



The **BACKBENDER'S GAZETTE**

The Newsletter of the
Houston Gem & Mineral Society

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February 2016



President's Message

by Paul Brandes

February is almost upon us, and already the Board and I have several projects and events taking shape.

First off, we have another Trade Show coming up on Saturday, January 30. Our first show back in 2015 was a huge success, and from what I hear, there is already over double the interest and possible attendance thanks to Chase Jennings and his efforts to "get the word out" to the public. As of the writing of this President's Message, all of the interior tables are sold, and a couple outside tables have been purchased. One big change to this second Trade Show is the addition of a food truck onsite. As always, volunteers are welcome, and if interested, please contact Chase at chase_j_jennings@yahoo.com for more information on how you can help.



Another large project that started last year but is nearing completion is the complete overhaul of our Web site—eliminating the current Web site and starting over. The purpose of this project was not only to give the Web site a

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Upcoming General Meeting Programs

by Sigrid Stewart

HGMS 1st VP

February 23, 2016: **Roland Fields**, Supervisor of Technicians covering Manufacturing for Houston Community College, and supervisor of a Fabrication Lab--the Advanced Material Resources Center--will present on the subject of 3D printing--including a demonstration and discussion of lost wax applications. Expect a lively discussion of new technologies!

Email roland.fields@hccs.edu for more information.

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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 2016 issue by Monday, February 15, 2016.

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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>.

President's Message continued from page 1

more modern look, but also to make it more usable on portable devices such as smartphones and tablets. The Web Site Committee is in the final stages of putting everything together for a possible February rollout. I have seen the new Web site, and I must say, it looks fantastic! Once the new Web site is online, I encourage everyone to have a look, and if you have comments, please talk with your Section's Board Representative so they can relay any messages to the proper folks. I want to extend a big Thank You to Scott Singleton, and especially to our Web site developer, Autumn Breese, for their tireless efforts to make this much-needed update a reality.

As most of you know, we have one of the biggest and best earth science-specific libraries in Houston, if not in Texas. However, one may not realize this when they walk in the door and look around. This is why a project is in the works to complete a full reorganization of the library to make it more usable for our members. If you have been in the library recently, you should notice that it is already cleaner than before. This is only the beginning—more changes are coming.

To start, I ask that all members who have checked out books from the library to please return them as soon as possible. Secondly, I request that members do not check out any books until the library project is complete. This is necessary so that we can know what we have, and we can continue to complete a full inventory of this material. In order to complete this necessary project, I will be appointing a Society Librarian who will work with a group of dedicated volunteers to ensure that our library will not only be one of the best, but be THE best in Houston. If anyone is interested in volunteering for this project, please stop me at a meeting or contact me via email.

One last item before I go. If you are inside the Clubhouse or walking around the outside and see litter, trash, etc., do your part and please put it in a trash can. Not only does this reduce unsightly clutter, it also conveys a more welcoming image to potential new members who come to the Clubhouse.

See you next month.

Editor's note: Long-time and very highly regarded member **Paul McGarry** passed away January 16, 2016. I've asked the Houston Chronicle for permission to reprint the obituary they published, but I won't hear until after this issue has been printed. If I receive permission, it will appear in the March issue of the BBG.

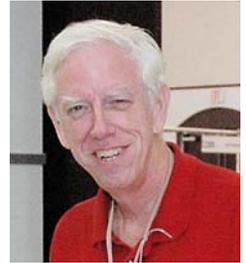
Shop Tips—Fabric Sprayer

by Neal Immega

I use a high-pressure, hand-held fabric sprayer to clean fossils and rocks, and recently it quit. This is a unit normally used by dry cleaners and can be found on eBay.

I thought it was the plunger and spring, and I did considerable research to find a source of replacement parts which you might want to know about.

Performance Screen Supply
www.performancescreen.com
 1-800-808-8337



The plunger and spring only cost \$2.50 each. Their Web site is unhelpful for repair parts, but the lady at the phone number above knew everything about everything. BTW—it turned out the problem was an intermittent break of the conductor in the cord, and not the plunger! Hard to find; easy to replace.

Archaeology Section

by Nancy Engelhardt-Moore

January 7, 2016: Bob Moore, the newly-elected Section Chair, called the meeting to order at 7:35 p.m. He thanked Garth Clark for his service as Chair and announced that Garth is now the new Vice Chair and also the Archeology Section's Representative to the Board. Bob then moved to approve the December minutes, seconded by Veronica Murdoch, and the motion was unanimously approved. Next, he reported that speakers were lined up for February, March, and May. Paul Brandes, HGMS President, then introduced himself to the attendees.

Program: Bob Moore gave a fascinating talk on "*Greco-Roman Medicine.*" He briefly talked about the natural mummy, Otzi, the Iceman who was found in the Alps and died about 3,300 BCE. His 61 tattoos are the oldest discovered to date, and they note acupuncture locations. Next, Bob talked about the Egyptian Ebers Medical Papyrus, which is among the oldest and most important herbal medical papyri dated at about 1550 BC. It preserves the most voluminous record of ancient Egyptian medicine known, including 800 remedies of which about half are still good today. He noted that dentistry started in the 3rd millennium BC in Egypt and that the mummy of Queen Hatshepsut was identified by a tooth that was found in her tomb due to a poor dental extraction!

Bob then moved on to Greco-Roman medicine and talked about the life and accomplishments of the great physician Claudius Galenus "Galen" from the

Greek City, Pergamum, Turkey. Bob showed personal photos taken at Galen's Medical-Teaching Center. He noted that Galen wrote some 80 different treatises on medicine—many of which have been preserved—and that he is considered the father of Psychotherapy. He is also credited with recognizing three types of mental illness. Following Q & A, there was time for Show & Tell, which included some actual 1st-century Roman medical instruments. The meeting adjourned at 8:35 p.m.

