

# ROCK TRAILS



*Photo of quartz crystal courtesy of Rockseeker.com*

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**Second Year Director:** Sherman Kardatzke

**Third Year Director:** Jan Hauter

**Show Chairman:** Sherman Kardatzke, 517 673-5487

**Co-Show Chair:**

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## President's Letter

### Filling Shoes

Greetings to Stateline Members and Rock Hounds everywhere. I encourage you to attend our next meeting at the clubhouse on May 7, 2023. In less than thirty days it will be show time. We will need all the help and fresh ideas possible to continue to make our shows successful. Do come to the next meeting and be sure to attend our show June 2, 3, and 4.

Since our last show we've had two key members pass away. Christine Taylor on December 30, 2022 and Richard Snyder on April 15. Christine was a wire wrap artist and jewelry designer who set up her wares at our shows and festivals with her husband Bud as "Chris Rocks." We lost Richard Snyder, longtime member of at least 10 years. He and his wife, Judy, were always eager to help at shows and festivals. Richard especially liked cracking geodes. Both Christine and Richard will be sorely missed and never forgotten.

Our show is a good time to invite people into our ranks to become members and enjoy the wonderful world of rocks, minerals, and jewelry making. Someone has got to fill the shoes of those who have gone before us. Let us always be the best rock club around.

Best regards,  
Eddie

## **Secretary's Report for April 2nd, 2023**

The April 2nd meeting of the State Line Gem and Mineral Society came to order at 2:15 with seven members present. Ed Jarzembski led in the invocation and pledge of allegiance. A special welcome was given to long time members, Bill and Phyllis Sipes. Longtime member Richard Snyder had gone home from the hospital into the care of his family and friends and assisted by hospice care. Our thoughts and prayers are with them. Sherm Kardatzke mentioned that his wife Linda's orthopedic surgery went well and she is recovering.

There was no secretary report because there was no official meeting in March. The treasurer's report was given by Charlene Hacker and approved.

Show chairman, Sherm Kardatzke, gave us an update on our show dealers. All tables are filled. Some members agreed to fill some positions at the show. We may have to look for a different caterer and some members agreed to make some calls should the Essen House not be able to help us out this year.

In response to the President's letter in the March Rock Trails, all agreed about making the meetings more meaningful to the club membership. Some suggestions include:

Saturday meetings principally held as workshops or work bees.

No Sunday meetings at all

No June meeting after the show.

More ideas are invited.

Adjournment was at 3:30. Bill Schultz won the door prize, an Icelandic Spar.

Congratulations Bill.

Respectfully submitted,  
Edmund Jarzembski  
Secretary Pro-Tem

## **Editor's Note**

There were a few errors in the 2023 Membership list, so I included a corrected list in this newsletter.

## Richard W. Snyder



Richard W. Snyder, age 88 of Adrian, passed away peacefully in his home on Saturday, April 15, 2023. He was born in Grand Rapids, OH on September 2, 1934 to the late Duward and Dorothy (Schall) Snyder. He attained a Bachelor's degree from Eastern Michigan University. On June 1, 1963, he married Judith Ireland in Tontogany, OH, and she survives. Richard worked for the State of Michigan as a social case worker, retiring in 1995.

Richard was a member of the State Line Gem and Mineral Society, the State Employees Retirement Association, and a past member of the Lions Club as well as the Optimist Club. In his free time, he enjoyed gardening and watching auto racing with his son.

Surviving Richard, along with his wife of almost 60 years, are his children, Karl Snyder, Karla (Mike) Snyder-Barker, Heidi Shaft, and Kirstin Wright; sister Phyllis Heffelfinger; Three grandchildren, Jordan, Stevie (Julian), and Stephanie; and one great-grandchild, Aiden. Richard is preceded in death by his parents, and brother-in-law, Bud Heffelfinger.

Per family wishes, cremation will take place, and there will be no services.

You may send condolences to the family at [www.andersonfuneralservices.com](http://www.andersonfuneralservices.com)  
Memorial contributions may be made to Hospice of Lenawee. Arrangements are under the direction of Anderson-Marry Funeral Home, Adrian, MI.

