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Message from the President

This is my final newsletter as President of the Club. It is a pleasure to serve the organization and be part of a very special group. I have enjoyed getting to know more people and working together to create a vision for the future. There are a number of challenges to meet for the Club, especially getting a new building, but I am excited to be part the journey. Thanks again for being a member of the Club.

Call for New FCGMC Officers!

Our annual election meeting will be held on Monday, October 16 from 6:30-8:00 pm. If you can, please attend this meeting to vote for Officers and Board Members. We are searching for a President and Treasurer and have three open Board positions. If you want to be involved in governing and directing the activities of the Club, then this is your opportunity. Members who want to be considered should attend our annual election meeting in October.

Pizza Party on Election Night: For election night the Club will provide pizza and nonalcoholic beverage. You are welcome to bring other snacks, and your favorite alcoholic libation.

Qualifications for Positions

President: The President of Four Corners Gem and Mineral Club shall lead efforts to support the mission and purpose of the Club to members and the community. The President shall have: 1) a working knowledge of the Club's operations; 2) a basic understanding of nonprofit legal and financial obligations and shall support and advance the Club's mission and purpose; 3) an ability to communicate, listen, and seek input from others, and be comfortable delegating responsibilities; and 4) strong group dynamic skills to keep meetings on track and reduce conflict.

Treasurer: Prior bookkeeping, accounting, or financial management experience and prior cash handling experience in a commercial setting; Club Member; and available to regularly attend and report financial documents at Club meetings.

Directors: Directors serve a three-year term, with a maximum of two successive terms, unless appointed to fill a vacated Director position, in which case the Director shall complete the remainder of that term. Directors of the Four Corners Gem and Mineral Club shall possess upstanding characters; embrace, support, and advance the mission and purpose of the Club; and possess a working knowledge of some aspect of the Club's operations. Directors shall bring diverse skills and perspectives to the Club and shall abide by all laws governing the Club and its operations.

Scholarship Assistance Program for Gem Club Classes

Scholarships funds are still generously available, thanks to the City of Durango Lodger's Tax Fund. A scholarship pays 2/3 the cost of tuition, both for weekend classes offered during the year or for classes at the Gem Show. If your cost of living is high but wages are low, these funds can help you learn new, valuable skills and make beautiful objects. Scholarship applications are available at www.durangorocks.org/classscholarship.

Upcoming Classes in October

The Club is pleased to announce an exciting lineup of classes in October including Introduction to Silversmithing and Statement Ring, Introduction and Practicing to Lost Wax Casting via Silversmithing, Introduction to Lost Wax Casting (make a ring or pendant), and Cutting and Polishing Cabochons. These classes are a great way to learn a new skill or just have fun being creative.

Trainings in October

October 7 at the Club, 9:00-10:30 am, New Shop Steward Training.

October 10 at the Club, 5:45-6:30 pm, Solder Training.

October 24 at the Club, 6:00-6:30 pm, Hammer Training.

You can check on upcoming events at the [Four Corners Gem and Mineral Club Events Calendar - Four Corners Gem & Mineral Club \(durangorocks.org\)](#).

Equipment Auction

On October 16, the silent auction will be held to sell used lapidary and metalsmith equipment. Most motors for the equipment work, but some items need minor repair.

Other Equipment for Sale

Scott Dotson has a variety of equipment and tools he wants to sell. I will send out an email to the Membership with brief descriptions of the items, the selling price, and contact information for Scott.

Field Trip to Arizona in September

Rollo Pool, Club President for the Payson Rimstones Rock Club, led a field trip from September 29 to October 1 in the area around Holbrook, Arizona. "The Holbrook area is one of those Western-US expanses where the parched, scenic grandeur surpasses the beauty of the rocks collected. Well, almost, that is probably a bit too poetic. We really love our varieties of fossilized woods," said Rollo.

