The BACKBENDER'S GAZETTE
The Newsletter of the Houston Gem & Mineral Society

Volume XLIX—No. 6 **June 2018**

President's Message
by Paul Brandes

Another month, another trip!

This time, I am writing the President's Message from Taos, New Mexico, the first night in some time that I have stayed in a hotel, let alone in a place that has Internet. My reason for being here is to assist Nathalie with the writing of her book on the geology of New Mexico. Basically, I am her photographer. Last year, we completed the southern portion of the state. This trip, we are finishing the northern half, and I am glad we are! This has been a very warm and dry spring in New Mexico, so being in the north in some cooler temperatures has been a blessing. Soon, we will be returning to Houston and its humidity. We are not looking forward to that.

I have been hearing good things about our latest Trade Show held on April 28. I have also been hearing about some items needing to be addressed before we can have another Trade Show. This is one reason that a Trade Show Committee has reformed—to address these issues and to make our Trade Show stronger. If you are interested in having a say in future Trade Shows, please let Nancy English or me know. Before I forget, I want to thank our Trade Show volunteers for once again coming through and ensuring a smooth operation.

President Continued on Page 4

Upcoming Program
by Sigrid Stewart, 1st Vice President

June 26, 2018: Sigrid Stewart presents—Viking Gold: The origin of Viking Hoards .

Contents

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 July 2018 issue by Friday, June 15, 2018.

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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 and 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://hgms.org.

President's Message continued

Since I am on the road, I will keep this Message short, but I want to mention one more item. As I have always said, our members are the backbone of our Society. In being the backbone, there are certain responsibilities that go along with this, so I will keep it simple. If you see something out of place in the Clubhouse, ask where it goes. If you see trash lying around, please dispose of it. If you break something or see something about to break, please tell someone. If you see an issue on a field trip, please notify your trip leader. I could go on and on, but I believe you get the message; if you see something, say something!

That is all for this month. Next month, I promise I will write the Message from Houston!

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Hill Country Field Trip, 2018

by Paul T. Brandes

At left, an overview of the Emerald Ridge deposit. Below, folks digging for quartz at Emerald Ridge

On the weekend of April 14–15, 2018, members of the Houston Gem & Mineral Society participated in a mineral collecting field trip to the Mason/Llano area of the Texas Hill Country. The first location visited was the Emerald Ridge pegmatite on Saturday. The day started from Mason where a group of 34 members made the trek to Emerald Ridge to search for multi-colored fluorite (the name "Emerald Ridge" comes from the green fluorite that is found there), strawberry quartz, and the potential for a Texas topaz. Despite the very windy conditions, the sun shone bright and the temperatures were near perfect for a fun filled day of collecting, and what a collecting day it was. Everyone attending found some very nice specimens, including several nice groups of quartz, one single quartz crystal that measured over one inch

At right, Nathalie Brandes digging out the large (approx. 1.5 inch across) quartz crystal in matrix, shown above, found at Emerald Ridge.

across, some very large facet-quality green fluorite, and one single small (approx. four millimeter across) topaz crystal. After about six hours of collecting, participants departed the site and returned to their hotels and other accommodations in preparations for the next day.

For Sunday, the group visited the Badu Hill pegmatite near Lake Buchanan. This

Above, overview of Badu Hill pegmatite quarry; Below, Mike Sommers with his treasure shown enlarged inset at right, Anatase after Titanite crystal, approx. 1 inch long.

deposit is much like the famous Baringer Hill pegmatite—now submerged under Lake Buchanan—so Badu Hill gives the collector a rare chance to find mineral specimens that otherwise are inaccessible. Twenty-seven members attended for a chance to find some unique minerals including fluorite, uranium-bearing

Large (approx. 1 inch across) radial muscovite crystals

minerals, and rare earth element (REE) specimens. While the morning started out chilly (around 38 degrees), the sun warmed things up very quickly, and the winds were not an issue as at Emerald Ridge. While not as prolific as the previous day, many great specimens were found, including several nice purple fluorites, an anatase replaced titanite, pyrite, several biotite "books," and a small grossular garnet crystal. Because of the long drive back to the Houston area, many participants began leaving Badu Hill in the early afternoon, with the last folks leaving shortly after 3 p.m.

From the many emails and comments I have received after this trip, it seems members of the HGMS are eager for more collecting field trips not only in Texas, but also to other localities in Oklahoma and Arkansas. As a result, there may be another Hill Country collecting trip in the works for this autumn. Please stay tuned for more information.

HGMS Results in the 2018 SCFMS and AFMS Editors and Authors Contest				
SCFMS	AFMS	Name	Title	Month, 2017
Large Bulletin				
1	7	Phyllis George	The Backbender's Gazette	April & October
Advanced Adult Article				
1	9	Albert J. Robb III	Relic Cretaceous Fossils from the Texas Panhandle	March
2	3	Nathalie Brandes	There Once Was a Goat Name Kåre--Over a Millennium of mining at Falu Gruve, Sweden	February
3	*HM	Paul Brandes	Rocking Out in Michigan's Upper Peninsula	October
Adult Article				
6		Nancy L. Engelhardt-Moore	Archaeology Section--January & February Meetings	March
Adult Poetry				
3	2	Steve Blyskal and Sigrid Stewart	Harvey Comes to Houston	November
6		Terrell William Proctor, J.D.	When Is a Rock Not a Rock	November
Feature				
6		Neal Immega	Hard Stone Drilling in Fort Worth	October
*HM = Honorable Mention				

To all our winners and participants.

General Meeting Minutes

April 24, 2018
by Nancy English, HGMS Secretary

President Paul Brandes called the meeting to order at 7:35 p.m. He thanked everyone for coming to the April General Meeting.

Twenty–three members attended. J.P. Dickerson was a guest at last month's General Meeting. This month he is a new member. He described himself as a collector newly interested in collecting rocks and minerals.

Minutes: President Brandes asked for a motion to approve the **February 27, 2018,** General Meeting minutes, since they had not been published as of the March General Meeting. Karen Burns moved to approve the minutes of the February 27, 2018 General Meeting. Sigrid Stewart seconded the motion, and it passed.

President Brandes asked for a motion to approve the **March 27, 2018** General Meeting minutes, as published in the May 2018 BBG and posted on the April 22 e-blast. Karen Burns moved to approve the minutes of the March 27, 2018 General Meeting Minutes. Sigrid Stewart seconded the motion, and it passed.

If you are a member and not already receiving Jim Kendall's HGMS Sunday e-blasts, email him at (kendallja@att.net). Jim also includes weekly shop status updates from Neal Immega.

President's Announcements:

Beverly Mace received a letter from Martha Underwood advising that her husband, Rod Underwood, passed away suddenly on March 22, 2018. He has been a member for a few years.

Also, Anne Frank passed away at age 98. She had moved to the eastern United States to be closer to her family.

The Hill Country Fieldtrip was successful. Thirty-four rock hounds went to Emerald Ridge Twenty-seven went to Badu Hill. Everyone found something—many quartz points, fluorites, and a topaz were found at Emerald Ridge. Several fluorites, an anatase, and other rare earth elements were found at Badu Hill. There might be another trip to the Hill Country this autumn if there is enough interest.

