



LEAVERITE NEWS

Grand Junction Gem and Mineral Club
2328 Monument Road
P.O. Box 953, Grand Junction, CO 81502



★ PRESIDENT'S MESSAGE FROM JIM SCHULTZ ★

I and your newly elected Board members wish you all a very Happy New Year. We want you all to understand how much our organization depends on the membership's common goals in keeping the Grand Junction Gem and Mineral Club's objectives of education and understanding our geological surroundings alive.




My goal for this year is to gain a more thorough knowledge of how our club manages to focus all of our efforts onto our annual Gem and Mineral Show on Mother's Day! All I have ever done in past years was to set up tables and haul them back to the club house.

All of the various committee chairpersons are invited to attend our next board meeting on Wednesday, January 10th at 7:00 P.M. to explain how you have coordinated these efforts in the past. Through discussing these functions as a group, there are likely some ways we can fine-tune them to be more efficient. It would also be great to get more of our members actively involved.

The board would like all officers, directors, show committee people and committee chairpersons to attend. We need to share our ideas and concerns.

I want to remind everyone again to make sure you pay your 2018 dues.

Check out meetup.com and get signed up. If you have any questions, contact Jim Schultz at 970-242-0428. This is a great way to stay up-to-date on what is happening in the club and to communicate with each other about the field trips and current changes that may come up.

January, 2018				Volume 35 Number 1		
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 	2	3 12-3 Open Shop	4	5	6 9-12 Open Shop
7	8 Lapidary 6-9	9 Advanced Lapidary 6-9	10 12-3 Open Shop Board Meeting	11 Program 6:30	12	13 9-12 Open Shop
14	15 Lapidary 6-9 	16 Advanced Lapidary 6-9	17 12-3 Open Shop	18	19	20 9-12 Open Shop 9:30 Facetors
21	22 Lapidary 6-9	23 Advanced Lapidary 6-9	24 12-3 Open Shop	25 Dinner 6:30	26 Mineral Group 6:30	27 9-12 Open Shop
28	29 Lapidary 6-9	30 Advanced Lapidary 6-9	31  12-3 Open Shop Full Moon			

Your Leadership Rocked!



Mel, Pam, and Mike! A singular thanks to Pam for keeping the club and books in order. With the passing of leadership, this familiar sight at the beginning of each meeting will change, but their dedication and service to the club will continue and much will remain: Brag rocks will remain; Expertise in identification; Great stories of rock hunting; and Inspiration to young and old!



New Board Members

At the December club meeting, the proposed new board members were voted in unanimously!

Our new president, Jim Schultz, comes from a background of various interests and occupations. His main interest has always been working with people. He retired eight years ago from the real estate profession of thirty years as a real



estate consultant. Most of his time now is divided among the pursuit of petrified wood, rocks in general, and archaeology. He has spent 5 years on the GJGMC Board of Directors as a board member, and the Finance Director. His wife of 51 years, Evita, is the club's Membership Committee Chairperson.

Office	2018
President	Jim Schultz
Vice President	Val Medeiros
Treasurer	Dave McCollough
Secretary	Anita Martinez
1-Year	Nancy Schuerr
2-Year	Cindy Teare
3-Year	Teri Drost
Finance	Chris Henderson
Past President	Tony Kovschak
	Mel Bersch



Our new vice president, Val Medeiros, was born and raised in Hawaii and joined the Air Force in 1978. While in the AF, she was stationed in Alaska in 1980-1981. This is where she first learned lapidary. Years went on and 2 lock boxes, with rocks in it, moved with her everywhere she went, knowing that one day she'd get back to her rocks. When in MN a friend's dad passed and the family gifted his Lortone combo unit to her. When they moved to Grand Junction in 2012, they finally had room for a shop. She joined the club and slowly all her woodworking tools disappeared and

was replaced with a Cab King, 4 saws, 3 flat laps, and silversmithing tools. Val loves all rocks including dino bone, petrified wood, geodes, agates, but really loves her petrified ferns and cones. She looks forward to the upcoming year!