Nine FCGMC members traveled to northeastern Arizona for a Petrified Wood Safari, led by the Payson (AZ) Rimstones Rock Club, visiting 4 locations and 5 sites, plus filling buckets at a private ranch that offers rainbow petrified wood. The Rimstones Club brought members from Tucson, Sedona, Forest Lakes, Phoenix as well as Payson. There was a large contingent from Payson on Saturday and Sunday with motorcades of 16-18 vehicles with 28-38 rockhounds visiting the little-known sites as well as the more-widely-known stops like Dobell Ranch. Members also found rounded agates (capable of taking a fine polish) and a few marine fossils. Groups exchanged rocks, information and contact details with hints of joint trips in the coming years to the Four Corners area, New Mexico or closer to Payson. An add-on trip to "Triassic Park," near Snowflake, Arizona, was the trip finale. Here, participants saw recently unearthed pre-dinosaur footprints at a private ranch.



Motorcade at a collection site



Kev Sharp, Farmington, lifts a large piece of petrified wood.



Varieties of petrified wood found on the trip.



Cindy Pugsley's Haul!



Open Shop Hours:

Open Shop is now open for business. The Shops hours are listed at [four corners gem and mineral location and Hours - Four Corners Gem & Mineral Club](https://www.durangorocks.org/four-corners-gem-and-mineral-club/location-and-hours) ([durangorocks.org](https://www.durangorocks.org))

Open Shop Punch Card

If you like using open shop, remember we have a punch card for multiple use. [Prepurchase](#) 10 visits for \$45 - a \$5 savings - and don't worry about having your "shop fee" when you come in!

Reminder About Expectations in the Club

The FCGMC is a wonderful organization composed of members with many different interests, and personalities. Sometimes interacting can lead to disagreements or conflicts. I would like to remind you to do your best to be professional and respectful while working in the Shop or attending FCGMC sponsored events. Article VII of our

Bylaws states, "The Club expects all members and participants at Club functions to act in a professional, ethical, and lawful manner." As members of our Club, I encourage all of you to take a few minutes to read this part of the Bylaws that are available in the Shop and posted at [2022 bylaws 11.8.22 signed.pdf \(durangorocks.org\)](#). It is important that we all are aware of the rules and guidelines that govern our Club.

Rock On: The Origin and Magic of Turquoise

The only topic request I received for my essays is from Tracey Belt. She asked me to write about turquoise. This one is for you Tracey!

The name, turquoise, is thought (GIA) to have originated from the French expression pierre tourques, or "Turkish stone." For thousands of years this mineral has been treasured as a "gemstone" for production of jewelry and ornamental objects due to its combination of ancient heritage and notable color.

Turquoise is a valued stone with a profound influence on various cultures including ancient Persia, and Native American civilizations in the American Southwest. GIA notes that the rulers of ancient Egypt wore turquoise jewelry, and Chinese artisans were carving it more than 3,000 years ago. Turquoise is also a birthstone for December.

Turquoise is a hydrous copper phosphate mineral with a chemical formula of $(\text{CuAl}_6(\text{PO}_4)_4(\text{OH})_8 \cdot 4\text{H}_2\text{O})$. It is semitranslucent to opaque mineral that exhibits shades of blue, green, bluish green, yellowish green, and even white. The most valued color for lapidary wares is "robin's egg blue" or sky blue. The substitution of iron for copper in turquoise imparts a green color, and other elements in the atomic structure can also influence the color. The striking blue color and hardness of 5-6 make turquoise a valued stone for crafting.

Turquoise commonly forms in fractures or breccias with splotches or stringers of different colored host rock (usually dark brown) that enclose fragments and masses turquoise producing a mottled appearance. The material known as spiderweb turquoise exhibits fine seams of matrix that form attractive web-like patterns. Turquoise can also form with sulfide minerals such as pyrite and chalcopyrite.

