

The Midwest Faceter



Malaya Garnet from Lindi (South Tanzania)
cut by Marie Bellard. 5.71 x 4.02 (depth)
mm, 0.82 ct.

The Official Newsletter of the
Midwest Faceter's Guild

October 2021

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The Guild owes an enormous thank you to the outgoing officers: Marie Bellard, Virginia Steele, and Max Lautzenheiser.

About the Guild

The Guild began in 1979. Its missions are to promote faceting education and recreation.

Developing the art of faceting is its most important responsibility. The Guild also creates an environment of shared information related to faceting via meetings for those of like interests and encourages the achievement of individuals.



President's Message

Dear MWFG Members,

It is an honor to be able to serve you all as the President of this Guild. It is thanks to the Guild and its members that I have been able to delve into this wonderful art, which we all enjoy, and I am grateful to be in a position where I can move it forward. Thank you all.

With several new faces serving on the Board, I believe we are in an excellent position to continue to grow the Guild both in membership and in our presence within our local communities. Already we have new and exciting ideas ranging from seminars on machine maintenance and repair to collaborations with other guilds and societies within the field of geoscience. Any new ideas or suggestions are always welcome, so please reach out if you have something in mind!

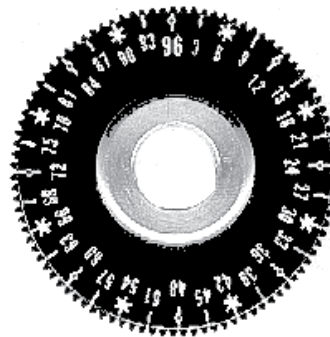
As mentioned in the previous Newsletter, our website is nearing its completion thanks to Cristine for graciously donating so much of her time to this Guild. We are also still looking for an opportunity to host another Faceting Frat. Once we have a date and time, the membership will be notified. Once I have met with the Board, we will be putting forward a plan for some useful and interesting workshops. So, stay tuned.

Once again, thank you all for your support and your participation. You are the life of this Guild!

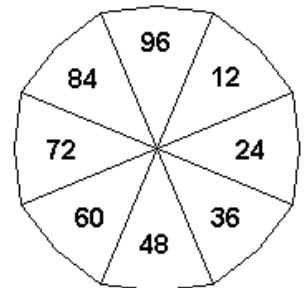
Yours,

Mason Macknick - President of the Midwest Faceter's Guild

96 Tooth Index Gear



**Index settings
for these facets**



Pictures from December 1979 Midwest Faceter, No. 2.

The Editor's Gem

The Midwest Faceter

When I sent out the July issue of *The Midwest Faceter* I asked for feedback from the Guild membership about the Newsletter. All those that provided feedback were very positive and they liked the many features. Several people made mention that the format could improve. I was in total agreement and had tried previously to use double columns in Microsoft Word, but it was a nightmare, as just one example. I also was limited by not knowing much about graphic design. Come to find out, Marie Bellard had worked as a graphic designer in France and suggested I take a look at Adobe InDesign. I did and it clearly was the answer. If you have used Adobe software products, they are powerful programs, but you well know the learning curve is steep. Luckily, I have used Adobe Photoshop and After Effects with my video productions and found InDesign not to be too difficult. I hit a few snags but was able to figure them out. I get intrinsic reward learning something new. Thus, you see the new design for *The Midwest Faceter*! I hope you like the layout, design, and the format. If you have any thoughts or critique, please let me know.

I am grateful to Marie for her thoughtful comments and suggestions and her eye and skill as a graphic designer. She showed me the ropes and it is always fun learning from others to enhance your skills. Very similar to what we learn from others about gem faceting.

Leadership

Marie Bellard's term as President has ended, and since then, she and her husband have moved to South Carolina because of work. Marie shared some of her accomplishment at the Annual meeting, but for those not attending here is a few of the highlights. First, Marie took over as

President in March this year to fulfill the term for Scott. I helped her to learn Robert's Rule of Order to initiate motions and use the concept that the majority rules. She caught on fast and exerted her leadership to accomplish some organizational tasks that were needed. She appointed a Bylaws Committee and they made a number of changes to the Bylaws that were needed to make the Board's work more efficient. The proposed Bylaws passed unanimously by the membership. One important change was to better the communication between the Board and the membership where the Secretary sends out draft minutes after a meeting instead of waiting for the Newsletter, which is quarterly. She also had Board members prepare guidelines for their particular office, so that future officers elected were not starting from scratch. She also launched some workshops to get the Guild back to its mission of educating members about faceting. All of this was accomplished with the pandemic raging and conducting meetings and workshops using videoconferencing with Zoom. Even planning the Annual meeting both in person and via Zoom had to change to Zoom since the places we could meet in person were not open to allow a small gathering. Unfortunately, that appears the reality for the foreseeable future until we get past this pandemic.

Changing of the Guard

It is exciting to welcome the new officers of the Guild! Mason, Barbara, Caroline, and Chris are now our leadership and they are well positioned to further the mission of the Guild and plans are already underway to offer more workshops and activities to make this Guild what it can become. So, congratulations to the new leaders! The outgoing officers, Marie, Virginia, and Max are acknowledged for their contributions to the Guild over the last year. Thank you!

Membership

Welcome to the following new members:

Jenna Sloane is from Birmingham, MI. She started to facet in June 2021 and have a Facetron. She stated that her favorite stone to cut is tourmaline. She currently is enrolled at Lawrence Technological University in industrial design and is working on her graduate gemologist certification at GIA.



Jenna faceted this Ruby shield, which is 6.5 x 6.0 x 4.5 mm and 1.15 carat stone. A beautifully faceted stone indeed!

Mason Macknick is from Coldwater, MI who has not done faceting before. He requested private lessons from Dr. Reg on learning to facet, so he is well on his way! He recently graduated from Trine University, Indiana in chemical engineering and works for Sekisui Voltek LLC, a manufacturer of plastic adhesive foam in Coldwater.



Mason first faceted stone! He cut a Cristinite Amber stone using the GeM101 design, which is 13.16 mm and 7.3 carats.

The Guild is excited to welcome these newest members!

A cut Above

Eric Peterson

Eric contribution to this issue is these two striking gemstones. This stone is the 2021 USFG competition stone for practice. It is a light blue YAG, 10 mm and 5 carats.



This is what Eric calls Spokes and the original design was done by Shondy Schondelmayer. It is a very light pink YAG, 9 mm and 5 carats.



Marie Bellard

Marie cut this purple spinel from Tunduru, Tanzania. It has micro inclusions spread all across the stone, which gives it a wonderful and magical appearance. The stone is 1.64 carats. See the rough and the finished stone.



Linda Cunningham

Linda cut this laser glass gemstone called Etty 30, which is a 10 mm round and 5.04 carats. Linda also reported that she has sold 2 of her gemstones to a jewelry store in the Des Moines area that will be put into settings. Way to go, Linda!