Dave McCollough, treasurer, works for the State of Colorado, CDOT, on smaller construction projects around northwest Colorado. My background is in Geology (armchair discipline). I previously worked in coal quality control for 10 years when we first moved into western Colorado. My wife Pam and I like to travel around the remote areas and view the geology, botany, ruins, panels, and great scenery that surrounds us - the "intermountain west." Current plans are to become more involved with this great club. My primary interest with the Gem & Mineral Club is geology and I am branching into lapidary.



Christmas Party



Joanna Marini Dindinger, a harpist who played for our Annual Christmas Dinner the last two years, again presented us with beautiful dinner music throughout the evening. She is always the highlight of the Christmas Dinner. A special “thank you” for setting the tone and adding to the spirit of the evening. As usual, there was an abundance of wonderful food and the hall was overflowing with members and friends. Linda Dunham, Judy Nason, Pat and Leck Mitchell prepared the hall with the beautiful decorations and table arrangement. Thank you to all who contributed to this special evening.



Lifetime Honorary Membership

The Board voted to provide a lifetime honorary membership to Jan McCollum for her hard work and dedication to the club. Virginia Giles received a lifetime membership for her 30 years of devotion to the club.

2018 Field Trips

Thanks to all those who attended the November planning meeting for field trips in 2018. We discussed a lot of great places and had volunteers to be leaders for trips for this year. The result of the meeting is the following list of trips. Other trips can be added at any time. Thanks for all the input.

Field Trips will be posted on Meetup.com for the most current information. If anyone wants to do an impromptu trip let me know and I can advertise it there also. Thanks, Wayne Sims, 314-2970

Date	Destination	Instructions	Leader
March 24	Yellow Cat, UT		Wayne Sims
April 7	Floy Wash, UT		Wayne Sims
April 14	Gold Club	Dry Panning	
April 21	Bookcliffs, CO		Mike Burrirtt
April 28	Henry Mountains, UT		Mel Bersch
May 19	Blue Forest, WY		Mike Burrirtt
May 19	Mica Mine, CO		Pam Bersch
June 23	Crystal Geyser, UT		Pat Mitchell
July 14	Douglas Pass, CO		Mel Bersch
July 25	Wiggins Fork, WY	Overnight	Sue
July 28	Ouray, CO		Need Volunteer
August 9-12	Buena Vista Show, Hartsel, CO		Mike Burrirtt
September 15	Gold Club	River Panning	
September 22	Topaz Mountain, Dugway, Delta, UT		Christine
September 22	Owl Draw, UT		Mike Burrirtt
September 29	Sand Flats, UT		Mike Burrirtt
October 6	State Bridge, CO		Wayne Sims
October 13	Gold Club	Panning	
November 3	Hidden Valley, UT		Mike Burrirtt

Facetors' Meeting

Dec. 20th the following members came to the meeting: Thom Ericson, Howard Whipple, Jim Smith, Ralph Stuart, Dale Breckenridge, Casey Trump and Connie Duncan.

Our monthly project was cut by: Thom - clear Zircon, Howard - Orange CZ, Jim - Blue Laser Gem and Connie - Blue Ceramic Glass. Jim also had a Brilliant cut from Yellow/Orange Lead Glass that was stunning.

Connie passed around the diagram for our Jan. project and Dale gave us some pointers on how best to cut the pavilion. This is an old design that has been modified and not diagrammed as a "meet-point" design. Dale showed the group how we could change the pavilion cutting order to obtain a 'meet-point" start.

Howard had questions about the proper cutting angles for optimizing the brilliance of a particular material. There was some discussion with Dale explaining how to determine the best angles.

Our next meeting will be Jan. 20th and our project stone is "Variation of the Old Mine Cut"

Mineral Group

Hope you all had a happy holiday. To start the New Year off right, Mineral Group will meet on Friday the 26th at 6:30 starting with a potluck. Bring up to 5 rocks to look at. Meet at the Bersch's house, 248 Little Park Road.

January Program Meeting

The program will be a DVD on "Alaska's Dynamic Aurora": Explore the science, mystery and wonder of Alaska's Northern Lights. The northern lights have enchanted lucky viewers for thousands of years. Sit back and relax as we take you on a journey through captivating video and custom animation while learning the science and mystery that is the Aurora Borealis. Produced by the University of Alaska, Museum of the North

2018 Membership Dues

Please pay your 2018 membership dues to keep your name and contact information in the current membership roster. Annual dues: single adult: \$30.00, Couple \$ 40.00. Make checks payable to: Grand Junction Gem and Mineral Club. Mail to: Evita Schultz, 686 Long Rifle Road, Grand Junction, CO 51507.

