PRESIDENT’S VIEW

We are off to a great start to our new rock hounding season and I want to take a moment to look at the kind of Club that we have become. A great deal of work has gone into getting us to where we are today. That said, I won’t itemize everything that we have accomplished, nor the things that we have set out sights on accomplishing in the future. Instead let us take a look at how our club has been a vehicle for friendships to form and grow over these past seven years. Some of us have known one another for a number of years, and some of us are new to the club and rockhounding; yet it has been more than time together that has shaped us. It has been the confluence of attitudes, working together, and pride in what we have created that has made us what we are today.

All of us are united in our love and curiosity of nature. Through our club each of us has worked hard to better understand the natural world by going on field trips, and learning from the speakers at our meetings. Those experiences are foundational to any club, but most of all it is club members seeing each other as allies that can be relied on to help expand each of our knowledge and skills, that has transformed us from a group of strangers, into the club we are today. Our Show has been our chief vehicle for sharing what we have learned and enjoy to our neighbors and friends. Through the efforts of Bob Salter and Bill Smardo in particular we have a regular relationship with schools in the Phoenix area. That has given us an opportunity to bring to young people a look into our view of the world around us. What is striking about all of this is that people we meet immediately know that our club members like one another and are willing to help each other out.

One measure of how we impress people as a club is how the vendors at our shows look at us. Any of us who have attended a show, and have been recognized by one of our vendors as a Daisy Mountain Club member, are greeted warmly and with respect. We are known for going the extra mile to help our vendors set up and tear down, but in doing so the vendors know we are not just putting our best foot forward. They recognize that our club members really like what we are doing, like each other, and enjoy working together.

The Daisy Mountain Rock and Mineral Club is a club that does fun things with good people, and wants to share that experience. I look forward to our annual party, for us to celebrate the season and what our club has become.

Ed Winbourne, President

ELECTIONS - DEC 5th

As the year comes to an end, please consider running for an office. The club is extremely grateful for the hard work of current and past officers, but it is important to an organization’s vitality that members share the load.

In addition, club committees need active participants: social media, website, mineral show, field trips, membership...
Board Meeting Minutes — November 7, 2017

The meeting was called to order at 5:15 P.M., by President Ed Winbourne. Those present were Ed W., Victoria Peterson, Bob Salter, Cynthia Buckner, Stan and Susan Celestian. A quorum was established.

Financial Report: Cynthia Buckner gave the financial report. The report was filed for audit.

Student Membership: After discussion, it was decided to make no change in membership to reflect a Student Membership category, as our present membership categories provide for families and children. Those children under age 18 attending field trips must have a parent or guardian as supervision. If we had a Student Membership Category, they would still have to have supervision, so there didn’t appear to be any advantage to making a change.

Membership Survey: Tiffany Poetch reported via email there have been three responses to the membership survey. All responses were positive. The Club would benefit from additional input via the survey, so the survey form was repeated in the October newsletter.

Lapidary Facility: Ed stated we would benefit by forming a committee to look at possible locations to rent for a Club Lapidary Facility. Possible members for this committee would be: Howard Roose, Bill Smardo, Ed Winbourne, Bob Salter and Ron Okubo. He mentioned the Apache Junction Club has a lapidary facility and they would be a good model for us to follow.

Sue Celestian said the Lapidary Shop Committee should be directed to develop a business plan to determine: Budget for leasing facility as well as on-going costs; facility location search; insurance costs; additional equipment necessary; and the numbers and training of volunteers to staff the Shop.

MOTION: By Victoria, seconded by Stan, and unanimously carried to move forward with seeking volunteers to establishing a Lapidary Shop Committee. Once the Committee is in place, they are charged with the task of developing a draft of a business plan to be presented to the Board for review and approval. The establishment of this committee and business plan draft is time sensitive and should be provided to the Board in a timely fashion.

Member Committee: Victoria has resigned as Membership Chair, and Tiffany Poetch has volunteered to assume duties as Membership Chair effective January 1, 2018. Ed will speak with Tiffany relative to her assuming responsibility for ordering Club T-shirts as well as name badges.

Board of Trustees Elections – 2018: The following Board Members have agreed to continue in their positions for 2018: Ed Winbourne, President; Stan Celestian, Vice President; Treasurer, Cynthia Buckner; and Secretary, Victoria Peterson. Board Members: Bob Evans, Tiffany Poetch, Jennifer Gecho, Whit Revel, Susan Celestian. There are four Board member openings – which will be brought up at the Membership Meeting. Following are committees needing Board Members: Gem & Mineral Show – Ed W., Chair; Membership – Tiffany P. – Chair; Lapidary Shop; Insurance – Cynthia B.; Communications, including Web Master – Jonathan Mitchell, and Face Book – Nancy Gallagher; Speaker Bureau – Ed. W., Chair.

