 'A' is Calcium (in the drawing, green), 'B' is Titanium (blue) and 'X' is Oxygen.(red). The ideal cubic-symmetry structure has the B cation in 6-fold coordination, surrounded by an octahedron of anions, and the 'A' cation is in 12-fold coordination. (3) It is relatively common in some rocks and is increasingly important as a source of 'rare-earth' elements which can substitute for the Titanium. (4)

PEROVSKITES IN MANTLE OF EARTH

"We all know" that solids are incompressible but under extreme pressures (as covered by hundreds of miles of rock), phase transitions occur, giving new (denser) minerals. A major component of the mantle of the earth is Olivine (Peridot), (CaSiO_3 with some of the Ca replaced by Fe). In Olivine, the silicon is in the form of discrete silicate tetrahedra, SiO_4^{4-} (So silicon is in four-fold coordination). With increasing pressure, Olivine is converted through several transitions to " CaSiO_3 Perovskite". (So the silicon in six-fold coordination) (5)

PEROVSKITE SOLAR CELLS

News articles have informed us of the progress on printable Perovskite solar cells which have certified efficiency of 12.5% conversion of sunshine to electric current. It is obvious that titanate or silicate minerals, formed at high temperature and pressures are not what they are referring to. These solar cells were formed by depositing thin (1-2 micron) layers of meso-porous TiO_2 and ZrO_2 on a glass substrate. This was then covered with a thin (perforated) carbon film and the 'Perovskite' precursor solutions

were dropped to penetrate the film and crystallize in the pores to give the photo-active material. The solution contained 5-aminovaleic acid ($\text{H}_2\text{N}(\text{CH}_2)_5\text{CO}_2\text{H}$) [to give a monomolecular organic layer on the walls of the pores] as well as Lead Iodide (PbI_2) and Methyl-ammonium Iodide ($\text{CH}_3\text{NH}_3\text{I}$). The crystalline phase formed was a "Perovskite" because the ions arranged themselves in the requisite crystal unit cell structure. (6)

PRONUNCIATION (7)

In learning the pronunciation of the term (7) late one night, I found myself being beat on the back. My wife heard it and ran dripping wet from the shower, thinking I was choking to death. If you are reading this on the 'web', click on the link to 'howjsay' and hover your cursor over the term. If you are reading a paper copy, you will have to type in the internet address.

FOOTNOTES

1. <http://en.wikipedia.org/wiki/Perovskite>
2. http://en.wikipedia.org/wiki/Perovskite_%28structure%29
3. <http://www.thefreedictionary.com/perovskites>
4. <http://www.galleries.com/Perovskite>
5. http://ocw.mit.edu/courses/earth-atmospheric-and-planetary-sciences/12-581-phase-transitions-in-the-earths-interior-spring-2005/assignments/p_fei_1999_rekhi.pdf
6. *SCIENCE*, Vol. 345, 18 July 2014, pp. 295-297
7. <http://www.howjsay.com/index.php?word=perovskite&submit=Submit>

THE TEN ROCKMANMENTS

Source: Nana Gemsvia the Berks Geode, via Desert Diggings, 3/1999, via The Franklin County Rockhounder-Mar 2013, via Strata Gem, April 2013, Via Wasatch Gem Society Apr 2013. via El Paso Mineral & Gem Society –The Voice Sept 2013 via The Cowtown Cutter, Fort Worth GMS, March 2014

Thou shalt not touch thy neighbor's minerals unless he or she placeth them into thy hand. Thou shalt not test the strength of crystals by punching, squeezing or biting. Thou shalt not drop thy neighbor's fossil, for many do not bounce properly. Thou shalt not place thy neighbor's specimen into thine own pocket. Thou shalt not argue the name of that mineral too violently; sometimes thou couldst be wrong. Thou shalt not test thy neighbor's agates for hardness by rubbing them together. Thou shalt not climb over thy neighbor when on a field trip. Lest thou are willing to spend the remainder of the day, digging him or her out. Thou shalt protect thine eyes, hands, and feet, so thou canst enjoy many more field trips. Thou shalt not encroach upon thy neighbor's digging, lest his or her hammer be dropped upon thy toe. Thou shalt not complain about or denounce thy club officers, under penalty of being elected as one thyself.

Hank Halvorson, Jr. passed away at his son's home in Hewitt on Tuesday September 2, 2014. Hank and his wife Betty were generous and faithful members of our club for many years. Two of the large glass display cases were given to the club by Hank and Betty.

Volcano Yields Gold

Volcanoes ordinarily produce a molten material called magma and a nasty concoction of hydrochloric acid, hydrofluoric and other deadly gases. At Galeras, an active volcano in Colombia, gold is being produced. When it's erupting, Galeras also exhales through its vents a pound of gold into the air each day. Furthermore, the volcano formed a vein of quartz containing gold. The high-grade vein yields about eight ounces of gold per ton. Although gold has been found in other volcanoes, Galeras yields about 100 times more gold than any other active volcano.

