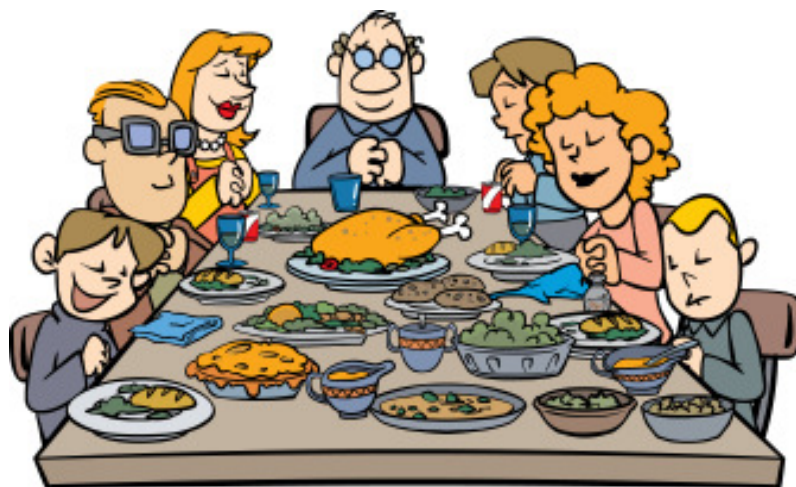


ROCK TRAILS



Newsletter of the StateLine Gem and Mineral Society

VOLUME 59
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2019 Officers and Directors

President: Sherman Kardatzke, 517 673-5487
Vice President: Glenda Gafner, 517 403-6310
Secretary: Richard Brzezicki, 269 267-7666
Treasurer: Doris Brzezicki, 269 267-1123
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Sunshine & Membership: Jan Hauter, Judy Snyder, Shirley Mcgovern, and Nance Clarke
Library: Curt and Linda Miller.
Education & Lapidary:
Sherman Kardatzke, 517 673-5487
Richard Brzezicki, 269 267-7666
Newsletter Editor: Sandy Gerhart, 734 347-4796
s_gerhart@yahoo.com
Website: <http://statelinegms.com/index.html>



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Meetings are held the first Sunday of each month
at 2:00 PM
at 201 W. Main St., Morenci, MI 49256

Secretary's Scoop



Thanks to Sherm for providing some notes from the October 6, 2019 meeting of the State Line Gem and Mineral Society. Since I was vacationing in Ireland on that date, I was not able to take the notes myself and this will be a relatively short report. Also thank you to the young lady (Sherm didn't remember her name) who took the notes and wrote them legibly so that I could create a report.

The meeting was called to order by Sherm. There was some discussion about last month's report being accepted as printed in the newsletter. Sherm read the treasurer's report and Linda Miller made a motion to accept, seconded by Judy. The motion passed with all in favor.

The Apple-umpkin festival was discussed. Set up is at 4:00 PM Friday October 11th in Tecumseh. Helpers were found. Workers were found for Saturday and Sunday. This will cover open/close and teardown.

Sherm announced the election of officers would take place at the November meeting. There was discussion. Bill Schultz and Eddie will be the nominating committee. We are still awaiting Glenda's position.

Our November 3rd meeting will include a silent auction. (*Bring money and/or something to put in the auction*).

Bill Schultz suggested getting ultra violet lights for field use in searching for Uperlites. This suggestion generated some excitement.

Linda Miller made a motion to adjourn the meeting, seconded by Henry. The motion passed with all in favor.

Respectfully submitted by Richard Brzezicki



How to Grow Bismuth Crystals

Growing bismuth crystals is an easy, fun science experiment

by Anne Marie Helmenstine, Ph.D

Bismuth is one of the easiest and prettiest metal crystals that you can grow yourself. The crystals have a complex and fascinating geometric hopper form and are rainbow-colored from the oxide layer that quickly forms on them. Follow these step-by-step instructions to grow your own bismuth crystals.

Bismuth Crystal Materials

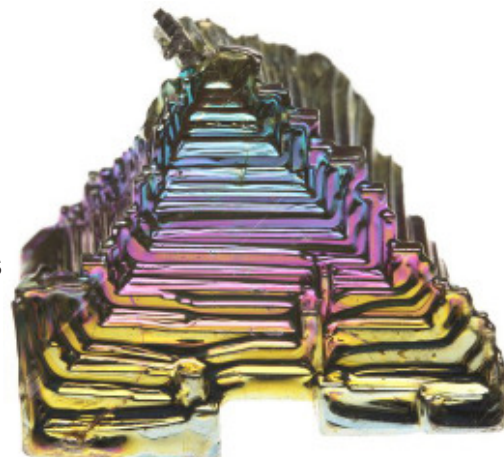
Bismuth

2 Stainless steel measuring cups or aluminum cans that you have cut in half to make shallow bowls

Stove, hot plate, or propane torch

You have a few options for obtaining bismuth. You can use non-lead fishing sinkers (for example, Eagle Claw makes non-lead sinkers using bismuth), you can use non-lead ammunition (the shot will say it is made from bismuth on the label), or you can buy bismuth metal. Bismuth is readily available from online retailers, such as Amazon.