The collecting trip to Alpine, Texas, organized by the Lapidary Section starts Friday, April 27, 2018, and continues through Sunday, April 29. Contact Richard Good for more information.

Mike Sommers is organizing a collecting trip on May 5 to Midlothian for pyrite nodules and fossils. Contact him for more information: mailto:tsigoloeg@sbcglobal.net

President Brandes is a Professor of Geoscience in the Lone Star College System. As he requested in the Sunday e-blast, he wants Texas mineral specimens and rocks. His goal is to redesign one of the cases at the Montgomery Campus to feature Texas geology, rock types, and mineral specimens that can be found within the state of Texas. He asked that HGMS members donate any excess Texas mineral specimens or significant rock types to help his students understand more about the geology around them. Please contact Paul at (281) 543-3681, via email at mailto:eclogite@pasty.com.

Dues are Due!!!!! See Beverly! Otherwise, your membership will lapse, and Uncle Neal will ban you from the Shop!

Section/Committee Reports

In the interest of time, President Brandes asked members to look for reports of Section news in the BBG, on the Web site (**HGMS.org),** or by reading the weekly e-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 mailto:kendallja@att.net.

2018 Show Committee: Clyde McMeans reported on the Scout Fair that occurred Saturday, April 21, 2018. Chase Jennings loaned his 10 ft. tall dinosaur to the Show Committee for use at the Fair. A Scout walked around in the dinosaur the first half of the day. The rest of the time was for photo ops, mainly with scouts' heads stuck into the dinosaur's mouth. **Steve Blyskal** reported that 15 of the dealers in the Annual Show have paid 100% of their fees.

President Brandes invited Section Chairs and Standing Committee Chairs to make any additional announcements.

Karen Burns showed a lovely, small paper-covered clay pot, the upcoming **Day Light** project for May 2, 1:00 p.m. to 3:00 p.m.

Old Business

Library: Quentin Boyer reported via email that the recording of Library of Congress numbers is in progress. Quentin wants to open the Library on Saturdays. He needs one other person to share the responsibility with him. Contact Quentin at que.kakashi@gmail.com if you are interested.

Education: Jim Paras taught the **Polymer Clay Class** on **April 22, 2018.** The class was well organized. Jim provided all the supplies needed to create unique, colorful pendants. Eight people made pendants in polymer clay. Jim gave each person supplies to make more pieces at home.

Karen Burns again will be offering her Byzantine chain maille bracelet-making class on **Sunday, May 6 at 1:00 pm**. This class is a 4-hour workshop. The price of the class is **$75,** which is all-inclusive. Materials and tools will be provided. You are welcome to bring your own tools. There are only six spots available in the class, and they must be paid for ahead of May 6.

Trade Show: The next Trade Show is scheduled for April 28 from 10:00 a.m. until 6:00 p.m. Thank you to all the volunteers who have agreed to work that day.

Scholarship Committee: Updated forms have been added to the Web site for easier application. Notifications to universities and colleges will go out soon.

New Business

Weinrich Minerals: Dan Weinrich will be doing a one-day show of higher-end mineral specimens on Saturday, April 28 from 10–3 at 5204 Jackson St., about a mile north of Hermann Park between Main St. and Hwy 288.

Neal Immega pointed out the new, large—HUGE—thunderegg halves on the table from the Port Neches donation. They are for sale.

The next Board meeting is Tuesday, May 1, 2018 at 7:30 p.m.

The next **General Meeting is May 22, 2018, 7:30 p.m**. Steve Blyskal will present geological information about the Royal Gorge in Colorado.

Show 'n Tell: Karen Burns showed her beautifully wire wrapped druzy-agate necklace made

from last month's door prize.

Steve Blyskal displayed quartz crystals from Nepal, calcite with sulfide minerals, and quartz from Peru, and a flat of mixed minerals from Ojuela, Mexico. He lit the minerals and Neal's large thundereggs with a recently-purchased mid-wave light. The brand name of the 365 UV LED light is "Way Too Cool." It may be found on the eBay Web site.

Jack Opatrany produced a large calcite from Chihuahua, Mexico that he got from Dalton Prince, former president of HGMS and owner of Collector's Choice. His second piece of calcite crystals is from China.

Nancy English showed off the necklace she made in the Polymer Clay class.

Beverly Mace proudly presented a 9 1/2 inch piece of petrified snakewood. She rediscovered it in her garage while rearranging, storing, and editing her collection of petrified wood.

Drawing: Maryann Mitscherling won the thunderegg from New Mexico.

Refreshments: Maggie Manley provided the refreshments. Members were reminded to **FEED THE KITTY!** No one volunteered to bring May refreshments.

Adjourn: Karen Burns moved to adjourn the business meeting, and Nancy English seconded it. The motion passed, and the business portion of the meeting adjourned at 8:10 p.m.

Sigrid Stewart introduced Nathalie Brandes, who presented "California: from Drought to Deluge." The presentation covered how weather patterns influence California, and why the state can go from record drought to record flooding very rapidly.

Board of Directors' Minutes

May 1, 2018
by Nancy English

X	President—Paul Brandes		Beading Rep—Kim Fuselier
	1st Vice President—Sigrid Stewart	X	Day Light Rep—Fred Brueckner
X	2nd Vice President—Beverly Mace	X	Faceting Rep—Jeanne Barna
X	Treasurer—Liane Linehan	X	Lapidary Rep—Phyllis George
X	Secretary—Nancy English	X	Mineral Rep—Mike Sommers
X	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.

Approval of Previous Month's Board Minutes:

An error was reported in the April 3, 2018 minutes under "Electric Bill." Instead of $4.85 per KWH and $5.12 cents per KWH, it should be 5.12 cent per KWH. Nancy also corrected the spelling of KWH to kWh. The entry now reads **Electric Bill:** Thanks to Liane Linehan's quick response to an email, a new Amigo Energy contract was signed for 37 months at the lower rate of

4.85 cents per kWh. It had been 5.12 cents per kWh.

Mike Sommers moved to approve the minutes of the April 3, 2018 Board Meeting as corrected.

Phyllis George seconded the motion, and it passed.

Treasurer's Report: Liane Linehan emailed financials to all Board members in advance of the meeting. Rodney Linehan is willing to do the 2017 tax return for the club, but he needs the finances for each of the Sections. Some have already been notified. Liane will notify the Section leaders.

Office, Committee, and Section Reports

Archaeology Section: No programs this summer. Look for future program announcements in the fall. Garth Clark has been going to the Houston Archeology Society meetings at a location other than HGMS. A merger between the HGMS Archeology Section and the HAS is being considered.

Beading Section: Saturday, May 19, 2018 1:30 p.m. Members will make an All Buttoned Up bracelet. A materials list can be found on the Web site: hgms.org.

Day Light Section: On Wednesday, May 2, 2018 at 1:00 p.m. Members will cover small clay pots. The Day Light Section Chair position is still open.