2018 Gem & Mineral Show: Ed W. stated the first meeting relative to the show will be November 14 (Tuesday). Location: Anthem Civic Center. Time: To be determined. Bob Evans has spoken to Boulder Creek High School, and the room and dates March 24 and 25 have been confirmed. There was discussion relative to increasing the vendor table rental amount to $65 per table.

MOTION: By Victoria to increase the show vendor table rental to $65 per table effective with the 2018 show. Seconded by Ed Winbourne. Unanimously carried.

Club Dues: Yearly Club dues for 2018 are due in December of 2017. Cynthia will report on this at the General Membership Meeting. It was clarified that new members’ dues, for those who are joining after September 1, 2017, will include 2018. There is no change in dues; i.e. single membership $20, family (2 in household) $25, with additional children $5 each. Dues will include a membership badge.

Adjournment: There being no further business, the meeting adjourned at 6:00 P.M.

Respectfully submitted,
Victoria Peterson, Secretary
The meeting was called to order by President Ed Winbourne at 6:32 P.M.

Speaker: The Speaker for the meeting was our own Stan Celestian who gave a PowerPoint presentation on his and Sue’s mineral collection. The presentation was informative and humorous – way to go Stan!

Raffle: A raffle was held of donated items from Dave Haneline and Fire Mountain Gems. Winners were: Nancy G., Joseph G, Tiffany P., Fiona P., Rickie R., Jeanne S., Donna W., and Clark L. Thanks to those who donated items and congrats to those winners!!

Financial Report: Cynthia gave the financial report. Thanks to Cynthia for a job well done – always!

Gem & Mineral Show: Ed reported the show will be held at the Boulder Creek High School March 24 and 25, which again is coinciding with Anthem Days.

Club Board Nominations: Nominations from the floor as follows: President – Ed Winbourne, Vice President – Stan Celestian, Treasurer – Cynthia Buckner, Secretary – Victoria Peterson, Members – Howard Roose, Clark Little, Tammy Earli, Joseph Gecho, Claudia Merek. Nominations passed by acclimation.

Field Trip Committee: Dave Haneline reported on the Las Vegas trip 12/9/2017. 11/18/2017 there will be a trip to New River coordinated by Ed Winbourne to collect yellow jasper and banded iron. The Purple Passion Mine trip is set for 12/9, and the fee is $10 per person.

There being no further business, the meeting adjourned at 8:00 P.M.

Respectfully submitted,
Victoria Peterson, Secretary
NON-CLASTIC SEDIMENTARY ROCKS — Limestone
By Susan Celestian

We have been looking at Clastic Sedimentary Rocks -- those rocks composed of the fragments of previously-existing rocks, whether igneous, metamorphic, or sedimentary. Shifting gears a bit, we will now consider non-clastic (or chemical) sedimentary rocks -- those created by the precipitation of minerals, or deposition of non-minerals.

Limestone is composed of at least 50% calcium carbonate (calcite), and there will be also quartz, clay, silt, feldspar, and other mineral or fecal constituents. It will be massive to thinly-bedded, and is usually gray, tan, or white. See Table 1.

The term “limestone” encompasses a number of varieties. However, no matter the variety, limestone will always fizz vigorously in dilute hydrochloric acid.

Crystalline Limestone is generally a dense rock composed of interlocking fine-coarse crystals of calcite. See Figures 1 and 2.

Crystalline Limestone Environments of Deposition: This rock most typically forms in shallow, relatively quiet, warm, ocean environments -- such as on the continental shelf -- remote from the influx of stream-introduced sands and muds.) Occasionally, it forms in mineralized lake environments. The calcite is either directly precipitated from the water, or is secreted by algae or coral. Very, very fine-grained rocks were probably deposited in hypersaline and anoxic lagoons.