Classes

Signup sheets are found on the front table during meetings. Please sign up for classes you are interested in taking. The teachers will contact you as to when the class will begin, dates and times it will meet, and materials necessary for the class. You may be put on a waiting list. Be sure to let the instructor know if you change you mind and don't intend on attending the class so someone else can have your spot as class size is limited.



Brag Rocks

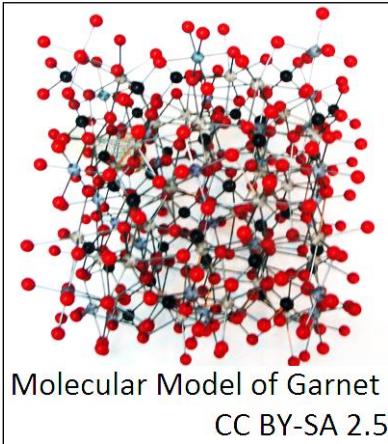


January Gem and Mineral Shows in the Region

Days	Show	Location	Email
5-7	Flagg Mineral Foundation	Mesa, AZ	dsminerals@aol.com
12-14	Gila County Gem and Mineral	Globe, AZ	jodibrewster66@gmail.com
26-11	Smoky's , Miner's Co-op	Marana, AZ	picturerocksjewelry@gmail.com
27-10	Martin Zinn Expositions	Tucson, AZ	mzexpos@gmail.com
26-7	Pueblo Gem and Mineral	Tucson, AZ	info@pueblogemshow.com

Go to: <http://www.the-vug.com/educate-and-inform/mineral-shows/> for more information.

January Birthstone



Garnets are a group of silicate minerals that have been used since the Bronze Age as gemstones and abrasives. All species of garnets possess similar physical properties and crystal forms, but differ in chemical composition. The different species are pyrope, almandine, spessartine, grossular (varieties of which are hessonite or cinnamon-stone and tsavorite), uvarovite and andradite.

Garnet species are found in many colors including red, orange, yellow, green, purple, brown, blue, black, pink, and colorless, with reddish shades most common. Garnet species' light transmission properties can range from the gemstone-quality transparent specimens to the opaque varieties used for industrial purposes as abrasives. The mineral's luster is categorized as vitreous (glass-like) or resinous (amber-like). Because the chemical composition of garnet varies, the atomic bonds in some species are stronger than in others. As a result, this mineral group shows a range of hardness on the Mohs scale of about 6.5 to 7.5. The harder species like almandine are often used for abrasive purposes.

From Wikipedia

If you shop on Amazon.com we would like you to try AmazonSmile. AmazonSmile is a website operated by Amazon that lets customers enjoy the same wide selection of products, low prices, and convenient shopping features as on Amazon.com and the AmazonSmile Foundation will donate 0.5% of the price of eligible purchases to the charitable organizations selected by customers. We would hope you choose Grand Junction Gem & Mineral Club!




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Grand Junction Gem and Mineral Club

Officers

President	Jim Schultz	242-0428
Vice President	Val Medeiros	773-4244
Co-Secretary	Anita Martinez	434-9270
Co-Secretary	Nancy Schuerr	847-693-8675
Treasurer	Dave McCollough	549-7352

Directors

Cindy Teare	462-6806
Teri Drost	256-0983
Chris Henderson	719-244-3192
Tony Kovschak	433-2691
Mel Bersch	242-3134

Committee Chairpersons

Audit	Kathy Ericson	623-2522
Building and Ground	Sylvester Spaeth	846-5716
	Judy Nason	250-9128
Compliance	Tony Kovschak	433-2691
Correspondence	Bambi Harmon	216-4540
Decorating	Linda Dunham	623-3610
Display Cases	Val Medeiros	773-4244
	Carmen Bruno	773-4247
Education	Cindy Teare	462-6806
Field Trips	Wayne Sims	314-2970
Funding/Constr.	Mike Cosby	589-0687
Historian		
Hospitality	Judy Nason	250-9128
Inventory	Pat Martinez	434-9270
Name Tags	Melinda Hanson	712-6972