Although bismuth is much less toxic than other heavy metals, it's not exactly something you want to eat. If you use steel measuring cups, it would be best if you only used them for the bismuth project and not for food. If you don't have aluminum cans or are concerned about the plastic coating often found on cans, you can fashion a bowl from aluminum foil.



The quality of crystals you obtain depends in part on the purity of the metal, so make sure you are using bismuth and not an alloy. One way to be certain of the purity is to remelt a crystal of bismuth. It can be used over and over again. Otherwise, you'd do well to read product reviews from a supplier to learn whether or not the product is pure enough for crystallization.

Growing Bismuth Crystal

Materials: Bismuth element (metal) and a heat-safe metal container

Concepts Illustrated: Crystallization from a melt; Metal hopper crystal structure

Time Required: Less than an hour

Level: Beginner

Grow Bismuth Crystals

Bismuth has a low melting point (271°C or 520°F), so it is easy to melt over high cooking heating. You are going to grow the crystals by melting the bismuth in a metal "dish" (which will have a higher melting point than the bismuth), separate the pure bismuth from its impurities, allow the bismuth to

continued on pg 4

How to Grow Bismuth Crystals

Continued from page 3

crystallize, and pour away the remaining liquid bismuth from the crystals before it freezes around the crystals. None of this is difficult, but it takes some practice to get the cooling time just right. Don't worry—if your bismuth freezes you can remelt it and try again. Here are the steps in detail:

Place the bismuth in one of your metal dishes and heat it over high heat until it melts. It's a good idea to wear gloves since you are producing a molten metal, which is not going to do you any favors if it splashes onto your skin. You'll see a skin on the surface of the bismuth, which is normal.

Preheat the other metal container. Carefully pour the melted bismuth into the heated clean container. You want to pour the clean bismuth out from under the gray skin, which contains impurities which would negatively affect your crystals.

Set the clean bismuth in its new container on a heat-insulated surface (e.g., set the container back on the burner, but turn the power off). The cooling rate of the bismuth affects the size and structure of the resulting crystals, so you can play with this factor. Generally, slower cooling produces larger crystals. You do not want to cool the bismuth until it is solid!

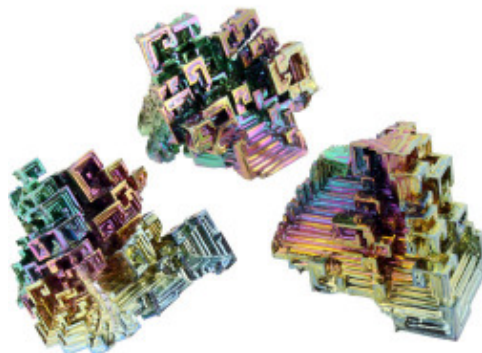
When the bismuth has started to solidify, you want to pour the remaining liquid bismuth away from the solid crystals. This happens after about 30 seconds of cooling. You can tell it is about the right time to pour the liquid away from your crystals when the bismuth is set, but has just a little jiggle to it when jarred. Sounds scientific, right?

Once the crystals have cooled, you can snap them out of the metal container. If you are not satisfied with the appearance of your crystals, remelt and cool the metal until it is just right.

If you have trouble getting the bismuth crystal out of the container, you might try remelting the metal and pouring it into a flexible silicone rubber container. Be aware silicone is only good up to 300 °C, which is just barely above the melting point of bismuth. You need to melt the metal in one container and be sure it has cooled enough to start solidifying before transferring it to the silicone.

Why Bismuth Is Rainbow-Colored

In pure form, bismuth is a silver-pink metal. When it is exposed to oxygen (as in air), the resulting oxide layer ranges in colors from yellow to blue. Tiny variations in the thickness of the oxide layer cause wavelengths of reflected light to interfere with one another, producing the whole rainbow.



Bench Tips

by Brad Smith

WINDING JUMP RINGS



If you need a few jump rings the same size, it's easy to grab a round rod and wind as many as you need. But when you need a lot of them, some form of winder saves a lot of time. A variable speed screw gun makes quick work of winding the coils. Screw guns are quite inexpensive at discount stores and are remarkably handy for odd jobs in the shop and around the house.

To wind a coil, just bend a right angle on the end of the wire about a half inch long and insert this into the screw gun chuck. Then wind slowly, keeping a tight coil. I like to rest the end of the mandrel on the edge of the table or bench pin. Finally, one note of caution. If you are winding an entire length of wire, be careful as you get near the end of the wire. If the end passes under your thumb, it can cause a nasty scratch or cut.

