



The **BACKBENDER'S GAZETTE**

The Newsletter of the Houston Gem & Mineral Society

Volume XLVIII—No. 02

February 2017



President's Message *by Paul Brandes*

As I write this President's Message, I must admit that I sort of fibbed. Last month, I stated that by the time the January BBG came out, we would have already been on our Annual Hill Country Field Trip. Well as it turned out, we had to postpone because of hunting season. Therefore, we decided to conduct the trip the weekend of January 14–15. Even though the weather was less than agreeable (drizzle and around 50 degrees both days), the trip was well attended with 21 people for Emerald Ridge on Saturday, and 12 people for Coal Creek on Sunday. Everyone I talked with appeared to have a great time with many specimens discovered. I am hoping to have a full article written with photos for the next BBG. In the meantime, those of you who didn't go missed a wonderful opportunity to collect Texas minerals, something very few people get to do these days. Will there be another Hill Country mineral collecting field trip in the future? I don't know, you tell me!



Another activity coming up is the Trade Show, scheduled for January 28. I am told that great advances have been made in the way future Shows will be operated, thanks to our newly formed Trade Show Committee. The Members of the Committee are Steve

Continued on page 4

Upcoming General Meeting Program *by Sigrid Stewart, 1st Vice President*

February 28—Neal Immega: First Life--Life before Strelley Pool

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Every article published in the BBG is edited for grammar and content. No flaming is allowed.

Articles now are due on the 15th day of the month before the date on the BBG issue.

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Copy is due for the March 2017 issue by Wednesday, February 15, 2017.

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Purpose of HGMS

The objectives of this Society are to promote the advancement of the knowledge and practice of the arts and sciences associated with the collecting of rocks, minerals, fossils, artifacts, and their identification and classification; the general lapidary art; the collecting and identification of gemstones; the designing and execution of jewelry or metalcraft; and to provide the opportunity to obtain, exchange, and exhibit specimens and rough or finished materials.

Membership dues are \$40 for an adult membership, \$60 for a couple, \$75 for a family (including all children aged 5-18), \$25 for a youth membership (ages 5-18), and \$500 for an adult life membership. Advertising rates: \$70 for 2 months, ¼ page; \$150 for 6 months, ¼ page.

MEMBER: American Federation of Mineralogical Societies & South Central Federation of Mineral Societies.

All meetings are held at the Clubhouse which is located at 10805 Brooklet near the intersection of Highway 59 (Southwest Freeway) and Sam Houston Parkway (Beltway 8). See the calendar inside the back page for when the different Sections meet. The General Meeting is the fourth Tuesday of each month at 7:30. The HGMS Web site address is <http://www.hgms.org>.

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Blyskal, Jill Moffett, Sigrid Stewart, Chase Jennings, and Fred Brueckner. Should any members have concerns or comments regarding future Trade Shows, please forward them to the Trade Show Committee.

One final thought: Nathalie and I just got back from the Hill Country field trip and had a great time. What a perfect way to spend a weekend, even with the inclement weather. As I said in last month's BBG, we need more field trips like this, not only to get out of the rat race of Houston for a couple days, but also to promote our mission to educate the public about what we do as a Society. As more and more mineral clubs are disappearing across the country, HGMS continues to buck the trend. It is up to us as members of HGMS to promote our Society and all the good things we do.

**2017 SCFMS
ANNUAL CONVENTION
NOVEMBER 10-12, 2017
HUMBLE, TX
HOUSTON GEM&MS
HUMBLE CIVIC CENTER
8233 WILL CLAYTON PKWY**



There Once Was a Goat Named Kåre—Over a Millennium of Mining at Falu Gruve, Sweden

by Dr. Nathalie Brandes, Professor of Geology at Lone Star College

Long ago, in what would one day be known as Bergslagen, Sweden, a young goatherd tended his animals. It was a lush, green land of forests, meadows, and some bogs. The animals grazed contentedly, all except a billygoat named Kåre. He wandered away from the rest of the herd. When he returned, his horns were bright red with some strange sort of mud.

"What did you get yourself into now, Kåre?" the goatherd asked as he cleaned the animal before heading home.

The following day, the same thing occurred. After disappearing for a few hours, Kåre returned to the herd with bright red horns.

"I am growing tired of your mischief, Kåre," the goatherd chided as he cleaned the billygoat once again before returning home.

On the third day, when Kåre wandered away, the young goatherd followed him and found where he had been rubbing his horns in an unusual red mud. Curious about the brilliant color, the goatherd dug into the mud and discovered a piece of chalcopyrite. Thus begins the story of Kopparberget, Sweden's Great Copper Mountain, known today as Falun Mine.

Falun is located 250km northwest of Stockholm in the traditional but informal region of Bergslagen. The exact borders of Bergslagen are poorly defined and can include parts of up to nine counties in south-central Sweden where mining has been an important industry (Lasskogen, 2010; Angelstam et al., 2013; Angelstam and Axelsson, 2014). The climate of the region is humid continental with cold winters, warm summers, and no dry season. The mean annual temperature is 4°C with an average 700 mm precipitation annually (Raab, 1995). The landscape around Falun includes numerous streams and lakes amid rolling hills. The area was severely deforested during the height of mining, but vegetation typical of the boreal forest has returned (Olsson, 2010). Common trees in the area include Scots pine and Norway spruce with lesser silver birch, grey alder, rowan, and aspen (Hammarlund et al., 2008). The forest floor is dominated by heather, bilberry, blueberry, lingonberry, and crowberry (Classen, 2012).

Bergslagen is located in the southwest part of the Svecokarelian orogeny in the Fennoscandian Shield (Stephens et al., 2009; Stephens and Anderson, 2015). Rocks of this region are dominated by 1.8 to 1.9 Ga Palaeoproterozoic metavolcanics known as leptites. These are interpreted as felsic pyroclastics and rhyolitic ash deposited in a submarine environment (Allen et al., 1996; Lundström, 1987). There are also some mafic and intermediate metavolcanics as well as metasediments interpreted as mudstone, turbidite, and greywacke (Ripa and Kübler, 2003; Stephens et al., 2009) in addition to some

carbonate units (Allen et al., 1996). Plutonic rocks of various compositions intrude these rocks (Lasskogen, 2010). There has been debate concerning the tectonic setting of these rocks. Löfgren (1979) and Loberg (1980) suggested a volcanic arc over a subduction zone. Other researchers (Oen et al., 1982; van der Welden et al., 1982; Oen, 1987) concluded it was a continental rift. Most recent research concludes that this was an extensional back-arc environment in which there was early intense volcanism, thermal doming, and extension followed by a cessation of extension, thermal subsidence, finally concluding with compression, deformation, and metamorphism (Allen et al., 1996; Stephens et al., 2009). Deformation and amphibolite facies metamorphism affected the Bergslagen region during the 1.8-1.9 Ga Svecokarelian Orogeny (Lasskogen, 2010). Some parts of western Bergslagen were also affected by the Sveconorwegian Orogeny around 1.0 Ga (Stephens et al., 2009).

