



Grindings

Idaho Gem Club, Inc.

P.O. Box 8443  Boise, Idaho 83707-2443

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PRESIDENT'S MESSAGE

Greetings Rockhounds!!

Spring is my favorite season! The time of year we can get together roaming the hills, gathering new stones to work on and enjoying nature. There are a lot of new residents in our valley, and a lot of recreation taking place. As exciting as it is meeting new people and discovering a new hobby, it is easy to overlook safety and caution. Think of this scenario. You and your young children are climbing up and down rocky hillsides looking for rocks. One of your little ones doesn't see a big hole that is one foot deep and falls in, causing injury. You are over an hour to a medical clinic and another half hour to a hospital. Cell service is on/off, you also are not sure what road to direct someone to if you need help. Your truck is locked, first aid kit inside, and husband had truck keys in his pocket when he wandered over the next gulch. You cannot even honk the horn as a call for help. What do you do? Plan ahead!!

This scenario was the result of somebody leaving an open hole big enough for an animal or person to fall into. By leaving holes open, you create a dangerous situation. If you dig huge holes on someone's claim, that miner will have to pay to fill it in and do any reclamation work, which can cost thousands! The BLM, Forest Service, miners and ranchers all have great concern for the condition of the lands rockhounds leave behind. Please think of others, and take the ten minutes to fill your holes. No matter where you are. Leave gates as you find them. Be courteous to ranchers and the owners of mining claims. Please, do not trespass! Respect the claim markers, and be absolutely sure it is permissible to put a shovel in the ground. There are cases where a group is led by a person who does not regard privacy of claims, and you will assume it is okay when it is not! Find out for yourself! It is your neck in the noose if you are caught breaking any law! Keeping good relations with agencies is vital to our future access.

Stay on the established roadways. Avoid destroying vegetation by going off road. Many areas have been seeded for fire recovery. Driving through brush (off roads) creates fire risk from exhaust pipes, as well. Our fire season is expected to be very bad this year. Carry a fire extinguisher if possible and always pack water and a bucket with you. If you see a fire, immediately contact 9-1-1, and in Southwest Idaho call 208-384-3398. A bucket can be used to throw dirt onto a fire and prevent it from spreading. Drop a pin on a map app to mark the GPS location where you spot something to be reported. The more we do to work together with BLM, Dept. of Lands and Forest Service, the stronger our recreational hobby can become. Leave it better than you found it.

Earth Week is April 18-24, 2022. I have tried to organize a big clean-up on our claims and roadways into claims, but have had no luck. If you are out rockhounding during this period, please take some trash bags and help pick up litter. It is ultimately up to us to be good ambassadors and keep lands clean and enjoyable.

Our Field Trips are underway, and there are some things to remind you of. When the group meets up with the guides, please get out of your car and listen to the briefing! The leaders take extra trips out to ensure you will find good stuff and check conditions. Pay them the respect of listening to what they say please. You are a member of a social club, please introduce yourself to a few people on our field trips. Sign the log in sheet. We will have a tip jar to encourage contributions to the field trip guides to help offset fuel costs. They volunteer to lead trips so please be kind and thank them!! If the weather is awful, the leader may cancel, or he may propose an alternate. Staying off loose, soft dirt is the best thing to do. Don't destroy the lands if you get stuck. Remember that children and ladies are present, let's be mindful of our profanity please. When we visit sites together, do not assume it is okay to take your friends back to the same spot without asking permission. Mining claims have restrictions that must be obeyed. Please do not hesitate to ask questions to any officer or club member.

We have a lapidary artist coming from Los Angeles around May 10th who would like to teach a class on dichroic glass pendant making. If you are interested, please text me at 208-794-5628! He also wants to visit Graveyard Point and check out the Plume Agate.

Lots of events and activities are coming up . . . volunteer some of your time to help out! Be sure and watch the calendar for field trips, workshops and classes. The more helpers we have for anything we do, the more fun it seems to be. Look forward to getting to know everyone!

Respectfully Yours, Deana Ashton, President

The deadline for issues is the Friday after each Board Meeting for the current month's edition. To submit articles, please send them through email to Dana Robinson, Editor drobinso@boisestate.edu

ACTIVITY CALENDAR

APRIL

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4 ROLE Workshop 6-8:45 pm	5 Board Meeting 7 pm	6	7	8	9 Field Trip Graveyard Pt. Loop
10	11	12	13	14	15	16
17	18	19 General Meeting 7 pm	20	21 Workshop 6-8:45 pm	22	23
24	25	26	27	28	29	30 Workshop 10 am-2 pm

MAY

SUN	MON	TUE	WED	THU	FRI	SAT
1	2 ROLE Workshop 6-8:45 pm	3 Board Meeting 7 pm	4	5	6	7 Experience Idaho Event 10 am-5 pm
8	9	10	11	12	13	14 Field Trip Bennett Mtn. Agate
15	16	17 General Meeting 7 pm	18	19 Workshop 6-8:45 pm	20	21
22	23	24	25	26	27	28 Workshop 10 am-2 pm
29	30	31				