Education Committee: Liane questioned some PayPal charges. PayPal is charging sales tax on class fees. This is an error. Sigrid will be asked to change the protocols. PayPal charges a fee for its use. The Board discussed how the fees should be dispersed. It was decided that the fees should be passed on to instructors. So, disbursement to the instructors will be net of the PayPal fees and the daily club usage fee.

Quentin asked via email how the teachers get paid. He wants to guide them on how to request payment. The Board agreed that the Request for payment form should be completed. If Quentin will create a form to be placed on the Web site, the teacher could fill it out online and send it directly to the Treasurer.

Jim Paras' polymer clay class went well. Nine people attended. Everyone made a pendant or two. All attendees got supplies to take home to make more. Jim was very organized, and he is a patient, easy-to-understand instructor.

Gemstones and Faceting Section: Wednesday, May 9, 2018 and June 13, 2018, 6:30 to 8:30 p.m. The educational subject for the May and June meetings will be diamonds! Although we do not typically cut diamonds in our group, it is good to know the history and facts about diamonds. Garth Clark will call Randy Carlson to discuss Garth's donating some very small diamonds to the Section.

Lapidary and Silversmithing Section: Monday, May 21, 2018 Ron Talhelm: Making doublets—and why you might want to. **Date: June 18, 2018 Program:** Mary Ann Mitscherling: Cutting stones into hearts. Techniques for creating and polishing a good groove.

Library: Quentin Boyer, the new HGMS Head Librarian, will open the library on Saturdays in May when someone volunteers to help. He has been moving items onto shelves and off the floor. The call number spreadsheet is still a work in progress.

Mineral Section: No meeting on **May 2**. On Wednesday, May 16 at 7:30 PM, the Mineral Section will have its annual auction to help raise money for the Section. ALL HGMS members may

bring specimens to the auction and keep a portion of the proceeds. The proceeds of at least one of the specimens (your choice) must be donated to the Section. Five additional specimens are allowed to be auctioned by each person, with a portion of each specimen (10%) going to the Section and the rest going to the donor. This is a great way for ALL HGMS members to thin out their duplicate specimens and to benefit both themselves and the Mineral Section. Put a minimum bid on the more expensive pieces, if you desire. Since this event will draw from all Sections, expect a variety of items to be auctioned. This is a very interesting and entertaining event. Setup and viewing is from 7:00 to 7:30 p.m., with bidding beginning after a short business meeting. If you have any questions, contact Dean Lagerwall dean_lagerwall@yahoo.com or Steve Blyskal steve.blyskal@gmail.com

Paleo Section: Tuesday, May 15, 2018. 7:30 p.m. Program to be announced. Last month, Neal Immega taught people how to identify different types of petrified wood.

Shop Report: Neal Immega and Inda will be in Utah May 9–June 9. They will be sightseeing everywhere. **Neal** discovered that the Super Grinder needs work. Nathan did the most amazing fix to the Texaco saw.

The A/C works perfectly. After the Mineral Section meeting, the temperature was 60 degrees the next day. A service call confirmed that the system was fine. Neal waited until a warm enough day to run the A/C and it performed normally. **Conclusion: human error**. If people would only treat the clubhouse the same way they treat their own house, many of our problems would go away (i.e. locking up, A/C, lights, saws and grinders, bottled gas).

Youth Section: The next meetings will be **Saturdays May 5** and **May 19, 2018** from **10:00 a.m.** to **noon.**

BBG Editor and Web site committee member: The deadline to send in articles and other pertinent information for inclusion in the June 2018 BBG is **Tuesday, May 15, 2018.**

New BBG Assistant Editor: Phyllis George is very happy with Susan Burch's work on the May BBG. Kim Fusilier sent sketches of possible caricatures for use inthe Backbender's Gazette.

Old Business

Trade Show—April 28, 2018, 10:00 a.m. to 6:00 p.m.: Nancy English has a summary of feedback from the volunteers. Beverly reported five new single memberships and three new couple memberships. Renewals totaled five single, two couples, and one youth. Plus, Douglas Dodds purchased a lifetime membership for his sister who is a current member. Two of the new members had been members in the past. Beverly predicted at least a couple more memberships from the show attendees might show up within the next week or so. Beverly observed that attendance was lower than during the January show. Actually, 599 people were counted. That is lower than January's show and the other previous shows. Several attendees have been coming to our Humble show for years or had attended last year.

Neal Immega gave about 15 tours to people who wanted to see the facilities (or just wanted to amuse their kid). He convinced several teachers of jewelry classes to join by using the argument: "Join HGMS, and we will pay you to teach classes." The usual comment was "I did not know this resource existed." There is a continuing problem with trade show vendors not cleaning up, not putting the facilities back the way they found it, not taking out the trash, or not policing the parking lot. **Suggestion: every vendor pays a $10 cleaning fee to Bill Rodgers.**

Nancy English proposed that a new Trade Show Committee be formed to deal with the ongoing details of the Show. Four people have expressed an interest in being on the Committee. The Board agreed. Nancy will contact Chase and the others.

Building Safety: Some issues have been identified that will need to be addressed this year. President Brandes will share the information with Neal when he returns from vacation.

New Web Site: No report

Scholarship Program: Mike Sommers reported that he and Jean Hugh consider the scholarship form to be complete and fully functional. The forms will be sent out starting tomorrow. Last year Douglas Dodd donated $500.00 to the Scholarship fund. This year the club will provide a $500.00 scholarship to be given to the second-place applicant.

Security System: Garth Clark worked on the security computer's motherboard briefly. He was able to revive it. He will return tomorrow the see if it is still working. Nancy English moved, and Jeanne Barna seconded a motion to authorize Garth Clark to purchase a new motherboard. The motion passed.

Creating "How-To" videos: Sigrid Stewart was not present at the meeting. No report available.

Handheld Vacuum: Still waiting on the purchase.

Phone Services: Fred Brueckner will research how to forward club calls to an individual's phone.

Open House: Likely not this year.

Trip to Alpine, TX—April 27, 28, 29 Richard Good mailto:rlgood@outlook.com

Hill Country Field Trip Update: Thirty-four rock hounds trekked to Emerald Ridge, and 27 to Badu Hill. Many quartz and fluorite specimens were collected from Emerald Ridge; and fluorite, anatase, garnet, and REE (rare earth elements) minerals were collected from Badu Hill. Based on comments, there may be another trip in autumn to two different places.

Midlothian Field Trip: Mike Sommers coordinated a Midlothian Field Trip on May 5. Twenty-eight rock hounds signed up.

2018 MEMBERSHIP RENEWAL REMINDER: Anyone who has not paid his or her 2018 HGMS membership dues by the end of April will be DROPPED from the membership roster. No BBG, NO WEEKLY EBLASTS and NO SHOP PRIVILEGES!!!!!!

New Business

The SCFMS Annual Meeting is this weekend in Lubbock. President Brandes asked if anyone was going. None of the Board members is able to attend.