The ore deposit at Falun is hosted in the Leptite Formation, which is interpreted to be metamorphosed felsic volcanics and some sediments (Grip, 1974; Lasskogen, 2010). Most of these rocks are quartz- and mica-rich and traditionally called “ore quartzites” and “mica schist” (Geijer, 1917). Both calcite and dolomite marble as well as skarn are also found at Falun Mine. All these rocks have been folded into a large, steeply plunging isoclinal syncline (Koark, 1986; Kresten, 1986; Kampmann et al., 2016).

Falun is best known as a copper mine with the main sulfide ores concentrated at the hinge of the syncline. This is, however, an oversimplification of the complex nature of the ore deposit (Lasskogen, 2010). Törnebohm (1893) established four basic ore types. Further studies have expanded this classification to include seven ore types. Hard ore includes both veins and disseminated chalcopryrite, pyrite, and sphalerite with lesser amounts of pyrrhotite, cosalite, and galenobismuthite. This ore is hosted in quartzite. There is also compact pyrite ore, also known as soft ore, which includes massive chalcopryrite, sphalerite, and galena with minor pyrrhotite,



The open pit at Falun Mine. This pit was mined for copper, gold, and other minerals for over 1,000 years.

Photo by Paul Brandes



The underground workings of the Falun Mine. The walls are stained yellow due to sulfide mineralization of the area.

magnetite, tennantite, tetrahedrite, and quartz and carbonate gangue minerals (Törnebohm, 1893; Weijemars, 1987). Sköl is altered rock related to fault zones that can be 5–25 m wide. Occasionally, these zones contain chalcopyrite and galena (Törnebohm, 1893; Gavelin, 1989). Gold is found in the native state in quartz veins and lenses that were emplaced after the

massive sulfides were deposited and deformed (Åberg and Fallick, 1993). Veins of galena with up to 47.7 ppm gold occur along a fault in the mine (Gavelin, 1989; Lasskogen, 2010). Compact ball ore, which is massive sulfide ore containing spherical inclusions of quartzite host rock is found near sköl ore zones (Gavelin, 1989). Lastly, skarns host ore rich in zinc and lead but poor in copper (Gavelin, 1989; Lasskogen, 2010).

Several different hypotheses concerning the formation of the sulfide ores have been proposed. Early researchers suggested the ore was produced by metasomatism in the Leptite Formation (Törnebohm, 1893; Högböhm, 1910; Sjörgren, 1910). Others proposed that ore fluids from granite intrusions replaced limestones (Geijer, 1917; 1964; Hjelmqvist, 1948). Koark (1962) was the first to suggest volcanic exhalation as the source of ore-bearing fluids. The currently accepted description of Falun is that the main deposit is a pyritic Zn-Pb-Cu-(Au-Ag) sulfide emplaced as a stratabound volcanic associated limestone-skarn (SVALS) deposit. The ore was formed in a submarine environment as volcanism waned but before deformation and metamorphism affected the area (Allen et al., 1986; Kampmann et al., 2016). Ore grades varied during the long life of the mine, but estimated averages are 5% Zn, 2% Pb, 0.6–4% Cu, 13–35 g/tonne Ag, and 0.5–4 g/tonne Au (Tegengren, 1924; Grip, 1978; Allen et al., 1996).

There is much debate over the early history of Falun. Although the

legend of its discovery by Kåre the billygoat is deeply lodged in the folklore of the region, the earliest known written account of this tale dates to 1651. Similar stories of animals discovering rich mineral deposits are associated with numerous older mining areas, including Sala, Røros, and Rammelsberg. Some scholars believe these legends exist to explain events that date back so far in time the true origins are lost (Olsson, 2010).

Archaeological evidence is equivocal concerning the origins of mining at Falun. An early radiocarbon and pollen study (Lundqvist, 1963) concluded the date for the onset of mining was AD 1080±60. Sediment cores analyzed in a later study indicated mining began circa AD 700 (Qvarfort, 1984). Following improvements in radiocarbon dating, new analyses pushed back the earliest mining in the area to AD 589±97 (Eriksson and Qvarfort, 1996). Metal artefacts found on the islands of Björkö in Lake Mälaren and Gotland in the Baltic Sea are dated to the 10th to 11th Centuries and are believed to be made from Falun Mine material (Lindeström, 2002). All these dates, however, are contradicted by a recent study that reevaluated sampling methods and dating techniques and concluded that mining at Falun only began circa AD 1245 (Bindler and Rydberg, 2015).

The earliest written record of mining operations at Falun is a document from 1288. It outlines that Bishop Petrus Elofsson exchanged an estate with forests, fishing rights, and flour mills for a 1/8th share of the mine. In addition to being signed by Bishop Petrus, the document was signed by King Magnus, three other bishops, and an archbishop. This document shows that Falun was already operating as a shareholding company, one of the earliest known in history (Lindeström, 2002; Olsson, 2010). In addition to the king himself owning shares, by the early 1300s, the company grew internationally, with wealthy residents of Lübeck, Germany owning mining rights at Falun (Olsson, 2010).

Prior to the mid-1700s, mine workers were employed by "Master Miners," who were shareholders in the venture. Ownership of a share in the mine was based on ownership of a share of a smelter (Blomqvist, 2013). The Master Miners needed to arrange their own labor force and the processing of extracted ore (Sundberg, 1991; Ridder, 2013). The actual miners were peasants who were granted special rights according to the Charter of 1347, including asylum right to criminals, exemption from military service, and tax reduction. By the 1600s, a minimum wage and official working hours were also guaranteed (Olsson, 2010; Angelstam et al., 2013; Blomqvist, 2013). At this time, workers were also ensured paid funeral expenses for victims of mining accidents, a retirement, and free healthcare (Olsson, 2010). In the mid-1700s, employment shifted to the model of a more modern company, with miners employed by the mine, not a Master Miner (Lindroth, 1955; Olsson, 2010; Blomqvist, 2013).