JUNE

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4 Field Trip Beacon Hill Nodules
5 Field Trip Beacon Hill Nodules	6 ROLE Workshop 6-8:45 pm	7 Board Meeting 7 pm	8	9	10	11 Field Trip Whangdoodle/ Queenstone
12	13	14	15	16	17	18
19	20	21 General Meeting 7 pm	22	23 Workshop 6-8:45 pm	24	25
26	27	28	29	30		

JULY

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2 Workshop 10 am-2 pm
3	4 ROLE Workshop 6-8:45 pm	5 Board Meeting 7 pm	6	7 Thunderegg Days, Nyssa 10 am-9 pm	8 Thunderegg Days, Nyssa 10 am-9 pm	9 Thunderegg Days, Nyssa 10 am-9:30 pm
10	11	12	13	14	15	16
17	18	19 Picnic Meeting 6 pm	20	21 Workshop 6-8:45 pm	22	23
24 31	25	26	27	28	29	30 Workshop 10 am-2 pm



Upcoming Events

Willamette Agate and Mineral Society Show, April 15-17, 2022, Polk County Fairgrounds, 520 S. Pacific Hwy. W., Rickreall, OR

Wasatch Gem, Mineral & Fossil Show, April 15-17, 2022, Salt Lake Co. Equestrian Park and Events Center, 2100 W. 11400 S., South Jordan, UT

Parade of Gems, April 22-24, 2022, Central Washington State Fairgrounds, 1301 S. Fair Ave., Yakima, WA

West Seattle Rock Club Mineral Show, April 23-24, 2022, Alki Masonic Temple, 4736 40th Ave. SW, Seattle, WA

The Rogue Gem & Geology Club Show, April 23-24, 2022, Josephine Co. Fairground Pavilion, 1451 Fairgrounds Rd., Grants Pass, OR

Billings Gem and Fossil Club Show, April 30-May 1, 2022, Al Bedoo Shrine Auditorium, 1125 Broadwater Ave., Billings, MT

**IDAHO GEM CLUB
MEMBER FIELD TRIPS**

- Sat., Mar 26 Bruneau Woodpile, Petrified Wood
- Sat., Apr 9 Graveyard Point Loop, 6 stop tour, Plume Agate
- Sat., May 14 Bennett Mountain, Red/Blue Agate with Tony Funk & Magic Valley Club
- Sat-Sun, Jun 4-5 Beacon Hill Club Claim, Geodes
- June 11 Whangdoodle Opal Claim, Opal, Fire Opal Queenstone 1, 3 & Royal Queenstone, Jasper
- July 7-9 Nyssa ThunderEgg Days Event, Thundereggs and Geodes
- Aug. 12, 13, 14 Glass Buttes/Hampton Butte, Palisades Obsidian and Petrified Wood Overnight Trip
- Sept. 10, 11 Texas Springs, Jackpot, NV Pink Limb Casts
- Oct. 8 McDermit/Caldera Rock Shop Gary Green Jasper, Thundereggs, Petrified Wood, Purple Cow Agate

MAY FIELD TRIP

Saturday, May 14, 2022, will be the field trip for May. We will be joining the Magic Valley Club and Tony Funk will be leading us to the Bennett Mountain area to collect red and blue agate. The first half of the day will be at Bennett Mountain area and the second half will be at Tony's rock yard, where you can collect for a per pound fee.

We will meet at the Mountain Home Chevron/Burger King, Exit 90, at 7:00 am, leaving at 7:30 am. You must leave Boise an hour earlier to be on time for the meetup. We will travel about an hour from Gooding to meet up with Tony. Bring a shovel, a pick and a garden claw rake, plenty of water. There will be a potluck barbecue lunch back at Tony's around lunch time.

FIELD TRIP SUPPLIES

- | | |
|-----------------------|---------------------|
| Rock Hammer | Water |
| Chisel, Pick, Pry Bar | Sunscreen and a Hat |
| Shovels | Knee Pads |
| Garden Claw Rake | Safety Glasses |
| Buckets or Sacks | Gloves |
| Screening Box | First Aid Kit |
| Map or GPS | |

Good boots or hiking shoes are recommended
 Rain Coat (dress in layers for cooler mornings)
 Lunch/Dinner/Snack Foods/Camping supplies



WORKSHOPS

See the calendar for upcoming workshop dates! Come cut your rocks and learn cabochon making! Brent Stewart, Rick Corbett, Liz Warner keeps the club lapidary workshop operating year round.