February 4, 2016: Dr. Scotty Moore, Program Coordinator for Anthropology at Houston Community College in Texas, will give a talk entitled *"It's the pits! The Search for Lewis & Clark's Lost Fort."* Scotty will talk about how through a combination of archaeology, geology, chemistry, and luck, modern science might have found the lost fort of Lewis and Clark. In 1805, after an arduous trip across North America, Lewis and Clark's Corps of Discovery built and occupied Fort Clasp somewhere near the Oregon Coast. Over the following two centuries, scores of historians and archaeologists have tried and failed to locate this historic structure. Come and learn how this lost fort might finally have been found by the renowned anthropologist who hosted the Discovery Channel's *"Bone Detectives"*! He will take a CSI-like approach to unraveling this amazing story.

Lapidary Section Meeting--1/18/2016

Photos by Jeanne Barna



**Paleo Section Meeting
1/19/2016**

Photo by Jeanne Barna



General Meeting Minutes

December 12, 2015

by Nancy English, HGMS Secretary

The meeting was called to order by Secretary Nancy English at 6:00 p.m. (while President Ray Kizer carved the turkeys to be served at dinner). She thanked everyone for coming to the December 12, 2015 General meeting, Holiday Party, and Auction.

Announcements: At Beverly Mace's request, Nancy announced that the name badges ordered before the 2015 Show are available for pick-up. On behalf of the HGMS membership, Nancy English thanked President Ray Kizer and his 2015 Board of Directors for the accomplishments made in 2015.

1. The long awaited Security System is up and running. Big thanks to Garth Clark for taking the lead on this project.
2. The doorbell is installed and working in the shop and classrooms.
3. Scott Singleton chaired a very successful show this year.
4. Once again, HGMS awarded a \$2500 scholarship to a college student studying the earth sciences.

Phyllis George passed out more awards for the HGMS winners of the SCFMS and AMFS Bulletin Editors' Contests. She was hoping to finish delivering the awards. Only a few recipients attended the November General Meeting.

The next Board of Directors meeting is Tuesday, January 5, 2016 at 7:30 p.m.

The next General Meeting will be Tuesday, January 26, 2016 at 7:30. **Dr. Garth Clark** will present a talk on "The Evolution of Genetics and Archaeology." Genetics and DNA analysis have played a vital part in tracing the origin of human populations and the domestication of various animal species by humans.

Adjourn: Karen Burns moved to adjourn the business meeting, and Phyllis George seconded. The motion passed unanimously, and the meeting was adjourned at 6:30 p.m.

The Holiday Party began. The marvelous buffet dinner was followed by the Annual Auction.

Board of Director's Meeting Minutes

January 5, 2016

by Nancy English, Secretary

X	President - Paul Brandes		Archeology Rep – Garth Clark
	Former President – Ray Kizer	X	Beading Rep – Jillynn Hailes
X	1st Vice President – Sigrid Stewart	X	Daylight Rep - Mary Ann Mitscherling
X	2nd Vice President - Beverly Mace	X	Faceting Rep - Gary Tober
	Treasurer - Rodney Linehan	X	Lapidary Rep - Phyllis George
X	Secretary - Nancy English	X	Mineral Rep - Mike Sommers
		X	Paleontology Rep - Mike Dawkins

Call to Order: President Paul Brandes called the meeting to order at 7:30 p.m. A quorum was present. Four non-voting members attended the meeting: Scott Singleton and Autumn Breese, Web page Designers; Carrie Hart, Education; and Chase Jennings, Trade Show.

President's Comments: President Paul Brandes thanked everyone for their work on the successful Holiday Party and Auction. The Auction following the dinner made \$2,700. The 2016 Christmas Party is scheduled for Saturday, December 10.

Christmas presents for HGMS: Neal Immega collected nearly \$4400 from the recent donation, and we are not done yet. His two auctions this year, plus his donation of expenses for the shop bring his total revenue for the club to about \$13,000. If you see Neal, thank him for his efforts!

Approval of Previous Month's Board Minutes: Jillynn Hailes moved and Gary Tober seconded a motion to approve the minutes of the December 1, 2015 Board Meeting as published in the January 2016 BBG. The motion passed with a correction to the year in the New Business announcement of next meetings.

Treasurer's Report: Rodney Linehan emailed financials to all Board members in advance of the meeting. A quick review showed that the club is financially sound, and it had a great year due to increased show revenues and auctions.

Office, Committee, and Section Reports

Archeology Section: The next Archeology Section meeting is Thursday, January 7, 2016 at 7:30. Bob Moore, the Section Chair, will give a talk on "Greco-Roman Medicine."

Beading Section: The next regular Beading Section meeting will be on Saturday, January 16, 2016 at 1:30 p.m. The project will be Beaded Bead Cap earrings.

Day Light Section: The next meeting is scheduled for Wednesday, January 6, 2016 from 1:00 to 3:00 p.m. We will resume work on the clasp we started in November. Those who are not working on the clasp may have shop time. The group will be voting on projects for subsequent meetings.

Education: Please contact Carrie at carriehart2000@yahoo.com to reserve your class space or to request classes. Carrie announced that a jewelry silversmithing class is in the planning stage for either January or February of 2016.

Gemstones and Faceting Section: The next regular meeting is Wednesday, January 13, 2016 at 6:30 p.m. Gary Tober reported that they will hold beginner and intermediate classes on Changing Angles for Faceting Diagrams using a nomograph.

Lapidary and Silversmithing Section: The next meeting is on Monday, January 18, 2016 at 7:30 p.m. The program will be announced. The shop will be open at 5:00 p.m. until 7:15 p.m. Phyllis George will present Ed with his two 2015 poetry awards.

Mineral Section: The next regular meeting is Wednesday, January 6 and January 20, 2016 at 7:30 p.m. The January 6 presentation will be a showing of the DVD "What's Hot in Tucson, 2015." The January 20 presentation will be a program on blue minerals, the theme for the 2016 Tucson Gem & Mineral Show.

Paleo Section: The next meeting is scheduled for Tuesday, January 19, 2016 at 7:30 p.m. The program will be given by Mickey Wagoner. He will present "Ellie May, The Ellis County Texas Columbian Mammoth Find."