Tips Tricks

Who does not look for a good deal on purchasing gemstone rough for your next faceting project? You found a cutting diagram you would like to challenge yourself with the right gemstone material. If you have found an honest dealer and you can trust the dealer will stand behind your purchase and send you the correct gemstone—problem solved! Say you happen to check eBay or Amazon and here is a stone that will even come with a gemstone lab report showing it is authentic. It is reasonably priced, and you think, why not? You may regret sending off money, so what can you do to lessen the chance of being scammed? Check out these suggestions:

1. Does the gemstone lab report come with an address, website, email, and phone number of the lab? Doing an Internet search, does the lab come up as an existing company? Does the lab report (not likely) or the seller (more likely) provide a warranty of a refund if the gemstone is not what they say it is? If you answer no to any of these, look elsewhere.

2. As a side story, I was looking for a rough gemstone that was a blue topaz. Listed on Amazon was

a “large genuine faceted topaz.” There were pictures of the faceted gemstone and it was looking pretty. The cost was \$16.95. I knew it was too good to be true, but since I knew that Amazon would refund me the cost and free shipping if I sent it back, I gave it a try. When the gemstone arrived, I tested it. It was quartz—it was pretty—but it was not “genuine topaz.” I filed a complaint with Amazon that the company that sent the gemstone was doing false advertisement on Amazon. They refunded my money without question. Was the gemstone or the company removed from Amazon’s inventory? Nope! Heaven help the next person who wastes money on something that is not what they advertise.

3. Some companies on Facebook and other websites can actually send you either a faceted created gemstone or rough and call it natural. In some cases and even worse, it is just glass. If you do not have a way to test the gemstone to assure you are getting what you paid for, run!

4. Companies that advertise on the Internet often give you a way to provide feedback. If you know

that your information is correct, warn other customers that this seller may be scamming people. I have always operated to be honest with the seller by stating that I will be warning other customers and give the seller the option of correcting the problem. If this is an honest company and they made a mistake they will correct it. Otherwise, you are doing everyone a favor by providing the warning. It was what you needed before making your purchase.

5. Watch for disclaimers by some sellers. The disclaimer can be confusing to read but alert you that they can send you a stone without a return policy or it could be some other type of material.

6. Follow the old adage—buyer beware!

May all your facets sparkle!



Buyer Beware!

By Dr. Reg Williams

The care and feeding of Polishing laps

This is an edited version of an article from Peter L. Herschman, M.D. dated February and March of 2009 and reprinted from North Puget Sound Faceting Guild, Gem and Crystal News, May 2021. Although the article is dated, the information is useful to understand the array of options for polishing laps.

Material	Hardness		Components
	Mohs	Brinell	
Metal:			
BATT®	2.5-3	32.5	Tin alloy (antimony, now non-toxic metals added)
BATT Redwing®	2.5-3		Tin alloy with Copper zone
BAST®			Finer grained complex alloy; harder than BATT
Bronze	-	-	An alloy of tin, copper and other elements, e.g. P
Copper	3.0	35	Rolled Copper
Lead	1.5	9?	Lead
Tin/Lead	2.0	14	Tin, Lead solder in equal amounts
Meehanite	4.0+?	210?	Cast Iron with graphite
Steel			Alloy of iron, carbon and other elements
Tin	1.7	5.3 (22.5)	Tin (Die cast Tin)
Typemetal	2.0	23	Lead, Tin, Antimony, Copper (variable)
Zinc	2.5	16?	Zinc
Resin-bonded:			
Darkside®			Aluminum baseplate with polymer composite
Dyna®			Friable synthetic diamonds in resin matrix
Fast/Last/Fina- Laps®			Fine zinc particles embedded in resin (Raytech)
Phenolic	2.2	16?	Phenol formaldehyde plastic resin
Pol-A-Gem®			Lucite base filled with an oxide-bonded resin
Turbofan®			Resin bond lap with honeycomb surface
Other Created Materials:			
CDs or DVDs			Polycarbonate
Ceramic	9.0	1400?	Corundum Ceramic
Corian®	8-9?	34?	Acrylic polymer and alumina trihydrate
Lightning Laps®			Epoxy fiberglass
Lucite®/Plexiglass®	2.0	23	Acrylic plastic [poly(methyl) methacrylate]
Pellon®, Leather, Felt and Pitch			Binder-bonded nonwoven fabric interface, etc.
Vinyl	1.0	-	Thermoplastic
Wax	0.3		Beeswax and Carnauba wax in varying amounts
Wizard Laps®			Hard Thermoplastic material
Film-based:			
Mirror Facet®			Thin diamond-impregnated film on a mirrored lap
Ultra® and Spectralaps®			Polyester sheets coated with various polishes

Let's begin with a tabular summary of the various polishing laps.

Metal Laps

BATT™, Redwing™ and BA5T™ laps were invented by Jonathan Rolfe for use with precharged diamond, cerium, tin or aluminum oxide polishes. Their Surface Complexity (Information Dimension Method using the BENOIT Program) is expressed as a Fractal Dimension figure of 1.862 (and I don't know if that is good or bad, but I'd bet it's pretty darn good). The laps are cast using a solid alloy consisting of tin and less toxic materials than the 95/5 tin/antimony originally used."

BATT™ is a Trademark used to represent a proprietary alloy, principally of tin, which contains alloying metals of low or no toxicity which harden and deoxidize the alloy and establish certain grain structures which are developed by a specific annealing and quenching process. In 2007 Jon Rolfe refined the original lap with more effective hardeners, grain development and deoxidizers. Redwing™ laps have a peripheral area of copper and a central BATT zone. BATT laps have been successfully used with corundum, quartz, beryl, topaz, tourmaline, cubic zirconia and others providing sharp, flat, well-polished facets. He also advises the user to avoid friable diamond in favor of the more solid version; the particles embed before they are broken.

Jon originally suggested water rather than oil-based extenders and encourages alumina touch-up after polishing with diamond. Recently, WD-40 has found favor with users.

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BA5T™ lap is a more complex alloy than the BATT itself. It has a Fractal Dimension of 1.5247. It is a heavier, grained disc which can be resurfaced if required. (In fact, most of the metal laps noted here can be resurfaced if needed). Designed for grits between 3-8000 diamond, the lap is harder than the BATT and is intended for high-speed commercial polishing. (I use mine for 100K diamond).

Meehanite laps are formed by cast iron to which silica is added leading to the formation of graphite particles within the lap. Originally manufactured by the Jarvi Tool Company with an expressed ability to polish a variety of gemstones from quartz to diamond, it is no longer

produced. Machined flat, the material is hard, yet sufficiently porous to allow diamond grit to settle with the addition of a grease extender. Cast iron laps have been used in the diamond polishing industry for years; they are also particularly useful for polishing corundum. Iron rusts; storage must include an oil protector such as sewing machine oil or similar.