**TABLE 1** Non-Clastic Sedimentary Rock Chart

<table>
<thead>
<tr>
<th>ROCK TYPE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIMESTONE</strong></td>
<td>composed of precipitated crystals of calcite; will fizz in acid</td>
</tr>
<tr>
<td>* Crystalline Limestone - fine to sugary calcite crystals, without fossils</td>
<td></td>
</tr>
<tr>
<td>* Fossiliferous Limestone - fine calcite crystals, usually marine fossils</td>
<td></td>
</tr>
<tr>
<td>* Oolitic Limestone - composed of small spheres of calcite</td>
<td></td>
</tr>
<tr>
<td>* Coraline - composed of nearly only shells and shell fragments</td>
<td></td>
</tr>
<tr>
<td>* Chalk - composed of the microscopic calcite shells of planktonic animals (coccoliths, foraminifera)</td>
<td></td>
</tr>
<tr>
<td>* Travertine - coarsely crystalline calcite (very sugary), often banded in various colors (browns, reds, blacks)</td>
<td></td>
</tr>
<tr>
<td><strong>DOLOSTONE</strong></td>
<td>similar to limestone, but composed of dolomite; will fizz weakly after powdered; generally devoid of fossils</td>
</tr>
<tr>
<td><strong>CHERT</strong></td>
<td>microcrystalline quartz; conchoidal fracture; waxy luster; any color</td>
</tr>
<tr>
<td>* varieties include flint, chert, jasper, chalcedony, agate, opal (although chalcedony, agate, opal do differ a bit from flint, chert, jasper)</td>
<td></td>
</tr>
<tr>
<td><strong>ROCK SALT</strong></td>
<td>composed of halite; cubic cleavage; salty taste</td>
</tr>
<tr>
<td><strong>GYSUM</strong></td>
<td>composed of gypsum; easily scratched by fingernail</td>
</tr>
<tr>
<td>* varieties include: alabaster (massive, sugary); selenite (generally clear); satin spar (fibrous)</td>
<td></td>
</tr>
<tr>
<td><strong>DIATOMITE</strong> (aka diatomaceous earth)</td>
<td>composed of the microscopic silica shells of diatoms; similar to chalk, but will scratch glass will not fizz in acid, and is less dense.</td>
</tr>
<tr>
<td><strong>COAL</strong></td>
<td>composed of the carbonized remains of plant debris; brown-black; low density</td>
</tr>
<tr>
<td>* varieties include: peat (loose visible plant debris), lignite (brown, with some visible plant remains), bituminous (“soft coal”, black)</td>
<td></td>
</tr>
</tbody>
</table>

**FIGURE 1** Redwall Limestone This is a coarse-grained crystalline limestone, formed by the accumulation and re-crystallization of crinoid fragments -- Note the shiny cleavage surfaces of the large calcite crystals.  *Photo by Stan Celestian*

**FIGURE 2** Fine-grained Limestone The fine-grained Martin Formation at Diamond Point, in Gila Co., Arizona hosts Herkimer Diamond-style quartz crystals. This type of limestone generally contains few or no fossils. *There is a special type of fine-grained limestone, called Lithographic Limestone, which is so super-fine (grains under 1/250 mm) that it was used for printing plates -- hence the name.*  *Photo by Stan Celestian*

Limestone continued on page 5...
Fossiliferous Limestone differs from crystalline limestone, by having fossils ("sea shells") included. In this case, much of the rock body is probably a product of those organisms, rather than the result of direct precipitation. See Figures 3 and 4.

Fossiliferous Limestone Environment of Deposition: The depositional environment does not differ significantly from that of crystalline limestone -- it will be shallow warm, clear, ocean waters. As an example: Corals require light (they have photosynthesizing organisms, called zooxanthellae, within their tissues) for optimal growth, and sediment (silt and clay) may accumulate upon them and make it impossible to survive. So they must occupy shallow, clear, warm water. Other marine organisms are generally drawn to shallow waters, where food is abundant, and additionally will be drawn to corals and coral reefs as a source of (or attractor of) food, a hard substrate upon which to grow, and as protection. Hence an abundance of marine life accumulates within the shallow, warm, marine regime.

Oolitic Limestone is largely composed of oolites (oooids), small, spherical balls of calcium carbonate, or other mineral. See Figure 5-7.

Oolitic Limestone Environment of Deposition: This rock type forms in warm, super-saturated, shallow, agitated water. That could be within the marine intertidal, a shallow bank (such as off the Bahamas) or an inland lake (I found ooids forming in a small pool below Havasu Falls, in the Grand Canyon). Ooids form when calcium carbonate (usually) precipitates out and deposits on a sand grain or small bit of seashell. As the grain rolls about in oscillating currents, the calcium carbonate is accreted in concentric layers, forming small spheres. When ooids reach about 2mm in diameter, they are too big to be easily rolled about, and they stop growing, to be buried by newly-forming ooids.

**FIGURE 3 Fossiliferous Limestone** This is a specimen of the Redwall Limestone, a Mississippian-aged formation renowned for abundant crinoid fossils. The columns of disks and individual disks in this rock are the remains of crinoids, a creature related to starfish and sea urchins.  

**FIGURE 4 Fossiliferous Limestone** This slab of the Naco Formation (Pennsylvanian-aged), from near Kohl’s Ranch, Arizona is chock full of visible brachiopods, crinoids, bryozoans, gastropods, and more.  