Youth Section: The next meeting is scheduled for January 16 from 10:00 a.m. until 12:00 noon. Programs to be announced. Three new members joined at the January 2, 2016 meeting.

BBG Editor and Webmaster: Phyllis George reported that the deadline to receive articles is January 15, 2016. She also asked the Section representatives to please send her the program schedules two months in advance. That way the BBG will have current information in it.

Old Business

1. **Club House Repairs / upgrades:** Getting the current doorbell to ring in the meeting and classrooms would require rewiring it. It was suggested that we purchase a wireless doorbell. Mike Dawkins will review products and get prices to present to the Board in February.
2. **Security System Status--Outdoor Cameras, Smoke detectors:** Paul Brandes will contact Garth Clark about outdoor cameras and smoke detectors. He will also ask Michele Marsel to get an update on the Dunn

Southwest progress on security measures.

3. **Show Chair for 2016:** We need to have a 2016 Show Chair in place by the January General Meeting! Paul Brandes will contact more members to find a Chair.
4. **Trade Show:** January 30, 2016 kicks off the first Trade Show of 2016. Chase Jennings reported the status.
 - a. All of the indoor booths are already sold and paid in full. Some Vendors are interested in outdoor booths, weather permitting. It was suggested that Chase Jennings contact the vendors to let them know they can dress their tables on Friday. Chase is still looking for a backup person for Saturday morning's sign in and setup. He will need keys to the clubhouse for him and his backup. Carri Hart offered to loan him her keys.
 - b. Chase found a food truck that wants to pay us a nominal fee to sell food at the January Trade Show. We agreed to ask them for \$60.00. He will also ask Michele Marsel to verify with the property management company (Dunn SW) that HGMS is allowed to have a food truck on the property.
 - c. Chase purchased signage to promote the show.
 - One twelve-foot horizontal banner to display on the day of the Trade Show
 - One six-foot vertical banner to steer attendees to joining HGMS
 - Forty 11x17 posters were printed and distributed throughout midtown and City Centre

Nancy English moved to reimburse Chase Jennings for receipts presented to pay for the two banners and stand, for postage, printing of posters, and for delivery of posters to businesses. Gary Tober seconded the motion, and it passed.
 - d. There will be a Door Prize sign-up to garner more email addresses.
 - e. **Social Media advertising:** The HGMS Facebook page has seen a dramatic increase in followers since advertising for this show began.
 - The event page lists 685 Possible Attendees (people who say they will or may go) a month out from the show, compared to 256 for the first show.
 - We have already reached 35 thousand people with information on our second show (a month out) versus 14 thousand for the first show (those who saw the event).
 - Our event is now hosted on Yelp, Eventbrite, Houston Press, and a dozen other event Web sites.

5. **Replacement of Wi-Fi in club building:** Although the Wi-Fi is still working as of the BOD meeting, it is expected to close down any day. AT&T provides the phone service. Nancy English will contact Jim Kendall and ask him to contact AT&T and any other carrier he deems appropriate to find out how to get Wi-Fi for the clubhouse and how much it would cost.
6. **HGMS "Fall" Field Trip:** Scheduled for January 16–17, we have 31 registrants for Emerald Ridge and 22 for Badu Hill. Registration is now closed.
7. **Web Site update Status:** Scott Singleton and Autumn Breese reported that nearly all of the Sections have turned in new information and displays in the correct format for the new Web site. Autumn showed us the design and information that has already been set up. Still, some changes are needed. Mary Ann Mitscherling moved that all updates and changes be submitted to Autumn by January 26, 2016. Jillynn Hailes seconded the motion, and it passed. This will give Autumn time to update the site for its final presentation and Board approval. Autumn will also provide new host opportunities at the next meeting.

New Business

1. **Scholarships:** We have three this year.
 - a. **Update Scholarship Contact list:** Two years ago, Pete Stassi contacted universities, colleges, and community colleges that have an earth science department. He got contact names, numbers, and addresses. Nancy English sent letters to all of them in 2014 and 2015. It is time to update the list. Sigrid Stewart offered to contact the colleges and universities to verify whether our list is correct and to update it as needed. Nancy will email her the current list. Chase Jennings offered to put it on the Facebook site including forms, instructions, and a flyer for the recipient to post for students to view.
 - b. **Elizabeth Jean Smith Scholarship fund:** Art Smith's book, *The Mineralogy of Texas*, will be available for purchase via Lulu Publishing on demand within a week or so. Brett Smith, Art's son, has agreed that the income from royalty checks should go to the scholarship fund named for his mother. Mark Jacobson wrote to the club asking for an address to send money. The checks will be made out to the fund. Furthermore, an agreement to accept the funds will need to be forwarded to Mark Jacobson. Monies will need to accumulate before a scholarship can be awarded.
 - c. **Scholarship Donation:** At the October General Meeting, Ray Kizer announced that Rhonda Burrage donated a \$2,550 scholarship in her father's name, Richard Baker. It will be presented in 2016 to the winning candidate.