The mine at Falun was originally an open cast mine. In pursuit of the richest ore, however, miners soon worked underground (Classen, 2012). Firesetting—using very hot fires to soften hard rock—was originally employed to aid the mining process (Sundberg, 1991). The use of black powder was demonstrated in the 1670s by two German brothers. It was first adopted for surface use, but by 1710 black powder was used in both surface and underground applications (Olsson, 2010). As the extraction of ore pressed deeper underground, dewatering became a concern. Construction of dams and ponds began in the 1300s in an attempt to restrict water from entering the mine (Isacson, 2013). Dewatering of the mine was accomplished by hand or horsepower until the 1550s, when the first waterwheel was installed for this purpose (Lindroth, 1955; Sundberg, 1991). Waterwheels along dams and canals eventually provided the power for pumps, hoisting engines, and bellows (Isacson, 2013).

Following the extraction of ore, it was crushed, then roasted in open fires around Falun. The roasted ore was then smelted. After smelting, the copper was refined (Sundberg, 1991; Lindeström, 2002). Originally, crude copper was sent via the Hanseatic League for refining in Germany and Holland. After 1619, refining was completed in Säter, Sweden (Olsson, 2010; Hamrin and Olsson, 2011). In the 1800s, processing of ore moved from open roasting to other techniques, and by the early 1900s, new plants were constructed for various wet separation methods. (Lindeström, 2002).

Sweden became a major European power in the mid 1500s and enjoyed this status until the early 1700s (Sundberg, 1991; Hutchinson, 2001). This was in part due to the rich ore of Falun Mine providing wealth to the kingdom. The Council of the Realm even stated, “The kingdom stands and falls with Kopparberget” (qtd. in Olsson, 2010). Peak production occurred in the mid-1600s, when it is estimated the mine produced half the world’s supply of copper (Sundberg, 1991). At this time, Falun was the second largest city in Sweden (Liljas, 2013).

As a result of the large amount of ore being processed around Falun Mine, massive amounts of SO₂ were released into the atmosphere during ore roasting. It is estimated that in the mid-1600s, about 35,000 tonnes of SO₂ per year were released (Ek et al., 2001). This had a profound impact on the environment around Falun. The pungent scent of sulfur could be smelled up to 80 km away (Lindeström, 2002). Visitors often complained of thick smoke in the city that caused twilight conditions at midday and the overpowering fumes making breathing difficult as well as causing problematic coughs and nosebleeds (Olsson, 2010). By 1633, a statute banned ore roasting outside the immediate mining area during summer to prevent damage to crops. The sulfurous air, however, did have some benefits. There were no mosquitoes, fewer reports of contagious diseases, and when plague spread

throughout Sweden in 1710, the disease did not strike Falun (Lindeström, 2002).

By the late 1600s, the Great Copper Mountain was a warren of hollowed out passages and galleries. A number of rock falls and collapses in the mine prompted an inspection by the Board of Mines in 1686 that concluded measures were necessary to secure the mine. Thus, it came as no surprise when the Great Collapse occurred in 1687 (Olsson, 2010). A massive amount of rock separating two galleries fell and produced a pit 100 m deep with rubble filling the collapse up to 350 m below the surface (Lindeström, 2002). This large area became known as Stora Stöten, the Great Pit (Olsson, 2010). Fortunately, the collapse occurred on Midsummer Day (25 June)—an important celebration when no one was working in the mine, thus there were no casualties (Olsson, 2010). In the immediate years following the Great Collapse, production of copper remained high since the rich ore that had been in walls and pillars supporting and separating galleries was now available to mine. Soon, however, copper production began to decline, but the production of other metals, including zinc, gold, and silver, increased (Lindeström, 2002; Classen, 2012).

In 1888, the old shareholding system that had existed at the mine since the Middle Ages was modernized into a joint-stock company known as Stora Kopparberg Bergslags AB (Olsson, 2010; Wagner, 2012). This company expanded well beyond the mine at Falun, acquiring ironworks, steel mills, sawmills, and paper mills as well as expanding operations at the mine to include such things as a sulfuric acid factory and an iron sulfate factory (Hamrin and Olsson, 2010). Falun Mine continued to operate until 8 December 1992. After over a millennium of mining, the economic ore had finally run out (Olsson, 2010). The joint-stock company, known as STORA, is still in business, now specializing in forestry and paper products (Olsson, 2010; Wagner, 2012).

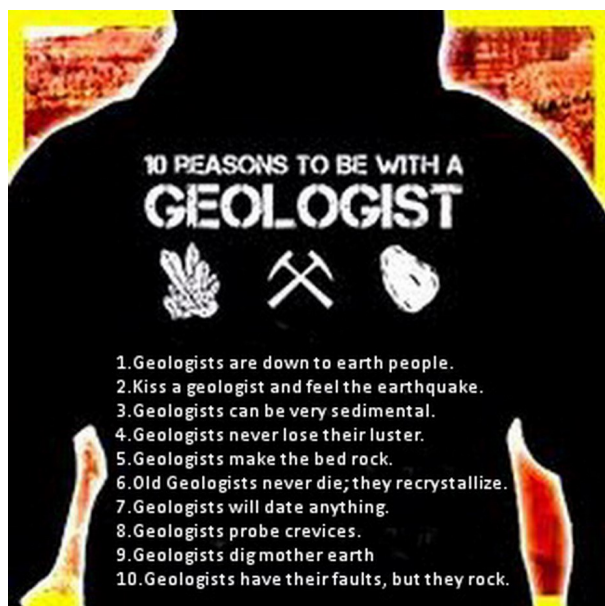


**House in Falun,
Sweden
painted in
typical colors;
Falun Red with
white trim.
Photo by Paul
Brandes**

Over the life of the mine, it is estimated that 30 million tonnes of ore were extracted (Lindeström, 2002; Haglund and Hanæus, 2010), producing around 400,000 tonnes of copper (Sundberg, 1991). In addition to the metal riches that shaped Sweden's history, the ore at Falun also had an impact on the countryside and culture of the nation. Pyrite-rich waste rock is used to create a unique paint known as Falun red (Sahlström, 2012). The earliest reference to this paint dates to 1570, when King Johan III ordered the paint for the roof of a castle. This red paint soon became very popular throughout Sweden. Artists, authors, and poets have used the Falun red painted farmstead as a symbol of Swedish heritage (Olsson, 2010). Paint is still produced today with the proceeds of its sale used to help support the upkeep of the historic mine (Isacson, 2013).