1 Year
2 Year
3 Year
Finance
Past President
Leaverite Editors
Librarian
Meet-Up
Membership/Badges
Nominating
Publicity
Scholarships
Shop Foremen
Show
Show Assistant
Supplies
Vests
Website

Lorrie Wallace	250-1122
Jo Ann Whalen	424-2007
Joyce Frost	255-7078
Jim Schultz	242-0428
Evita Schultz	242-0428
Teri Drost	260-2478
Scott Warren	303-668-5743
Bill Hood	241-8020
Thom Ericson	623-2522
Wayne McMacken	208-2534
Bambi Harmon	216-4540
Evita Schultz	242-0428
Linda Sims	314-2970
John Mayerik	243-8589

Board Meeting

The board will meet at the club house at 7:00 pm on the Wednesday before the 2nd Thursday Cookie Meeting each month. All club members are welcome to attend. Hope to see you there.

Club Information

The Grand Junction Gem & Mineral Club, Inc. is affiliated with the Rocky Mountain Federation of Mineralogical Societies. The club is located at 2328 Monument Road Grand Junction, CO, mailing address: P. O. Box 953, Grand Junction, CO 81502 The Club is a nonprofit, 501(c3) tax-exempt, educational organization. Our purpose shall be exclusively educational and social: To increase and disseminate knowledge of the earth sciences pertaining to minerals, gems, rocks, artifacts, fossils and similar subjects; To promote and perpetuate knowledge of the lapidary arts; To encourage field trips; To encourage greater public interest and education in gems, fossils and minerals, cooperating with established institutions in such matters. The Grand Junction Gem and Mineral Club meets on the second and fourth Thursday of each month at 6:30 pm in our club building. June, July, and August meetings will be on the fourth Thursday only. November and December meetings will be on the second Thursday only. Our Annual Show is Mother's Day Weekend and is held at Two Rivers Convention Center at 159 Main St, Grand Junction, CO 81501. Classes and workshops are offered throughout the year. There are sign-up sheets at the clubhouse to get on a waiting list and scheduled classes are posted in the newsletter.

The Facetors Group

The Facetors Group meets at the clubhouse on the 3rd Saturday of each month at 9:30 am. They have a Project of the Month and a People's Choice. They also have teachers available for one-on-one classes. Contact Thom Ericson at 623-2522 for information about the group or classes.

The Grand Valley Gold Prospectors Group

The Grand Valley Gold Prospectors Group is now part of the Gem and Mineral club. They will meet each month at the clubhouse at 7:00 pm on the 2nd Tuesday. Everyone is welcome to attend the group. P.O. Box 1357 Grand Junction, CO 81501. Laura Adamson pres., 260-6375; Robert Hubbard vice pres., 254-1449; Chuck Shepard Secretary, 270-5807

The Mineral Group

The Mineral Group meets at the Bersch's, 248 Little Park Rd, at 6:30, on the Friday after the 4th Thursday's Club Meeting and is open to all club members and guests. A potluck will be followed by discussion and microscopic images of various minerals. Please bring up to 5 specimens, and/or other minerals you wish to look at for the discussion.

New Members

Welcome to the Grand Junction Gem and Mineral Club. Include your email address when you register to receive newsletters and updates. Check out the website for past newsletters and general information. Order a vest made to your size from Linda Sims for \$20.00 and a name Tag from Melinda Hanson for \$10.00. Be sure to sign up for some classes to learn how to use the machines in our shop so you can participate in open shop.

Dues

Our calendar year is January 1 - December 31. Dues are due by January 1 but must be in by January 30 for names to be included in the Club Directory. Please pay your dues at the meeting or send check made out to Grand Junction Gem and Mineral Club, P. O. Box 953 Grand Junction, CO 81502. Prospective members should attend one general meeting to obtain a membership application. Annual dues will be prorated after July 1st.

Adult Member - \$30.00 (18+), 2nd Adult, same household - \$10.00 Children under 18 years, same household - No Cost

Club Rules and Regulations

The notebook of rules and regulations is available on the front table at all meetings for members to read.

Gem and Mineral Classes

Most classes are 6 weeks. Member's cost \$30.00. Non-member's cost is \$60.00. The cost of the classes is based on 6 weeks and prorated when the class is shorter. Please contact instructors to sign up for classes.