Steel laps are regarded as similar to the ceramic group for use with harder stones, tiny amounts of diamond polish are used with slow rotation speeds. They must be free of machining marks when bought lest these damage the gemstone being polished.

Tin laps "The Raytech Tin Lap has a heavy layer of pure rolled tin laminated to a Raytech Master Lap and turned true." The Crystalite tin lap is a fine grained rolled tin lap bonded to a Master Lap. Tin laps are said to produce an excellent finish. With oxides or diamond they can be used to polish garnet, topaz, chrysoberyl, peridot, tourmaline and beryl. The laps are soft and so can pick up tiny fragments of the stone being polished. Consequently, they must be kept clean, and any such material removed from the metal.

Typemetal laps are a combination of lead, tin, antimony and copper in various proportions. These

polish the stones described above when charged with diamond or oxides. Their harder consistency permits a wide range of uses. In fact, Broadfoot and Collins advise a typemetal lap as a main polishing instrument.

“The Tin/Lead alloy will polish just about anything with either Alumina polish, Cerium Oxide polish, or 14,000 diamond.” Some versions of the typemetal lap contained 94% lead, tin and antimony (1-2%) in decreasing amounts.

Zinc laps are harder than tin or type metal laps and tend to be used to polish hard stones. They consist of a fine-grained rolled zinc sheet bonded to an aluminum master lap. Diamond grit or oxides can be used with these versatile laps. Using these

A Note on Polishing Theory

Polishing is anything but simple. There are a good number of things that work, and beautiful polishes can be obtained, however the reason these approaches do work is not fully understood. Some theories are:

- (1) Fine scratch theory: smaller and smaller scratches approaching invisibility are made as the surface is abraded.
- (2) Flow theory: Due to plastic deformation a ductile process

emerges, in turn, balancing tenuously with brittle behavior, i.e., whether a crack or flow will take place.

(3) Chemical polishing theory: an interaction in which the chemicals used in polishing act to remove portions of the surface atoms.

(4) Multiple process approach: More than one of the above theories could be involved in achieving our final polishing effects. This is the conclusion I reached.

The behavior of the medium is also significant; cerium oxide cuts first, then breaks down into smaller particles to create a polish. In turn, there is a mechanical effect depending on the relationship of polishing compounds to the lap being used. The nature of the surface structure, whether polish remains on the surface or is embedded in the laptop are also involved. So, we continue looking for the Holy Grail of polishing laps. Perhaps that explains why there are so many different types of laps available.

Onwards with a different group of laps:

Resin-bonded Laps Resins are viscous fluids capable of hardening. They are hydrocarbons generally found in coniferous trees. Many are manufactured – epoxy resins for example.

Obviously, they are valued for their properties.

So, we continue looking for the Holy Grail of polishing laps. Perhaps that explains why there are so many different types of laps available.

Darkside™ laps are another Jon Rolfe's inventions. They consist of an aluminum baseplate coated with a composite polymer surface and are designed for use with both diamond and oxide polishes. Light in weight they can be used individually or with a Master lap. “Like all Gearloose laps, the polishing mechanism relies on surface complexity (Fractal dimension: 1.3 to 1.8) for polish retention, and lubricity for reduced heating and higher polishing efficiency. Because the composite contains carbon, it has a natural affinity for diamond, but the hydrophilic domains accept oxide polishes.” Corundum, CZ, tourmaline, quartz, and demantoid garnet have been successfully polished using the disc. Gearloose suggests an oil-based extender for diamond polishing, cleansing with Fantastik and direct use with a thin oxide slurry. Apparently, very small amounts of polish are needed for excellent polishing

results.

Dyna disc system laps are no longer being made but the group is being reformulated. They consist of thin (2 mm), light-weight aluminum (copper?) discs with layers of friable synthetic diamonds contained within a color-coded proprietary resin matrix bonded to the lap. These were made for use as grinding laps in many grit sizes as well as polishing discs including cerium, aluminum oxides, and tin-lead. All came pre-charged with compound and require a Master lap on which to place the disc as well as an adapter for the faceting machine spindle.

Fast laps were created by Raytech Shaw and consist of fine zinc particles embedded in a resin base. The Crystallite product is known as the Last Lap and Lapcraft produces their Finalap. They seemed to have roughly the same construction. The microscopically interrupted resin binder permits diamond to become embedded; they can also be used with oxide polishes. The resins are sufficiently soft though to result in rounded facet edges though faces tend to be clearly polished with few scratches if any. These laps seem to work very well with 50,000 diamond spray with paraffin or teflon oil extender. The results are very good indeed. One must avoid using acid media due to

the epoxy base. Charged with diamond powder it can be used to polish quartz, garnet, peridot, tourmaline, beryl, corundum, topaz, chrome diopside and CZ.

Phenolic laps composed of phenol formaldehyde plastic resin is an old favorite. Used mainly with the oxide polishes, it can also accept fine diamond grits. Flat facets, reasonably sharp edges and good meet points were the result with beryl, opal and quartz when used with cerium or aluminum oxides. At slow speeds heat build-up needs to be controlled. Heat build-up is a significant factor in polishing, particularly for those of us who dop with wax. Epoxy may also be softened if the stone becomes overheated. As well, some gemstones are sensitive to heat.

Phenolic laps are composed of phenol formaldehyde plastic resin and are an old favorite. Used mainly with the oxide polishes, it can also accept fine diamond grits.

Pol-A-Gem laps were created by Glenn Vargas of Faceting for Amateurs fame. Pol-A-Gem laps consist of a Lucite base

containing a resin mix of cerium or aluminum oxides. It will polish a variety of gemstones including quartz. The author noted he used the cerium oxide version to clear scratches on a quartz stone, which I could not remove with 50,000 diamond mesh on a Fast lap. The Pol-A-Gem worked quickly and smoothly.

Ceramic laps are designed to produce sharp edges, accurate meet points and brilliant facets for stones with a hardness of 7.5 or more, i.e., the upper end of the Mohs hardness scale. All are manufactured using proprietary formulas of corundum ceramic. Graves made the Falcon lap; Lapcraft and Crystalite, Raytech-Shaw all produce ceramic laps with similar properties. They are usually used at slow speeds with very tiny amounts of 50,000 or 100,000 diamond spray coupled with various types of extenders. Teflon grease is favored by some as it reduces the amount of heat build-up. They polish corundum, cubic zirconia, spinel, beryl and may be used to polish small facets in garnet and peridot. Nancy Attaway remarks on the need for care when using this lap as it can spread or elongate facets readily. Competition faceters tend to be consistent in their praise for these laps. **Corian** laps can polish many gem materials, among them, topaz, beryl, tourmaline, tanzanite, benitoite, chrome diopside,

peridot and garnet when charged with diamond. Jarvi, the manufacturer of the Facetron machine, developed these laps to polish various gems. They no longer manufacture them. It has been used with aluminum oxide as well as diamond. Some faceters prepare the lap with a thin surface of Carnuba wax. If it proves of any comfort to you, the material is bullet-proof! So, keep them close to your hearts.