Falun Mine was declared a World Heritage Site in 2001 (Wagner, 2012; Isacson, 2013). Guided tours are offered to underground workings. Visitors can also walk around the mining complex, stopping at old wooden shaft houses and structures painted the famous Falun red. There is also a museum onsite offering exhibits concerning the long history of the mine. Perhaps the most interesting thing to do is stand at the edge of the Great Pit viewing the work of over a thousand years, wondering if the legend is true, if it all started with a mischievous goat named Kåre.

Editor's Note: Dr. Nathalie Brandes originally submitted this document with over five pages of references. However, due to the space that would have taken up in this newsletter, she elected not to print any references, allotting that space to the work of additional authors instead.



In Memoriam—Benjamin Ellison

by Terrell William Proctor, J.D.

Houston Gem & Mineral Society has lost another talented member. Benjamin Ellison was born September 27, 1925 and died on June 19, 2016, at the age of 90. Benjamin and his lovely wife, Vivian Biquing Ye, lived in Sugarland, having moved to Texas in November 2004.

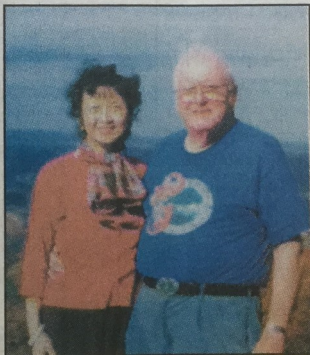
They were married on May 24, 2005, in Houston, and joined Houston Gem & Mineral Society, also in 2005. They were active in the Lapidary Section of HGMS and attended jewelry making HGMS classes.



Vivian Ye and Benjamin Ellison

HOUSTON, Texas – Vivian B. Ye of Bergenfield, N.J., and Benjamin Ellison of Framingham, were married in the chambers of Judge Russ Ridgeway in Houston, Texas, on Tuesday, May 24, 2005.

The bride, now retired, received a bachelor's degree and master's degree from Peking University. She has been involved in design and testing of medical instruments in Deaconness Hospital, Harvard Medical School, and Instrumentation Laboratory in several of its subsidiary organizations.



Mr. and Mrs. Benjamin Ellison

The groom, also retired, received a bachelor's degree from Cooper Union in New York City, and was granted professional engineering registration by the Division of Professional Licensure of Massachusetts. He was active in the design and management of a broad range of military weapon systems and space exploration vehicles. He was also a founder and director of the MetroWest Jewish Federation, as well as

Benjamin was a reliability design engineer who had a U.S. Government Secret Clearance. He worked on SAC C³, MX Missile C² and Over the Horizon Radar Systems. He created and wrote reliability design specification that became the industry standard. He worked on Failure Reporting/Corrective Action Analysis. Benjamin worked for GTE, Government Systems Division; Raytheon Company; Grumman Aircraft Engineering Corporation; and ITT, International Electric Corporation. He belonged to several Professional

Organizations and was Chairman of several such organizations and a Section chairman of some. Benjamin wrote a number of papers in his field which were published.

Vivian had a Bachelor and a Master's Degree from Peking University. She had been involved in design and testing of medical instruments in Deaconess Hospital in conjunction with Harvard Medical School. Benjamin Ellison had a bachelor's degree from Cooper Union in New York City and was licensed by Massachusetts as an Engineer.

Before coming to Texas, Benjamin Ellison lived in Framingham, Massachusetts, where he was an artisan skilled in shaping and polishing precious gemstones and in the design and fabrication of gold and silver jewelry. He also was a prominent lecturer at gatherings of craftsmen in that region. Benjamin was elected to the presidency of the New England Artisans Guild. He also did financial planning, tax returns, and life and healthcare insurance.

With HGMS, Benjamin participated in some of our many activities. He enjoyed making clocks with agate and wood burl faces. His wife, Vivian Ye, continued his legacy of caring about HGMS by donating a great deal of equipment and Benjamin's minerals and other property to the Club. Much of this was auctioned off at the 2016 Christmas/Holiday Season Party at the HGMS Clubhouse on December 10, 2016. This generous donation by Ms. Ye of her husband's and her property to HGMS raised a good bit of money for the Club, for which HGMS is very grateful.

In 2013 Version of the HGMS Bylaws

ARTICLE XII: SUSPENSION OF MEMBERSHIP

Section 1

For conduct detrimental to the welfare of the Society and its members, or for violations of its Bylaws or Regulations established by action of the Board, a member may, by suspension, be temporarily deprived of all rights and privileges in the Society or of use of its property, or be permanently expelled from the Society. Charges must be preferred by at least three members in a written petition addressed to the Board.

Section 2

The member concerned shall be entitled to five days advance written notice of a meeting at which he or she shall have the privilege of appearing, in person or by proxy, before the Board to defend his or her position.

Section 3

The Board shall be the sole judge as to what shall constitute cause for suspension or expulsion and shall determine the terms and conditions of any suspension imposed. The Board's action shall be

conclusive and final. The suspension or expulsion of a member shall require the vote of a majority of the members of the Board assembled in a Board meeting with a quorum in attendance.

Proposed 2017 Version

ARTICLE XII: MEMBERSHIP CONDUCT

Section 1

Members shall follow the Bylaws and maintain Respectful Conduct while on Society property, while attending Society shows or events (including field trips), or while representing the Society (including representing oneself as a member of the Society) in public, in order to maintain the integrity of the Society.

Section 2

No member may make any commitments for the Society, claim to speak on behalf of the Society, or use their membership in the Society (including but not limited to the use the name, logo, slogan or other identifying characteristic of the Society) to imply the member's statements or actions are approved or endorsed by the Society, without first obtaining the approval of the Board of Directors.

Section 3

Respectful Conduct shall be in accordance with, but not limited to, the behaviors and actions outlined as follows:

- Treat members, guests, and the public with politeness and respect regarding gender, race, and places of origin, political beliefs, religion, marital status, age, or sexual orientation.
- Avoid any unwanted or unwelcome conduct, comment, gesture or contact of a sexual nature.
- Refrain from aggressive or abusive behavior. Avoid verbal or physical confrontations. (All involved members may be subject to corrective action)
- Respect the property of members, guests, hosts and the Society.
- Act with fairness, honesty, integrity, openness, and in accordance with the Bylaws.
- Promote the mission of the Society honestly in all dealings on behalf of the Society.
- Provide a positive and valued experience to members and guests.

Section 4

Corrective action for violation(s) of the terms and conditions for use of the Shop, including but not limited to

- Misuse or abuse of equipment,
- Mistreatment of members and guests using the Shop,
- Theft,

- Failure to pay usage fees,

shall be at the sole discretion of the Shop Chairman (or his or her designee), up to and including the suspension of the rights and privileges for the use of the Shop. Any further corrective actions (in relation to membership in the Society as a whole) are reserved for the Board.