- d. **Annual HGMS Scholarship \$2500:** The HGMS Earth Science/Jewelry Arts Scholarship. This is paid to the school to be applied to the winner's school expenses.
 - e. The Paleo Section also provides a scholarship.
 - f. Thank-you letters to Mark Jacobson and Rhonda Burrage will be prepared by Secretary Nancy English for President Brandes' signature.
2. **The Library is in the midst of a cleanup/reorganization.** In order to do so properly, we need ALL books that have been checked out to be returned. In addition, any books that have been "borrowed" need to be returned as well. We will likely be asking for someone with experience in library methodology to become our Society Librarian to head up the reorganization. Paul has someone in mind already. Mike Sommers will contact Paul's candidate.
 3. **Clean up the clubhouse:** Paul Brandes learned of a minor injury occurring during the Holiday Party caused by a person falling over some "clutter." He recognizes that after eight-plus years, some debris is still in the same old spots. Not only is this a safety hazard, but it's a fire/insurance hazard too. In addition, with the number of non-members coming to our clubhouse for various events (Trade Shows, classes, etc.), it does not convey an attractive image to potential new members.
 4. **Change in General Meeting Agenda:** In order to give out-of-town speakers the opportunity to drive home by a decent hour, Paul would like to stop reading the Section Repots. At January's General Meeting, before New Business, President Brandes will ask whether anyone wants to announce their upcoming Section programs. After New Business, he will invite Sigrid Stewart to introduce the speaker and the program. Show and Tell will be scheduled following the program.
 5. The next Board of Directors meeting is Tuesday, February 2, 2016, at 7:30 p.m.
 6. The next General Meeting will be Tuesday, January 26, 2016 at 7:30. Dr. Garth Clark will present a talk on "**The Evolution of Genetics and Archaeology.**" Genetics and DNA analysis have played a vital part in tracing the origin of human populations and the domestication of various animal species by humans.

Adjourn: Jillynn Hailes moved to adjourn the meeting, and Mike Sommers seconded. The motion passed unanimously, and the meeting was adjourned at 9:50 p.m.

Of Wasps, Snakes, and Black Widows

*Using our everyday fears greatly helps us observe
and avoid dangerous situations.*

by Owen Martin, SCFMS/HGMS

As a Safety Professional, I am always looking for ways to help people understand where hazards exist around them. Over the years, my message has “evolved.” Breaking things down into simple and sometimes visceral terms can really get a point across.

I’ve broken it down into three areas of discussion for this article.

Wasps!

This is about not putting your head or body in a place where it can get stung. If you walk into a crowded and cluttered storeroom, how would you proceed if I told you that there was a wasp nest in there?

Slowly—looking first at eye level and above to make sure nothing dangerous could be seen or heard.

Or, how about if you put your head under a work bench to pick up something you dropped?

Check first, and when backing out and up, make sure your head is clear so that you don’t whack your head on the underside of a drawer (the nest).

Snakes!

If I told you there was a 5’ long rattle snake in your garage, how would it affect your behavior?

For starters, you would be really careful where you put your feet. Again, you would look first, then listen, and finally move.

If you observed the location of a hazard (the snake), then you could avoid it—or better yet—eliminate it!

These metaphorical snakes exist all over the place: garage, closet, bathroom, laundry room, attic, shed, shop, office, etc.

If you don’t watch where you are putting your feet, you can literally get bitten if you fail to recognize that hazard.

Black Widows...

Finally as to spiders. I know more people with spider phobias than anything else. If I told you there was a black widow in your toolbox, how would that change your behavior?

Rummaging around in a toolbox that is filled with rusty nails, saw blades, screws, pins, scissors, utility knives, etc. certainly poses a hazard where something could “bite” you.

How about under the hood of your car? Under the sink? Your fuse box? The

knife drawer in your kitchen???

OK, so the moral of the story is related to Behavioral Based Safety and how we can improve our personal hazard recognition skills.

If we see the spilled oil on the floor of our garage, we can avoid stepping in it. We can even clean it up before anyone slips in it.

So think about these critters and how they relate to hazards.

Hazards that are observed can be avoided, or better yet eliminated. That is how we learn to stay safe.

Bench Tips

by Brad Smith

"Bench Tips for Jewelry Making" and "Broom Casting for Creative Jewelry" are available on Amazon.

www.BradSmithJewelry.com

SHARP KNIVES FOR CUTTING MOLDS

Cutting molds is easier and more precise with a sharp blade. A new Xacto blade is sufficient for cutting RTV molds, but usually it is not sharp enough for vulcanized rubber. For that, it's best to use scalpel blades available from most jewelry supply companies.



The #11 blade is triangle shaped, and the #12 is hawksbill shaped. I find the hawksbill is particularly nice for cutting the registration keys of the mold.

USE YOUR THUMB

When using multiple bits in a Foredom, we often have to deal with several different shaft sizes—the usual 3/32-inch burs, the larger 1/8-inch shaft sizes, and of course the many different sizes of drills. For some reason, I really dislike having to turn the key multiple times to open or close the jaws of the hand piece chuck.



So I have two ways to speed up that task. For opening up the jaws, I just remember "four," the number of turns I have to make to open the chuck just enough from the 3/32-bur shaft size to the larger 1/8-bur shaft size.

For closing the jaws around a smaller shaft, there's a neat trick. Hold the new bit in the center of the open jaws of the chuck, put your thumb lightly onto the outer toothed collar of the chuck, and gently start up the Foredom. As the chuck turns, it will naturally tighten the jaws around the bur shaft or the drill bit. Then all you have to do is a final tightening with the key.

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Gold—Colors and Karats

by Mark Nelson, Pasadena Lapidary Society
from Rockhound Ramblings 12/2015



Colors of Gold

Pure gold is slightly reddish yellow in color. At a Mohs scale rating of just 2.5, the same as a fingernail, it is impractical to use pure gold in any way that involves handling.



The U.S. \$20 gold piece, so widely circulated, was made from 90% gold (0.900 fine = 21.6 karat) and 10% copper alloy to slow down the wearing process.

Pure 100% gold is 24 karat (abbreviated as kt or as K) by definition, so all colored golds are less than this, with the common being 18K (75%), 14K (58%), and 9K (38%). Colored gold is made in three ways. The oldest is by adding another metal to pure gold to form an alloy. The alloys used for colored gold are:



White gold—usually nickel, manganese, or palladium. Like yellow gold, the purity of white gold is given in karats.

Gold is made to form a shade of red by adding copper and sometimes silver. Here are the most common mixtures used to make Rose, Red, and Pink gold—18K Red gold: 75% gold, 25% copper, 18K Rose gold: 75% gold, 22.25% copper, 2.75% silver, 18K Pink gold: 75% gold, 20% copper, 5% silver, 12K Red gold: 50% gold and 50% copper.