Class	Instructor	Phone	Open Shop
Chain Making	JoAnn Piburn	245-1669	Shop Chairman: Thom Ericson 623-2522
Chain Making	Cindy Teare	462-6806	Shop Supervisors:
Faceting	Thom Ericson	623-2522	Wednesday: 12-3 Thom Ericson 623-2522
Filigree	Pam Bersch	242-3134	Saturday: 9-12 Scott Pugsley 972-953-7735
Intarsia	Jim Lynch	361-2123	Previous instruction in use of equipment is required
Lapidary	Jim Schultz	242-0428	before using any tools or machines in the shop.
Lapidary	Judy Nason	250-9128	Sign in each time you use the shop.
Lapidary, <i>Advanced</i>	Thom Ericson	623-2522	Help with the clean-up before leaving.
Silversmith	JoAnn Piburn	245-1669	Shop fee is \$5.00/session.
Silversmith	Cindy Teare	462-6806	Slab saw \$.26 per square inch.
Wire Weaving	JoAnn Piburn	245-1669	Always—Safety First
Wire Wrap	Joyce Trump	255-8045	

The Leaverite News

The Leaverite News is your newsletter. Articles, ideas and news should come from the club members. If you are an officer, director, or committee chair person you should plan to submit monthly updates by the 15th of each month. News should be emailed to leaveritenews@gmail.com or contact Lorrie Wallace (250-1122 or Jo Ann Whalen (424-2007, 554 Casa Rio Ct., Grand Junction, CO, 81507. *Leaverite News is published nine months of the year (Sept-May by the Grand Junction Gem and Mineral Club, Inc. Articles printed in this newsletter are the experiences and/or opinions of the individuals submitting them. They do not necessarily reflect the views or opinions of the Grand Junction Gem and Mineral Club, nor of the editors. Articles written without a byline are written by the editor. We are not responsible for authenticity, safety, or reliability of publications. All articles/photos are included in accordance to fair use for research and education. Caution and safety should always be practiced when trying out any new idea, venture or exploration in the field. We request corrections and/or additions to articles.*

Grand Junction Gem and Mineral Website

Our website, www.grandjunctionrockclub.org, has meeting information, Leaverite Newsletter, Classes, Field Trips, & Photo Gallery. Send information to John Mayerik; 243-8589; email Grandjunctionrockclub@gmail.com

Meetup

Meetups are neighbors getting together to learn something, do something, share something. The Club is registered at the Grand Junction Meetup. Go to http://www.meetup.com/cities/us/co/grand_junction/ to register or for information or call Jim Schultz at 242-0428.

Summary of Minutes of the Gem and Mineral Club

Board Meeting December 13, 2017

New Business:

Blue Book Update: Revisions provided to board members and directors.

Change of Spending Limit: Proposed change to the Blue Book expenditure rules; "Excepting routine and emergency expenditures the Board will approve single item expenditures up to \$1000. Expenditures above \$1000 must be approved by both the Board and the membership" will be voted on by the membership on Dec 14th, 2017.

Next Board Meeting will be January 10, 2018 at the GJGMC @ 7:00pm.

Submitted by Anita Martinez, co-secretary



General Meetings December 14, 2017

Classes: chaired by Cindy Teare:

Three classes will begin in January

Lapidary: taught by Judy Nason, beginning on January 8th from 6-9pm

Advanced Lapidary: taught by Tom Erickson, beginning on January 9th from 6-9pm

Advanced Lapidary: taught by Cindy Teare, start date to be announced

Field Trips : chaired by Wayne Sims List is on the board.

New Business:

Nominating Chairman: Teri Drost

Nominees: President - Jim Schultz; Vice

President - Val Medeiros; Financial Director -

Tony Kovschak; Secretaries - Anita Martinez and

Nancy Schuerr; Treasurer - Dave McCollough;

Directors - 1 year – Cindy Teare, 2 year – Teri

Drost, 3 year – Chris Henderson; Past President –

Mel Bersch

VOTE: All above listed members were voted into respective Board Member offices.

Change of Spending Limit:

Proposed change to the Blue Book expenditure rules; "Excepting routine and emergency expenditures the Board will approve single item expenditures up to \$1000. Expenditures above \$1000 will be approved by both the Board and the membership".