Lucite laps are used to polish gemstones of low to medium hardness. Like the Fast and Last laps these tend to leave rounded facet edges. With a thin cerium or tin oxide slurry, Lucite laps do a good job polishing silica-based gem varieties among them, quartz, opal, beryl, tourmaline, benitoite, tanzanite, peridot and labradorite. Manufactured by Raytech-Shaw, Lapcraft and others, these are less used due to their generation of heat while polishing. Lucite laps can be used as a backing for Ultralaps as well. They are also known as acrylic laps. Plexiglass is another form of this material.

Wax laps come in three different colors. Manufactured by Raytech, the Red disc is for stones of Mohs hardness of 4-5; Pink, 2-4; Green, 2-3 and Yellow, 1-2. With diamond or alumina, gems like apatite, calcite, kyanite, barite, fluorite, gypsum and possibly kunzite can be polished. "Be warned, it is

almost impossible to polish soft stones with a wax lap without facet edges becoming rounded."

Wizard laps are manufactured by Dick Walker of Walker Gem Services and sold by the Facet Shoppe, among others. A thin disc, it is intended for use on a master lap. It does not take a charge and so can be cleaned with detergent and green pad to switch from one polish to another. The lap is pre-scored and works well with spinel, garnet and tourmaline as well as other gems.

The final group involve a different approach to achieving a good polish.

Film-based Laps

Ultra-laps are thin polyester sheets (Mylar) with a coating of various polishes ranging from the oxides to various diamond grits. Spectra laps have a coating of a particularly high grade of cerium oxide. The specific polishes can be used with certain gemstones. They can be held to a Master, Lucite or well-worn lap with a thin layer of water, sometimes mixed with a little dish soap. Manufactured by Moyco Industries among others (Pfizer), they remain popular among many faceters particularly for finishing touches. Spectra laps are quick and easy and very good for final polish on quartz and beryl. **Mirror Facet** are a system of laps

which use a mirrored base covered with a diamond impregnated film. Making use of the mirror and careful lighting, one may be able to achieve optically flat table and other facets. These films can be used both for cutting and polishing gemstones. It is manufactured and sold by The Prospector's Pouch.

And finally, for use with some of the above:

Master Lap. This lap is used to provide support or as a base for Ultra, Darkside, Dyna Pellon or other thin polishing materials. The Crystallite version is a flat, ground aluminum alloy while the Raytech lap is of solid wrought aluminum 1/4" thick with both sides ground parallel and flat.

So, there you have it, a fairly extensive list of polishing laps. There are also many individual variations and creations used for polishing. Interestingly, each type has its adherents and more detailed studies will be needed to describe how each can be used and cared for. So far there is no Miracle Lap though the adherents of the next "new wave" may insist they have the latest answer.



Diamond Powder for Polishing Gems

by Allan Lindberg

Reprinted with permission from FACETS, Columbia-Willamette Faceters' Guild, Number 560, October 2021.

To achieve a perfect polish, many gem species require diamond polish. I have used diamond to polish cultured corundum and spinel for several years. Diamond polish comes in several commercial application choices. Diamond paste in a chap stick type container. Diamond paste in a syringe tube or a screw top tub. Diamond polish in a spray container and last but not least, straight diamond powder.

Having purchased and tried each, I prefer now to make my own diamond polish paste or modify commercial products. I began experimenting with making a paste-type in a shallow screw top tub and gather all the things needed: a base medium, different kinds of waxes and diamond powder. I wanted to purchase a larger quantity of diamond in different grades and turned to the internet to find an affordable source.

I found there are several manufactures in China that produce diamond powder in many particle sizes.

After several email communications with manufacturers, I decided on one and we struck a deal for a small quantity. I placed an order. The manufacturer sent me the shipping tracking number which showed it was on its way to my home. Several days later I received a phone call and email from US Customs. They informed me that diamond powder is considered toxic and required I complete a special form before they could release it for delivery.

Well, this set me back in my seat. **Diamond powder is toxic?** How could that be? I turned to the internet to see just how diamond powder could be classified as toxic.

Turns out there is an ample amount of information concerning the danger of diamond powder if inhaled or ingested. Since I am not at all interested in digesting or inhaling

diamond powder, I felt more at ease. I think faceters might be interested. Here is an excerpt of what I found.

“Diamond powder can be quite dangerous if digested.”
From Nanomedicine.com.

“In ancient times, **diamonds** were regarded as having magical curative powers. According to Pliny the Elder (23-79 AD) in his Natural History, **diamond**“ prevails over all poisons and renders them powerless, dispels attacks of wild distraction and drives groundless fears from the mind.” It was once thought that **diamond** powder, taken orally, possessed curative abilities.

Physicians in the Middle Ages debated this subject at great length and were of divided opinion, though the proponents of such treatment met with many notable failures. Apparently, wealthy people were still being dosed with ground **diamonds** to cure them of stomach disorders well into the 16th century. For example, Pope Clement VII (Giulio de' Medici) died on 25 September 1534 when his doctors failed to cure his ailments – the bill for the fourteen spoonsful of precious stones he had been administered is said to have been 40,000 ducats.

It was reported that Paracelsus was poisoned by **diamonds**. Sultan Bajazet II, leader of the Ottoman Empire (Turkey), was reportedly assassinated in 1512 by his son Selim, who fed the Sultan a fatal dose of pulverized **diamond** mixed in with his food.” Good reason not to have a shaker of **diamond** powder at the dinner table.

One, MSDS, says other potential health effects include: **Eye: May cause eye irritation.** Dust may cause mechanical irritation. **Skin: May cause skin irritation.** Exposure may cause irritation characterized by redness, dryness, and inflammation. **Ingestion: May cause irritation of the digestive tract.** Low hazard for usual industrial handling. **Inhalation: May cause respiratory tract irritation.** Low hazard for usual industrial handling.

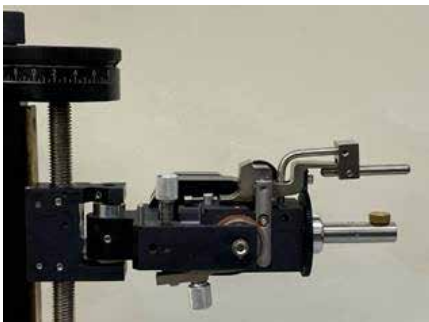
Lastly, **diamond** polish used incorrectly on a valuable gem may cause bouts, long bouts, of profanity and flying objects. There you have it for ancient and modern dangers of using **diamond** powder without proper care.

