



The Apache Junction Rock & Gem Club, Inc.

SMOKE SIGNALS

November 2011

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

President:	Katy Tunnichiff	918-440-9152 katydidnt2007@gmail.com
Vice-President:	Jerry Gervais	480-252-2456
Secretary:	Mattie Gadd	503-705-3933 mmpdg16@msn.com
Treasurer:	Patricia Wallace	480-598-8709 rosebud116@aol.com
Trustee:	Jack Pawlowski	480-288-2642 j6ac5k@calcon.net
Trustee:	Brent Staker	480-298-1359 gbstaker@yahoo.com
Trustee:	Tom Sundling	402-432-9790

The Club meets on the second Thursday of every month October thru April at 7:00 pm at the Carefree Manor RV Park, at the corner of Tepee & Delaware, 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. Veleró St., Chandler, AZ 85225.

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Next Meeting – Dec 8, 2011

At the Carefree Manor RV Park, at the corner of Tepee & Delaware, Apache Junction, AZ.

General Meeting Minutes

Apache Junction Rock Club General Meeting
 Minutes for November 10, 2011

1. Meeting was called to order at 7:05 pm
2. Pledge of Allegiance was performed
3. President's comments: Katy reported that the first Rock Art Show went fine. There

were 5 vendors at Dreams and Legends. Ernie is now charging \$5 per day per vendor and 15% of sales to cover credit card charges and the children's art donation. Katy introduced Terri Creiglow as our new Field Trip Coordinator.

Katy announced that we need nominations for the board member positions to be voted on at the next meeting. Katy was nominated to continue as president, Jerry was nominated to continue as vice president, Mattie was nominated to be treasurer (since she cannot do both treasurer and secretary) Barbara volunteered to secretary again. As trustee Brent Staker has put in his 3 year commitment so his position will need to be filled; Brian Fermoye was nominated. If the above nominations are voted in at the next meeting, Barbara's role of assisting with memberships will be filled by Connie Sundling.

4. The winner for the 50/50 ticket drawing was Whitey Kroll, he won \$57.00.
5. There were 6 door prizes this month donated by Phil & Mattie from field trips taken last year.

Treasurer- Pat Wallace
 Pat was not present.

Committee's:
 Publicity- Wally Frlich
 Wally was not present.

Membership and Website- Ron Ginn
 We now have a total of 387 active members, there were 72 members present at the meeting

and we had 18 new members sign up at the meeting.

Field Trip- Terri Creiglow will be sending notification of a rock field trip for Saturday, Nov 19.

Lapidary Shop- Phil Gadd

Phil reported that the lapidary will be open a couple of evenings, Tuesday and Thursday, until 7 pm on a trial basis. If not utilized, then the lapidary will go back to the regular hours. Lapidary hours are Mon 8 to 2, Tue 9 to 4, Wed 8 to 2, Thur 9 to 3 and Fri 8 to Noon.

Hospitality- Natalie Kirmiel announce the annual Christmas Holiday dinner will be at the next meeting on Dec 8 and needs volunteers to cook the turkey's and ham. *See Natalie for the sign up list.* Everyone attending the meeting should bring a side dish to share and their own place settings.

Silent Auction- Mattie Gadd

All sales from the silent auction go to the lapidary shop funds. We sold \$79 last month. We are still in need of more donations.

Building chairperson- Sally Stone

Sally was not present.

Jewelry & Arts- Dori Kapki

Dori will have her first wire wrap class will be November 19 at Carefree Manor. She will have a notification sent to everyone.

Lynn with Sticks and Stones announced that they are having a 10% off sale the entire store on Black Friday, November 25.

Ted Montague suggested that we do the annual food drive again. Bring your canned goods and non-perishable items to the next meeting.

Katy made the motion to adjourn the meeting, Jerry seconded the motion. Meeting was adjourned at 7:45 pm.

Article of the Month

Meteors, Meteoroids, and Meteorites: Rocks from Outer Space

by Andrew A. Sicree

Rocks fall from space

Rocks from outer space pelt the Earth's atmosphere incessantly. A small percentage of these rocks survive entry into the atmosphere and land on the Earth. These are the meteorites.

We may confuse the terms meteor and meteorite. A *meteor* is the streak of light made when an extraterrestrial object enters the Earth's atmosphere. A *meteorite* is a rock from outer space that has survived the passage through the atmosphere and has dropped onto the Earth. We use the term *meteoroid* for an asteroid moving through space that is a "meteorite-to-be."

The world's fastest rocks

Moving through space at velocities exceeding 60,000 miles per hour (about 25 kilometers per second), meteoroids hit the upper atmosphere. Friction between the rock and the gas molecules in the atmosphere begins to slow the rock. The meteoroid is rapidly heated to the point of becoming incandescent. We see the glowing rock as a bright, rapidly moving streak of light: a meteor.