VOTE: The membership voted "Yes" to the above proposal.

Honorary and Lifetime Members: Jan

McCollough received an honorary membership

for her dedication and efforts supporting the

club. Virginia Giles received a lifetime

membership for her 30 years of devotion to the

club.

ADJOURN 8:20pm

Submitted by Anita Martinez, co-secretary

*Hope you had a
Merry Christmas and
have a Very
Happy New Year!*

Christmas Party







New President

Critical Minerals of the United States 23 Minerals You Need in Your Life

Release Date: DECEMBER 19, 2017

- | | |
|--------------------|-----------------------------|
| 1: Antimony | 13: Tantalum |
| 2: Barite (Barium) | 14: Platinum-group elements |
| 3: Beryllium | 15: Rare-earth elements |
| 4: Cobalt | 16: Rhenium |
| 5: Fluorine | 17: Selenium |
| 6: Gallium | 18: Tellurium |
| 7: Germanium | 19: Tin |
| 8: Indium | 20: Titanium |
| 9: Graphite | 21: Vanadium |
| 10: Lithium | 22: Zirconium |
| 11: Manganese | 23: Hafnium |
| 12: Niobium | |

<https://pubs.er.usgs.gov/publication/pp1802>

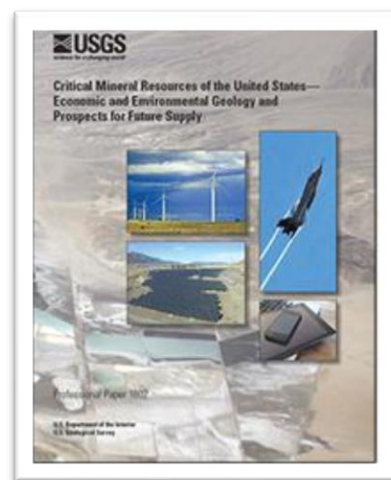
Klaus J. Schulz , John H. DeYoung Jr. , Robert R. Seal II , and Dwight C. Bradley

Summary:

Mineral commodities are vital for economic growth, improving the quality of life, providing for national defense, and the overall functioning of modern society. Minerals are being used in larger quantities than ever before and in an increasingly diverse range of applications. With the increasing demand for a considerably more diverse suite of mineral commodities has come renewed recognition that competition and conflict over mineral resources can pose significant risks to the manufacturing industries that depend on them. In addition, production of many mineral commodities has become concentrated in relatively few countries (for example, tungsten, rare-earth elements, and antimony in China; niobium in Brazil; and platinum-group elements in South Africa and Russia), thus increasing the risk for supply disruption owing to political, social, or other factors. At the same time, an increasing awareness of and sensitivity to potential environmental and health issues caused by the mining and processing of many mineral commodities may place additional restrictions on mineral supplies. These factors have led a number of Governments, including the Government of the United States, to attempt to identify those mineral commodities that are viewed as most “critical” to the national economy and (or) security if supplies should be curtailed.

This book presents resource and geologic information on the following 23 mineral commodities currently among those viewed as important to the national economy and national security of the United States: antimony (Sb), barite (barium, Ba), beryllium (Be), cobalt (Co), fluorite or fluorspar (fluorine, F), gallium (Ga), germanium (Ge), graphite (carbon, C), hafnium (Hf), indium (In), lithium (Li), manganese (Mn), niobium (Nb), platinum-group elements (PGE), rare-earth elements (REE), rhenium (Re), selenium (Se), tantalum (Ta), tellurium (Te), tin (Sn), titanium (Ti), vanadium (V), and zirconium (Zr). For a number of these commodities—for example, graphite, manganese, niobium, and tantalum—the United States is currently wholly dependent on imports to meet its needs. The first two chapters (A and B) deal with general information pertinent to the study of mineral resources. Chapters C through V describe individual mineral commodities and include an overview of current uses of the commodity, identified resources and their distribution nationally and globally, the state of current geologic knowledge, the potential for finding additional deposits nationally and globally, and geoenvironmental issues that may be related to the production and uses of the commodity. These chapters are updates of the commodity chapters published in 1973 in U.S. Geological Survey Professional Paper 820, “United States Mineral Resources.”