Third Thursday of each month from 6:00 pm-8:45 pm
Saturday the week after general meeting -- 10:00 am-2:00 pm

WORKSHOP LOCATION

2620 W. Idaho St., Boise, ID
Next door to Stewart's Gem Shop

\$5 Fee for each visit (kids free)



SUNSHINE LADY REPORT

By Deana Ashton

Our heartfelt sympathy goes to Willa Renken whose mother, Rose Carmen Hagans, 87, of Weiser passed away March 28, 2022. Graveside service on April 8, 2022 at 11:00 am will be followed by a luncheon at the LDS Church. We will keep Willa, Doug and family in our thoughts and prayers during this time.

Ed Moser had eye surgery the first week of April. Keep Ed in your prayers for a swift recovery!

IGC Sunshine Lady sends cheerful greetings to club members needing , get well wishes, sympathy and anniversary expressions. If you know someone in need of cheer or attention, Please text or call Deana at 208-794-5628

New Members:

Our website at idahogemclub.com has all of the information regarding our club operations. We also have a facebook page for interacting and socializing. Please contact any Officer or Board Member with questions or suggestions! Welcome to your Gem Club!

THE GRINDINGS

is the monthly newsletter of the Idaho Gem Club, Inc., associated with the Northwest Federation of Mineralogical Societies. Permission to copy is freely granted when proper credit is given to both the publication and the author.

Articles without bylines are written by the Editor or President.

CHECK OUT THE CLUB WEBSITE!
www.idahogemclub.com

ROCK TUMBLING/ POLISHING CONTEST GRAB BAG SEWING CONTEST

In 2022, we will be having a Rock Tumbling Contest! We need to replenish our inventory of polished rocks for filling our grab bags.

Our 2022 Gem Show sold out the last of our grab bags of polished rocks provided by Jim and Belle Witt in 2017. Jim tumbled an astounding 1900 pounds of rocks which filled our 3,000 sewn fabric grab bags (Belle won the sewing contest) and that whopping batch of rocks has lasted for 4 years. Now we need other members to get into tumbling and are ready to help. The club pays \$125.00 per 5 gallon bucket (about 75#) of polished rocks.

We will have a program on rock tumbling and polishing at our April 19 meeting. We will discuss all the types of tumblers and grits, go over the 4 basic steps and procedures to get a dazzling finish on stones. We will have handouts on this topic as well.

If you have rocks to donate for tumbling, bring them to the meeting! Or bring tumblers no longer being used so we can share them with members wanting to learn how!

Idaho Gem Club also pays \$125.00 for a 5-gallon bucket of polished rocks for grab bags. They should be well finished, without a lot of crevices filled with white residual polish. If you know how to tumble, please help us by saving your finished rocks for the club's use at the Gem Show.

We use pieces smaller than a thumbnail for our sand/treasure dig and need as many as possible! Contact Deana Ashton with any questions! 208-794-5628

TUMBLING INSTRUCTIONS

ROTARY ROCK TUMBLERS

These instructions will work with any rotary rock tumbler. The specific measurements provided for abrasive materials (grit and polish) is for 3 pound barrel capacity machines. You can adjust the media amounts with the inserted chart. All of the guidelines and approaches are good practice for any rock tumbling project.

Four Step Process

Rotary tumblers use a four step tumbling process:

1. Coarse Grind
2. Medium Grind
3. Pre-polish
4. Polish

Between each of the four steps remove, thoroughly rinse your rocks, and clean out the barrel. Everything must be cleaned thoroughly to remove all grit or rock debris. This is really important as the coarser grits from one step will act adversely in the next steps, scratching your rocks. As always, it is advised not to throw used grit down a drain because plumbing will be damaged/plugged. Use a bucket and a screen to collect used grit and slurry. Do not use an aluminum colander or pan to rinse your stones as it may mark them.

Good Rock Selection

The tumbling process starts with good rock selection. Pick rocks that are of near the same hardness. Use a mixture of small and large stones, but mainly larger ones. The smaller stones will help the grinding action. Gather enough rocks to fill your barrel between 2/3 and 3/4 full. Too many stones and they will roll too short a distance for effective action.



Step One (Coarse Grind)

The goal of this step is for all surfaces of your rocks to be well-rounded. Place rocks in the tumbler and add the 60/90 silicon carbide grit. You are looking to round your rocks in this step over 7 to 10 days. The grit to rock ratio in this step is 2 tablespoons of grit per pound of rock. Add water until it is about 1 inch below your top layer of rocks. Seal the barrel and invert it to check for leaks. Once the tumbling starts watch for a few minutes to be sure there are no leaks. At the early days of this step, check daily on the progress by opening and inspecting the barrel. If the barrel appears to physically swell, open it to vent the buildup of gas which may naturally occur, be prepared with safety glasses and precautions for that. You can also add a teaspoon of baking soda and start with room temperature water to prevent a buildup of gases. Examine your rocks and slurry (the grit and water now mixed with some rock trailings). If it seems thick enough to impede the smooth tumbling of your rocks, thin it with a

small amount of water. Once you see rounding has occurred for most or all of your rocks, you can move on to step 2.