# How To Clean, Cut, and Polish Quartz Crystals

by [Jeremy Hall](#). Excerpt from Rockseeker Magazine



Quartz crystals are among the most common, and coolest, finds out there. But they're not always the prettiest thing in the world when you first pull them out of the ground. Whether it's due to dirt, iron-staining, or anything else they often need some cleaning to be ready for display.

## How to Clean

Let's dig into the heart of the matter and I'll teach you how to clean quartz crystals, step-by-step. You'll need a few things to do this, but none are exceptionally expensive.

- **Quartz Crystals-** Any size or form can be easily cleaned using this method.
- **Dish Soap-** Dawn is the old standby, but any detergent will work.
- **Dental Picks-** Any set will do, you just need to be able to get in crevices.
- **Iron Out-** The powder form is much better than the liquid, but either should work.
- **Baking Soda-** Any brand will do.
- **Plastic Bucket-** For the oxalic acid mixture we'll be using later on.
- **Nitrile Gloves-** To protect your hands from the Iron Out.

- **Respirator (Optional)-** Required if you're working indoors, but you can skip it if you're careful and working outside.  
The above items can easily be found online or at most big box stores.

**Give Them a Wash.** Soap is ideal for cleaning since it's non-toxic and readily available. Just wash it like you would anything else, with a rag or sponge and a bowl or bucket full of water.

You can wash them directly in the sink as well, but don't make a habit of it. The last thing you want to do is clog a pipe with clay or sand, neither of which can be removed by normal drain cleaning methods.

I prefer a rag for most crystals, especially smaller ones. If you use your fingertips you can really get in there, your fingernails can get into some surprisingly tight spots if you're careful.

After you've washed the crystals dry them with a different rag. You want a clear look at the crystals in the end, without calcium stains from tap water forming on the surface to be removed later.

If you *do* have hard water and forget then a quick dip in white vinegar will remove any hard water spots that have turned up on the crystal.

**Spot Clean Crevices.** Take your dental picks and use them to begin clearing out any trapped dirt, sand, or clay. You may even need to break out a couple of pebbles in larger specimens, depending on the region that you found them.

A dental pick won't scratch your quartz, but it *can* break small pieces if you twist at the wrong angle. This is especially true if the crevice is undercut. **Don't twist your pick, find a way to scrape by moving it along only one axis.**

If you run into anything too stubborn then apply a drop of dish soap and get the pick in there. The soap will act as lubrication and let you scoop out the matter more easily.

If there are small particles still stuck inside then you may have to get a bit creative. I'll sometimes wrap the tip of a pick with a scrap of napkin or paper towel to wipe out the interior areas. It's much safer for the crystal than trying to repeatedly twist the pick to get every speck of material out.

**Dry and Examine the Results.** Dry the crystals with a paper towel or dish rag and let them completely dry out.

You'll now be able to examine the results of your work. In some cases, this will be all that's needed and you'll now be done with the crystal.

In other cases, we'll need to move forward using chemical cleaning. The most common reason is just a layer of ferrous oxide on the exterior of the crystals. This manifests as an orange tint that other cleaning solutions won't touch.

If the staining is very light then vinegar may be all that is needed. In most cases, a stronger acid will be required. If the crystals are clean, clear, and don't have a rust tinge then you can simply dip them in vinegar to get rid of any hard water spots which remain and call it good.

**Use Iron Out for Iron Removal.** Iron Out is fairly benign but we should still take some precautions. Gloves are a good idea, with nitrile being my preferred material for disposables.

The mixture varies a bit from person to person. I'm a big fan of using stronger mixtures for shorter periods, but others prefer to make things a little bit weaker and let the crystals sit for a few days. It just depends on the person and their patience.

Mixing the acid should be done carefully in an HDPE bucket. Any plastic should work, but metal should not be used in any case. **Always add acid to the water, not vice versa.** The rapid heating caused by pouring water into acid can cause serious dangers.

