



The Apache Junction Rock & Gem Club, Inc.

# SMOKE SIGNALS

Nov 2013

## Officers of the Apache Junction Rock & Gem Club, Inc.

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Trustee:	Ken Perkins	480-343-5617 lperkins18@cox.net
Trustee:	Ted Montague	480-982-1790 coolwater2k@yahoo.com

The Club meets on the second Thursday of every month October thru April at 7:00 pm at the Lapidary Shop, at the corner of Superstition & Ocotillo, Apache Junction, AZ

Club Dues - \$24 a year per member prorated to first of month of joining. This may be paid at the general meeting or by mail to Ron Ginn, 691 N. Velero St., Chandler, AZ 85225.

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Next Meeting – Dec 12, 2013

Christmas Dinner – Dec 14, 2013

The annual Christmas pot luck will be held at the Carefree Manor RV Resort at 1615 N Delaware Dr., Apache Junction, AZ 85120. The entrance for the Resort is on Tepee St between Delaware Dr. and Ironwood Dr.

Minutes of Oct. Mtg.

Apache Junction Rock & Gem Club-General Meeting Minutes

November 14, 2013

Submitted by Barbara Bayer

The President called the meeting to order at 7:05 pm. She led the Pledge of Allegiance.

The secretary's minutes were presented in the newsletter. Mr. Pawlowski made the motion to accept the minutes. Mr. Montague seconded the motion and the motion was passed.

Mrs. Montague, Treasurer, reported that the Lapidary savings and checking accounts were placed into the General savings and checking accounts. Joining these accounts makes more accurate accounting. She and the President are exploring methods of investment which offer higher interest rates as compared to current CD rates. Mr. Pawlowski suggested the Money Market accounts. The accounts reports are as follows: Blended General Checking account \$1015.98, Blended General Savings account \$171.46, Show Checking account \$12,554.86, Show Savings account \$1,934.43. Mrs. Montague reported that prior to blending the Lapidary accounts with the General accounts, the Lapidary accounts were checking \$563.68 and savings \$50.50. Mrs. Montague reminded the club members that they get a better discount on lapidary supplies if ordered through the club. Supplies would then be delivered to the shop for individual members.

Mr. Montague, Trustee, announced that we are having a monthly food drive for the poor of the community. The drive can also include items of personal care as soap, toothpaste, etc. The collection box will be available in the Lapidary shop during the week.

Mr. Ginn, Membership Chair, reported that there are 233 current members of the club. He announced that he will continue as Membership Chair through 2014. He requests that someone start learning the membership computer system to replace him in December of 2014.

Mr. Jonas, Lapidary Shop Manager, thanked all the monitors for the shop. Due to their efforts, we have expanded shop hours to 10 hours/day during the week. Saturdays are reserved for the monitors to do their personal work. There may be evening shop hours in the future. The monitors have completed a training course in order to assist others with lapidary projects. All members will have an orientation to the Lapidary shop equipment. The orientation sessions are offered on Tuesdays and Thursdays. The security cameras are now operational. One 18" saw is now in use and the second 18" saw is being repaired. There are display cabinets on the East side of the Lapidary shop to exhibit members' projects. There is a new rock "cage" on the east exterior area of the Lapidary shop for rock storage. The idea is to have rock/mineral specimens available at 50 cents per lb. for members. Donated slabs will be used in the silent auction.

Ms. Kirmel, Hospitality Chairperson, announced there were to be a general meeting on December 12<sup>th</sup> - 7 pm at the Lapidary shop and a Christmas dinner on December 14<sup>th</sup> - 6 pm at Carefree Manor Trailer Resort on Teepee and Delaware, Apache Junction. The club will furnish beverages, ham, and turkey. Members are to bring a dish/desert for the pot luck dinner.

Members should also bring their own silverware and plates.

The Nomination Committee announced the following persons for club officers for 2014:  
President: Bill Jonas  
Vice President: Dave Weber  
Treasurer: Lois Perkins  
Secretary: Barbara Bayer  
Trustee (vote for one): Jack Pawlowski and Tom Sundling  
The actual election will be on December 12<sup>th</sup>.

Cindy Koontz reported the Jewel Box event has had two classes so far this season. All members are welcome to share in this event without fee, but bring your own supplies and small tools. The events are held at the Lapidary shop at 10 am on Tuesdays. There may be evening sessions in the future.