Step Two (Final Grind)

In this step your purpose is to conclude the shaping process to your satisfaction. You will be removing any declensions and pitting that may have been present after step one. This step usually takes 7 to 10 days also. Remove any rocks that are not responding sufficiently or have evolved to an unattractive shape. Put your cleaned rocks in the barrel again, and add a 120/220 silicon carbide grit at 2 tablespoons per pound of load. Add water up to the bottom of the top layer of rocks and add a pinch of baking soda. Seal and tumble as before. Your slurry should be a little thinner than in the last step varying with the softness or fragility of materials you are processing. Your goal again in this step is to see that all the scratches from the first step are ground away and the rocks have a smooth, matte finish.

Step Three (Pre-polish)

In this step the goal is to make the rocks extremely smooth. As before, put cleaned rocks in the cleaned and fresh barrel to make a full load. Use a pre-polish of either silicon carbide 500 or aluminum oxide 500 for this step, about 1 tablespoon per pound of load, and then add water up to the bottom of the top layer of rock. Tumble time here is up to 7 days, with more checking slurry consistency and general progress every day or two. For softer rocks, you may need to do a second pre-polish step or just keep them in a little longer. At the

end of this step it is most crucial to really clean the rocks and barrel. It will be more difficult because you are using a finer grit. This is so important because any grit can ruin the progress of your rocks in the final polish step.

Step Four (Polish)

By this time your rocks are looking pretty good and ready for that lasting final shine. You have been extra diligent on cleaning the rocks and barrel. Place your rocks in the tumbler and add Aluminum Oxide Polish, about 1 tablespoon per pound of rock. Step four takes up to seven days, but be sure to check the rocks as you are proceeding because some will be finished earlier. The best check for completed rocks is that they look now as they would if wet. Once that is the case you are done with this step. One final detail, it is best to clean up now by cleaning your equipment thoroughly before everything dries and encrusts. Now you'll be ready for your next project with rock tumbling.



Media Amount Adjustment Chart (for generic tumbler)

Some tumblers require different amounts.

Check the instructions for your specific tumbler.

Barrel Capacity (lbs.)	Step 1 Coarse Grit	Step 2 Medium Grit	Step 3 Pre-polish	Step 4 Polish
2	2 oz	2 oz	1.5 oz	1.5 oz
3	3 oz	3 oz	1.5 oz	1.5 oz
4	4 oz	4 oz	2 oz	2 oz

This chart is a general guideline to grit measurements. The correct amount of grit and polish to use will vary by project task. Hard rocks and particularly rough rocks may require additional grit to be added at some point in the process.

Since most people don't have an ounce measure scale around, the following is an easy way to arrive at ounces and is based on standard measuring spoons.

- 1 oz. coarse grit = 4 level tsps.
- 1 oz. medium grit = 4 level tsps.
- 1 oz. fine grit = 4 level tsps.
- 1 oz. polishing grit = 8 level tsps.

VIBRATORY ROCK TUMBLERS

Vibrating or vibratory rock tumblers can polish rocks in a fraction of the time required by rotary tumblers. They also result in polished stones that retain the shape of the rough material, as opposed to the rounded shapes obtained by rotary tumbling. Vibratory tumblers are aggressive and will eat up the soft rocks. Agates, jaspers and other hard rocks work best. Never use 60/90 in a vibratory tumbler. There are only three stages: 120/220, 500, and polish. Aluminum oxide polish is best for vibratory tumbling. You should also have a second bowl for your tumbler exclusively for polish. The grit gets embedded in the walls of the bowl and will affect the shine in the polish stage.

Materials List

- A vibratory tumbler.
- Rocks. You will get better results with a mixed load that includes both small and large rocks.
- Filler. Plastic pellets are great, but you can use small rocks having the same or lesser hardness as your load.
- 120/220 grit, 500 grit and polish (e.g., aluminum oxide).
- Soap flakes or Borax.

How To Use a Vibratory Rock Tumbler

Fill the bowl of the tumbler about 3/4 full with your rock. If you do not have sufficient rock to fill the bowl to the 3/4 level, then add plastic pellets or other filler.

Add water to 1 inch below the top rocks, then add 1 tablespoon of grit and turn the vibratory on and add a tablespoon at a time until the rocks are completely gray. It will probably take about 3-6 tablespoons. If they get dry during the process spray in a little more water and continue. The rocks should be just wet enough for the grit to stick to them. Let it run for a day or so, checking it three times a day. The rocks should always be moving, coming up from the sides and going back down into the center of the bowl. If they are moving slowly, spray them with water until they start to move faster. You should never see water in the bottom of the bowl. If you do there's too much water and the slurry will turn into a gray milkshake. You should run the tumbler for 2 days, then wash and recharge with fresh grit and go two more days.