Newest Donation: Randy Henry from Port Neches called to offer 20 tons of rocks and minerals at fire sale prices and donations. Neal Immega, Clyde McMeans, and others took trucks to the location. Neal estimated there is more than 20 tons. Neal purchased some items and accepted donations of many more. As of the Trade Show, Neal has sold enough thunder eggs that HGMS is now in the black on this donation/purchase. He has hundreds of thunder eggs in his driveway. He could not store them at the club because of the Trade Show. When he returns from Utah in June, a members' sale with fixed prices will be scheduled. Prices will range from $5.00 to $100.00. Whatever is not sold goes to the silent auction at the show.

The Vacuum Cleaner for the floors has stopped working. Neal recommended a **Bissell 9595A CleanView Bagless Vacuum with OnePass.** The Board agreed.

Amethyst Sale in Murphy, Texas. Amethyst Rock Fossil Sale May 24, 25, 26 (9 a.m.–5 p.m.) at 1409 Oak Hill Ln., Murphy, TX 75094

Next Board of Directors meeting: Tuesday, June 5, 2018 at 7:30.

The next General Meeting is on Tuesday, May 22, 2018: Steve Blyskal will present: "Royal Gorge, Colorado," a travelogue and geological talk on the area.

Adjourn: Jeanne Barna moved, and Mike Dawkins seconded the motion to adjourn the meeting. The motion passed, and the meeting adjourned at 8:49 p.m.

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GEOLOGY IN THE NEWS

Reports spotted by Jim Brace-Thompson in recent newspapers via Rockhound Rambling 04/2018

Devil's Playground Underfoot in Ventura County

As reported March 9 by the Ventura County Star, an underground blaze has sizzled away for more than a decade in hills above Fillmore. Here and there, just outside Los Padres National Forest, wisps of smoke curl up from the ground. It's speculated that flames are kept burning by carbon-rich deposits and petroleum-based gas emissions that move through fissures down below. A supply of oxygen provided by landslides fuels the furnace, which topped 800°F during a study undertaken in 2008. Covering an area estimated to be 6 acres, the underground blaze seems to be growing, based on new infrared images taken during the Thomas Fire in December. Over the years, it has sparked at least a half dozen surface fires. Thus, every year firefighters bulldoze a zone around the area to prevent the spread of any flames that make their way to the surface from this little patch of the Devil's playground.

Earthquake Rocks Ventura!

Did you feel it? While most were enjoying lunch at 12:29 PM on Thursday, April 5, a magnitude 5.3 temblor jolted Ventura for 10 seconds. VGMS member David Mautz was at work and saw shelves and water sprinkler heads sway. I was in a car on my way to purchase strawberries for our club board meeting and missed the whole experience thanks to good shock absorbers! The epicenter was 18 miles south of Santa Cruz Island off our mainland. Earthquakes of this size occur about once a year in So-Cal, but many are centered in fairly unpopulated areas. Little-to-no damage was reported in Ventura (where one homeowner was re-tiling his roof and reported hearing "jangling"), but it sounds like the 300 visitors on the Channel Islands had a rocking good time with small landsides and bricks shaken loose from chimneys. After our season of wildfires and mudslides, authorities reported the quake to be "a wake-up call" for The Big One, so make sure your earthquake kit is stocked with fresh food, water, and batteries!

Good Parenting among Pterosaurs—Or Not

Per a letter-to-the-editor in the March 9 issue of Science magazine, herpetologist Louis Somma says we cannot preclude the possibility of brooding and other nesting behaviors among pterosaurs. He was responding to an earlier article reporting on a remarkable discovery of fossilized parchment-like eggs with remains of developing pterosaur embryos. That report compared the thin-shelled eggs to those of reptiles that simply bury and abandon their eggs. Somma disputes this and urges paleontologists to keep up the search for further evidence via complete fossil nesting sites.

It Snows Orange in Eastern Europe?

Never doubt the power of wind to sculpt the surface of Earth! Thanks to a dip in the jet stream that sent it down into northern Africa then back up into Europe, on the weekend of March 24, folks from Russia to Romania awoke to orange snow. The color was thanks to a dusting of Sahara Desert silt and sand picked up by the wind and transported across the Mediterranean Sea. The long trail could be seen by NASA satellites, like a muddy stream of water, bringing a bit of Africa as an early spring surprise for Europe.

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Lapidary Societies Attacked by Internet Thieves

by Mark Nelson, AFMS BEAC Chair
from T-Town Rockhound, 03/2017, via The Tumbler 05/2018

In the past two months, it has been reported to me that lapidary societies across the country are being targeted by thieves. The thieves study the society's website to identify the society president and treasurer and their email accounts. Then they craft an email which masks the sender's email, but lists the Sender (the society president) by name. The email is directed to the society treasurer, mentions the treasurer by name, and directs the treasurer to send money to an individual or business in a hurry.

Mark relates two examples of such scams, and then lists these financial safeguards:

Be sure that a treasurer knows who is making the request for payment. In most email providers such as AOL, if you click on the name of the person sending the email an email address will appear.

Immediately question any payment to a person or business who is unfamiliar to the treasurer.

Make sure that all requests for payments are accompanied by an invoice that can be verified.

Verify that the expense requested by the email is covered by the budget and is from a known vendor (expected) or has previous specific Board approval.

Have all checks signed by two of the top elected executives who should also ask these questions.

When in doubt, pick up the phone and talk to the person requesting the check.

Photo courtesy of Wikipedia

Othrozanclus:
The armored Cambrian slug

Compiled by Mike Baldwin
via The Rockpile 04/2018

In 3/10/2007, Paleontologists identified a 500-million-year-old slug-like creature species from 11 complete fossils found in the Burgess Shale fossil beds of British Columbia. Cambrian period (543 to 490 million years ago) fossils are prolific in this mountainous region, but complete fossils of this prickly-armor-coated marine invertebrate have not been found until now. For decades, paleontologists have been wondering to what creature the tiny little spines and shell-like parts belonged. This new animal, named *Orthrozanclus reburrus*, is about half the size of a potato bug, with a hard front shell, long spines covering its entire body, and shorter spines along the edges. Some of the spines are bent, but not broken. Lacking eyes and limbs, this creature most-likely lived at the bottom of the sea and scooted along the ocean floor searching for bacteria-sized food.

The Orthrozanclus shares features with two invertebrate groups called the halkieriids and the wiwaxiids. The halkieriids and wiwaxiids are members of a large group of animals called the lophotrochozoa, which includes mollusks, worms, and brachiopods. A span of about 30 million years during the Cambrian period is manifested in the fossil record with the sudden appearance of many groups of animals that gave rise to many present day animals. Before the Cambrian period, the fossil record shows no precursors of today's animal groups other than microbes.

Rather than being classified in the same group as the mollusks, worms, and brachiopods, scientists are now suggesting that the Orthrozanclus, the halkieriids, and the wiwaxiids should be in a unique group of their own.

Works Cited:

1. S Perkins. Ancient slowpoke. Science News This Week. Science News. March 3, 2007. Vol. 171., No. 9. Science Service. Washington DC. pg 134.