Tension Bangle of Spangold

Spangold—an alloy of 76% gold, 19% copper, and 5% aluminum. The result is a sparkly surface covered with tiny facets.

Green gold was known to the Lydians, near present-day Turkey, in 860 BC under the name electrum, a naturally occurring alloy of silver and gold. Today we add cadmium to produce the green color. An alloy of 75% gold, 23% copper, and 2% cadmium yields light-green 18-karat gold. The alloy of 75%



Peridot set in green gold

gold, 15% silver, 6% copper, and 4% cadmium yields a dark-green alloy.



Gray gold—made from gold and palladium, or from gold, silver, manganese, and copper in various ratios.

Purple gold is an alloy of gold and aluminum rich in gold-aluminum intermetallic (AuAl_2). It is called an intermetallic compound instead of a malleable alloy, as the compound structure becomes somewhat brittle and can be shattered with a sharp blow.

Blue gold is an intermetallic alloy of gold and indium, containing 46% gold (about 12 karat) and 54% indium. Blue gold is also formed through an exterior layer of controlled oxidation of an alloy of 75% gold, 24.4% iron, and 0.6% nickel which is then heated. A rich sapphire blue colored gold of 20–23K can also be obtained by alloying with ruthenium, rhodium, and three other elements and heat-treating at 1800 °C, to form the 3–6 micrometers thick colored surface oxide layer.



Renaissance
Classic 14K Blue
Gold 1.23 CT
Princess Blue
Sapphire Diamond
Engagement Ring



1.72ct Blue Round
Diamond Pavé
Engagement Ring

—
14K Black Gold
Rhodium Plating
Over White Gold
With A .65ct
Center Diamond
and 1.07ct of
Surrounding
Diamonds

Black gold is formed by an application of a surface treatment to gold. Black-colored gold can be produced by **Electroplating**, using black rhodium or ruthenium; **Patination** by applying sulfur and oxygen-containing compounds; **Plasma-assisted** chemical vapor deposition process involving amorphous carbon and through the process of **Controlled Oxidation** of gold containing chromium or cobalt (e.g. 75% gold, 25% cobalt).

Sources for this article include Wikipedia; the National Numismatic Collection, National Museum of American History; Mohs Scale—www.amfed.org/t_mohs.htm, Amazon.com, Classic Engagement Ring.com, Cover Photo courtesy of The Niessing Company:

<http://en.niessing.com/>



from 2013 S.C.R.I.B.E. DVD

Continued from page 14

WELCOME FEEDBACK

By the way, we editors do a lot of writing and often never realize how many people are reading and appreciating the effort. Today I was surprised by some feedback.

'Way back in 2007, I wrote an article for the inaugural issue of Interweave's *Jewelry Artist* magazine about broom casting. Last year, a portion of it was reprinted in the company's huge Jewelry Making Daily blog. That was definitely neat, but yesterday I was blown away by their announcement.

My post was named the most popular one of 2015—**eight years after the original**. Who would have guessed that so many people would get a kick out of pouring molten silver into a floor broom. My book on the entire process is available on Amazon at <http://amzn.to/1Z6hYws>

Goldstone

from Hill and Gully Paydirt 12/2015,
via The Rockhounder 1/2016, *via* The Quarry 1/2016

Goldstone is a type of glass made with copper or copper salts in the presence of a reducing flame. Under normal oxidative conditions, copper ions meld into the silica to produce transparent bluish-green glass; when the reduced Goldstone melt cools, the copper remains in atomic isolation and precipitates into small crystalline clusters.

The most common form of Goldstone gives the illusion of being reddish-brown, though in fact that color comes from the copper crystals, and the glass itself is colorless. Some Goldstone variants have an intensely colored glass matrix—usually blue or violet, more rarely green.

The manufacturing process of Goldstone was discovered in seventeenth century Venice by the Miotti family, which was granted an exclusive license by the Doge.



GOLDSTONE--from Wikipedia

Insurance Coverage for SCFMS Affiliated Clubs

by Kimberly J. Brannon

SCFMS Executive Secretary

from SCFMS Newsletter 1-2/2016

As Executive Secretary for SCFMS, one of my responsibilities will be to maintain updated records of club memberships and the number of members, and communicate that information to our insurance agent. I am learning the specifics of coverage in order to address questions raised at the annual meeting. Our policy offers Commercial General Liability and Auto Accident insurance to the South Central Federation of Mineral Societies, Inc, to all Member Clubs, and also provides coverage over all Member Club activities, field trips, shows, seminars, and classes. Our insurance policy is available to any club in “good standing” with the Federation, and to clubs paying late (not beyond the membership cut-off date) and to new clubs that join us mid-year. In the event of a claim, the insurance agent will first phone to confirm that the club in question has paid dues and is currently in good standing. It is vital that your club pays dues ON TIME to the SCFMS in order to remain eligible for insurance coverage at the time of a claim.

Many of the questions raised concern what is or is not covered by the policy. Commercial general liability, for example, would pay claims for damages to private lands, legal defense, and settlement if actions of the club were found to be negligent during a club-sponsored field trip or activity—heavy emphasis on “club sponsored.” The policy will not cover claims against an individual club member on a personal excursion if the hunt results in damage to a land owner’s property. There is an additional policy for club-related travel for hired (non-owned vehicles) or personal vehicles used for Club business. The policy includes limited medical to members of the public (ex. a guest injured while attending a meeting or show), whether the injury occurs at an owned space, leased location, public or private venue. Medical expenses for club members would be provided only through an additional accident policy which is not standard for our nonprofit organization. Individual club members should maintain their own private insurance for accident, injury, health, or medical. They are, however, protected from claims for liability, and federation club members are listed on the policy as additional insureds.