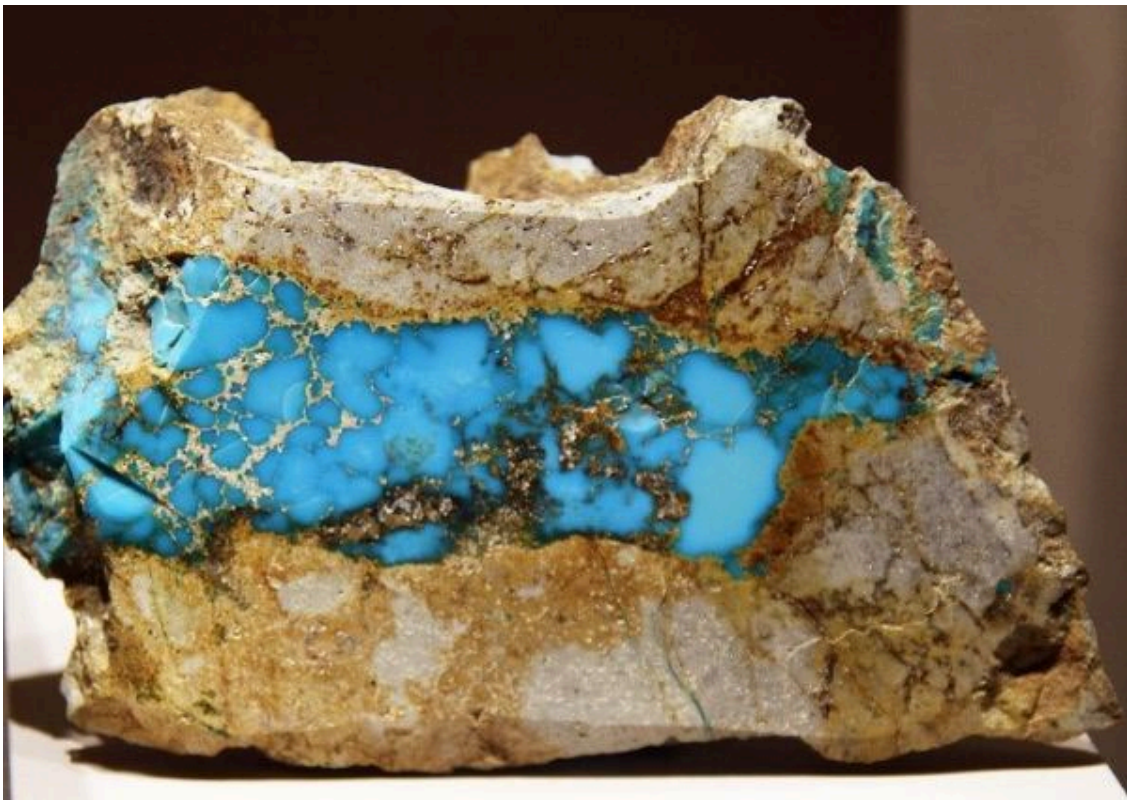


A variety of turquoise cabochons. Photograph from [Turquoise as a Mineral and Gemstone | Uses and Properties \(geology.com\)](https://www.geology.com/turquoise-uses-properties).

Though turquoise is a mineral with a crystalline structure, and can form crystals, it rarely does. It typically forms in a massive habit in veins or irregular masses with a waxy to subvitreous luster. Turquoise owes its texture to its structure and composition. It commonly forms as microcrystalline aggregates. If the crystals are packed closely together, the material is less porous, so it has a finer texture. Fine-textured turquoise has an attractive, waxy luster when polished. Turquoise with a less-dense crystal structure has higher porosity and coarser texture, resulting in a dull luster when polished.

