The Sierra Pelonagram

May 2023

... Member of the California Federation of Mineralogical Society Inc. ...

The Sierra Pelona Rock Club is a non-profit organization founded in 1959 with the objective to sponsor activities and promote interest and education in: mineralogy, lapidary, geology, paleontology and related subjects.

Diamond

Diamonds have always exercised a special magnetism on the human race, the female of the species in particular. Their story, which I would describe as both romantic and social, is known the world over. It is hardly surprising then that the diamond is the most popular gemstone of all.

Its chemical composition is simple: pure crystallized carbon referable to the cubic order of crystallography. It is formed in volcanic craters and dispersed by volcanic eruption or flooding.

There are two main varieties of diamond: misshapen crystals which have certain industrial applications and gem diamonds used in jewelry making.

Diamonds for industrial applications are colored, opaque or impure. They are widely employed for drilling tools and precision instruments. Gem diamonds are pure and colorless, though the rare colored transparent specimens are highly valued by the experts.

As the April birthstone, diamonds are the ideal gift for a loved one. And now you have more choices than ever. Get creative and give the ultimate gift of beauty: a fancy-color diamond. Fancy-color diamonds are natural, rare and truly exotic gem of the earth. Diamonds in hues of yellow, red, pink, blue, and green range in intensity from faint to vivid and generally the more saturated the color, the higher the value. In fact, diamonds sparkling with intense color are rare and may be priced higher than a colorless diamond of equal size. Because fancy-color diamonds are very desirable, color is sometimes introduced in a laboratory. These are correctly called color-treated diamonds. When purchasing a fancy-color diamond, the shopper should ask if any enhancements or treatments were used to improve its color and/or clarity.

Note: The minutes from April's Board Meeting and General Meeting are unavailable at this time. They will be in the June Pelonagram.

May
Therese Colvin
Lise Meyers

June
Connie Flores-Reisbeck
Akiko Strathmann
Heidi Webber
Janelle Williams
Dianne Wohlleben

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Vice-President – Julie Tinoco
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Membership – Heidi Webber
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Publicity –Open
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The Sierra Pelona Rock Club, is a member of the California and American Federation of Mineralogical Societies, Inc. (CFMS/AFMS). The general club meetings (Open to the public) are at 7:00 PM, on the 3rd Tuesday of each month at:College of the Canyons, 26455 Rockwell Canyon Rd in the Dianne Van Hook University Center, Room 209.(Go to their website for a map, It's in section 14)

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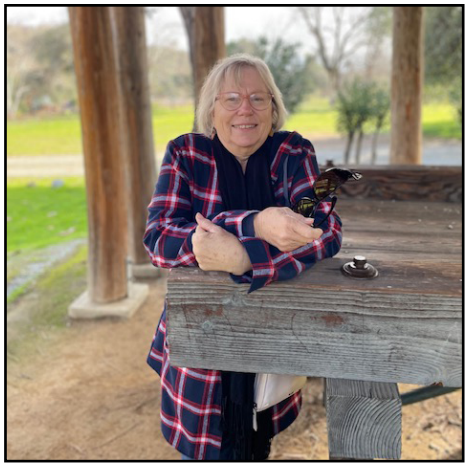
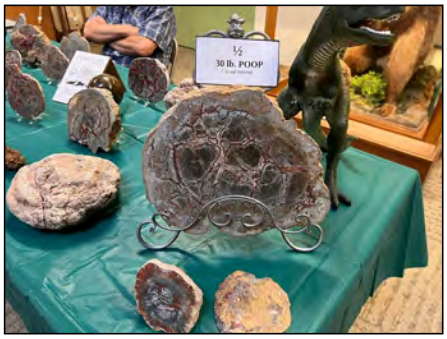


Hi Everyone!

Welcome to all our new members! We've had great turnouts the past few meetings. Thanks to all of you who came to the SPRC meetings in bad weather and better weather.

Our table at the Placerita Nature Center's Open House was very busy Saturday. The children, and the adults, enjoyed spinning the wheel and taking beautiful rocks home. The lollypops were also a great success. Many families expressed interest in coming to a meeting to see what it's all about. We gave out many cards, soooo, let's see what happens. Thank you Ed, Michelle and Julie for working so hard at this event. Trina and Omid did the setup, which was a huge help. Martin and Valarie Schreiner set up their coprolite collection which got a lot of attention. And thank you Julie for the new SPRC business cards. They look great! Bill, as always, we appreciate your help and all the materials and supplies provided to make our events a great success.



Poop by Martin/Photo Lori Wolfe

This month is our last meeting at COC for the summer. Our next meeting will be our End of Year Potluck, and then summer break. Though we are still working on another field trip during the summer, our next official meeting will be in September.

Just a reminder to our club members, the annual potluck picnic is scheduled for June 3, 2023, the location will be Meadows Park in Valencia. This event is for club members only. There will be more detail emailed to you all before the picnic.

See you soon!
Linda Jenkins

Natural Desert Roses. Large cluster of Desert Rose crystals, Chihuahua, Mexico. Credit: CrystalMiner

How Do Desert Roses Form?

Desert roses are crystals which usually take the form of rose petal. They have definite crystal shapes, and enclose sand grains. A gypsum rosette is not a rose at all, it is a mineral which crystalizes in a unique rosette growth pattern.

Desert rose is the colloquial name given to rose-like formations of crystal clusters of gypsum or baryte which include abundant sand grains.The 'petals' are crystals flattened on the c crystallographic axis, fanning open in radiating flattened crystal clusters.