Did you Know?

JB Speed Trigger

This rapid-indexing device was developed by John Bailey who operates the Faceting Academy. Tests show an about 21% increase in faceting speed on the Ultra Tec faceting machine when the JB Speed Trigger is used as compared to “normal” indexing. For faceters involved in commercial cutting, this becomes a “time-is-money factor”.

Easy to install – there is a video in which John shows installation, and shows the device in use. The cost for the Trigger is \$158 from Ultra Tec. You can view the demonstration of the Trigger on YouTube using <https://youtu.be/VuyfQGxFlHs>



Pictures from Ultra Tec with permission.

Midwest Federation of Mineralogical and Geological Societies

As you may know, as a member of the MWFG you also hold membership in the MWF. Before, only a few officers of the Guild received the MWF News that is published monthly. That has changed since they now send the News via email. You can read the list of gem and mineral shows in the Midwest region and other news geared more to rock hounds, but has useful information in the art of lapidary. This is one of the benefits of being a member in the MWFG!



Fac-Ette Gem Master III

As you may recall from a previous Newsletter, the Fac-Ette company in Seattle went out of operation. No one was making parts for the machine and many Fac-Ette owners were worried they might have an obsolete machine. The rights to the Fac-Ette Gem Master was purchased by Wyatt that manufactured parts, however that had not build any new machines. They have purchased parts to start building machines, but due to a shipment error, the needed parts have not arrived yet. You can obtain additional information from Cindy in Kentucky. Call her at 849-757-5126 if you need help, repair of a Fac-Ette machine, or when new machines will be available.

Five Most Valuable Gemstones

Adapted from Mini Miners Monthly, Vol. 13, No. 8, August 2021

with permission



Pink and Blue Diamonds

Pink and blue diamonds are the rarest diamonds on earth. The blue is created by trace amounts of boron trapped in the diamond crystal. The pink is caused by stress or distortion in their crystal structure. A pink diamond could sell for as much as 1.19 million dollars per carat. A blue diamond can cost almost 4 million dollars per carat.

Tanzanite

Tanzanite is a dark blue to purple variety of the mineral zoisite. It is only found in the nation of Tanzania. Gem-quality tanzanite has a very rare property called trichroism, which means, three colors. The color you see in the gemstone depends on which direction you look at it. From one direction it is deep blue. From another it is purple. From another it is red. A very good tanzanite gem will cost at least 1,200 dollars per carat.

Emerald

There are a number of different varieties of beryl that are cut into gemstones. The most valuable is emerald. Some high quality emeralds are even more valuable than diamonds of the same size. An excellent beryl gemstone can be worth more than 305,000 dollars per carat.



Alexandrite

Alexandrite is a gem variety of the mineral chrysoberyl. Its color depends on what kind of light is shining on it. When it is seen in sunlight it is green. When it is seen in lamplight it is red. Some people have said that alexandrite is “emerald by day and ruby by night.” A high-quality alexandrite gem is worth at least 70,000 dollars per carat.



Alexandrite (Daylight)



Alexandrite (Incandescent Light)



Ruby

The mineral corundum is a fairly common mineral. Most corundum crystals are crushed to make sand paper. But deep red, gem-quality corundum, known as ruby, is very valuable. Rubies (and sapphires and all corundum) is number 9 on the mineral hardness scale. The only mineral harder than corundum is diamond. High-quality ruby gems are worth at least 1.18 million dollars a carat.



The values for these gems that Diamond Dan used here are from this website:

<https://www.thepearlsource.com/blog/most-valuable-gemstones/>

www.diamonddanpublications.net

Workshops

Gemsetting

On August 8, 2021, Marie Bellard and Dr. Reg did a virtual workshop on how to set a gemstone in a ring setting. They discussed, with a Power Point presentation, the tools needed to set a gem including a ring holder, gemstone setting pliers, magnification to see what you are doing, and various other tools that are nice to have, but not necessary for gem setting. They then demonstrated the process using a close-up camera to see how to set the prongs on the setting to secure the stone by going from one prong to the opposite prong until all are set. There were many excellent questions asked and the involvement of those attending was rewarding and fun. The 1 hour workshop was recorded and the video will be put on the Membership only section of the MWFG website.



Pictures taken by Dr. Reg Williams

This is the sterling silver ring that was used to demonstrate gemsetting. The stone is Diopside, 8 x 10 mm and 2.65 carats.

Workshops continued



Wax Dopping

Roger Dery offered an excellent workshop on using wax to dop a gemstone for faceting. It was offered virtually and in-person at the Brighton Airport Club House in Brighton, MI on August 22, 2021. There was a group in attendance at the Club House and a number on Zoom to watch the demonstration of how to use different types of wax to dop a gemstone

and the merits of each wax. There was a large number of questions asked by all those in attendance about the procedure.

What was pressed upon everyone is that using wax is something you have to practice to get proficient in securely dopping a stone. In short, it is not for the faint of heart!

All those that practiced the dopping technique he demonstrated appreciate the need for practice. Roger emphasized that he rarely has a stone come off the dop and a distinct advantage of using wax is you can start faceting only minutes after dopping the stone unlike the wait time if you use epoxy or super glue. There was no question that the workshop was well worth the time and an added skill in the pursuit of faceting.

There are plans in the works to offer more workshops like these to further the skills of the MWFG membership.



Pictures taken by Dr. Reg Williams and Marie Bellard





MWFG Interview

Caroline Peterson agreed to be interviewed on September 8, 2021, about her life experiences and learning to facet in 2019. She is currently the acting Secretary for the Guild. Caroline is married to Eric Peterson, who was interviewed in the last issue of Midwest Faceter. She has an interesting perspective in establishing a mentorship program to help novice faceters move forward. Here is her interview.

Q. Tell us about yourself?

I was born in Bay City, Michigan where I spent all my years before I got married the first time. I had started college while in my last semester in high school, which had never been offered to students, previously. I started out to become a special education teacher and then got married I spent about 4 years with him at Camp Pendleton, California because he was in the Marines. After getting divorced, it was a couple years before I decided to go back to college and get my degree. I traveled about 1.5 hours, one way, from New Buffalo, MI to Western Michigan University in Kalamazoo. My first semester was 5 days a week while trying to raise two boys. I ended up with a GPA that got me into Kappa Delta Phi, honor society, and then got into another honor society, Golden Key, through social studies. I got my bachelor's degree

in 1994 and ended up teaching in Cassopolis, MI, with 7th and 8th grade special education students.

After my boys graduated, I then moved up to Hart, MI, and taught in Walkerville, about 20 miles east of Hart. It is a little bitty school, about 300 kids, and I was an elementary special education teacher. I also went back and got my master's degree in 2001, specializing in a different field of special education. I met Eric in 2003 and we were married in 2004.