And for a nice set of mandrels, look for a set of Transfer Punches. The set has 28 sizes, from 3/32 inch to 1/2 inch, and is only about \$12. In the US it is available from Harbor Freight as item number #3577, and in Europe, it's available from MZS in the Netherlands as item number 250575.

TOUCHING UP A BEZEL

Pumice wheels are good for touching up a bezel after you've set the stone. The hardness is about 6 on the Moh's scale, less hard than quartz, so it shouldn't scratch any of your agates or jaspers. However, I'd avoid or be real careful of using pumice near the softer stones like turquoise, amber, howelite, etc.

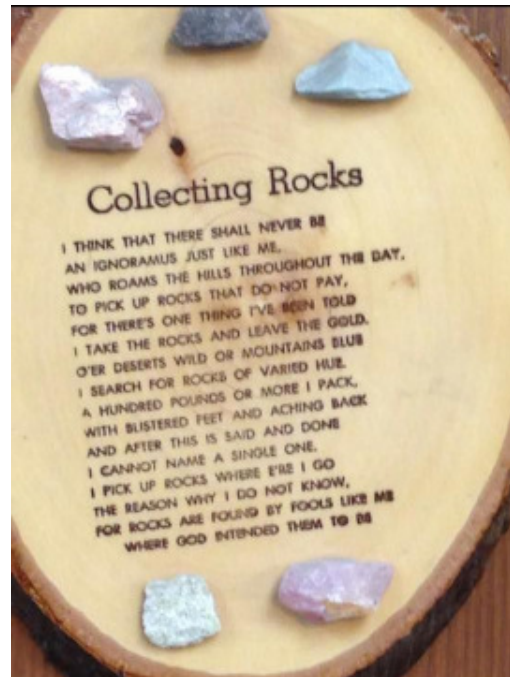
If you're unsure about the hardness of your wheels, test them on a piece of glass. Glass is about 5 1/2 on the Mohs scale, softer than quartz. So if the wheel doesn't harm glass, it's safe for use on the quartzes and harder stones.

My preference is the one inch diameter ones such as those shown at riogrande.com/Product/AdvantEdge-Pumice-Wheels-Medium/332722?pos=2



Work Smarter & Be More Productive With Brad's "How To" Jewelry Books
[Amazon.com/author/bradfordsmith](https://www.amazon.com/author/bradfordsmith)

Funnies



Upcoming Events

Sunday, Nov. 3, 2019

State Line Gem & Mineral Society
monthly meeting
201 W. Main St.,
Morenci, MI 49256



Nov. 3

State Line Gem & Mineral Society
Election of Officers

Nov. 3

State Line Gem & Mineral Society
Silent Auction

Bring your money and an item for the auction!

Nov. 2-3:

MIDLAND, MI

Mid Michigan Rock Club Annual Show.
10 am - 5 pm.
Chippewa Nature Center
400 S. Badour Rd.,
Midland.

Nov.11:

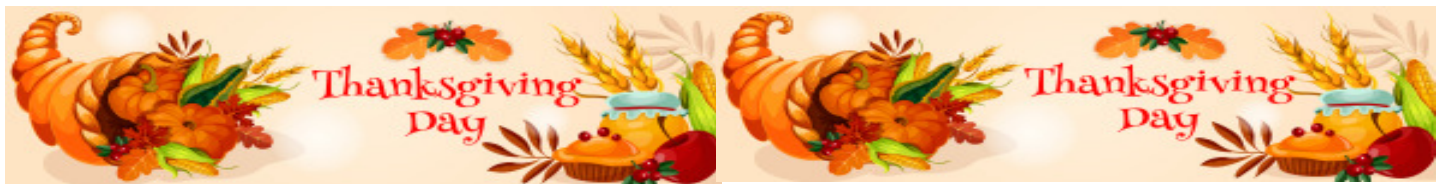
BLOOMFIELD HILLS, MI

Michigan Mineralogical Society Annual Auction.
Cranbrook Institute of Science,
39221 Woodward Ave,
Bloomfield Hills

Ongoing -

Richard Brzezicki is at the clubhouse on
Thursdays 1:00 pm - 6:00 pm. It is best to check
with him first before you go. Cell (269) 267-7666

Wire Wrapping Sessions at Hobby Lobby in
Adrian on Fridays 11:00 am - 3:00 pm.
Linda Miller (419) 923-2090 and
Judy Snyder (517) 902-3990
(check to verify there will be someone there)



Rock Trails

Sandy Gerhart, Editor
704 W. US Hwy 223, #205
Adrian, MI 49221

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first Sunday of each month
at 2:00 PM
at 201 W. Main St.,
Morenci, MI 49256