Precautions should be taken to provide proper education, safety training, adequate supervision, and standards of certification prior to operation of machinery in club workshops, classes, or field trips. There are no age limitations in the policy, but each club should determine the level of risk they are willing to assume, then adjust club bylaws accordingly. A waiver or “hold harmless” agreement should also be obtained—preferably with the assistance of a lawyer—as advised by the regional insurance agent. It would help to note on registration forms for activities “The SCFMS and the individual Club (insert your club!) cannot be held liable for any bodily injury or prop-

erty damage. Participant will not seek compensation for injuries obtained as a result of the activity. Participate at your own risk.” or something similar. My understanding is that personal homeowner’s or renter’s policies also provide some amount of liability coverage as long as the activity is volunteer—i.e. not commercial/business or employed by the club.

Any function which does not conform to the stated purpose for tax-exempt status (ex. using club facility for individual commercial gain, or charging an entrance fee to shows as opposed to suggesting a donation) could potentially invalidate your club’s 501(c)3 (nonprofit) status. The danger lies in unexpected tax burdens causing financial instability within your club. Inability to pay SCFMS dues and Insurance fees would likely result in revocation of your SCFMS membership and the withdrawal of insurance coverage. The benefits of 501(c)3 designation and tips for maintaining it will be addressed in a future article. If you have questions regarding whether a proposed activity would affect your 501(c)3 status, please speak with a local tax accountant. The accountant can advise whether an activity furthers the stated tax-exempt purpose and how to structure activities to remain in compliance with state and federal laws.

Please inform our insurance agent of the dates and nature of your club functions—your annual show, a field trip, etc. If you require verification or proof of insurance to contract with a venue for a show or activity, you will need to provide the name and complete mailing address of the entity requesting the coverage confirmation, the dates, description of the event, and preferred method of delivery (fax number or mailing address). Certificates can be processed quickly if the required information is supplied. Direct your requests to Beverly Uzzell, buzzell@insuranceoneagency.com.

I hope this addresses some of the concerns regarding our insurance coverage. If you have additional questions or need clarification regarding our policy, please feel free to call or email me. I’m learning, too, and would love to stay involved as we learn together!!

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

Fool's Gold Preserves Some of Earth's Oldest Fossils

by Stephanie Pappas, Live Science Contributor | December 18, 2014
via Rocky Reader 2/2015

Fool's gold helps explain why many fossils of soft-bodied animals that lived more than 540 million years ago still survive, a new study finds. The bacterial breakdown of ancient, wormlike animals after their deaths led to the formation of pyrite, the shiny, yellow mineral sometimes mistaken for gold.

This pyrite helped preserve the fossils in three dimensions, according to research published Wednesday (Dec. 17) in the journal *Nature Communications*. Understanding this strange process is important, said study researcher James Schiffbauer, a paleobiologist at the University of Missouri, because the process of pyrite mineralization could create features that, misleadingly, look like the original biology of the animal.

[Extreme Life on Earth: 8 Bizarre Creatures]

"What we're trying to do is look at the biological signal and subtract the geological noise," Schiffbauer said.

Tube animals

At the Gaojiashan fossil site in China, the tube-like fossils of an animal known as *Conotubus hemiannulatus* are common discoveries. The creature dates back to about 550 million to 542 million years ago. "We actually don't have any fossil evidence of what that animal was," Schiffbauer said. "Looking at the tube, we can say it's probably wormlike or maybe sea-anemone-like."

In many ways, though, it's a miracle that the fossil tube even survives. Early animals like *C. hemiannulatus* did not have mineralized bones like dinosaurs or other later animals, whose fossilized skeletons reveal much about the animals' anatomies. As such, the fossilization process of soft-tissue animals is poorly understood, Schiffbauer said.

He and his colleagues studied *C. hemiannulatus* fossils, drawing on the observation that many are surrounded by shiny pyrite. They measured the size of the pyrite crystals and of the isotopes of sulfur in the pyrite, which is made of iron and sulfur. Isotopes are atoms of an element that have varying numbers of neutrons in the nucleus. These measurements revealed that the pyrite mineralization of the tubes started outside, where the crystals were smallest, and worked its way in. The isotopic fingerprints of the sulfur revealed that bacteria were responsible, at least at first.

Bacteria and fossilization

From the chemistry, the researchers pieced together the process as well as

they could. It worked like this: First, the animals were rapidly buried, probably by a big event like a storm that brought a mass of sediment to their seafloor environment. This sudden burial prevented oxygen-loving aerobic bacteria from decomposing the bodies too rapidly to allow for fossilization.

Below the surface, though, lived sulfur-breathing bacteria that found the soft organisms to be an appealing feast. Fueled by the carbon in the wormy animals, these bacteria converted sulfate from the seawater into hydrosulfide. That hydrosulfide reacted with free iron in the water, which kick-started the formation of pyrite at the edges of the tubes. This process probably happened quickly, perhaps within 12 to 800 years, the researchers reported.

Most likely, Schiffbauer said, the pyritization process continued without the assistance of bacteria as the fossils were buried further.

The explanation helps to solve the mystery of why about 80 percent of the fossils in the Gaojiashan formation are preserved in three dimensions, with fool's gold around them, while others are preserved in two dimensions in a second process called carbonaceous compression. It seems that, as long as sediments didn't continue to bury the fossils too quickly, the pyrite process could continue. If the fossils buried faster, the compression process took over, creating pancake-flat fossils instead of fossils in three dimensions.

Chalcedony

by Rose Marion

from The Voice 4/2013 via The Roadrunner 6/2014

Chalcedony used to be considered a fibrous variety of quartz. And it has been shown to contain quartz as well as Morganite, a different form of silicon dioxide with a crystal structure unlike quartz. However, you will still see various sources say that chalcedony is a form of quartz, and that agate is a form of chalcedony. They ALL are made up of silicon dioxide.

Being quartz-like, chalcedony (kal-SED-uh-nee) typically ranks a 7 on a Mohs scale, and has been used in carvings since before Roman times. Roman-carved seal rings are still in good condition today. This stone is called chalcedony in the gemstone trade when it is gray, white, or blue translucent; the AGTA ranks it among the "sky blue" gems. However, chalcedony can naturally appear in practically any other color as well—yellow, orange, red, pink, purple, green, black, multi-colored, and banded. Forms that are colored typically have other names in the gem trade, such as Tiger eye, Aventurine, and Bloodstone.