2. Jeanna Bryner. Ancient pricky bugs discovered. Live Science Animal Domain. http://www.livescience.com/animalworld/070301_hairy_bugs.html. 01 March 2007. Accessed 10 March 2007

Geo news from online

Excerpted by Sue Webb via The Conglomerate 04/2018

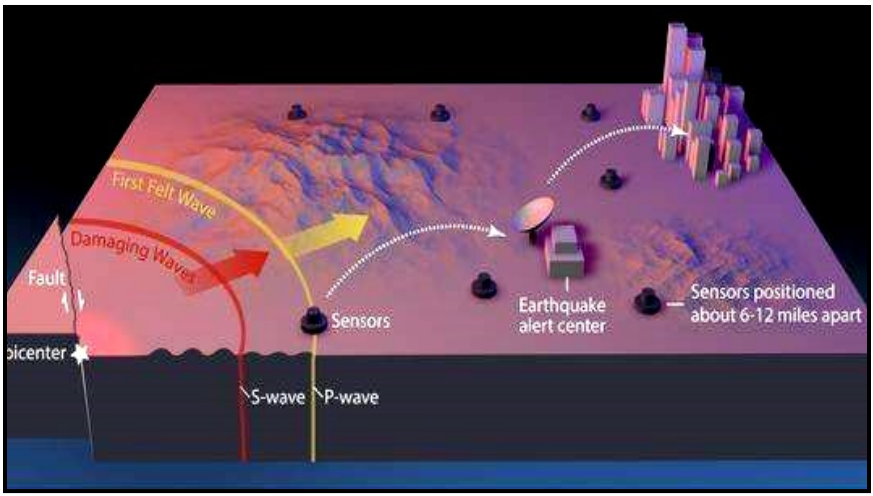
The Yellowstone super volcano has not erupted in more than half a million years, but that fact does not inspire a sense of safety. There are several reasons for our uneasiness—a recent earthquake swarm, the changing shape of the caldera, a geyser that has been quiescent for several years suddenly beginning to spew. Those are observable indicators, but there's some newly discovered hidden information that has some folks concerned.

There's a plume of magma between the mantle and the crust that spreads from Yellowstone south under the western states as far as the US-Mexico border. That indicates that "Yellowstone's thermal heat could be coming from much deeper in the Earth than previously believed." That could even explain where the heat of hot springs such as the one at Steamboat south of Reno comes from.

A mantle plume is also the engine that drove the formation of the Hawaiian islands, and is still creating new ones. "As ocean plates dive beneath the continents in a process called subduction, a set of obstacles can get in the way. As the plates move over the surface, plumes become fixed in the Earth, trapping volcanoes in pockets of the Earth's crust."

So does all this mean that the super volcano is about to explode because of the plume? Probably not. The plume's been there for eons and hasn't caused a problem. The last eruption, after all, was more than half a million years ago. But it's worth our time to pay attention.

Source: http://www.newsnow.co.uk/h/Science/Geology



Funding cut for earthquake warning system. For the second straight year, all $10 million spent last year on an earthquake early warning system was cut out of the next proposed federal budget. The system, ShakeAlert, would provide between 30 and 60 seconds notice before earthquakes, allowing millions of people to get out of harm's way "duck under desks, move away from sides of buildings that might shed bricks and stones, drive to the sides of highways, and get off bridges that might collapse."

Japan and Taiwan have already installed such systems, and they work. So far, 850 sensing stations have been set up, but additional stations would increase the accuracy of the system. It is these additional systems that must be dropped because funds are being cut off. Just imagine what having had such a warning system would have meant for the victims of the Loma Prieta or the Northridge quakes. "Warnings would come via radio, television, alarm sirens, and a smartphone app."

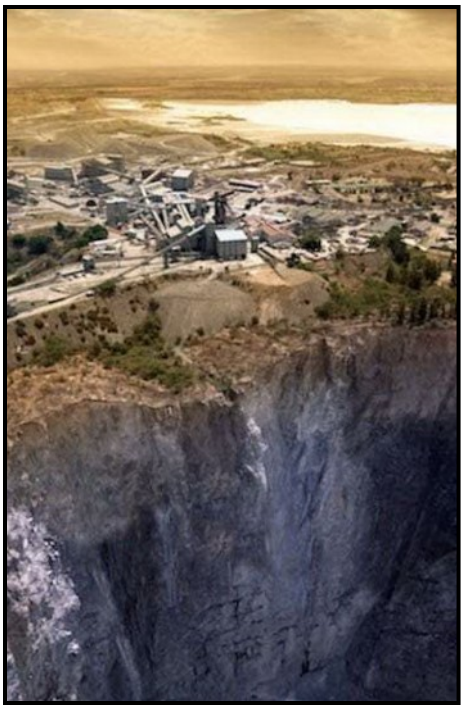
Fossil sea salt from Karelia in Russia indicates that "the rise in oxygen that occurred about 2.3 billion years ago, known as the Great Oxidation Event, was much more substantial than previously indicated because it contains a surprisingly large amount of a component of seawater known as sulfate, which was created when sulfur reacted with oxygen. 'This is the strongest ever evidence that the ancient seawater from which those minerals precipitated had...concentrations reaching at least 30 percent of present-day oceanic sulfate as our estimations indicate,' said Aivo Lepland, a researcher at the Geological Survey of Norway." Materials provided by Princeton University. https://www.sciencedaily.com/releases/2018/03/180322150306.htm

Newly Discovered "Super-Deep Diamond" Reveals a Rare Earth Mineral Inside

Article from Inverse, March 7,2018, by Sarah Sloat
Photos by Graham Pearson, Petra Diamonds
via The Cowtown Cutter, Fort Worth Gem and Mineral Club 03/2018

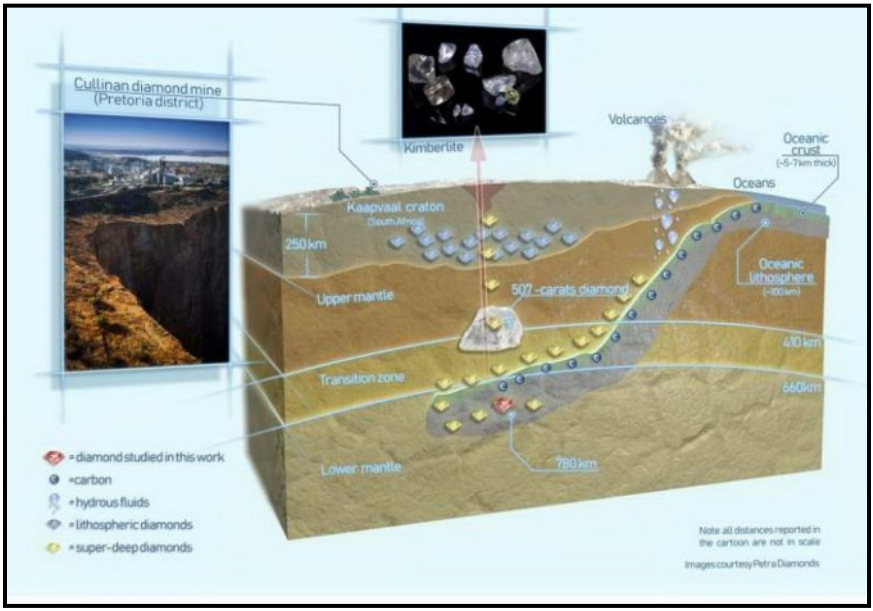
The Cullinan mine, located on a diamond-bearing kimberlite pipe in the Gauteng Province of South Africa, is the world's richest source of rare blue diamonds and has produced more than a quarter of the world's diamonds that are greater than 400 carats. The massive mine is also a scientific treasure trove. As scientists report in *Nature* on Wednesday, the Cullinan mine's massive diamonds are not just a luxury item but a clue to what is happening at the deep core of the Earth.