When the rock has achieved the desired smoothness and roundness, remove the load and rinse the bowl and the rocks thoroughly with water. Return the rock to the bowl, add a tablespoon of soap flakes, and fill the bowl with water

to the top of the rocks. Vibrate the mixture for about half an hour. Rinse the rocks and the bowl.

Return the rocks to the bowl and proceed to the next polishing step with the 500 grit. With the 500 you will only need 3 or 4 tablespoons to achieve the slurry. In this stage, the rocks will stay moving better and won't need as much water to keep them going. You should run the tumbler for 2 days, then do the wash with soap flakes and add a teaspoon of polish. This will act as a pre-polish stage as well.

Return the rocks to the bowl for the final polish stage. The polish slurry should be milky, but you should barely be able to see the patterns of the rock through it. This stage runs for 5-6 days. The longer you run the polish, the better the shine. You can remove a couple of rocks each day and rinse to determine if they are polished to your satisfaction. For this stage you will only need to check on them once or twice a day.

After you are satisfied with the polish, rinse the rocks and vibrate in the soap flakes for about 3 hours. Rinse and allow the stones to dry.



DIAMONDS

Diamond is one of the best-known and most sought-after gemstones. They have been used as decorative items since ancient times. The hardness of diamond and its high dispersion of light — giving the diamond its characteristic “fire” — make it useful for industrial applications and desirable as jewelry. Diamonds are such a highly traded commodity that multiple organizations have been created for grading and certifying them based on the “four Cs”, which are color, cut, clarity, and carat. Other characteristics, such as presence or lack of fluorescence, also affect the desirability and thus the value of a diamond used for jewelry.



Diamonds are used in engagement rings. The practice is documented among European aristocracy as early as the 15th century, though ruby and sapphire were more desirable gemstones. The diamond is the birthstone for people born in the month of April, and is also used as the symbol of a sixty-year anniversary, such as a Diamond Jubilee.

The modern popularity of diamonds was largely created by De Beers Consolidated Mines, which established the first large-scale diamond mines in South Africa. Though popularly believed to derive its value from its rarity, gem-quality diamonds are quite common compared to rare gemstones such as alexandrite, and annual global rough diamond production is estimated to be about 130 million carats.

Material Properties

Diamond is a solid form of the element carbon with its atoms arranged in a crystal structure called diamond cubic. Diamond has the highest hardness, thermal conductivity, and highest sound velocity of any natural material. Its optical transparency extends from the far infrared to the deep ultraviolet and it has high optical dispersion. It also has high electrical resistance and is chemically inert, not reacting with most corrosive substances.

Because the arrangement of atoms in diamond is extremely rigid, few types of impurity can contaminate it. Two exceptions are boron and nitrogen. Small numbers of defects or impurities color diamond blue, yellow, brown, green, purple, pink, orange, or red. Diamond also has a very high refractive index and a relatively high optical dispersion.

Most natural diamonds have ages between 1 billion and 3.5 billion years. Most were formed at depths between 93 and 155 miles in the Earth’s mantle, although a few have come from as deep as 500 miles. Under high pressure and temperature, carbon-containing fluids dissolved various minerals and replaced them with diamonds. Much more recently (hundreds to tens of million years ago), they were carried to the surface in volcanic eruptions and deposited in igneous rocks known as kimberlites and lamproites.

Synthetic diamonds can be grown from high-purity carbon under high pressures and temperatures or from hydrocarbon gases

by chemical vapor deposition (CVD). Imitation diamonds can also be made out of materials such as cubic zirconia and silicon carbide. Natural, synthetic and imitation diamonds are most commonly distinguished using optical techniques or thermal conductivity measurements.

Properties

Hardness: Diamond is the hardest known natural material on both the Vickers scale and the Mohs scale. Diamond’s great hardness relative to other materials has been known since antiquity, and is the source of its name. This does not mean that it is infinitely hard, indestructible, or unscratchable. Diamonds can be scratched by other diamonds and worn down over time even by softer materials, such as vinyl phonograph records.

The hardness of diamond contributes to its suitability as a gemstone. Because it can only be scratched by other diamonds, it maintains its polish extremely well. Unlike many other gems, it is well-suited to daily wear because of its resistance to scratching.

The hardest natural diamonds mostly originate from the Copeton and Bingara fields located in Australia. These diamonds are generally small, perfect to semiperfect octahedra, and are used to polish other diamonds. Their hardness is associated with the crystal growth form, which is single-stage crystal growth. Most other diamonds show more evidence of multiple growth stages, which produce inclusions, flaws, and defect planes in the crystal lattice, all of which affect their hardness.

Toughness: Somewhat related to hardness is another mechanical property, toughness, or a material’s ability to resist breakage from forceful impact. As with any material, the macroscopic geometry of a diamond contributes to its resistance to breakage. Diamond has a cleavage plane and is therefore more fragile in some orientations than others. Diamond cutters use this attribute to cleave some stones, prior to faceting.