You can *technically* perform this step with a wide variety of acids. In the past, I've used muriatic acid with great effects.

**The reason I recommend Iron Out is simple: safety.** While not harmless, Iron Out is much safer to use than stronger acids and has a long history of use for cleaning stones.

Fill the bucket with your crystals and reasonably warm water and then drop in about  $\frac{1}{3}$  cup of Iron Out per gallon of water volume. This will give a reasonably strong solution. **This is best done using distilled water or RO water if you have access.** Very hard water may react a bit and require a slightly stronger solution.

You'll now want to wait anywhere from 1-12 hours. I've found the solution becomes too weak to do much after 24 hours but some people swear by 1-2 days. It's hard to give exact instructions since everything from local temperature to water hardness can effect the process.

When you think you're done put on your gloves and pull out a crystal or two. Dry them with a rag and see if any iron stains remain, if they do then you should return them to the bucket. If a couple of days have already passed you may need to mix another solution and do it again.

Don't just pull the crystals out of the Iron Out solution. You'll need to do a bit more first.

**Neutralize and Dry.** Prepare a bowl or bucket big enough to hold your crystals with a baking soda solution. 2 tablespoons per gallon should work in most cases.

Place the crystals into this solution for 10-15 minutes. Remove them and dry them off carefully, including into any crevices or cracks you may find. The baking soda solution can leave white stains on the crystals, but they're easily removed with a drip in warm distilled water or white vinegar.

If any orange tint remains you may be able to remove it with a very weak acid like vinegar, but serious stains may require another round of Iron Out.

Iron Out can be disposed of in the toilet since it's plumbing safe and shouldn't have absorbed any toxic salts from the process used, provided that you're working with quartz varieties and not stones that may contain more reactive metals like copper.

## Now to Cut and Polish

### What you need

- **Tile Saw**– This saw is sufficient, but not ideal. The included blade is not ideal for quartz, and may not work at all on bigger pieces.
- **4" Diamond Blade**– There are cheaper options, but I can attest to this blade working well with quartz crystals. Cheaper blades may bring their own problems. And finally, you'll need polishing supplies. Polishing quartz crystals by hand is a fool's errand, so you'll need the following:



- **Sandpaper-** To smooth any surfaces which have a lot of variation in height
- **Cerium Oxide Powder-** To make the polishing paste once you reach this stage.
- **Rotary Tool or Grinder** – Felt wheels are preferred, leather or cotton will also work if that's all you have.

So, now that you have everything together... it's time to begin!

**Trim to Your Liking.** If you need to trim the specimen by removing other pieces of the cluster, large protruding pieces of stone, or otherwise massively alter the exterior you'll need to fire up the saw.

Use the saw carefully, and keep your goggles on. A flying quartz shard can be very dangerous and the material is prone to conchoidal fractures that send pieces out unpredictably.

You can also use the side of the blade as a sort of crude grinder if you have any sides that are particularly rough.

Once trimmed to the final shape, you're ready to polish!

**Sand the Surfaces.** Most people will want to polish the sides along their natural crystalline planes. This is easy enough, just use sandpaper in the 400-600 grit range to start with.

Backing the paper with a piece of glass or another very flat surface will allow you to get clean sanding on the sides and any termination faces that you're working with. Continue working with successive grits of sandpaper until you reach at least 1000 grit, but preferably keep moving to the 2500-3000 range for the highest clarity.

Quartz works very slowly when you work by hand. As a general rule, any hand work on quartz is going to take at least as long as doing the same with an agate. To keep sharp edges you need to work each face of the crystal separately.

**Always wet sand your quartz.** It's not worth trying to do it dry and spreading the dangerous dust even more. Make sure your mask is on properly during this process, and that you're paying attention to the mud that forms. The mud will get more opaque as you lose water, and you should dip the stone again when it gets milky white.

Any curves or changes in direction you make can cause the edges of the crystal to be rounded. It's a "nice" aesthetic, but it's usually best to just create sharp planes to preserve the integrity of the crystal.

You can also use a flat lap for this step if you have access to one, and go through roughly the same grit progression using wheels and diamond paste instead.