Section 5

The Board may take corrective action ranging from

- a Letter of Concern,
- temporary restrictions of rights and privileges, or
- permanent suspension of membership.

The Board shall be the sole judge as to level of corrective action. The Board's action shall be conclusive and final. Charges must be preferred by at least three members in a written petition addressed to the Board. The charged member will be sent a letter of the final decision and the execution of corrective action.

Section 6

The HGMS President (or designee) shall contact the member about the code of conduct concern. Based on this discussion and the code of conduct violation, the President shall decide if further Board action is warranted. The member shall be notified via letter of further action and proposed Board meeting date. The member shall have the options of appearing in person or by proxy before the Board to explain their position on the issue. The member's appearance before the Board will require a separate closed-door meeting with only Board members.

Section 7

The Board vote shall determine the level of corrective action. If the member under review is a Board member, he or she shall not be present during corrective action discussions or for the final vote of the Board.

Section 8

The **issuance of a Letter of Concern** shall be issued by the Board in response to minor conduct violation(s) as determined by a majority vote of at least a quorum of the Board in attendance.

Section 9

The **temporary restrictions of the rights and privileges of Society Membership** shall be determined by the Board in response to the conduct violation(s). The Board shall agree on the degree of restrictions, and these shall be based upon all information received concerning the actions of the member. The enforcement of restrictions requires a unanimous approving vote of the Board members in attendance.

Section 10

The **expulsion of a member** shall be warranted only by egregious

action or extreme violation of Bylaws as determined by the Board. The Board shall investigate and determine if the action or violation is sufficient to justify the permanent expulsion of the member. The expulsion of a member shall require the approving vote of at least a 75% of all members of the Board. A special Board meeting will need to be called with 75% of the Board members in attendance. The attendance of the President is also required.

General Meeting Minutes

November 22, 2016

by Nancy English, HGMS Secretary

The meeting was called to order by President Paul Brandes at 7:35 p.m. He thanked everyone for coming to the **November 22, 2016** General Meeting. Thirteen members attended. One guest, Ryan Kimbro, and one new member, Walter Willis also were present.

Karen Burns moved to approve the minutes of the October 25, 2016 General Meeting as published in the December 2016 BBG and in the HGMS weekly email blast. Joan Riley seconded, and the membership passed the motion.

President Paul Brandes' Announcements:

Paul Brandes read an **email from Tom Lammers**, "Thought you might like to know the results of the investment Neal Immega, ergo HGMS, made in my son, Matthew. Twenty years ago, I (Tom) joined HGMS and on my first field trip, Neal took a picture of my son, Matthew, covered in mud, and me. Since then, Matthew made Eagle Scout and graduated from Texas A&M. The Friday before the show, he got married. Very nice affair. I missed the HGMS show. First time in all these years. I've recruited more than a few members over the years with the explanation of how they can get their kids through college—surround them with good, intelligent people who love hands-on teaching. Every kid you get interested in science is one less lawyer. Tom

President Brandes and wife, Dr. Nathalie Brandes also missed the Annual Show because they were at the New Mexico Mineral Symposium presenting their co-authored paper "Millennium Mining in Falun Sweden. Nathalie received accolades for her research and presentation. *Editor's Note: See Nathalie's article starting on page 5.*

Holiday Party: The Annual HGMS Holiday Party POT LUCK will be held Saturday, December 10 at the HGMS Clubhouse. The club will provide Turkey, ham, and brisket. You bring the rest. You may contact Nancy English to say what you are bringing. nancyjodi@aol.com. Bring food around 5:30. Once again, we will need volunteers to organize the food when it comes. Dinner will begin at 6:00 p.m. The Auction starts at 7:00. Due to the generous donations from Phyllis George, we do not need any auction

donations for this auction.

Section/Committee Reports

In the interest of time, President Brandes asked the members to look for Section Reports in the BBG, on the Web site, or by reading the weekly email blast from Jim Kendall for future Section meetings and presentations. If you are not on Jim Kendall's e mail list, please contact him at kendal_ja@yahoo.com

President Brandes invited Section Chairs to make any additional special announcements.

Karen Burns announced that the Day Light Section will be having their Holiday Party on December 7. We will eat at 1:00 p.m. Last names A–G bring appetizers, H–M bring vegetables, N–Z bring desserts.

President Brandes invited the Standing Committee Chairs to make any additional announcements. No other announcements were made.

Old Business

- 1) **Nominating Committee:** The Committee presented the 2017 slate of officers to be voted on at the November 22 General Meeting. They are **President—Paul Brandes, 1st Vice President—Sigrid Stewart, Second Vice President—Beverly Mace, Secretary—Nancy English, and Treasurer—Rodney Linehan.** President Brandes invited additional nominations from the floor. None was made. The slate was voted in by acclamation.

Scott Singleton has agreed to be the Show Chair for 2017. During our 64th Annual Show, HGMS will be hosting the SCFMS and their annual show. Scott Singleton also chaired our show the last time the SCFMS show was hosted by HGMS—2008.

- 2) **Show Results: Scott Singleton** sent a written report.

An estimated 3200 people come in through the front door over the course of the weekend and another 1650 kids plus about 620 adults come in the west side door on Friday for our School Daze program. Those are very healthy numbers in anyone's book. Financial numbers will be presented to the Board at the December meeting but are anticipated to be equally as healthy.

The dealers who were asked are in agreement that sales were good. The Dealer Committee will be comparing notes over the next month. Dealers complimented our Show on the number of people attracted and that they came with money to spend in exchange for some pretty jewelry, mineral specimens, fossils, or perhaps even a slab or two of petrified wood. The Swap Area dealers also did well, which is always a good sign.

Scott Singleton owes a great deal of gratitude for a wonderful

Show Committee. The 20 people who made up this committee made things easy for me because they were so diligent in performing their tasks. For this reason, we are publicly acknowledging them for the great job they did. The committee was made up of Clyde McMeans, Sigrid Stewart, Steve Blyskal, Chase Jennings, Rick Rexroad, Nancy English, Barbara Hill, Elsa Kapitan-White, Deidre Prince, Clay Keiffer, Jean Hugh Fillacier, Debbie Knight, Sarah Metsa, Shiara Trumble, Pat Hildbold along with sons Gary and Cliff, Nancy Fischer, and Beverly Mace. The Thursday set-up was the best ever.