Gypsum is an evaporite, which means its crystals form during the evaporation of water. The crystals are shaped like prisms or flat plates, and can grow up to 1 meter. Gypsum can appear as transparent crystals (selenite); fibrous, elongated crystals (satin spar); granular and compact masses (alabaster); and in rosette-shaped aggregates called desert roses. Some even form large clusters comprised of many small rosette crystals which are the color of sand and usually brown. In order for gypsum rosettes to form they must have an arid environment, a large source of $CaSO_4$(calcium sulfate), and a seasonal fluctuation of water. In terms of geological time gypsum rosettes form very rapidly in that they form in tens to hundreds of years. This would explain their abundance across the world.

The rosette crystal habit tends to occur when the crystals form in arid sandy conditions, such as the evaporation of a shallow salt basin. The crystals form a circular array of flat plates, giving the rock a shape similar to a rose blossom. Gypsum roses usually have better defined, sharper edges than baryte roses. Celestine and other bladed evaporite minerals may also form rosette clusters. They can appear either as a single rose-like bloom or as clusters of blooms, with most sizes ranging from pea sized to 4 inches (10 cm) in diameter.

There are two typical forms of rosettes found. In more shallow regions is an amber colored compact ball of intergrown crystals with small, thin blades pointing out from the core seems to be the standard.. Sometimes large transparent amber blades protrude out of this core producing spectacular specimens. In deeper layers, the crystals in the rosette are larger, more distinct and blocky. The color in these specimens are typically yellow, but can also be colorless. Large blades protruding from these rosettes are also blocky.

In both forms, some of the large blades may have clay or a rock included. All the crystals are fluorescent and phosphorescent, glowing a pale white under ultraviolet light.

Carpet Rock: How Did Carpet Rock Form?

The Carpet Rock in Petit Jean State Park, Conway County, Arkansas Photo: Jonathan Ball

The carpet rock formations are rare structures. Some people are convinced that aliens are the culprit behind the weird formations but there's a geological explanation as well. Fractured sandstone filled with quartz and slowly eroded away leaving the carpet-like pattern. Those structures typically develop in siliceous coarse-grained sedimentary (sandstone) rocks. The formation of this kind of rock is thought to begin with the fracturing of sandstone and the filling of the resulting cracks with quartz cement. Subsequent weathering erodes the relatively soft sandstone more than the quartz. Eventually the quartz stands out from the sandstone in a carpet-like pattern. These patterns are abundant in sandstone from this area and are formed when Iron minerals such as Hematite or Pyrite in the sandstone oxidize because water has permeated the sandstone dissolving the iron minerals into a solution and subsequently erosion has exposed the iron mineral solution to oxygen in the atmosphere. The oxidized solution precipitates between the layers of sandstone, finding tiny crevices where joints exist and form the different colour bands within the rock giving the patterns, often in polygonal shapes, which lead to the name "Carpet Rock". Carpet Rock at Chattanooga, Tennessee. Photo: Beth Kendall on Facebook. This effect occurs when Quartz forms harder zones in sandstone which resist erosion such as the sandstone from Petit Jean Set Park in Conway County, Arkansas USA.

Boxwork

Boxwork on a cave's ceiling at Wind Cave National Park in South Dakota Photo: YellowstonePark.com

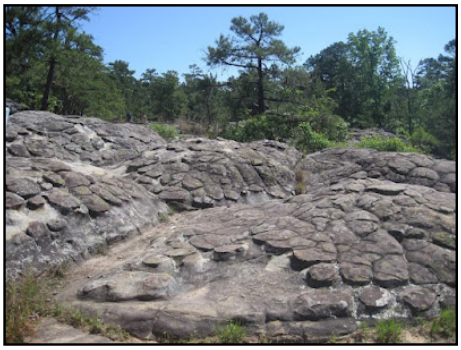
Boxwork is defined as a honeycomb-like structure that can form in some fractured or jointed sedimentary rocks. If the fractures in the host rock are mineralized, they can become more resistant to weathering than the surrounding rock, and subsequent erosion can produce boxwork structures.

In cave geology, Boxwork is commonly composed of thin blades of the mineral calcite that project from cave walls or ceilings that intersect one another at various angles, forming a box-like or honeycomb pattern. The boxwork fins once filled cracks in the rock before the host cave formed. As the walls of the cave began to dissolve away, the more resistant vein and crack fillings did not, or at least dissolved at a slower rate than the surrounding rock, leaving the calcite fins projecting from the cave surfaces. Box-shaped and triangular patterns are abundant in the sandstones on top of Petit Jean Mountain. These patterns form when iron present in the rock is oxidized. Iron exists as the minerals siderite, magnetite, hematite and some clay minerals that are present in the Hartshorne Sandstone. At some point in geologic history water filled the pore spaces of the rock formation and came into contact with minerals made up of iron. This caused the iron to go into solution. If the rock becomes exposed to air then oxygen is added to the solution and causes the iron to oxidize and precipitate out along exposed joints in the rock formation. Sometimes color bands result from the different oxidation states of iron. These bands are also referred to as Liesegang banding or box work by the scientific community.

Turtle Rocks

Turtle Rocks at Petit Jean State Park Photo: Courtney Van Stolk The exact processes that create "turtle rocks" are poorly understood. One explanation involves spheroidal weathering. This process occurs when water percolating through cracks and between individual grains in the rock loosens and separates layers of the rock. The weathering acts more rapidly on the corners and edges of the rock producing a rounded shape. Another theory concerns the amount of calcite present in the matrix of the rock holding the grains together along with the size of the grains that allow for this type of weathering. Either way the weathering of the rocks is strongly influenced by the polygonal joint pattern seen in all "turtle rocks".

Reference Geology.com



Turtle Rocks at Petit Jean State Park Photo: Courtney Van Stolk