In the paper, a team of international researchers report the rare scientific discovery they found in the mine: a "super-deep" diamond encasing the mineral calcium silicate perovskite (CaSiO3), which is the fourth-most abundant mineral in the Earth but has never been found in nature until now. Super-deep diamonds, the researchers tell *Inverse*, are a classification reserved for those rare diamonds formed between 200 to 1,000 kilometers into the lower mantle, so they are super rare too. This was very special because this mineral had been theoretically predicted but it was not thought possible to see it preserved at the Earth's surface for observation and measurement," University of Alberta researcher and study co-author Graham Pearson, Ph.D. told *Inverse.* Pearson is well known as one of the world's leading diamond researchers. "Finding a natural object that has never been seen by anyone before is always exhilarating! It's what most natural scientists dream about."



Pearson and his team determined that the super-deep diamond originated around 760 kilometers below Earth's surface — much deeper than most diamonds, which on average form between 150 to 200 kilometers below ground. Natural diamonds are formed when carbon molecules form highly organized "lattices" at high temperatures and pressure. Because this particular diamond was formed so far below the surface, Pearson estimates, would have sustained more than 24 billion pascals of pressure. It was likely there that it was able to incorporate the precious $CaSiO_3$, which can only exist at the very high pressures close to the Earth's crust. The inclusion of the precious $CaSiO_3$ inside the diamond was confirmed by X-ray measurements made by the paper's primary author, University of Padova professor of geoscience Fabrizio Nestola, Ph.D.

It is very energetically difficult for minerals to rearrange their atoms to other structures, Pearson explains. Once a diamond becomes a diamond, it's not going to suddenly switch up its carbon lattice to Earth's surface. This was a good thing for Pearson and his co-authors, because CaSiO3 is only stable at the extremely high pressure that exists over 500 kilometers below the Earth's surface. There, it's extremely abundant



— the scientists estimate there could be 1,021 tons of perovskite in deep Earth — but in order for it to rise up to the surface, it needs a vehicle. Fortunately, it found one far closer to its home — the extremely hard, protective containers we know as diamonds. "Only the super-strong nature of the diamond, and the particular nature of the fast eruption of the host kimberlite, in this case, provided a favorable set of circumstances that led to the preservation of this mineral," says Pearson. "Many people predicted that we would never actually see a natural version of this mineral at the Earth's surface, because it is so unstable."

While the diamonds of the Cullinan mine are considered the world's most commercially valuable, they're also the most scientifically valuable. Diamonds, in general, are valued among geoscientists because they "provide access to the deepest intact material from the Earth's interior through the minerals contained within their volumes," the authors write. In turn, the super-deep diamonds of Cullinan are so precious because they are some of the deepest physical samples of Earth's interior ever found. Here the perovskite structure within the diamond "very clearly" provides proof that as oceanic plates are pulled into Earth's lower mantle, that crust transitions into a new mineral.

Next up for this diamond is further analysis by scientists at the University of British Columbia who will attempt to learn more about its age and origin. Understanding how the formation of super-deep diamonds differs from diamonds created at more shallow depths will help scientists paint a better picture of the dynamics and chemistry of the molten mess of minerals found deeply embedded in the planet's mantle.

The Four Ways Diamonds Are Formed

from Rock Trails 02/2018, via The Rockpile 03/2018

How old do you think the average diamond is? One thousand years? One million, maybe? Try one to three billion years old. Diamond formation is not a fast or simple process. In addition to time, it also takes incredible heat, massive pressure, and carbon to produce diamonds. The rare conditions necessary to produce diamonds are part of what makes them so precious.

The Earth's Mantle: The earth's mantle is one of the few places on earth where the temperatures are high enough and the pressure is great enough to form diamonds. But only a small portion of the earth's mantle is suit- able for diamond formation. The carbon rocks and high temperatures needed for diamond creation can be found 90 miles deep into the earth's crust. But the pressure needed to create diamonds isn't as predictable as the temperature. Scientists theorize that the pressure needed to create diamonds is present beneath the center of continental plates, where the pressure is steady. Diamonds are created and stored in these "diamond stability zones" until they're brought to the earth's surface in a deep-source eruption. This incredibly rare type of eruption rips out a piece of the mantle, and carries it to the surface at an extraordinarily rapid rate.

Subduction Zones: Another way diamonds are formed is in what's called a subduction zone, which occurs when two tectonic plates collide, and one is forced down into the earth's mantle. When carbon rocks from the surface are subjected to the increasing heat of the mantle combined with the pressure from the colliding plates, tiny diamonds are formed in these rocks. This process can occur at slightly lower temperatures and shallower depths than those necessary for diamond

formation in the "diamond stability zones." When the subducted rocks return to the crust, these small diamonds can be found within them. Subduction-zone diamonds' small size and lack of clarity make them unsuitable for industrial or commercial use.

Impact Sites: An asteroid colliding with carbon rocks creates the pressure and heat needed to produce diamonds. The theory that an asteroid impact could create diamonds has been supported by the presence of very small diamonds found at asteroid crash sites. Like subduction-zone diamonds, impact-site diamonds aren't suitable for use, because they're small and of low quality.

Space Diamonds: Scientists from both NASA and the Smithsonian have found diamonds in meteorites. With carbon in the meteorites, and the heat and pressure necessary for diamond formation present in the meteorites' creation, it's logical that diamonds could be found in meteorites. Unfortunately, much like subductionzone diamonds and impact-site diamonds, meteorite diamonds aren't fit for industrial or commercial use. http://katu.com/ sponsored/sell-gold/the-four-ways diamonds-are-formed

Red and Green Rock-with diamonds: Russian miners at the Alrosa's Udachnaya diamond mine pulled out a strange red and green stone out of the ground; they knew by instinct that they have something extraordinary. The red and green stone looked different from the thousands of tons of earth and ore they process each day. The workers had just unearthed a 30 mm rock- which contained 30,000 diamonds, 1 thousand times higher than normal. However, the diamonds are so small that they cannot be used as gems. Larry Taylor, a geologist at the University of Tennessee, according to Live Science said, "The exciting thing for me is there are 30,000 itty-bitty, perfect octahedrons, and not one big diamond. It's like they formed instantaneously. Taylor in close association with scientists at the Russian Academy of Sciences has been studying the Udachnaya diamonds. The scientists used industrial x-ray tomography scanner much akin to the medical CAT scanner to study the structure of the Diamond. The scientists also used electron beams to identify the chemicals trapped in the spaces between the lattices. The findings revealed that the diamonds were created by liquids from the subducted oceanic crust, made of a thick rock called peridotite. www .apextribune.com/strange-rock-embedded -with3 OOOO-diamonds-puzzle-scientists/22496 Via The Quarry 2/18 via *Rocky Trails* December 201 7 via *The Franklin County Rockhounder* - January 2018 via *THE ROCKCOLLECTOR*- January, 2018