The gold-bearing vein at the base of the 14,000 foot volcano was discovered when a guide showed it to a scientist. A sample of the vein was dated and found to be about 560,000 years old. This suggests Galeras has been expelling gold since it's beginning. The gold is in solution in the volcano's gases and cannot be collected.

Galeras is active — in 1933 it killed nine people, six of them earth scientists, during a deadly eruption. Access has been restricted, but geologists continue to study Galeras because they have the opportunity to see an actual model of gold ores being emplaced in rock.

(Original source unknown via *Rockatier 12 99* via THE GLACIAL DRIFTER 10/00)

Via T-Town Rockhounds 10/01

A note from the Editor (and Spouse)

This last few weeks have been a hectic time for us . As President of the SCFMS we traveled to AFMS meeting in Tulsa in July. This was a really nice trip and we had an opportunity to meet fellow rockhounds from all over the US. Then on August 8th we attended the SCFMS meeting in Baton Rouge. More rockhound friends and fun - what they say about "let the good times roll" is true in Louisiana. Between that time and our own show - John suffered a detached retina in his right eye. He lost the vision in his left eye about thirty years ago due to a detached retina - so he had no vision. Thankfully the surgery to repair seems to be successful. The doctors said it would be 4 to 6 six weeks before we will know how much vision he will have but things are looking good. We did get to go to our show for a few hours and were so proud of the good job everyone did

JUNIORS ACTIVITIES: GEODE FUN

By Jim Brace-Thompson, Juniors
Activities Chair

Phil and Steve Hauser, sons of Joel Hauser, recently gave my local Ventura club a walk down memory lane of collecting geodes with their departed father at the Hauser Beds near Wiley Well. This got me thinking of my own fun as a kid with trips to Keokuk geode beds in Illinois and Iowa. Geodes are especially popular with kids. The heft of these round rocks is strangely satisfying in its own regard, and that satisfaction turns to fascination as a dull potato-like object is split to reveal a colorful, sparkling interior. Thus, geodes provide a terrific kids' activity. If you're lucky enough to be near a geode-producing area, the activity can include a collecting trip. If this isn't feasible, geodes often can be found at reasonable prices at gem shows. In fact, some dealers use geodes as a draw to attract folks by having a saw to slice open a geode on purchase. You also commonly can find geodes at rock shops, museum gift shops, and even in the science area of some toy stores. Dealers and rock shops are your best bets, though, for getting a good supply at the best price if buying a quantity to use with kids. You then can hold a workshop to slice each child's geode with a rock saw or to crack them open with a rock hammer. (Just make sure each child has eye protection!)

As an accompanying activity, tell how geodes form in cavities dissolved in limestone or in bubbles left in solidifying lava through which mineral-rich water percolates. To illustrate, you can help kids make geodes in eggshells, following a recipe that circulated in various club newsletters in 1996. To start, get together one weekend morning with your kids' group for a large omelet brunch. Take care cracking your eggs to save all the undamaged eggshell halves you can. So that crystals will attach to the eggshells, remove the skin lining the interior of eggs with tweezers or by gently rolling it out with your fingertips, returning the cleaned eggshells to the original carton. This gives you a supply of the "gas bubble" cavities in which each child can grow a

geode.

Because you'll use the process of evaporation to create the geodes, you'll need to do this activity at a member's home where the eggshells can be left undisturbed for several days before you reconvene the kids to share the results. The first step is to produce a mineral-rich groundwater solution by slowly adding table salt into hot water until you hit the point at which the salt no longer dissolves. This is known as a "super saturated solution." To brighten your geodes, kids might add a bit of food coloring before pouring the solution into the previously prepared eggshell halves. Into each filled eggshell, drop some extra grains of salt to serve as seed crystals before placing the egg cartons in a safe place to rest undisturbed for the next several days as evaporation takes place. To add variety, you might make several types of geodes at the same time, filling some with table salt solution and others with solutions made from sugar, alum, or Epsom salts.

Once evaporation is complete, reconvene the kids to see what lines the interiors of their eggshells. You might want to hand out the real geodes at this time for kids to crack open and compare after having learned the process of crystal formation first-hand. Using real geodes as the climax to a crystal-growing activity is a surefire way to memorably imprint the lesson of geode formation while—as always—having fun! via CFMS Newsletter, Sept 06

(continued from page 8)

Just about the time we thought everything was getting back to normal - lightning struck a tree at our house and knocked out the electricity, stove, freezer, two televisions, telephones and dryer. Now we have to learn to operate new appliances (beside pay for them) and also will have to have a big pine tree cut.

I wanted to let our club members know how much we appreciate you for keeping us in your prayers.

I also wanted to let our club know about our members who are officers and committee chairmen in the SCFMS and AFMS. New officers will take office on Nov. 1st. Ann James is the Vice President of the SCFMS and serves as a member of the Board of the AFMS; Rich Geist will be our District Vice President for Dist. II, Michelle Talcott is the Juniors Program Chair and Jonetta Nash serves as Chairman of the Constitution and By-Laws Committee in the SCFMS