I did not particularly want to continue to teach summer school, after 3 or 4 years. I happened to receive an advertisement for University of Phoenix wanting people to teach online classes for them. I went through a phone interview, then on to student teaching. I was hired and have been teaching for them for 18 years. I facilitate courses in special education for students wanting to become special ed teachers. I was recently received the Phoenix 500 Award, which was honoring top teachers. Just before COVID hit last year, I had told my public school I was retiring, and I was so glad I did not have to go back during that time.

Eric and I have taken care of my older sister for the past 6 years because she has dementia. She declined quite a bit and she is now in a facility.

Q. How did you get interested in faceting?

Eric first taught me to facet. It was after he had gotten his Graves machine. I never finished the stone, but he showed me some basics and I got part of it finished. The Graves faceting machine did not work very well with problems with the spindle. It needed repair. So, I never transferred the stone to complete it. When he attended the seminar to learn faceting, I did not go since we just had one machine in the house, and we figured it would not work for both of us to attend the seminar. He was the gemologist and not me.

So, I get to see some of his progress, and we talk about "what do you think I should do" about his cutting, and I get involved in that way. We talk if he gets stuck on something, or he is having issues with the machine. I was going to go to the larger weekend seminar, but then things got shut down because of COVID. I did attend the seminar at Cristine's workshop in 2019 in Grand Haven. I enjoyed it and I can learn quickly. I ended up cutting a piece of CZ on Blake's machine, a Fac-Ette. I kind of

liked that machine because it seemed easier than Eric's Ultra Tec V5. I have only used the Ultra Tec a couple of times, but I have not used it enough, since he has his stone dopped and I am afraid I will change the settings and maybe he would have a hard time getting it back to his stone. So, I have not used it much at all. I do not want to touch it in case I need to ask questions and he is not around. He has laughed and said, "you can use it", but without having him around to talk about the nuances of the machine, I didn't want to use it. It seems to be more complicated than the Fac-Ette. I don't know why, but it just seems that way.

I have an 8-inch Cab King that I got in 2019, and it has sat for a while since I did not have a place to put it where there was enough room to use it. I am just now getting it out and starting to do cabochons. I am one of those that looks at a stone and it tells me what it wants to be and make it that way. I see it and I create it. I just fixed a lapis stone that had big pits in it, which involved creating a bevel around the top to get rid of the pits, polished it up, and gave it back to my friend. She was just thrilled with it. Now that I am not having to take care of my sister, I have more time now to devote to cabbing.

Q. What do you think would need to change for you doing more faceting?

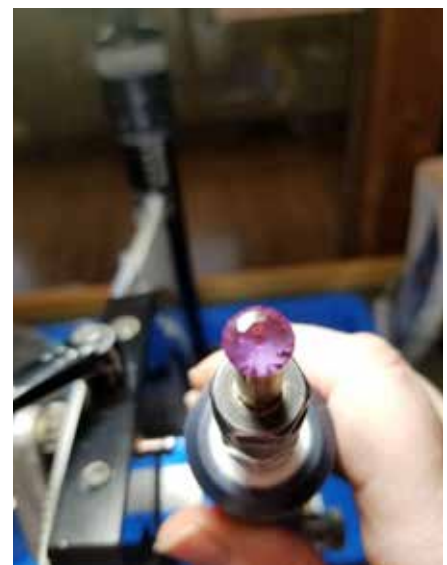
I started to learn faceting because it was Eric's thing. I wanted to learn more about it and share that experience with him. I said I would like to do that, and he had showed me the first steps of faceting on the Graves. At first, he was just learning how to use the Ultra Tec and I was concerned I would mess up his settings. I was concerned that if it was that difficult, I did not want to do this. He now has it where it is not that big an issue. He still struggles with the transferring the stone from the flat dop to the cone dop. I have not transferred at all yet. I have watched the video by Boyd Fox on using black wax to dop a stone and this makes a whole lot of sense to me. I need to try transferring a stone.

Q. What could the Guild do that would help you?

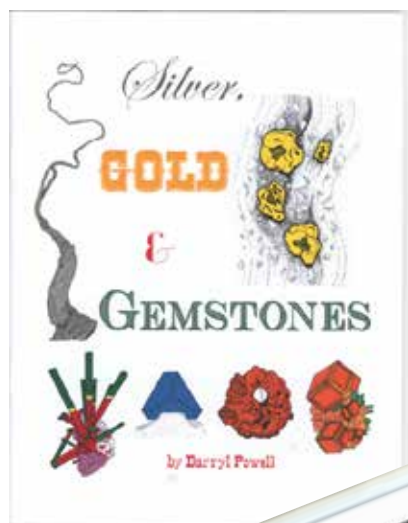
I think what Marie Bellard talked about by having videos to watch about different techniques, would help. The ability to stop it and replay a section would be beneficial to anybody. The seminar provides two days to learn faceting but having the opportunity to repeat things would be ideal. My issue all along has been the concern of switching stones. **I think having people willing to set up a time with novices to help them with something they are struggling with, by using Zoom or another video conferencing program, would be immensely helpful.**

Developing a mentorship program for beginners would be ideal and encourage people help when they needed it. In addition, having Zoom workshops to show and demonstrate techniques would be helpful. Those are cool to have the practice and ability to do faceting.

Caroline's CZ she cut during the seminar in 2019.



Book Review



Several members have suggested the importance of attracting young people to the art of faceting like rock clubs have been doing for sometime. These members have discussed the importance of doing so to prevent a dying art. Darryl Powell from Diamond Dan Publications has graciously allowed us to reprint some of his articles from his *Mini Miners Monthly* publications that provide fun educational materials for young mineral and gem enthusiasts.

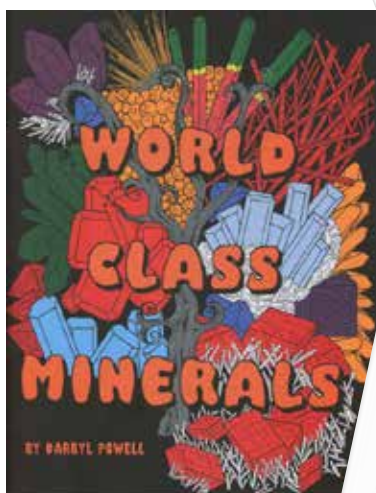
Darryl recently sent two of his publications, *Silver, Gold & Gemstones* and the *World Class Minerals*. The publication on silver, gold and gemstones provides information about the materials, where silver, gold, and gemstones are found, what they look like before being cut and polished and what makes them so valuable. He covers gemstones of diamond, corundum, beryls, chrysoberyl, brazilianite, benitoite, topaz, tourmaline, garnet, quartz, peridot, tanzanite, turquoise and other softer minerals that are not considered gemstones.