Billions of small meteoroids hit the atmosphere every day. Most of these are too small to see. The very smallest objects don't burn up but rather slowly drift downward as a constant rain of cosmic dust. Most meteoroids range from the size of a pea downward to a few thousandths of an inch in diameter. These small meteorites are usually completely burned up upon entry into the Earth's atmosphere.

Some rocks survive the plunge

If a meteoroid is big enough, perhaps the size of a walnut or larger, it might survive the fiery passage through the atmosphere. Because the rock is moving so fast when it hits the atmosphere, its exterior will be heated and charred, and the object will slough off some mass as it slows down. Typically, a thin black "fusion crust" forms.

As the rock slows down, it drops lower in the atmosphere and ceases to glow. Air resistance

continues to brake the object. While the rock is moving faster than the speed of sound (about 770 mph), it will produce a sonic boom. Once it is slower than sound it falls to the Earth quietly, although lucky bystanders may hear a “swoosh” or rhythmic sound as it rotates or tumble through the air.

Once on the ground, our rock from outer space officially becomes a meteorite.

Common meteorite types

In broad terms, meteorites can be divided into two groups: the stones and the irons. As the names suggest, the iron meteorites are mostly made up of metal, and the stony meteorites consist of mostly “stone” which in this case means silicate minerals. Other types also exist, such as the stony-irons, or the Martian or Lunar meteorites.

Typical stony meteorites are rocks that consist of mostly of iron magnesium silicate minerals such as olivine, $(\text{Fe,Mg})_2\text{SiO}_4$, and pyroxenes, $(\text{Fe,Mg,Ca})\text{SiO}_3$, with some small fraction of iron-nickel metal. The chondrites

The most common stony meteorites are the chondrites. Most meteorites that hit the Earth are “ordinary chondrites.” One characteristic of many ordinary chondrites is the presence of small spherical inclusions called chondrules. The chondrules are usually made up of olivine and pyroxenes like the surrounding ground mass. A cut section of an ordinary chondrite shows chondrules as small (usually 1-2 mm in diameter) disks. The abundance of chondrules and the crispness of their edges are used to classify the ordinary chondrites.

Other chondrite classes include enstatite or carbonaceous chondrites. Carbonaceous chondrites are of particular interest to scientists because they have plentiful carbon and may play a role in the presence of life elsewhere in the Solar System.

The irons

Iron meteorites are mostly iron-nickel. Nickel is the minor constituent and makes up from about 1% to 25% of the mass. A few other minerals such as troilite (FeS), schreibersite, $(\text{Fe,Ni,Co})_3\text{P}$, or graphite occur as inclusions within the metal. Iron-nickel is really a mixture of two closely related iron-nickel minerals. Kamacite is the lower-nickel phase and taenite is the higher nickel phase.

The irons can be classified structurally on the basis of the size of their kamacite/taenite grains.

For instance, the “octahedrites” range from coarsest through coarse, medium, fine, and finest, to plessitic. Then come the ataxites in which the crystals are so small that the metal appears to be structureless. The famous “Widmanstätten figures” of iron meteorites can be seen when you etch a polished surface with nitric acid in alcohol. Because the low-nickel phase (kamacite) is attacked by the acid more readily than the high-nickel phase (taenite), the acid tends to etch the surface differentially and thus show the crystal texture of the metal. This is similar to the way an old antique brass doorknob will show a “chunky” pattern; the sweat from people’s palms has etched the brass over many years of use.

The stony-irons

The stony-iron meteorites are mixtures of iron-nickel metal with iron magnesium silicate minerals. The pallasites are primarily iron-nickel and olivine – thus they have a texture in which blebs of green or yellow-green olivine crystals are suspended in a matrix of metal. The mesosiderites are breccias of metal mixed with stony minerals such as plagioclase or pyroxenes.

Other types of meteorites

Other types of meteorites have been found. These do not fit neatly into the groups of irons, stony-irons, or stones. Among these are the “SNC” meteorites. The S stands for shergottite (the name of the meteorite that fell in 1865 near Shergotty in India), the N stands for nakhlites (after Nakhla, Egypt – the meteorite that fell there in 1911 is reputed to have killed a dog), and the C stands for chassignite (a meteorite that fell near Chassigny France in 1815). Currently, there is general agreement that these meteorites came originally from the planet Mars. How did these Mars rocks get to the Earth? They were lofted into space with enough velocity to escape Mars’ gravity when a large asteroid hit the planet’s surface. As one might suspect, SNC meteorites can be quite valuable.

It is interesting to note that although meteorites fall onto the Earth’s surface more or less randomly, there are some spots where the collecting is better than others. Many meteorites have been recovered from Antarctica. Meteorites that fall on the glaciers tend to be preserved and concentrated in select areas by the flowing ice. Deserts also preserve meteorites. Many hundreds of meteorites have been found in the Sahara Desert by nomad tribesmen.