Quick, what's the hardest material in the world? Did you say "diamond?" We bet you did, because we just planted that word in your mind. In fact, though, the joke's on all of us. In 2009, scientists realized that two rare substances are even harder than diamonds. According to the Scientific American, "Wurtzite boron nitride and lonsdaleite are harder than diamonds. The first resists indentation with 18% more fortitude than a diamond, and the second-a whopping 58%." Still, no one's claiming that wurtzite boron nitride is a girl's best friend. And that's not the only ' problem with the competition between these rare materials and diamonds. A 2004 public letter from a group of crystallographers, published in the journal Nature, points out that the claims about these materials are based on simulated models-scientists just haven't collected enough of the super-rare wurtzite boron nitride or lonsdaleite to perform physical experiments. In fact, the authors of the letter claim, "experimental measurements of their bulk properties, such as hardness, strength, toughness and abrasion resistance, is less than clear." Meanwhile, in 2015, a team of researchers at North Carolina State university aimed a laser into a lump of carbon and produced a substance they're calling "Q-carbon," which, while human-made, is also harder than a diamond. Say what you want about wedding rings: Diamonds just can't win.

Thoughts on Fossils (leading up the next article)

from Mineral Minutes 04/2018

There are five types of fossil categories which I will discuss in a second. Since I deal with data in much of what I do at work, I was thinking about the two as I walked to work this morning. I had just read an article that morning on dinosaur tracks being found in Scotland and that lead me to my line of thinking.

First let's think about data. When dealing with relational data, the relationships that you encounter are: One to One, One to Many, Many to One, Many to Many. Why was I thinking about this in relation to fossils? You'll see.

The five categories of fossils are: (1) Mold and Cast Fossils, (2) Petrification Fossils, (3) Whole Body Fossils, (4) Footprints and Trackways, and (5) Coprolites.

Molds and casts are when a plant or animal is buried under layers of sediment and decays leaving the impression of its body left in the rock forming around it. It is known as a mold fossil. Sometimes the space left behind is filled with other sediment, forming a cast fossil. Most dinosaur bones fall into the mold and cast category.

Petrification occurs when groundwater permeates the remains of an organism and replaces it with minerals. In replacement fossils, the body dissolves and minerals are left in its place. In permineralization, water enters the cells of the organism and deposits minerals in the spaces inside them. Petrified wood is a permineralized fossil.

Whole Body Fossils. Whole body fossils occur when an entire organism, including soft tissues, is preserved. Examples include insects entombed in tree sap, which hardens to become amber, and mammoths encased in ice.

Footprints and Trackways are made by prehistoric animals walking through the soft sediments that sometimes harden and become fossils. Several footprints occurring together and made by the same animal are referred to as a trackway. Trackways may also include impressions made by other parts of the animal, such as the tail or snout.

And last but not least we have coprolites which are fossilized feces. Their location offers clues about where animals lived. Close examination of coprolites can also yield information about what the animals that produced them ate.

Now, why data? One to one relationships are going to be the least common type of fossil. Petrification and whole body fossils are one to one relationships. One to Many relationships are represented by footprints and trackways. One individual or group of individuals can make hundreds or thousands of impressions. Coprolites...obviously one to many!! Some Molds and cast can also be one to many. Consider trilobites...and since we live near the Chesapeake, we are generally familiar with crabs. Trilobites molted their shells as crabs do today. Most of the trilobites we see at shows today are fossilized shells, not the whole creature. Thus one creature can produce many fossils in its lifetime.

Just my thoughts while wandering to work. Now, here's the article...

Dinosaur Footprints Discovered on Scottish Island

from Yahoo News, via Mineral Minutes 04/2018

Dinosaur footprints dating back 170 million years have been discovered on a Scottish island and will help shed light on the reptiles' evolution, the University of Edinburgh said on Tuesday.

The footprints are in a muddy, shallow lagoon on the Isle of Skye.

The largest print, left by a sauropod, measures 70 centimeters (28 inches) across. Long-necked sauropods were up to two meters tall.

"The find is globally important as it is rare evidence of the Middle Jurassic period, from which few fossil sites have been found around the world," the university said in a statement.

Researchers are documenting about 50 footprints in the area, including those of theropods -- an ancestor of Tyrannosaurus rex—which measure around 50 centimeters across.

They used drone photographs to make a map of the site.

Paige dePolo, who led the study, said the find "demonstrates the presence of sauropods in this part of the world through a longer timescale than previously known".

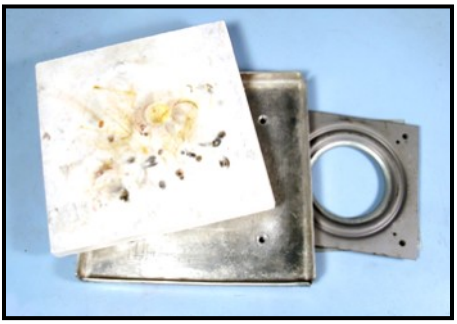
The research was carried out in conjunction with the Chinese Academy of Sciences and the findings have been published in the Scottish Journal of Geology.

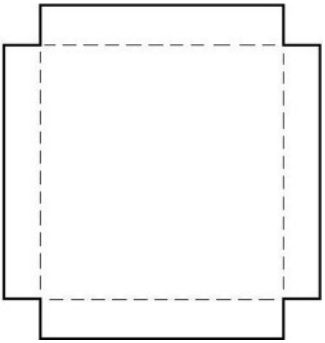
A sauropod footprint discovered on the Scottish Isle of Skye, among a cluster of prints that date back 170 million years (AFP Photo/Handout)

Bench Tips

by Brad Smith

For more tips or to learn new jewelry skills see
http://www/Amazon.com/author/bradfordsmith
www.BradSmithJewelry.com





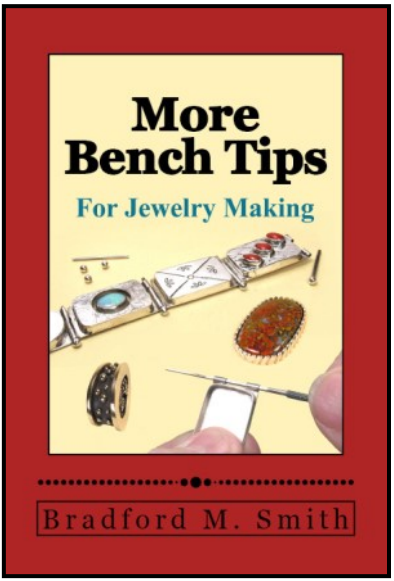
REVOLVING SOLDER PAD

Often when we're soldering, we have multiple pieces on the pad or a single piece and would like to work on several sides of it during the same heat.