Ms. Koontz also reported the following regarding the Member-Vender sales to be held on Lapidary Shop property:

- Only members of the Apache Junction Rock & Gem club are permitted to sell at the sales events.
- Member-Venders may use tables owned by our club for sales events. The table(s) would be placed next to the sellers' vehicles. Tables are to be returned in good condition. The individual sale areas are to be picked-up at the end of the sales event.
- There will be no overnight parking and staying on the Lapidary shop property.
- Member-Venders are not permitted to have pets on the Lapidary shop property during the sales.
- Member-Venders are responsible for their own products/equipment if left overnight on the Lapidary shop property.
- Items for sale must be 80% rock or gem products made by the members. Findings and such products may

represent 20% of the sale items. No import **items from** China will be permitted. Lapidary equipment and tools may be sold at these events by Member-Venders.

- Each Member-Vender must have a current Apache Junction business license and an Arizona Tax identification number. The license and the tax identification number must be on display during the sales. Apache Junction will issue a temporary business license for \$15.00.
- Each Member-Vender is responsible for his/her own sales using a credit card or a debit **card**. Each person is responsible for reporting sales taxes collected. The phone swipe system has been reported quite successful for the credit card and debit card verification.

The 50:50 draw winner was announced.

## Remembering Allen Heyl

Both geology and mineral collecting are fields filled with colorful characters, but all too often, there is a chasm between mineral collectors and their professional counterparts.

Dr. Allen Van Heyl, formerly the U. S. Geological Survey's zinc mineral expert, died at a hospice near his home in Evergreen, Colorado, on October 24<sup>th</sup>, 2008, at the age of 90. Allen Heyl was a remarkable geologist, combining an expert's knowledge of ore geology with a keen eye for mineral specimens. While many professionals avoid or barely tolerate the questions of amateurs, Dr. Heyl was always willing to spend hours talking with mineral collectors, explaining the science to those of us who were less knowledgeable than he. He'd worked for years in the Illinois-Wisconsin area (the Upper Mississippi Valley zinc-lead district) and in Leadville, Colorado. But he was originally from the East and he was an expert in the minerals of

The silent auction was held in the saw room. Mr. Fermoyle wishes to thank all who donated for the specimens in the silent auction.

Mrs. Bayer presented the club's Field Trip Manual which contains current rules and regulations for field trips on BLM, National Forest and private lands. Twenty-five sites have been detailed in the manual with maps to the sites. Also, twelve health situations with descriptions, first **aid**, and prevention tips are included in the manual. The manual is available to members in disc format for \$10.00.

The meeting was adjourned at 9 pm.

## Article of the Month

# Bridging the Gap Between Geologists and Collectors

*by Andrew A. Sicree*

Pennsylvania, New Jersey, and the surrounding states. His long career spanned the second half of the 20<sup>th</sup> Century, and he knew almost all of the important mineralogists, geologists, and mineral collectors of that epoch. I, along with many other mineral collectors, will miss him.

The following is a brief account of an episode that occurred when I was collecting minerals with Allen Heyl a few years before his death.

## The day I almost killed Allen Heyl

I had the honor of getting to know Allen over a dozen years. We first met when I was working on my Ph.D. thesis, studying sphalerite and galena from the Upper Mississippi Valley district in Illinois, Wisconsin, and Iowa. Allen, of course, wrote the seminal paper on the U.M.V. district for the U.S. Geological Survey. He'd been the Survey's leading zinc mineral expert for decades and knew and understood just about every economic occurrence of zinc mineralization in the U.S. You might say

that sphalerite was his friend. I met him when he came to speak at Penn State and he and I became friends. I learned a lot about economic geology and mineralogy from him.

After Allen retired from the Survey, I had the opportunity to spend time with him in the field on numerous occasions when he came to Pennsylvania. When I went to Denver for the Denver Mineral Show, I always tried to stay on for a day or two after the show. Then Allen and I would spend the days driving up and down the Colorado mountains – he knew them intimately.