Color: Diamond has a wide band gap of 5.5 eV corresponding to the deep ultraviolet wavelength of 225 nanometers. This means that pure diamond should transmit visible light and appear as a clear colorless crystal. Colors in diamond originate from lattice defects and impurities. The diamond crystal lattice is exceptionally strong, and only atoms of nitrogen, boron, and hydrogen can be introduced into diamond during the growth at significant concentrations.

Nitrogen is by far the most common impurity found in gem diamonds and is responsible for the yellow and brown color in diamonds. Boron is responsible for the blue color. Color in diamond has two additional sources: irradiation, which causes the color in green diamonds, and plastic deformation of the diamond crystal lattice. Plastic deformation is the cause of color in some brown and perhaps pink and red diamonds. In order of increasing rarity, yellow diamond is followed by brown, colorless, blue, green, black, pink, orange, purple, and red. Colored diamonds contain impurities or structural defects that cause the coloration, while pure or nearly pure diamonds are transparent and colorless.

Clarity: Clarity is one of the of 4C’s that helps in identifying the quality of diamonds. The Gemological Institute of America clarity scale spans from Flawless (FL) to Included (I) with several levels in between. The clarity scale grades the diamond based on the color, size, location of impurity and quantity of clarity visible under 10x magnification.



Identification

Diamonds can be identified by their high thermal conductivity. Their high refractive index is also indicative, but other materials have similar refractivity. Diamonds cut glass, but this does not positively identify a diamond because other materials, such as quartz, also lie above glass on the Mohs scale and can also cut it. Diamonds can scratch other diamonds, but this can result in damage to one or both stones.

The extreme hardness and high value of diamond means that gems are typically polished slowly, using painstaking traditional techniques and greater attention to detail than is the case with most other gemstones. This tends to result in extremely flat, highly polished facets with exceptionally sharp facet edges. Diamonds also possess an extremely high refractive index and fairly high dispersion. Taken together, these factors affect the overall appearance of a polished diamond and most cutters still rely upon skilled use of a loupe to identify diamonds “by eye”.

Fluorescence

About a third of all diamonds display fluorescence which may be noticeable under a black light or strong sunlight. Most will be faint blue fluorescence, but some have fluorescence that ranges from medium to very strong blue. Other colors diamonds can fluoresce are green, yellow, and red, but are very rare and are sometimes a combination of the colors such as blue-green or orange. In 2020, a population of diamonds were discovered within an alluvial deposit at the Ellendale diamond field in Australia that exhibit an ultra rare purple fluorescence.

Some diamonds with “very strong” fluorescence can have a “milky” or “oily” look to them, but they are also very rare and are termed “over-blues.” A study concluded that with the exception of “over-blues” and yellow fluorescent diamonds, fluorescence had little effect on transparency and that the strong and very strong blue fluorescent diamonds on average had better color appearance than non-fluorescent stones.

Geology

Diamonds are extremely rare, with concentrations of, at most, parts per billion in source rock. Before the 20th century, most diamonds were found in alluvial deposits. Loose diamonds are also found along existing and ancient shorelines, where they tend to accumulate because of their size and density. Rarely, they have been found in glacial till (notably in Wisconsin and Indiana), but these deposits are not of commercial quality. These types of deposit were derived from localized igneous intrusions through weathering and transport by wind or water.

Most diamonds come from the Earth’s mantle, however, there are other sources. Some blocks of the crust, or terranes, have been buried deep enough as the crust thickened so they experienced ultra-high-pressure metamorphism. In addition, when meteorites strike the ground, the shock wave can produce high enough temperatures and pressures for microdiamonds and nanodiamonds to form. Popigai crater in Russia may have the world’s largest diamond deposit, estimated at trillions of carats, and formed by an asteroid impact.

A common misconception is that diamonds form from highly compressed coal. Coal is formed from buried prehistoric plants, and most diamonds that have been dated are far older than the first land plants.

Surface Distribution

Diamonds are far from evenly distributed over the Earth. They are almost always found in kimberlites on the stable cores of continents with ages of 2.5 billion years or more. However, there are exceptions. The Argyle diamond mine in Australia, the largest producer of diamonds by weight in the world, is located in a mobile belt. Instead of kimberlite, the host rock is lamproite. Lamproites with diamonds that are not economically viable are also found in the United States, and India. In addition, diamonds in Canada and microdiamonds in Japan are found in a type of rock called lamprophyre.

All three of the diamond-bearing rocks (kimberlite, lamproite and lamprophyre) lack certain minerals that are incompatible with diamond formation. They are all derived from magma types that erupt rapidly from small amounts of melt, are rich in volatiles and magnesium oxide, and are less oxidizing than more common mantle melts such as basalt. These characteristics allow the melts to carry diamonds to the surface before they dissolve.