The *World Class Minerals* examines the best mineral specimens that every serious mineral collector recognizes as natural treasures that are pleasing to the eye as fine art.

His publications are \$1.00 per copy, plus shipping and Dan indicated that some groups give them away, sell them to raise some funds for programs, or use them at local schools as part of their educational endeavors.

These books are food for thought for the Guild in future endeavors to attract young people to faceting gemstones and our member rock hounds can encourage them to learn as much about mineral specimens.

Darryl can be contact at:
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33060, 585-278-3047
powellpublicationsgroup@gmail.com
www.diamonddanpublications.net



A bit of History

“The Glint Point,” Etc.

By William J. Horton, Charter Member (reprinted from May 1995 Midwest Faceter)

While judging gemstones at our annual show, it brought to mind articles about judging that I have read in the last few months. One recently by Col. Walter Carss, about meetpoints in the past Australian-American Challenge.

We, of the Midwest Faceters Guild, have been trying to merge our judging techniques with those of the Australians and have been trying to completely eliminate any “SUBJECTIVE” sections in the judging sheets. We have used two different score Sheets, depending on whether there is or is not a size specification in the contest. We may need to expand this issue since it may not fair to use the same scoring for instance when judging calcite and sapphire. At our annual faceting seminar, we approach these kinds of issues, trying to gain as much input from cutters as possible. Judging, I am convinced, will always be a problem, and judging will always have some degree of subjective observations.

In the case of meetpoints, we need to cut with 10X and look with 20X and 30X to see the differences, and then reverse the process. Things do not stay constant as we cut one way and look another (perhaps reason enough for internationally accepted standards). We also need to evaluate the power of light sources, 100 Watts versus 40 Watts - again for both cutting and judging.

Most errors in cutting, from a judging standpoint are shop worn gems, wipe in ghost or double facets, mismets, pits from incomplete pre-polish, chips, and polish. The width of the girdle is subjective, unless specified. If width is specified, then you should be able to measure accurately. On and on, if you demand a specification of any kind, then you must be able to justify your judging in that specification.

One error that continues to happen, was also mentioned by Walt Carss. The Australians refer to this as the “Glint”. This

is like looking at a bright speck at a meet point. I believe this is caused by incomplete polish of one facet at the meetpoint.

The meetpoint may still be completed by the prepolish. The last facet or first to a meetpoint may be the culprit, or any of the four. To eliminate the “glint” or bright spec, carefully “wipe” the facet polish, by hand, one stroke at a time until the speck is gone, without overcutting the facet.

Ghost facets, or double facets are usually caused by trying to eliminate a cat hair scratch or minor infraction.

These appear to be developed by “wiping” out the infraction, or by using the cheater. The best way to see the double facets is to use the first light. The first light is like looking into a mirror at the sun ..The first light at your machine is much the same. Get the light directly onto the facet and into your eye. A 100 watt bulb will be very uncomfortable until you get used to it, but a lower wattage bulb will work the same. As you rotate the handpiece either up or down, or left or right from this position, those double facets will jump out and be detected. Eliminate them by wiping from the intersection of both facets until you have a single facet. The second light is found by rotating the handpiece, again up or down, or left or right, from the first light. The facet will appear white but not as uncomfortable to look at as the first light. The second light is also the one used for detecting pointmeets. Rotating the handpiece into the second light will produce two facets of the point meet to be in the second light, and the other two will appear to be black. When white touches white, and black touches black, the point meet will be complete. I call the black the fourth light.

The third light is almost gray. If you continue rotating the handpiece from the second light, the facet will appear almost gray. Continue to rotate the handpiece and it will then appear black. The benefit of the third light is to see the minute scratches, or cat-hair scratches.

Sometimes when viewing one facet, you will pick up the cat-hair scratches from neighboring facets.

Pits are usually caused by incomplete pre-polish. You will never achieve a good final polish until you have removed all the pits from preforming with pre-polish. Whatever grit is used in the preforming and shaping abrades the surface to that micron size. A 100 grit is a monster to the surface area versus a 1200 grit. You may prefer a course lap on hard stones. and a finer grit for the softer stones. Whatever, you still have to “heal” the surface from the pre-forming by pre-polishing to that depth or beyond, of that abrasion. After the pre-polish is complete, the final polish will be easier and much better.

Girdle width is subjective. New cutters usually tend to leave wide girdles. There is a good chance of chipping a gemstone when mounting them if the girdle is either too thick or too thin. A good rule of thumb is to think of a worn dime, and make your girdle about that thick. I can hear the repercussions of this statement already!!! Some will say to cut the girdle to 2% of the width of the stone. I have no fault with that logic. Just don't cut a knife edge girdle. That increases the chances for a chip.

The correct size for the table of most gemstones is 55 - 60 % of the width of the stone. Some diagrams will call for a smaller or larger table, depending on the design requirements. It's better to have a slightly larger table than a smaller one. First, it gets more light into the gem. Secondly, in my opinion, it sets up a more pleasing symmetry on the crown.

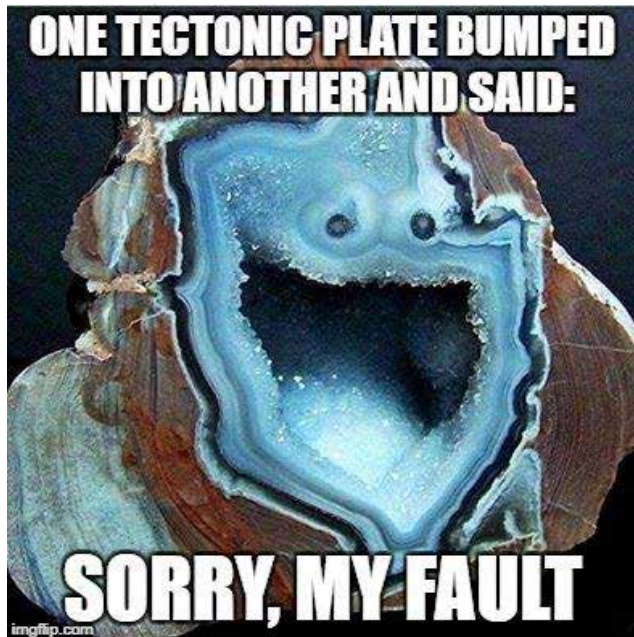
A final thought about an even girdle. This is controlled by the transfer. This is a and will always be a problem area. The only cure is a good transfer block, and experience in transferring. I used a dial indicator when I first started faceting. It was cumbersome to set up and use. Try this little tidbit as a substitute method. Every machine has an arbor for your laps. Use tJ1e arbor as a reference. Buy some “feeler” stock at the local auto parts store. The feeler stock is used to measure rods, bearings, etc. by mechanics. Buy the feeler stock in .001, .002, . 003, and .004 inches. Before removing the dop from your machine to transfer, mark your original dop with ink or fingernail polish. I mark the dop just beneath the stone and on the highest index of the gear. I also measure from the stone to the collet. These measurements and marks would allow me to