Blue chalcedony has become popular in recent years, often named for its place of origin such as Mohave Blue Chalcedony (from California) or African Blue from Namibia. The blue in blue chalcedony can have pink or gray hues within the stone, and even a slight adularescence (as moonstone does).

Bluish chalcedony from Oregon is not “blue chalcedony,” rather it often has slight bands or clouds of pink, creating a lavender color which is confusingly called Holly Blue. Holly Blue is often grouped with the blue chalcedonies though, and typically is considered the most valuable of the group. Difference in color and transparency is due to metallic impurities, meaning that minerals and elements such as titanium, copper, nickel, and iron are present as the stone crystallizes. For example, the form of chalcedony that’s Granny Smith apple green—Chrysoprase—gets its verdant color from nickel. Chalcedony is typically cabbed, carved, or made into beads, and particularly transparent pieces are sometimes faceted.

White, blue, and gray chalcedony is mainly found in the California and Nevada deserts, and in India, Siberia, and Iceland, but it also is found in many more smaller locations all over the world.

To clean natural chalcedony, the AGTA recommends rinsing it with mild dish soap and letting it dry; it needs no special care. Chalcedony doesn’t typically react to heat, although sometimes it is dyed or stained. Glass is often used to imitate chalcedony, but you may be able to see tiny bubbles, swirl marks, or “too-perfect” inclusions that will tip you off to the true glass nature of the “stone.”

Catching the One That Got Away

*photos and text by Bob Farrar
from Chippers’ Chatter 5/2015*

As most readers of this piece will know, I have had the opportunity over the last several years to visit some of the many famous mineral and fossil localities of Morocco. I have written about these trips on several occasions in *Rock & Gem* magazine. One such article was about collecting varieties of quartz (agates, jaspers, amethyst, etc.) at a locality in the High Atlas Mountains known as Asni in 2010. (*Rock & Gem* December 2011). In that article, I



The collecting area at Asni is a mostly dry creek bed running up the side of a mountain.

mentioned a rock that I called “the one that got away.” This rock weighed about 25 pounds. Its base consisted of white quartz and reddish jasper, followed by a layer of greenish-yellow quartz, topped with a layer of reddish quartz points. Having been deposited in a creek bed, the crystal points were not exactly pristine, but I still found it an interesting piece. At the time, how-

ever, I was some distance from the car, had much more ground to cover, and no good way to carry it. So, it was left hidden under a bush. As I wrote before, I would be sure to bring a backpack on any future such visit so I could carry out something like that.

I returned to Morocco in October of 2014. As always, the group that I travel with was guided by brothers Adam and Aissa Aaronson. As luck would have it, we again had the opportunity to go collecting at Asni. Our guide for the day, as before, was

Mohammed, owner of a rock shop in Asni. I was excited about returning to the site, because it had yielded some nice amethyst on the previous trip. I was also hoping to perhaps find a smaller piece similar to the one I had left behind before. We began working our way up the same creek bed as before, and were indeed finding amethyst as well as agate and jasper. Then, much to my surprise, Mohammed picked up the very same rock that we had left under a bush four years before. I had figured that either someone would have taken it, or it would have washed away in one of the flash floods that occasionally happen in the High Atlas Mountains. But, there it was. As I had promised myself, I had a small backpack this time, and started to pack it up. Thankfully, Aissa, who is younger and stronger than I, offered to carry it back to the car for me. We again left the rock and headed on up the creek bed, collecting as we went. Later, while the rest of us came back via another creek bed, Aissa went back the way we had come and picked up the big rock, along with a few smaller things that we had also set aside.

Once I had the rock, then came the hard part—getting home with it. There was no way I could get on a plane with it, and mailing it back would have cost a small fortune. Fortunately, Adam and Aissa are in the fossil business, and every year they send a shipping container full of fossils and other merchandise to Tucson. Adam graciously offered to send anything heavy that our group found along with his shipment. I would then only have to worry about



Agate, jasper, amethyst, and other quartz varieties occur in veins in a basalt, as well as in nodules.



The “one that got away” consists of jasper, with white, greenish yellow, and red quartz.

getting it home from Tucson. Our little group was traveling in two 4-wheel-drive SUVs, well suited for carrying the rocks that we picked up along the way. By the time we got to the town of Erfoud (a center for fossil collecting in the Sahara Desert) though, they were getting full.

We thus left the big rock, along with various bags and boxes of agates and other rocks, at a fossil dealer's place in Erfoud. Sometime later, it went by truck, along with Adam's merchandise, to Adam's warehouse in Rabat. There, everything was put in a shipping container and sent by sea to Houston, and from there by truck to Tucson. In February of this year, I made my usual visit to Tucson, eager to retrieve my Moroccan rocks. However, the shipment was late. It arrived in Tucson the day after I left to come home. Fortunately, a friend of mine who had also gone to Morocco, gem dealer Elaine Rohrbach, offered to drive my rocks back east when she came this way a few weeks after the show. I gratefully accepted her offer.

Finally, around the end of March, over four years and 5 months after I first saw and retrieved the rock from the creek bed, it arrived in Maryland. It is now sitting on the floor in my living room. I caught the one that got away.

How Do They Get That Color?

from the Michigan Mineralogical Society via Conglomerate 6/2015, via The Rockpile 12/2015

Color is a striking property of a glass object. It can also be one of the most interesting and beautiful properties. Color sometimes defines the usefulness of a glass object, but it almost defines its desirability. The earliest people who worked with glass had no control over its color. Only through accident and experimentation did glassmakers learn that adding certain substances to the glass melt would produce spectacular colors in the finished product when it cooled. Other substances were discovered that, when added to the melt, would remove color from the finished project.