There were also a large number of club members, and even some non-club members, who volunteered their time to staff one or more of the many volunteer slots at a show as large as this. To all of them, Scott says thank you. We definitely could not do all the things we want without all of you helping out. This truly is a club-wide effort. Without you it doesn't exist, but with you, great things can happen. The Thank You Party at the home of Nancy English on Saturday was a super opportunity for volunteers to meet, expand friendships within the Club, and forge the bonds of volunteer teams.

Remember that at the 2017 Show (at the same time November 10–12), HGMS hosts the South-Central Federation of Mineral Societies (SCFMS) Federation show. People from all over Texas and adjoining states will be attending functions at our show. It's up to us to show them how to do it right.

Also in the interest of time, President Paul Brandes asked members to follow the progress of Old Business items from the November 1, 2016 Board meeting minutes and the October 25, 2016 General Meeting minutes as published in the December 2016 edition of the BBG.

New Business

- 1) **Field Trip:** The CERA IS sponsoring a Field Trip to collect petrified wood on Saturday, December 10, 10 a.m. We will be collecting at Sand Creek Farm and Dairy, Cameron, TX. Petrified wood is \$0.25 per pound. Plan to meet at the Dairy Queen: 203 N Main, Calvert, TX 77837 at 10 a.m. RSVP to cera.fieldtrips@gmail.com if attending.
- 2) **Mindat** is the world's largest mineralogical Web site. It is run totally by volunteers. Paul Brandes has joined the management team.
- 3) **HGMS Field Trip** will be taken January 14 and 15 to the Hill Country to find quartz, fluorite, serpentine, and topaz. They

Get last-minute news about club events by sending a note to Jim Kendall at kendal_ja@yahoo.com

will go to Emerald Ridge on Saturday and to Coal Creek on Sunday.

- 4) **The Trade Show Committee** will meet after December 3, 2016.
- 5) **Scholarship Committee: Nancy English** will send instructions and contact information to the members of the Scholarship Committee.
- 6) The next **Board of Directors meeting is Tuesday December 6, 2016 at 7:30 p.m.**
- 7) There is **NO General Meeting** on December 27. Instead, the **HGMS Holiday Party is being held on December 10, 2016.**
- 8) President Brandes asked if there was any further business.

Show 'n Tell: There were no Show 'n Tell offerings.

Drawing: Karen Burns won the double geode.

Adjourn: Phyllis George moved to adjourn the business meeting, and Karen Burns seconded.

The motion passed unanimously, and the business portion of the meeting adjourned at 8:00 p.m.

Refreshments: Provided by Phyllis George.

President Brandes introduced the speaker for the evening. Ron Talhelm spoke on "Angel Blue Chalcedony, a New Lapidary Material," and brought samples to view. Ron had the material for sale at the HGMS Annual Show.

Board of Director's Meeting

January 3, 2017

by Nancy English

X	President—Paul Brandes	X	Beading Rep—Diane Sisson
X	1st Vice President—Sigrid Stewart	X	Day Light Rep—Fred Brueckner
X	2nd Vice President—Beverly Mace	X	Faceting Rep—Gary Tober
	Treasurer—Rodney Linehan	X	Lapidary Rep—Phyllis George
X	Secretary—Nancy English		Mineral Rep—Mike Sommers
	Archeology Rep—Garth Clark	X	Paleontology Rep—Mike Dawkins

President Paul Brandes called the meeting to order at 7:35 p.m. A quorum was present. Non-voting members also attended: Nathalie Brandes—Librarian, Chase Jennings—Trade Show, Steve Blyskal—2016 Dealer Chair, and Kim Fusilier—New Beading Section Chairwoman.

President's Comments: Thank you to all who volunteered and were conscripted to help with the Holiday Party. It was a big success, a good time, and people spent money.

Welcome to Kim Fusilier, the new Beading Section Chairwoman.

Approval of Previous Month's Board Minutes: Sigrid Stewart moved to accept the minutes of the December 6, 2016 BOD meeting. Phyllis George seconded the motion, and it passed.

Treasurer's Report: Rodney Linehan emailed financials to all Board members in advance of the meeting.

Office, Committee, and Section Reports

Archeology Section: On Thursday January 5, 2017 at 7:30, Roman Emperor Diocletian; His Reign, Retirement and Legacy, Speaker—Bob Moore: Diocles was born of low status in Dalmatia, modern-day Croatia. He rose through the military ranks and became cavalry commander. After the death of the reigning emperor Numerian, he became Emperor in 284 AD. Learn about his successes, failures, and legacy, and see photos of his magnificent seaside palace! The next meeting will be February 2, 2017 at 7:30 p.m.

Beading Section: Saturday January 21, 2017 at 1:30 p.m., Members will be making a Valentine Heart. Kim Fusilier is the new Section Chair for 2017. Diane Sisson will continue to be the BOD representative.

Day Light Section: Wednesday, January 4, 2017 at 1:00 p.m. Program: Creating Wire Designs by Twisting Wire. Adding glitz and texture as visual interest to your wirework designs is easy. Karen will be demonstrating several ways to create wire designs by twisting wire. Next month they will meet February 1 at 1:00 p.m.

Education Committee: Chase Jennings has temporarily assumed some of the duties. He reported that he is looking for teachers within the Club and outside the Club to teach Wire Wrapping, Cabochon Making, Faceting, Metal Smithing, and other classes requested by members. If someone is interested in teaching a class in 2017, please contact Chase Jennings:
chase_j_jennings@yahoo.com

Gemstones & Faceting Section: Wednesday, January 11, 2017 at 6:30 to 8:30 p.m. The program will be on the Star of Bethlehem facet. The next meeting will be February 8, 2017 at 6:30 to 8:30.

Library Committee: Nathalie Brandes reported that she has been working in the Library over the holiday break. She will be ordering acid-free labels from Demco.

Lapidary and Silversmithing: January 16, 2017 at 7:30. Program to be announced.

Mineral Section: Wednesday, January 4, 2017 at 7:30 p.m. Program: DVD "What's Hot in Tucson 2016" We will be viewing and discussing the DVD "What's Hot in Tucson 2016" to see what special items came out last year and to get everyone ready for the trek to Arizona in February for the Tucson Shows. Refreshments provided.

We will also discuss the nomination of Section Chair and Vice Chair for 2017.

On **January 18, 2017**, they will discuss the 2017 theme of the Tucson Show: Midwest Minerals.

Paleo Section: Tuesday January 17, 2017. Program to be announced.

Publicity Committee: Chase Jennings reported that we have 1500 followers on Facebook. After the initial online event Web site advertising for the Trade Show, we have 550 followers for the Trade Show. That number will grow as we get closer to the Show.