Although diamonds on Earth are rare, they are very common in space. In meteorites, about three percent of the carbon is in the form of nanodiamonds.

Industrial-Grade Diamonds

Industrial diamonds are valued mostly for their hardness and thermal conductivity, making many of the gemological characteristics of diamonds, such as the 4Cs, irrelevant for most applications. 80% of mined diamonds are unsuitable for use as gemstones and are used industrially. In addition to mined diamonds, synthetic diamonds found industrial applications almost immediately after their invention in the 1950s. Approximately 90% of diamond grinding grit is currently of synthetic origin. Within the category of industrial diamonds, there is a sub-category comprising the lowest-quality, mostly opaque stones, which are known as bort.

Industrial use of diamonds has historically been associated with their hardness, which makes diamond the ideal material for cutting and grinding tools. Specialized applications include use in laboratories as containment for high-pressure experiments. The high thermal conductivity of diamond makes it suitable as a heat sink for integrated circuits in electronics.

Mining

Roughly 49% of diamonds originate from Central and Southern Africa, although significant sources of the mineral have been discovered in Canada, India, Russia, Brazil, and Australia.

Historically, diamonds were found only in alluvial deposits in Southern India. India led the world in diamond production from the time of their discovery to the mid-18th century, but the commercial potential of these sources had been exhausted by the late 18th century. Diamond extraction from primary deposits (kimberlites and lamproites) started in the 1870s after the discovery of the Diamond Fields in South Africa. New mines have started production in Canada, Zimbabwe, Angola, and one in Russia.

In the U.S., diamonds have been found in Arkansas, Colorado, New Mexico, Wyoming, and Montana. The Crater of Diamonds State Park in Arkansas is open to the public, and is the only mine in the world where members of the public can dig for diamonds.

GEM CLUB OFFICERS

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MINUTES OF THE IDAHO GEM CLUB GENERAL MEETING MARCH 21, 2022

Meeting called to order at 7:02 by Deana Ashton. The Pledge of Allegiance was recited and 17 guests and new members were introduced.

Rick drew winning tickets for door prizes for 11 juniors and 5 adults.

Secretary Report: No report.

Treasurer Report: Teresa was absent. Willa Renken reviewed the show involvement and clean fun club activities. The next generation needs to learn and pass the information on to others.

Workshop Report: Liz Warner showed what cabachons are and went over the workshop times and location. This month's workshops are on the 17th from 6-8:45 pm and the 26th from 10 am-2 pm. There is a \$5 fee for equipment usage. The next ROLE workshop will be April 4th. She went over the ROLE program for education. It helps you learn types of stones and how to cut them, as well as different shapes. Liz and Rick Corbett keep the workshop going. Rick and Marge Conley also teach wire wrapping. Rick has classes at Need to Bead as well. Willa teaches silversmithing classes that you can sign up for at workshops.

Youth Group Report: Cheryl Link announced that the Badge Program is starting up again in May, along with a monthly juniors' workshop through the summer. They will do projects and look at their rocks on the enlarging microscope monitor. There is a Rock Painting Project as well. Each participant receives a box for collecting and labeling specimens. The box can be used for show and tell. It is a good way to increase the collection.

Field Trip Report: Cheryl Link and Deana showed the loaner tool packs available to check out. The field trip is to the Bruneau Wood Pile for petrified wood on March 26th. There are petrified pine cones and fish vertebrae, but they are rare. Coyote Short knows about the Bruneau formation and can answer your questions. She can also do rock identification for you. We will meet at the Chevron/Burger King in Mountain Home. Take Exit 90 from the freeway. Meeting time is 8 am, leaving at 8:30.

Deana went over the field trip list for the year. There are copies on the back table for any who want them.

Deana introduced Robert Garner and Desiree Bradley. They are the new field trip guides. They brought some new specimens from California, too.

Building Fund: Angela will be the new chairperson for the Building Fund. She did a great job for us at the show selling T-shirts. She also baked cupcakes for all of us tonight!

Old Business: No old business.

New Business:

Sandy pointed out the benefit of NFMS and AFMS member directory. You may find contacts for field trips in areas you are visiting.

There are several clubs in Idaho that would like to swap field trips. It is a way to visit some new collecting areas. Also, you can join the Owyhee Gem and Mineral Society, aka the Caldwell Club, to join in their field trips.

Meeting adjourned at 8:25 pm

Respectfully submitted, Dana Robinson, Secretary

MINUTES OF THE IDAHO GEM CLUB BOARD MEETING APRIL 5, 2022

Deana Ashton called the meeting to order at 7:06 pm.