<https://www.usgs.gov/news/critical-minerals-united-states> Great pictures on this website.



Paid Geoscience Projects on U.S. Public Lands

<http://www.geosociety.org/geocorps/>

Applications are now being accepted for summer 2018 positions. Please complete your application ASAP, because agencies will begin the process of filling positions, on a rolling basis, after 15 January. The final application deadline will be 2 February 2018, but some positions may either be filled or stop accepting applications before then. Other positions may continue to review applications through 2 February 2018, and will be filled shortly afterward (in early to mid-February). Please keep an eye on the position listing for status updates.



GeoCorps™ America is a program of the Geological Society of America, operated in partnership with government agencies and other organizations committed to science and stewardship. Current partners include the Bureau of Land Management and the U.S. Forest Service.

This program offers paid short-term geoscience assignments in some of the most beautiful natural areas in the world.

NPS Geoscientists-in-the-Parks (GIP) Program

http://www.geosociety.org/GSA/Education_Careers/Field_Experiences/gip/GSA/fieldexp/gip.aspx

GSA is now accepting applications for summer 2018 positions.

Applications accepted until positions filled. Final deadline 2 February 2018.

The National Park Service (NPS) is looking for students and professionals in the geosciences and other natural resource fields who want to use their natural resource science expertise to help the NPS to better understand and manage its natural resources.



The Geoscientists-in-the-Parks (GIP) program works with partners to match college students and recent graduates age 18 - 35 years old with short-term, paid, internships with the National Park Service. Participants may assist with research, synthesis of scientific literature, geologic mapping, GIS analysis, site evaluations, resource inventorying and monitoring, impact mitigation, developing brochures and informative media presentations, and educating park staff and park visitors. GIP positions can last from 3 months to one-year.

What is Frac Sand?

This special sand is one of the keys to producing oil and natural gas from tight shale formations

<https://geology.com/articles/frac-sand/>

A Crush-Resistant Sand for Oil and Gas Wells

"Frac sand" is a high-purity quartz sand with very durable and very round grains. It is a crush-resistant material produced for use by the petroleum industry. It is used in the hydraulic fracturing process (known as "fracking") to produce petroleum fluids, such as oil, natural gas and natural gas liquids from rock units that lack adequate pore space for these fluids to flow to a well. Most frac sand is a natural material made from high-purity sandstone. An alternative product is ceramic beads made from sintered bauxite or small metal beads made from aluminum.

The demand for frac sand has exploded in the past several years as thousands of oil and natural gas wells are being stimulated using the hydraulic fracturing process. (See the production chart.) A hydraulic fracturing job on one well can require a few thousand tons of sand. This surge of specialized drilling has created a billion-dollar frac sand industry in a very short time. Between 2005 and 2015, the amount of frac sand used by the oil and gas industry has increased dramatically.

Tuff

An igneous rock that forms from the debris ejected by an explosive volcanic eruption.

<https://geology.com/rocks/tuff.shtml>



Fish Canyon Tuff: Panoramic view of an outcrop of the Fish Canyon Tuff. The volcanic eruption(s) that produced this tuff occurred about 28 million years ago at the La Garita Caldera in southwestern Colorado. The original estimated volume of the Fish Canyon Tuff is about 1200 cubic miles (5000 cubic kilometers). It was one of the largest explosive volcanic eruptions known to have occurred. [Enlarge](#). Image by USGS. [1]

What is Tuff?

Tuff is an igneous rock that forms from the products of an explosive volcanic eruption. In these eruptions, the volcano blasts rock, ash, magma and other materials from its vent. This ejecta travels through the air and falls back to Earth in the area surrounding the volcano. If the ejected material is compacted and cemented into a rock, that rock will be called "tuff."

Tuff is usually thickest near the volcanic vent and decreases in thickness with distance from the volcano. Instead of being a "layer," a tuff is usually a "lens-shaped" deposit. Tuff can also be thickest on the downwind side of the vent or on the side of the vent where the blast was directed.

Some tuff deposits are hundreds of meters thick and have a total eruptive volume of many cubic miles. That enormous thickness can be from a single eruptive blast or, more commonly, from successive surges of a single eruption - or eruptions that were separated by long periods of time.