In particular, I recall spending two days in Leadville, cruising the dumps for minerals. Allen had been the USGS Leadville expert for a number of years and was familiar with every mine in the district. At the time, the EPA was “cleaning up” the old mine dumps – the place had been designated a superfund site – and in the process destroying much of our mining history heritage. The irony was, as Allen pointed out, that the “remediators” were attacking piles of rock that were really old stockpiles of oxide ores – these stockpiles weren’t releasing much in the way of toxins – and ignoring the old dumps of sulfide-laced waste rock that were the real problem. Be that as it may, they did us the courtesy of ripping open the well-picked-over stockpiles and exposing new many new specimens, including interesting crystals of chalcophanite (a zinc manganese oxide mineral).

Allen had a sturdy four-wheel drive and would go charging up hills, down roads and crashing through the brush, driving off-road with a confidence I never had. I’d peer down into deep gullies and hang out the window to see if all of our tires were still on the road. At times, I was sure we’d flip upside down into some brush-filled gulch, but we never did. When we stopped at a dump, I could always rely on Allen’s keen eye to pick out (and identify) some unusual mineral.

On one of these September trips to Colorado, Allen wanted to show me an abandoned rare-earth pegmatite mine. I’ve always been interested in pegmatites – one of the curses of living in central Pennsylvania is a definite lack of

pegmatites. Allen and I packed up his four-wheel drive with tools and lunch and headed off into the mountains. It was one of those pleasant, warm fall days in Colorado – beautiful. Allen had had a heart attack about a year before, but you wouldn’t know it to watch him. It was, however, something I kept in the back of my mind.

Allen wasn’t sure exactly where the mine was – about thirty years had passed since the last time he’d visited it – but he found a low hill that looked right and told me he thought that the mine was near its top. We parked just off the main road, but it was several miles from the nearest house. Allen locked up his four-wheel drive and we trekked up the pine-covered hill. We were a few yards apart as we climbed and a huge boulder loomed up among the trees. I misjudged the size of the boulder. Allen went around one side while I headed around the other. I thought we’d meet up on top.

But when I climbed to the top of the boulder, Allen wasn’t there. I scrambled down his side of the boulder. No Allen. Then I went back up again. Still no Allen. Yelled his name – nothing but the trees answered. Yelled louder. Nothing but trees. Yelled even louder. Nothing. Amazing! In a few minutes time, I’d managed to lose him in the woods. I could see all around me – the woods weren’t that thick, but I couldn’t understand why he didn’t hear me yelling.

Starting to get worried, I went up to the top of the hill. No Allen and no pegmatite mine, either. I started a spiraling outward search pattern, stopping from time to time to yell his name and listen. After about forty minutes of this I stopped, took out my GPS and took a location reading to help the rescue crews find their way to the spot. The only thing I could think was that Allen had had another heart attack and had fallen unconscious behind a bush somewhere on that hillside. I pictured myself going down in history as the guy who killed Allen Heyl.

Now I was in a predicament. Allen had the keys to the four-wheel drive and I was locked out. I’d have to hike down to the road and then a couple of miles back to the nearest house in order to call for help. If he was having a heart attack, time was of the essence.

Then, just as I was hitching up my backpack to push off, when he walks out from behind some rocks. Boy, was I glad to see him. He'd actually gone over the first hill and onto the next, looking for the pegmatite mine – it wasn't there, either. He moved much more quickly than I thought. But by that time, I wasn't disappointed that we didn't find the mine. I was glad to have Allen back in one piece. I never did understand why he didn't hear me yelling, and I never told Allen about my worried hour.

About a month later Allen called me and said me that he'd finally located the mine and told me that he'd take me there the following year. Unfortunately, that never came to pass, although we did continue to collect minerals and visit mines together. He was a great guy and a great geologist. Always willing to teach, always willing to be a friend.

He will be missed.

## ***HOW DO YOU MELT A ROCK?***

National Geographic regularly depicts glowing rivers of molten rock streaming downhill from the craters on Mauna Loa in Hawaii. This molten rock is called lava, and lava is magma (underground molten rock) that has escaped to the Earth's surface. But how do you produce a magma in the first place?

A common misconception is that the interior of the Earth is molten. Although parts of the Earth's interior are indeed molten (the outer core is molten nickel-iron), the bulk of the Earth's mantle and crust is not molten.