Shop Report: Neal Immega updated in the weekly e-blast.

Pledge Floor Care Finish - when I want a quick polish on a slab or chunk, I level the face and put on a thick layer of this with an artist brush. You can buy this stuff at Walmart.

Saws: the 20 inch and the screw feed 24-inch saws are down with broken rock clamps. They are being worked on by Tony and Cooper. Thanks guys.

The price for using the slab saws is going to 25 cents/inch square to pay for the broken blades caused by people who are NOT getting a shop foreman to check that the rock is clamped. This is the first price increase for more than 20 years.

Lights: Clyde went to great trouble to replace the burned-out lights in the lecture hall, but the real problem is that the ballasts are going bad. My solution is to cut the ballasts out of the circuit and put in LED light tubes. Jim Kendall and I have done a test install, and it looks very good. More will follow.

Youth Section: The next meetings are on January 7, 2017 and January 21, 2017

BBG Editor and Webmaster: The deadline to send in articles and other pertinent information for inclusion in the February 2017 BBG is Sunday, January 15, 2016. The minutes for the November General meeting will be included in the February BBG. The Secretary did not turn them in to the Editor in time for the January issue. Phyllis George sent twelve HGMS BBG article entries to the 2017 SCFMS Bulletin Editors and Authors Contest.

Old Business

1. **Show Committee 2016:**

- a. The final Show budget and actual expenses were not available for the January 3, 2017 Board meeting. However, Rodney has now sent to Scott an Annual Show

Profit & Loss statement for 2016. He will be going over this and working with Rodney to resolve items not yet received. Scott will submit 2016 Annual Show income and expense numbers as well as a preliminary 2017 budget at the February 7, 2017 meeting.

- b. Scott Singleton requested that the BOD allow the Show Chair and Assistant Chair have access to online Eventbrite and PayPal information. The Board approved this request. Chase Jennings will contact Scott to pass on the login details and go over the way he has configured those two Web pages.
 - c. Steve Blyskal, the 2016 Dealer Chairman, reported that two 2016 dealers had to cancel in the last week before the show for good reasons. The Dealer Committee found other dealers to replace them. Steve asked the Board's approval for refunds. The dealers asked for the money to be put toward their 2017 Show fees. Diane Sisson moved to allow the fees paid for the 2016 Show by Rocksaholics and KD Enterprises to be applied to their 2017 show fees. Gary Tober seconded and the motion passed. Steve Blyskal will notify Rodney Linehan, HGMS Treasurer, of the changes.
2. **New Web site committee:** Progress report: A message has been added to the Sunday e-blast requesting more committee members capable of building a Web site.
3. **Scholarship Committee:** Mike Sommers and Mary Ann Mitscherling agreed to be on the Scholarship Committee. They have received the list of schools used last year. The committee will meet in February. Kathrine Kelly has resigned. Another volunteer would be helpful. Chase Jennings will make a virtual flyer for email. It will be added to the cover letter, application, and eligibility questionnaire.
4. **HGMS Annual Holiday Party and Auction:** Saturday, December 10, 2016.
 - a. Beverly Mace reported that she and Fred Brueckner set up the tables and chairs before the Board Meeting on December 6. Kim Fuselier and Beverly decorated the tables with green tablecloths and centerpieces from the Dollar Tree. Diane Sisson cooked the turkeys using Pat Hildbold's tried and true recipe. We missed Pat not being able to cook the turkeys for the first time in years, but Diane did a great job! We hope Pat's health is improving and that she will be back soon.
 - b. Nancy English reported that members participated enthusiastically in the auction and in Neal's extra sales of slabs, scrap gold, gold wire, and solder.

- c. The food was great.
5. Building Safety: No report was available
6. Hill Country Field Trip: Rescheduled to January 14 and 15, 2017, Martin Luther King weekend. Twenty-seven people are going to Emerald Ridge, and twenty-two are going to Coal Creek.
7. Recording General Meeting Programs: After further review, the Board decided not to pursue this idea. However, it was suggested that the BOD investigate making "how to" videos on how to use equipment, craft tips, and filming field trips with links to be posted on the HGMS Web site. And, the BOD will consider a projector that would magnify display items onto the wall.
8. Code of Conduct: Fred Brueckner and Mike Sommers presented the current draft of the code of conduct. The Board discussed it. Fred agreed to make further changes and email it to the BOD.
9. Future Trade Shows: The Trade Show Committee has been working on the Trade Show rules. The Board discussed them and the problems of tailgaters in the adjoining parking lot. The Board agreed that future tailgaters will not be tolerated. The Trade Show Committee will meet next week to finish the Trade Show Charter and Rules.

New Business

1. Next Board of Directors meeting: February 7, 2017, 7:30 p.m.
2. Next General Meeting: January 24, 2017 at 7:30 p.m. The Program will be "California Jade" presented by Steve Blyskal and Sigrid Stewart.

There being no other new business, Gary Tober moved to adjourn. Mike Dawkins seconded, and the motion passed. The meeting adjourned at 9:35 p.m.

First Fossilized Dinosaur Brain Found

www.cnn.com/videos/world/2016/10/28/first-dinosaur-brain-fossil-found-orig-aw.cnn

Since all of the material found on this Web site is copyrighted, the Editor cannot reproduce any of it in the BBG, but she STRONGLY urges you to read all about it. It's fascinating.

Editor's Note: Next month I will be printing an article about a dinosaur tail tip (with feathers!) preserved in amber. There was no space to include it in this issue.

Bench Tips

by Brad Smith

www.BradSmithJewelry.com

See all Brad's jewelry books at Amazon.com/author/bradfordsmith

ADJUSTABLE CHUCK FOR DREMELS

Many of us have a Dremel motor tool to use at home or when out to a class or workshop. The one thing that makes this tool much more productive is the addition of one inexpensive option, an adjustable chuck.

The basic motor tool as sold typically comes with a collet chuck. This means you have to use a wrench to change every tool bit, you have to switch collets to use different shaft sizes (3/32 or 1/8 inch bits), and you can't use ordinary drills at all - only the special ones that have a 3/32 shaft.

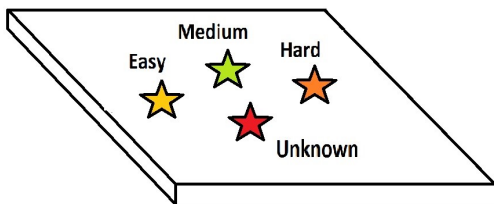
A simple and inexpensive (\$12) adjustable chuck solves all of this. It is available in most large local hardware stores or model-making outlets.