After you're happy with the surface finish's sanding, you can begin the actual polishing process.

**Final Polishing.** Take some of your cerium oxide powder and mix it with a bit of water in a small container. This will form a paste you can pick up with your preferred polishing method.

If you're using a rotary tool, the key is to change the wheel periodically and use a slow, small, circular pattern to cover the surface. Do it repeatedly on each surface, trying not to go over the edge of the crystal planes to avoid rounding them out.

On a proper polishing wheel, it's just a matter of moving it back and forth while doing your best to avoid rounding out the corners. Use a tight grip on the stone but light pressure on the wheel.

If your grip loosens too much the wheel is going to throw the stone, which usually ends in a disaster. If you put too much pressure it also has a higher chance to grab, with the bonus of causing the entire crystal to heat up quickly.

Check for scratches after the first serious round of polishing. If there's anything significant you may need to re-sand that crystal face for the best end result.

**This will take a bit of time, but once the quartz is to your liking... well, you've just polished your first specimen! Be careful, it can be a bit addicting.**

### **Jeremy Hall**

Jeremy is a professional writer, but his real passion lies with stones. With two decades of collecting behind him, as well as a decade of cutting, he loves to share his broad experience and knowledge about rockhounding. These days he can be found in his workshop, setting the stones he dreamed of as a child. You can find his knowledge here, and his handiwork at his Etsy shop.

# Mohs Hardness Scale

Excerpts are from an article by Hobart M. King PhD RPG on Geology.com

The Mohs Hardness scale was created by Friedrich Mohs, a German Mineralogist in 1812. The Mohs scale was developed to test a mineral sample's resistance to being scratched. The scale is mostly used for field identification and for classroom use. A typical laboratory kit for the classroom would include a sample of each class of hardness from 1 as the softest material to 10 being the hardest.

Example of kit as follows:

1...Talc	6...Orthoclase
2...Gypsum	7...Quartz
3...Calcite	8...Topaz
4...Fluorite	9...Corundum
5...Apatite	10...Diamond

Is the diamond the hardest material on Earth? Most likely not... Researchers have found that wurtzite boron nitrate and lonsdaleite can be harder than a diamond but are extremely rare. This makes the diamond the best choice for the top of the hardness scale.

Common household objects can also be tested for hardness. Some examples of objects that is article mentioned are:

Fingernail...2-2.5  
Copper...3  
Common nail...4-7  
Knife blade...5-6.5  
Steel file...5-6.5

An alternate to using reference materials to judge hardness are hardness picks. These picks have sharp metal points which can improve accuracy and control of testing on small areas.

# May 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5 Kalamazoo Rock, Gem, Mineral, Jewelry , Fossil Show 4-8 pm Kalamazoo	6 Kalamazoo Rock, Gem, Mineral, Jewelry, Fossil Show 10 am-6 pm Kalamazoo
7 Stateline Gem and Mineral Show Monthly Meeting 2 pm	8	9	10	11	12	13
14	15	16	17	18	19	20 Cleveland Area Gem and Mineral Show Rock-a-rama North Olmsted, OH
21 Cleveland Area Gem and Mineral Show Rock-a-rama North Olmsted, OH	22	23	24	25	26 International Gem and Jewelry Show Suburban Showplace Novi, MI	27 International Gem and Jewelry Show Suburban Showplace Novi, MI
28 International Gem and Jewelry Show Suburban Showplace Novi, MI	29	30	31			

# ROCK, MINERAL, GEM, JEWELRY AND FOSSIL SHOW



MINING EARTH'S MINERALS

**BIGGER - 50,000+ SQ. FT.**

<b>FRIDAY</b>	<b>MAY 5</b>	<b>4PM-8PM</b>
<b>SATURDAY</b>	<b>MAY 6</b>	<b>10AM-6PM</b>
<b>SUNDAY</b>	<b>MAY 7</b>	<b>10AM-5PM</b>

**2023**

*62nd Show!*

**KALAMAZOO**

**County Expo Center**

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