One of the ways to deal with this is to put your solder pad onto a turntable. That way you can rotate each piece into position when you need to or can rotate the pad to reach another side of a larger piece.

All you need to make one of these is a piece of aluminum sheet and an inexpensive turn table assembly. A good hardware store will have both, although you can usually find the aluminum in the scrap pile of a local sheet metal shop.

To build a turntable for my 6-inch solder pad, I used a seven-inch square piece of aluminum sheet and cut out 1/2 inch notches from each corner. Then I used a bench vice to bend the sides along the dotted lines to form a tray that cradles the solder pad. I attached the tray to the turntable assembly with a couple small flat-head machine screws and nuts.



NEW BENCH TIPS BOOK

For those who enjoy these bench tips, I'm happy to announce a second volume is now available on Amazon. "More Bench Tips" includes 86 additional ways to save time, avoid frustration or improve quality at the bench. These new tips cover problems in fabrication, stone setting, casting, and soldering and polishing. Browse through a couple of the new ones at https://amazon.com/dp/B07D4B45JJ/

QUENCHING

Do you hear that little hiss when some jewelers drop a hot piece from soldering directly into the pickle? That hiss sends small droplets of acid into the air that can rust nearby tools and can't be all that good to breathe. To avoid this, I keep a coffee cup of water at the solder station to cool a soldered piece before dumping it into the pickle. It is also useful for annealing metals and for cooling off tweezers.

Pick Up a Few New Jewelry Skills With Brad's "How To Do It" Books

http://amazon.com/author/bradfordsmith

The Geology of Lavacicle Caves

Photo: Stalactites in Arnarker lava tube icelandic cave via The Rockpile 06/2018

Lavacicle Caves The generic term **"lavacicle"** has been applied to lava stalactites and stalagmites indiscriminately, and evolved from the word "icicle."

Lavacicle is formed in lava tubes while lava is still active inside. The mechanism of formation is similar to that of limestone stalagmites. Essentially, it is still the deposition of material on the floors of caves; however with lava stalagmites, formation happens **very quickly** in only a matter of hours, days, or weeks, whereas limestone stalagmites may take up to thousands of vears.

Lava stalactites in a Mount St. Helens Cave, Washington state. credit: Jim Nieland

A key difference with **lava stalagmites** is that once the lava has ceased flowing, so too will the stalagmites cease to grow. This means if the stalagmite were to be broken, it would never grow back.

Stalagmites in lava tubes are rarer than their stalactite counterparts because during formation, the dripping material falls onto still-moving lava floors that absorb or carry the material away. From the internet: Geologyin.com

Show Time—2018

Jun 30-Jul 1	Grapevine, TX	Arlington Gem & Mineral Club Fossil Show Grapevine Convention Center (10 min. from DFW Airport) 1209 S. Main St., Grapevine, TX 76051 show@agmeclub.org, www.agemclub.org
Jul 20-22	Rapid City, SD	Rocky Mountain Federation hosted by Western Dakota GMS Rushmore Plaza Civic Center, Barnett Arena Westdakota.rocks@gmail.com; http://www.wdgms.org
Aug 11-12	Gonzales, LA	Baton Rouge Gem & Mineral Society Lamar Dixon Expo Center-Trademart Building 9039 S St Landry Ave; mercymom3@gmail.com; www.brgemandmineral.org
Aug 18-19	Bossier City, LA	Arklatex Gem & mineral Society Bossier City Civic center; 620 Benton Rd, 2009 Chelsy Dr larockclub@gmail.com; larockclub.com
Oct. 6-7	Springfield, IL	Midwest Federation hosted by Lincoln Orbit Earth Science Soc. Orr Building, Illinois State Fairgrounds, 801 Sangamon Ave. http://www.loess.org/
Oct 12–13	Mount Ida, AR	Mount Ida Area Chamber of Commerce 31st Annual Amateur World Championship Quartz Crystal Digging Contest against other miners—maybe win cash & a trophy director@mountidachamber.com; mountidachamber.com
Oct. 19-21	Austin, TX	Austin Gem & Mineral Society; Palmer Events Center, 900 Barton Springs Rd showchariman@austingemandmineral.org; www.agms-tx.org
Oct. 20-21	Sedona, AZ	Sedona Gem & Mineral Club Sedona Gem and Mineral Club Sedona Red Rock High School; 995 Upper Red Rock Loop Rd webstuff1954@hotmail.com; www.sedonagemandmineral.org
Oct. 26-28,	Glen Rose, TX	Dallas Paleontological Society; Somervell County Expo Center 202 Bo Biggs Blvd., Apt. 10208 markrandall00@sbcglobal.net; dallaspaleo.org
Nov. 9-11	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 hgms.org; showchair@hgms.org
Nov. 17-18	Mesquite, TX	Dallas Gem & Mineral Society Rodeo Center Exhibition Hall, 1800 Rodeo Dr. dgmscontracts@yahoo.com;: www.dallasgemandmineral.org

2018			June			2018
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
					1	2 10–4 Shop Open 10–Noon Youth Section
3 10–4 Shop Open	4	5 11-3	6 10–3 Shop Open 1:00–3:00 Day Light Section 7:30 Mineral Section	7 NO Archaeology Section Meetings until fall	8	9 10–4 Shop Open
10 10–4 Shop Open	11	12 11-3 Shop Open	13 10–3 Shop Open 6:30 Gemstone & Faceting Section	14 Flag Day	15	16 10–4 Shop Open 10–Noon Youth Section 1:30 Beading Section
17 10–4 Shop Open Father's Day	18 7:30 Lapidary Section	19 11–3 Shop Open 7:30 Paleo Section	20 10–3 Shop Open NO Mineral Section	21 First Day of Summer	22	23 10-4 Shop Open
24 10–4 Shop Open	25	26 11–3 Shop Open 7:30 General Meeting	27 10–3 Shop Open	28	29	30

2018			July			2018
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
1 10–4 Shop Open	2	3 11-3	4 NO Shop Day Light MOVED NO Mineral Independence Day	5 NO Archaeology Section Meetings until fall	6	7 10–4 Shop Open 10–Noon Youth Section
8 10–4 Shop Open	9	10 11-3 Shop Open	11 10–3 Shop Open Day Light 1-3 p.m. 6:30 Gemstone & Faceting Section	12	13	14 10–4 Shop Open 1:30 Beading Section
15 10–4 Shop Open	16 7:30 Lapidary Section	17 11–3 Shop Open 7:30 Paleo Section	18 10–3 Shop Open NO Mineral Section until September	19	20	21 10-4 Shop Open 10–Noon Youth Section
22 10–4 Shop Open	23	24 11–3 Shop Open 7:30 General Meeting	25 10–3 Shop Open	26	27	28 10–4 Shop Open
29 10–4 Shop Open	30	31 11–3 Shop Open				

The BACKBENDER'S GAZETTE

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2017—3rd (Large)

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