Tightening the chuck is done easily by hand to any size shaft. No key is required.



IDENTIFYING UNMARKED SOLDERS

There are plenty of ways to mark your sheet or wire solders, but suppose you forget and have a couple that you can't identify. The answer is to compare the melting temperature of the unknown with that



of a known solder. What I do is take a thick scrap of copper or nickel and arrange several solders on it. Ideally, I have a sample of easy, medium, and hard known solders surrounding the unknown solder. Then I heat the plate from the bottom and watch the order in which the solders melt.

WHAT WE CAN'T
DO ALONE
WE CAN DO
TOGETHER



DO ROCKS MOVE?

*by Mary Owens, ETGMS
from SCFMS Newsletter 01-02/2017*

Have you ridden on a windy road
Among the tall looming mountain tops,
And seen the beautiful formations
Made by the many tipped outcrops.

Of Rocks sitting here and there so still,
Not dreaming that one of them may fall
And block your roadway or smash your car,
Causing your journey a great big stall.

This won't happen, you know rocks can't move.
They lay real still wherever they are.
So, driving on in sheer unconcern,
You glimpse a quick movement from afar.

A startled reaction makes you skid,
As you pump your brakes trying to stop.
Before that rock that can't move slides down
From its high perch on that mountain top,
And proves to all that a rock can move.

Without the touch of a hand or shove,
Without the brush of a living thing.
It's how Mother Nature shows her love.



Show Time 2017

- Jan. 28-Feb. 12 Tucson, AZ Tucson Gem & Mineral Shows
Composed of over 40 shows at dozens of locations around town
Tucson Gem & Mineral Society has their own show. tgms@tgms.org; www.tgms.org
- February 18-19 Georgetown, TX Williamson County Gem & Mineral Society
San Gabriel Park
- February 25-26 Pasadena, TX Clear Lake Gem & Mineral Society
Pasadena Convention Center
7902 Fairmont Parkway
temp3@mflan.com; www.clgms.org
- February 25-26 Plainview, TX Hi-Plains Gem & Mineral Society
Ollie Liner Center
- March 4-5 Big Spring, TX Big Spring Prospectors Club
Howard County fair Barn; Rodeo Grounds
lolabellelamb@yahoo.com
- March 4-5 Robstown, TX Gulf Coast Gem & Mineral Society
Regional Fairgrounds
- March 11-12 San Antonio, TX Southwest Gem & Mineral Society
San Antonio Event Center, 811 Meadow Leaf Dr.
krbotx@gvvc.com; swgemandmineral.org
- April 8-9 Abilene, TX Central Texas Gem & Mineral Society
Abilene Civic Center; 1100 N. 6th St.
kmcdaniel23@suddenlink.net
<http://www.new.calichetimes.com>
- April 15-16 Alpine, TX Chihuahua Gem & Mineral Society
Alpine Civic Center
- May 6-7 Lubbock, TX Lubbock Gem & Mineral Society
Lubbock Memorial Civic Center
1501 Mac Davis Lane
walt@lubbockgemandmineral.org
www.lubbockgemandmineral.org
- July 1-2 Arlington, TX Arlington Gem & Mineral Club
Grapevine Convention Center, 1209 S. Main St.
nadira.charaniya@gmail.com
<http://www.agemclub.org/html>
- October 13-15 Mount Ida, AR Mount Ida Area Chamber of Commerce
30th Annual Quartz, Quiltz, and Craftz Festival
Montgomery County Fairgrounds
Fairgrounds Rd.
director@mtidachamber.com
www.mtidachamber.com
- Nov. 10-12 Humble, TX Houston G&MS hosting SCFMS Annual Show
Humble Civic Center, 8233 Will Clayton Pkwy.
5 miles east of Bush Intercontinental Airport
1 mile east of Hwy. 59
www.hgms.org; showchair@hgms.org

2017		February				2017	
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
			1 10-3 Shop Open 1:00-3:00 Day Light Section 7:30--Mineral Section	2 7:30 Archeology Section	3	4 10-5 Shop Open 10-Noon Youth Section	
5 10-4 Shop Open	6	7 7:30 Board Meeting	8 10-3 Shop Open 6:30 Gemstones & Faceting Section	9	10	11 10-5 Shop Open	
12 10-4 Shop Open	13	14 NO Show Committee Valentine's Day	15 10-3 Shop Open 7:30--Mineral Section	16	17	18 10-5 Shop Open 10-Noon Youth Section 1:30 Beading Section	
19 10-4 Shop Open	20 7:30 Lapidary Section President's Day	14 7:30 Paleo Section	22 10-3 Shop Open	23	24	25 10-5 Shop Open	
26 10-4 Shop Open	27	28 7:30 General Meeting					

2017		March				2017	
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
			1 10-3 Shop Open 1:00-3:00 Day Light Section 7:30--Mineral Section	2 7:30 Archeology Section	3	4 10-5 Shop Open 10-Noon Youth Section	
5 10-4 Shop Open	6	7 7:30 Board Meeting	8 10-3 Shop Open 6:30 Gemstones & Faceting Section	9	10	11 10-5 Shop Open	
12 10-4 Shop Open Daylight Saving Time begins	13	14 NO Show Committee	15 10-3 Shop Open 7:30--Mineral Section	16	17 St. Patrick's Day	18 10-5 Shop Open 10-Noon Youth Section 1:30 Beading Section	
19 10-4 Shop Open	20 7:30 Lapidary Section First Day of Spring	14 7:30 Paleo Section	22 10-3 Shop Open	23	24	25 10-5 Shop Open	
26 10-4 Shop Open	27	28 7:30 General Meeting	29 10-3 Shop Open	30	31		

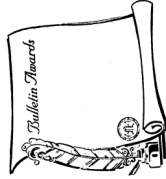
The BACKBENDER'S GAZETTE

The Newsletter of the
Houston Gem & Mineral Society

10805 Brooklet

Houston, Texas 77099

(281) 530-0942



SCFMS

1998 - 1st (Large)
2000 - 1st (Large)
2003 - 1st (Large)
2005 - 1st (Large)
2006-2012 - 1st (Large)
2013 - 1st (Large)
2014 - 1st (Large)
2015 - 1st (Large)
2016 - 1st (Large)

AFMS

1998 - 2nd (Large)
2004 - 3rd (Large)
2007 - 1st (Large)
2010 - 2nd (Large)
2012 - 3rd (Large)
2013 - 3rd (Large)



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