The Egyptians and Mesopotamians both became expert at the production of colored glass. In the eighth century, a Persian chemist, Abu Musa Jabir ibn Hayan, often known simply as "Geber," recorded dozens of formulas for the production of glass in specific colors. Geber is often known as the "father of chemistry." He realized that the oxides of metals were the key ingredients for coloring glass.

The recipe for producing colored glass usually involves the addition of a metal to the glass. This is often accomplished by adding some powdered oxide, sulfide, or other compound of that metal to the glass while it is molten. The table on the next page lists some of the coloring agents of glass and the colors they produce. Manganese dioxide and sodium nitrate are also listed.

They are decoloring agents—materials that neutralize the impact of impurities in the glass.

Widely Known Glass Colors—Some colors of glass are widely known. Perhaps the example of this is “cobalt blue” that is produced by adding cobalt oxide to the glass melt. “Vaseline glass” is a fluorescent yellow-green glass that contains small amounts of uranium oxide. “Ruby gold” and “cranberry glass” are red glasses produced by the addition of gold. “Selenium ruby” is a red color caused by the addition of selenium oxide, and “Egyptian blue” is produced by the addition of copper. Many of the elements used to produce the colors in glass can also be found in nature, creating the colors of different minerals and their distinctive properties.

Metals Used to Impart Color to Glass

Cadmium Sulfide	Yellow
Gold Chloride	Red
Cobalt Oxide	Blue-Violet
Manganese Dioxide	Purple
Nickel Oxide	Violet
Sulfur	Yellow-Amber
Chromic Oxide	Emerald Green
Uranium Oxide	Fluorescent Yellow, Green
Iron Oxide	Greens and Browns
Selenium Oxide	Reds
Carbon Oxides	Amber Brown
Antimony Oxides	White
Copper Compounds	Blue, Green, Red
Tin Compounds	White
Lead Compounds	Yellow
Manganese Dioxide	A decoloring agent
Sodium Nitrate	A decoloring agent

A thought for this month. Glass takes one million years to decompose, which means it never wears out and can be recycled an infinite amount of times! From the Internet.



Color wheel--free image
from the Internet

Show Time 2016

Jan. 30-Feb. 14	Tucson, AZ	Tucson AZ Gem & Mineral Shows Multiple shows occurring simultaneously at more than 40 sites across Tucson tucsongemandmineralshows.net/
February 11-14	Tucson, AZ	Tucson Gem & Mineral Society SMG-Tucson Convention Center tgms@tgms.org ; http://www.tgms.org
February 20-21	Georgetown, TX	Williamson County Gem and Mineral Society Community Center, San Gabriel Park wcgms.org
February 27-28	Pasadena, TX	Clear Lake Gem & Mineral Society Pasadena Convention Center, 7902 Fairmont Parkway
March 5-6	Robstown, TX	Gulf Coast Gem & Mineral Society Richard M Borchard Regional Fairgrounds 1213 Terry Shamsie Blvd., Exhibit Hall A rockcamp_speaker@outlook.com ; www.gcgms.org
March 12-13	San Antonio, TX	Southwest Gem & Mineral Society San Antonio Event Cntr, 8111 Meadow Leaf Dr. krbotx@gvtc.com ; www.swgemandmineral.org
April 15-17	Alpine, TX	Chihuahuan Desert Gem and Mineral Club Alpine Civic Center; 801 W. Holland (Hwy. 90) paulgraybeal@sbcglobal.net
April 30-May 1	Waco, TX	Waco Gem & Mineral Club Extraco Events Center; 4601 Bosque Blvd www.wacogemandmineral.org showchair@wacogemandmineral.org
May 7-8	Lubbock, TX	SCFMS/Lubbock Gem & Mineral Society Lubbock Memorial Civic Center 1501 Mac Davis Lane walt@lubbockgemandmineral.org www.lubbockgemandmineral.org
September 10-18	Denver, CO	Multiple shows and locations Eons Expos, Denver Coliseum, 4600 Humboldt St 250 dealers in Denver Coliseum plus 100 tents http://www.ColiseumShow.com
November 11-13	Humble, TX	Houston Gem & Mineral Society 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

2016			February				2016
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
	1	2 7:30 Board Meeting	3 10-3 Shop Open 1:00-3:00 Day Light Section 7:30--Mineral Section	4 7:30 Archeology Section	5	6 10-5 Shop Open 10-12 Youth Section	
7 10-4 Shop Open	8	9 NO Show Committee	10 10-3 Shop Open 6:30 Gemstones & Faceting Section	11	12	13 10-5 Shop Open	
14 10-4 Shop Open Valentine's Day	15 7:30 Lapidary Section President's Day	16 7:30 Paleo Section	17 10-3 Shop Open 7:30 Mineral Section	18	19	20 10-5 Shop Open 10-12 a.m. Youth Section 1:30 Beading Section	
21 10-4 Shop Open	22	23 7:30 General Meeting	24 10-3 Shop Open	25	26	27 10-5 Shop Open	
28 10-4 Shop Open	29						

2016			March				2016
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
		1 7:30 Board Meeting	2 10-3 Shop Open 1:00-3:00 Day Light Section 7:30--Mineral Section	3 7:30 Archeology Section	4	5 10-5 Shop Open 10-12 Youth Section	
6 10-4 Shop Open	7	8 NO Show Committee	9 10-3 Shop Open 6:30 Gemstones & Faceting Section	10	11	12 10-5 Shop Open	
13 10-4 Shop Open Daylight Saving Begins	14 7:30 Lapidary Section	15 7:30 Paleo Section	16 10-3 Shop Open 7:30 Mineral Section	17 St. Patrick's Day	18	19 10-5 Shop Open 10-12 a.m. Youth Section 1:30 Beading Section	
20 10-4 Shop Open Palm Sunday First Day of Spring	21	22 7:30 General Meeting	23 10-3 Shop Open	24	25	26 10-5 Shop Open	
27 10-4 Shop Open Easter	28	29	30 10-3 Shop Open	31			

The BACKBENDER'S GAZETTE

The Newsletter of the
Houston Gem & Mineral Society

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2015 - 1st (Large)



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