return the dop to its original position. Once you have marked and measured, remove the dop and complete your transfer. With both the original and the never dop attached return the original dop to its position in the handpiece. Place the handpiece in freewheeling and at 90 degrees. Lower the head and rotate the handpiece until the transfer (new) just touches the arbor. Observe the position of the index gear. For example, if the index gear is at 96 when touching, rotate it to an index of 48, and using the feeler stock, record the amount of run-out of the transfer assembly. (The assembly is the original dop, stone and new dop). If you can achieve a run-out of .003 or less, you will have a fairly even girdle. If you have a greater amount - remove the new transfer dop and try the transfer again. It is a good policy to make sure that both dops are the same diameter. This will require a caliper or micrometer. If the nm-out is .003 or less, remove the assembly; tum it around and install the assembly with the new dop into the collet with the paint mark at the 96 index position. Repeat the procedure with the feeler stock to find the run-out. Compile a chart, recording the run-out with the paint mark at 96, 48, 72, 24, indices. Where the least amount of run-out occurs, tighten the collet, wrap the gemstone and transfer dop with wet tissue, and remove the original dop with heat (on the original dop). This procedure will reduce the run-out and improve your chances of an even girdle. This gives you eight chances for a round type stone to reduce the run-out. In the case of ovals or marquise, or emerald type designs, you have only two chances to position the transfer assembly. Still, two chances are better than one.

Soak the glue or wax of the original dop. Don't scrape the dops with a knife or etc. Keep your dops free of any damage that will add to the potential run-out problems. If possible, keep dops in pairs by diameter measurements. Plan ahead before you ever start to cut to have a matching transfer dop.

A final last word -Don't be thin skinned about being judged!!!! Enter and join with your peer groups. It's a positive learning process!!!! Make sure the guy that wins really has to work hard to win!!!! Put those judges to work, but be nice to them for their efforts. The end result...you will be a winner!!!!!!

A Joke for Faceter



From imaglip.com by permission.

Jane worked as a professional faceter creating some stunning gemstones. She was going to write a letter to a customer, she told people at her workshop, "To whoever stole my copy of Microsoft Office, I will find you. You have my Word!"

Herbert was a well known faceter, but did like his drink. He was telling a group at a Frat, "As I was getting to bed, she told me 'you are drunk.'"

How did you know, I asked.

She said 'you live next door!' "

Faceting diagram

In the past, *The Midwest Faceter* included faceting diagrams. Rather than selecting diagrams that may or may not be appealing to the membership, you can select the faceting diagram of your choosing from two sites that have a multitude of designs. [A note to gem designers--If you use Gem Cut Studio or GemCad, create your own designs and would like to share with Guild members, just send a PDF of your design to the Editor and it can be featured in the next *Midwest Faceter*.]

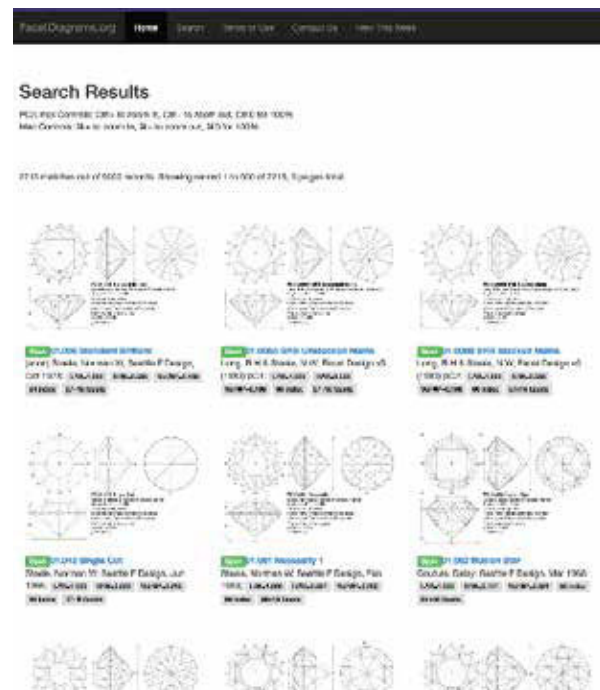
As a member, if you cut the design and you would like to send in a picture of your gem, look what we could start!

Facet Diagrams Website

www.facetdiagrams.org

The United States Faceters Guild Website

<https://usfacetersguild.org>



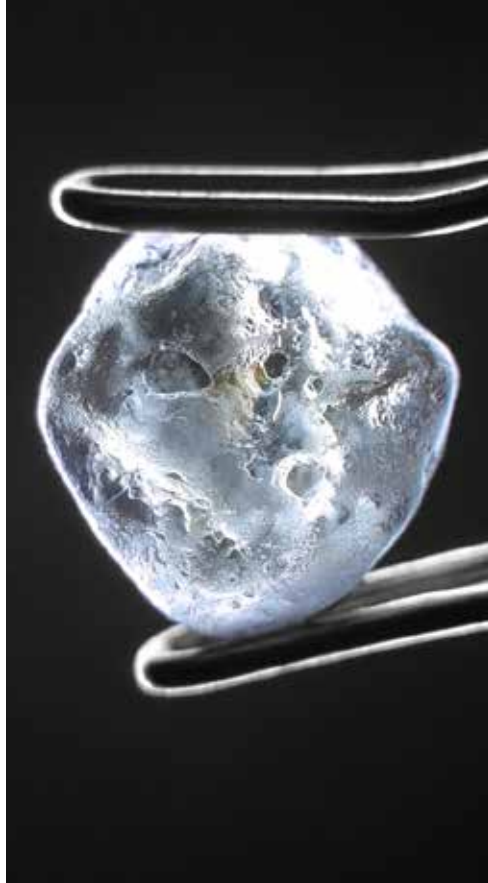
Belated Happy Halloween and Happy Thanksgiving!

Here is a costume design idea for your next Halloween. You can use many of the gemstones you have faceted that are sitting around! You are only limited by your imagination! (Pictures drawn by Dr. Reg Williams)



Buy, Sell & Trade

This section of the Midwest Faceter is dedicated for members to list any items to buy, sell or trade. The section can serve as the Guild's "Craigslist!" If you have something, do send an e-mail to the Editor and your item(s) can be listed in the next issue.



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The Midwest Faceter's Guild was established in 1979 for the purpose of developing the art of faceting, to promote education and recreation through the exchange of information, to provide meetings for those with like interests and to encourage the achievements of individuals.

The Midwest Faceter's Guild is also a member of the Midwest Federation of Mineralogical and Geological Societies as well as the American Federation of Mineralogical and Geological Societies.