Turquoise forms in the altered and weathered zones of copper deposits. Many

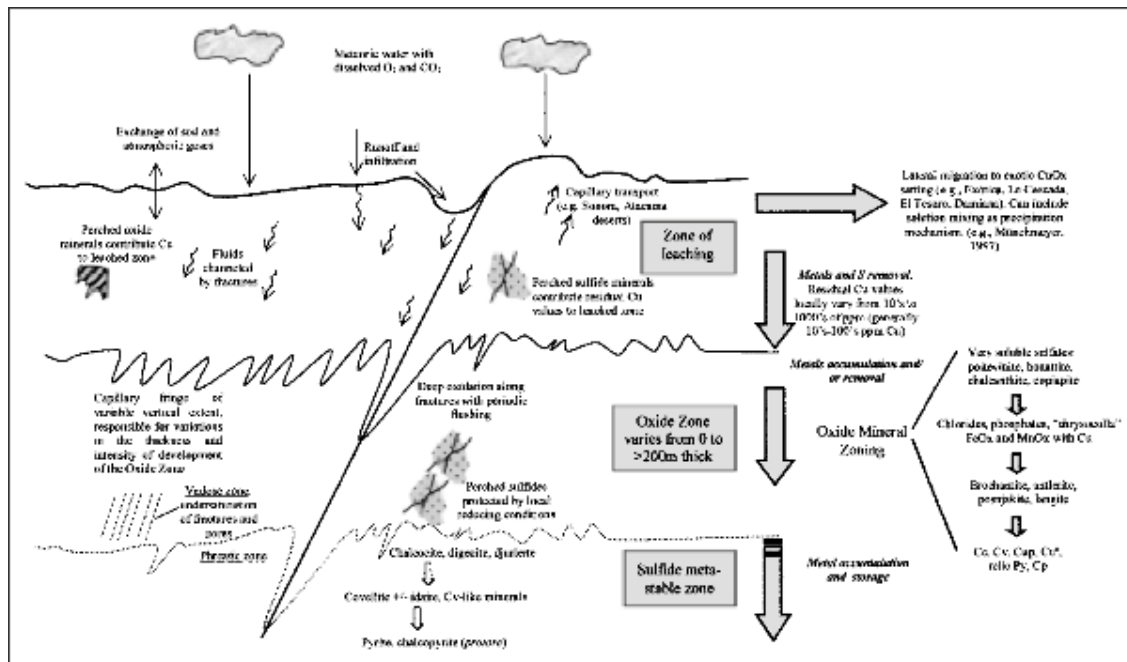
deposits of turquoise form in the upper oxidized zones of porphyry copper systems. In these systems, large bodies of felsic to intermediate intrusive rocks with distinct crystals of feldspar are mineralized with primary copper sulfide minerals such as bornite and chalcopyrite, along with pyrite. In these systems, acidic waters interact with mineralized rock extracting copper ions into the solution and altering surrounding host rocks. The feldspar in the host rocks is an important source of aluminum. A blend of aluminum, copper, and phosphorus in solution are the ingredients for the formation of turquoise.



A mass turquoise with webs of sulfide mineral in host rock from Los Cerrillos, New Mexico. [Los Cerrillos, New Mexico](#). Photograph from [Turquoise - Wikipedia](#).

The next step in the recipe of turquoise is the “baking.” As the acidic, copper-bearing fluids percolate through fractured rock the chemical and physical

conditions change which can favor the precipitation of turquoise and other copper minerals in fractures, cavities, and brecciated rock. In some case, the host rocks and minerals are replaced with secondary copper minerals such as turquoise, chrysocolla, and cuprite. The deposition of turquoise takes place at relatively low temperatures, generally ranging from 90 to 195°C. In some cases, alunite (potassium aluminum phosphate) plays an important part in the formation of turquoise and can accompany turquoise as a secondary mineral.



A figure from Chavez (2000) showing the weathering environment of a sulfide-bearing minerals in porphyry copper systems. Water from the surface from rain and snowfall moves into the earth along fractures. The water alters sulfide minerals such as pyrite and becomes acidic. These acidic solutions attack and alter minerals in the host rock and are enriched in copper. In the oxide zone the precipitation of minerals such as chrysocolla and turquoise can happen. Turquoise is found around the world. One of the most important and classic localities is Nishapur, Iran, where turquoise has been mined since the ancient Persians. Other historical localities for turquoise are in the Sinai Peninsula,

Egypt, and Eilat, Israel, where it is associated with chrysocolla and called “Eilat Stone.” Important and well know deposits of turquoise are found in the southwestern United States, especially Arizona and New Mexico, and in Mexico.

If you are a turquoise fanatic then you might consider visiting the Turquoise Museum in Albuquerque, New Mexico.



An 18-karat gold collar set with a turquoise cabochon of fine texture and color. Photograph taken from [Turquoise Description \(gia.edu\)](https://www.gia.edu/turquoise-description)

References

[How Is Turquoise Formed? - The Turquoise Guide](#)

[Search Results - GIA.edu](#)

[Turquoise: The blue mineral turquoise information and pictures \(minerals.net\)](#)

[Turquoise as a Mineral and Gemstone | Uses and Properties \(geology.com\)](#)

Chavez, W, 2000, Supergene oxidation of copper deposits: Zoning and distribution of copper oxide minerals: Society of Economic Geology, v. 41, p. 10-19.



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