Weird Geology

Minerals in the Circus Maximus

The ancient Romans really knew how to throw a party. During the Imperial period, one of the occasional extravagances was to blanket the floor of the Circus Maximus in Rome with powders and glitters made from crushed minerals.

They used red lead (also called minium or lead tetraoxide) to get a bright red or orange color, and malachite to give a green color to the arena floor. Even more extravagant was the use flakes of crushed mica to make the floor glitter.

The Circus Maximus is an oval-shaped arena capable of seating about 300,000 people. Given that the floor area is about 80 by 370 meters (or more than 30,000 square yards), it is hard to comprehend the huge amount of mica or malachite needed to color the floor. But it would have been quite spectacular to watch chariot races where clouds of mica-laden dust kicked up by the horses glittered wildly in the sun.

Ref: *Rome Past and Present*, anon, p 40 (Vision, Rome 1962)

Meteorite or “meteor-wrongs”?

You are out in the desert, the sun is burning down and a cloud of gnats encircles your head. You look down and there is the black rock you’ve been looking for. “At last,” you think, “a meteorite!” With one ear peeled for the buzz of a rattlesnake, you reach down and pick up the rock. The search has been worthwhile, but you wonder, “Is it really a meteorite?”

Do I have a meteorite?

The vast majority of rocks that people pick up thinking they are meteorites are really “meteor-wrongs.” Even experts can be fooled by some badly-misshapened chunk off an old miner’s sledge pick.

Simple guidelines for determining if that black rock really is a meteorite:

Is it magnetic? Magnetism is one simple test. Because many (not all!) meteorites have some iron-nickel in them, they often are magnetic. I’m not talking about stick-to-the-frig magnetism, but the kind of magnetism that will tug at a small hand-held magnet or deflect a compass needle.

Does it have a black exterior? A fusion crust forms during the passage through the atmosphere. This is typically dark black with a somewhat melted or fused surface texture. If the meteorite has been weathered heavily after landing, the fusion crust may be crumbled or worn away. Be aware: “desert varnish” can give other rocks a dark brown exterior.

Is the interior metallic? If you break or grind open a fresh interior surface, it may be lighter in color than the fusion crust. If it is metallic inside, you may want to test for the presence of nickel. Etching may reveal the Widmanstätten pattern – only meteorites have it visible to the unaided eye. Stony meteorites will usually have small flecks of metal disseminated in the rock. Don’t be fooled by flakes of mica. If you push a knife point into a flake of metal it will bend – mica and other mineral grains will tend to crumble.

Is it unexpectedly dense? An iron meteorite will be much denser than you expect for a rock of its size. A stony meteorite will be closer to the density of the “average” rock.

Does it have a lot of small holes in it? Although meteorites can have some pits and a few holes, a specimen with many fine holes or vesicles in it is usually a “meteor-wrong.” Slags and clinkers from smelters and furnaces may be black, dense, magnetic, even metallic, but the presence of many small holes inside the specimen indicates that it came from a furnace. Meteorites are rather compact.

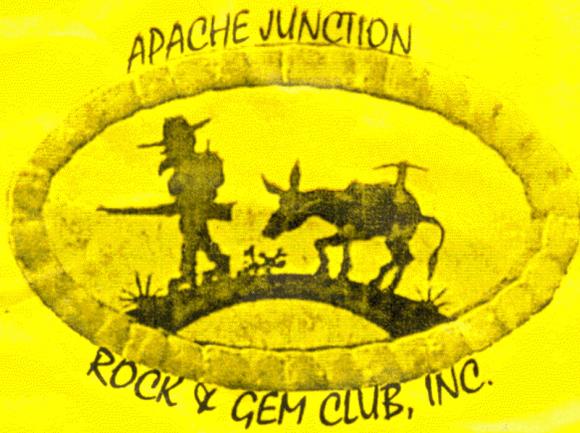
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Dr. Andrew A. Sicree is a professional mineralogist and geochemist residing in Boalsburg, PA.. **Popular Mineralogy** provides technical answers to your general mineral questions. If you have a question you’d like to have answered, please send email to sicree@verizon.net

Rock Shows in November

19 – 20 Payson, AZ
Matazal Hotel & Casino Event Center,
928-476-3513

26 – 27 Wickenburg, AZ
Wickenburg Community Center, 160 N.
Vasentine St.
480-540-2318 / 928-684-0380



Presents

ROCK ART SHOW

Saturday and Sunday

October 29-30

November 12-13 and 26-27

9 am to dusk

Hosted by

***Dreams and Legends
Of the Superstitions Gallery***

2260 N Apache Trail/Hwy 88

*Artist Displays and Sales
Beautiful one of a kind jewelry*

**A portion of the proceeds go to
kid's art programs in Apache Junction**

Free Admission

**Come enjoy the fun, rain or shine
Shows will continue every two
Weeks through April 2012**