Present: Deana Ashton, Rick Corbett, Teresa Nebeker, Terri Frostrom, Willa Renken, Jason Smith, Cheryl Link, and Dana Robinson

Absent: Ed Moser, Brent Stewart, Randy Harrison

Guests: Sandy Blodgett

Deana asked for any corrections to the minutes as printed in the *Grindings*. Willa made a motion to accept the minutes, which was seconded by Jason. Board members voted, motion carried.

Treasurer Report by Teresa Nebeker: Cheryl brought information regarding Thrivent. It is a place to register to accept donations. It is a legitimate banking organization.

Cheryl made a motion to register the club with Thrivent Choose to accept charitable donations. Terri seconded, the board members voted and the motion carried.

Teresa reported that the bill hasn't been received from the Statesman advertising to determine total show revenue. The Thunder Egg Days application has been received. She also went over the monthly financial statements.

Secretary Report: No report.

Federation Director Report: Randy Harrison will not be able to do the federation meetings this year. We need an alternate to go the shows and meetings and vote for the club.

Program Report: It will be on Rock Tumbling to go with the tumbling contest. Should show the difference between rotary and vibratory tumblers.

Youth Group Report: We need someone to do the school programs and STEM night displays. Kids' workshops will start in May.

Field Trip Report: Robert led a good outing with 65 people out to Bruneau. There was a nice hot dog cookout for lunch.

Sandy and Robert Garner are leading the Graveyard Point Loop Tour. If the weather turns bad we can go to Queenstone. Lots of new claims in the Graveyard Point area. There will be a lot of new members to help out and show around on upcoming field trips.

BLM is having issues with people driving off-road. It is impacting new plantings that have been done for fire recovery. Need to stay on the roads.

April 21st is Earth Day. Maybe do a cleanup at Graveyard Point and Whangdoodle.

Workshop Report: No report. Brent excused.

Old Business: No old business.

New Business: This year most field trips were kept close to Boise due to fuel costs. Try to encourage people to tip the leaders to help with fuel costs.

There will be a Rock Swap in the parking lot at the Grange before the next general meeting from 5-7 pm.

Experience Idaho has an upcoming event on May 7. The nonprofit rate for a booth is \$150, extra for power. It is a one day event promoting all things Idaho. It is open from 10 am to 5 pm.

Willa made a motion to spend \$250 for the club to have a table at the Experience Idaho event. Cheryl seconded, the board voted and the motion passed.

Jonathan Barnett's Estate Sale is on April 8th and 9th from 9 am to 4 pm. Deana will send an email flyer to board members and the membership.

ROLE workshop had 8 attendees and went well. There is a need to order water pumps and new tubing for the genies. Also Liz needs approval to get more acetone to clean stones before dopping. Should use water in trim saws.

We need to form a committee to review and Bylaws and Operating Procedures. Will work on it.

Twenty new member applications were reviewed. Cheryl made a motion to accept the new members, Jason seconded, the board voted and the motion carried.

Meeting adjourned at 8:50 pm.

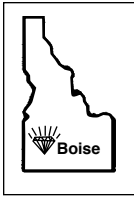
Respectfully submitted, Dana Robinson
Secretary

CLUB POSITIONS OPEN:

We are seeking a person to be an
Alternate Federation Director to attend
Federation meetings to vote for the club.

Contact Deana Ashton at 208-794-5628 for
details about this opening.





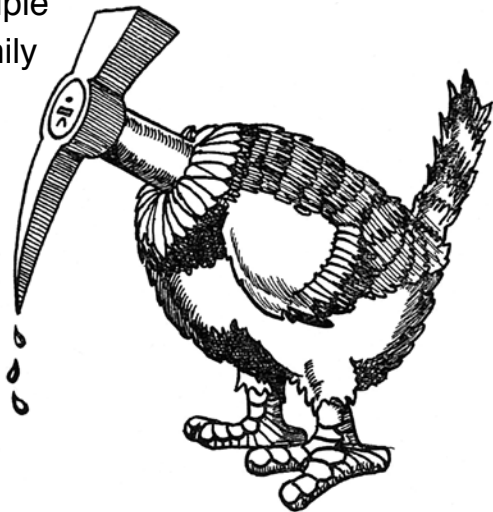
Idaho Gem Club, Inc.
 P.O. Box 8443
 Boise, Idaho 83707-2443

RETURN SERVICE REQUESTED

The purpose of the Idaho Gem Club is to promote mutual, educational and scientific interests and benefits of it's members in mineralogy, geology, gemology, the art of lapidary and kindred arts and sciences. Applications and/or renewals may be sent to the Idaho Gem Club, P.O. Box 8443, Boise, ID 83707-2443.

Dues:
 \$22.00 individual
 \$25.00 couple
 \$28.00 family

Subscription only:
 \$10 per year



GENERAL MEETING:
 3rd Tuesday of every month: 7:00 p.m.

BOARD MEETING:
 1st Tuesday of every month: 7:00 p.m.

ADDRESS:
 Maple Grove Grange
 11692 W. President Dr., Boise