### How do magmas form?

In Jules Verne's novel, *Journey to the Center of the Earth*, adventurers descend to the Earth's center and return to tell their tale. In reality, they would've been toast long before they got anywhere near the Earth's core. Temperature increases dramatically as one descends into the Earth. For instance, I once went underground at the Homestake Gold Mine in Lead, South Dakota. After descending nearly 8000 feet, I noted that the mine temperature was about 130°F (54°C). The only way miners can survive in such

heat is through air-conditioning. The mining company blew chilled air underground to make work bearable. If we could have continued to descend (and survived the rising temperatures), we would have, in theory, eventually reached a point where rocks began melting.

Every mineral has a melting point, and so do rocks made up of mineral grains. Because rocks are mixtures of minerals, rocks will not display a nice crisp melting point. Granite, for instance, is composed of quartz, feldspars, micas, and other minerals. The melting temperature of any given granite varies as a function of the minerals present, their compositions, and their relative amounts. But, in general, a granite near the Earth's surface will melt below approximately 1440°F (780°C). Other rocks have different melting temperatures. For comparison, a typical basalt might melt at approximately 1830°F (1000°C) at the surface of the Earth.

The story gets more complicated. For instance, depth in the Earth matters because the pressure on the rocks goes up as one descends into the Earth. Melting increases the volume of a rock, so increases in pressure tend to force the melt back to a solid state. Thus, one typically needs a higher temperature to melt a rock when the pressure increases. The melting point of a rock like granite increases with depth.

This leads to one mechanism for creating a magma. A solid rock, deep within the Earth, at a high temperature will remain solid. But if that rock is thrust upward without cooling, the confining pressure decreases and it may melt even though the temperature of the rock has not changed. This is called *decompression melting*.

Water complicates the story even more. If one has a "wet" granite (i.e., a system that has both water and granite present), the melting temperature *decreases*, rather than increases, as pressure goes up (i.e., as one descends into the Earth). This is counterintuitive, but a typical granite that melts at approximately 1440°F (780°C) near the Earth's surface could have its melting temperature drop to approximately 1180°F (640°C) at depths of about 12 miles (19 km). In the absence of water, a "dry" granite at

the same depth melts at about 1760°F (960°C). A big difference!

Thus, magmas can be formed by three different mechanisms: (1) heat may be added to melt the rock, (2) a decrease in pressure can cause decompression melting, or (3) the addition of water to the “system” can lower the melting temperature of the rock.

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### ***A Lapidary With Real Guts***

Would you try your hand at cutting a crystal worth £150,000? On February 10<sup>th</sup>, 1908 Joseph Asscher picked up a chisel and struck the 3106-carat rough Cullinan Diamond. His intent was to break the fist-sized crystal along one of its natural cleavage planes. The danger was that the world's largest diamond might shatter into hundreds of fragments. His first chisel broke and the diamond remained uncleaved. Sweating a little, Asscher called for another chisel. On his second try the Cullinan cleaved neatly into two halves.

## Field Trip Tips

### Clothing:

- Hat with wide brim
- Long sleeve shirt
- Pants
- Jacket
- Closed shoes or boots
- Gloves

### Supplies:

- Drinking water
- Snack Foods such as trail mix
- Lunch
- Sun screen
- Insect repellent
- First aid kit
- Duck tape
- Needle nose pliers
- Knife
- Toilet paper, etc.
- Maps
- GPS
- Cell phone
- Walkie-talkie set
- Tarp with cord

### Typical equipment:

- Sledge hammer – 3 lb and 8 lb

- Container, 5 gallon plastic is best
- Shovel
- Rock hammer
- Chisel
- Small hoe
- Pry bar
- Brush
- Water to wash specimens
- Long handled screw driver flat blade

Degree of Personal Difficulty is rated on a 1 to 10 scale. 1 = flat, easy surface with no gravel to 10 = steep, severe fall danger, loose gravel.

## Rock Shows

**Nov 30-1—WICKENBURG, ARIZONA:** Show and sale; Wickenburg Gem & Mineral Show; Hassayampa Elementary School; 251 S. Tegner St.; Sat. 9-5, Sun. 10-4; free admission; rocks, gems, minerals, beads, jewelry, fossils, kids' room, door prizes, raffle; contact Beth Myerson, 21825 W. Date Creek Rd., Wickenburg, AZ 85390, (480) 540-2318; e-mail: myerbd@gmail.com