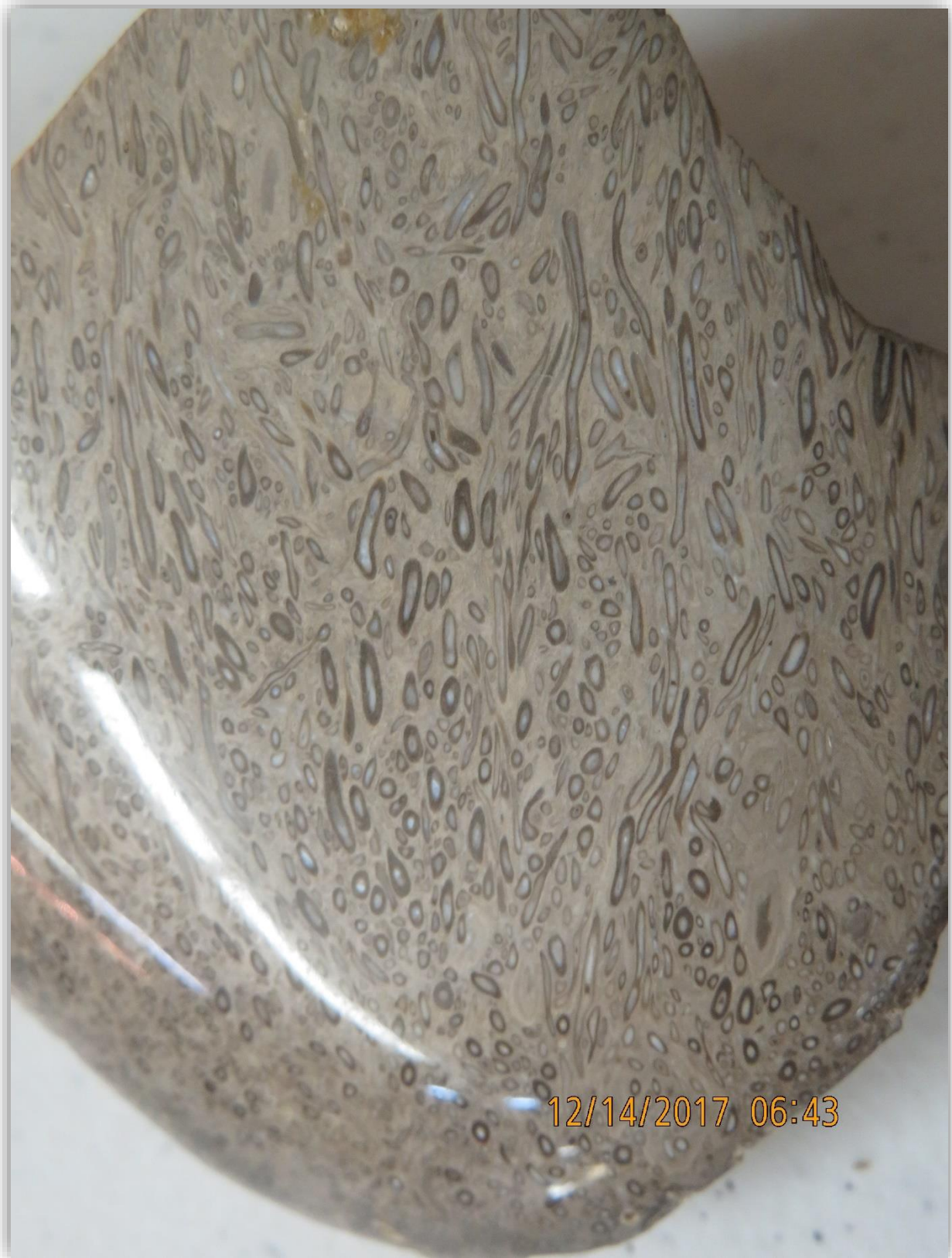


Tuff: An igneous rock that contains the debris from an explosive volcanic eruption. It often contains fragments of bedrock, tephra, and volcanic ash. The specimen shown here is about two inches (five centimeters) across.



Beryllium tuff: A specimen of beryllium tuff from the Spor Mountain area of Utah. It is a porous tuff with abundant fragments of carbonate rock. Beryllium has been mined at Spor Mountain from stratified tuffs. Image by USGS. [3]

Brag Rocks















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