**FIGURE 5 Oolitic Sand** The photo on the left is oolitic sand from a beach at Cat Cay, Bahamas. On the right, is oolitic sand from Oolite Beach, Great Salt Lake, Utah.
Coquina Limestone is composed almost entirely of abraded/rounded shells or shell fragments, with little to no matrix. See Figure 8.

Coquina Limestone Environment of Deposition: Coquina forms in places where the water is highly agitated, and capable of transporting and concentrating accumulations of relatively large shells and coral. During that transportation, the shells are abraded, broken, rounded, and sorted. The high energy tends to wash out any smaller sediment, leaving the heavier shell fragments to accumulate. These conditions are found on beaches, tidal channels, bars, and submarine banks.

Chalk is composed largely of the microscopic shells (or coccoliths) of coccolithophores, photosynthesizing phytoplankton. Think of coccolithophores as one-celled plant-like organisms, that encase themselves in a ball composed of round, overlapping calcite plates or coccoliths. See Figure 9.

Chalk Environment of Deposition: Coccolithophores (and other planktonic creatures) occupy the sunlit surface waters of the world’s oceans. Upon death, or ‘shedding’, they and their shells rain by the billions to the sea floor. During the Cretaceous (100-60 mya) coccolithophores were especially abundant. In the quiet, deep ocean, where there is no land-derived sediment to mask their presence, calcite platelets could accumulate to produce thick beds of white, soft, chalk -- such as the White Cliffs of Dover. It is certainly hard to imagine how many microscopic particles must accumulate to produce so much chalk!
Travertine is usually very coarsely crystalline (sugary-looking), and is often banded, making it desirable as a decorative material. Colors are usually white, various shades of brown/yellow, reds, and occasionally black. A very porous rock related to travertine is called tufa. See Figures 10-13.

Travertine Environment of Deposition: Travertine is deposited in caves and springs (usually hot). Upon emergence at the surface, highly mineralized water, will de-gas, lowering the partial pressure, and inducing precipitation. At higher temperatures, aragonite is the mineral deposited; while at lower temperatures, calcite is the mineral. Since deposition may be episodic, and the waters are generally intimately associated with surface conditions, the chemistry of the water changes frequently, resulting in impurities creating color banding.

FIGURE 10 The Pinnacles These tufa towers, near Ridgecrest, CA, formed around springs issuing into a large pluvial lake that occupied this basin, during the Pleistocene. Photo by Susan Celestian

FIGURE 11 Tufa This interesting, porous, irregular formation is a bit of tufa that formed around hot springs issuing into Mono Lake, in northern California. Photo by Stan Celestian

FIGURE 12 Travertine This lovely rock was created in ancient springs near Mayer, Arizona. Small and varying amounts of iron oxide has produced the color banding. In 1927 there were 7 carmakers who used rock from Mayer for such details as gear shift knobs. Today you will see the quarry being worked for dimension stone. Photo by Stan Celestian

FIGURE 13 Travertine This is a view of the cross section of a speleothem. As groundwater dripped into a cavern, de-gassing and evaporation caused the precipitation of calcite. Photo by Stan Celestian
UPCOMING FIELD TRIPS

WHEN: November 18th, 2017  
WHERE: New River  
WHAT: Yellow jasper

WHEN: December 9, 2017  
WHERE: Purple Passion Mine  
WHAT: Fluorescent minerals, wulfenite

WHEN: January 20, 2018  
WHERE: Aguila  
WHAT: Geodes, Apache tears  
WHEN: February 2018 (TBA)  
WHERE: Tucson Gem & Mineral Show  
WHAT: Minerals, jewelry, artifacts for sale

WHEN: February 17, 2018  
WHERE: Seven Springs/Red Rover Mine  
WHAT: Jasper, copper minerals, travertine

WHEN: March 2018 (TBA)  
WHERE: Pete the Miner  
WHAT: Gold mine tour (fee)

WHEN: April 2018 (TBA)  
WHERE: Peridot Mesa  
WHAT: Peridot in basalt (fee)

WHEN: May 2018 (TBA)  
WHERE: Payson area  
WHAT: Zebra agate, peach agate, Pennsylvanian fossils

WHEN: May 2018 (TBA)  
WHERE: Payson area  
WHAT: Zebra agate, peach agate, Pennsylvanian fossils

WHEN: June 2018 (TBA)  
WHERE: Jerome  
WHAT: Fossils, possible Gold mine tour (fee)

DATES SUBJECT TO CHANGE

NATIVE COPPER from New Cornelia Mine, Ajo, Pima Co., AZ
This specimen is about 2.5 inches across and 1.5 inches high. It is a picturesque example of sheet and arborescent grown habit.

Photo by Stan Celestian

Sue Celestian will talk about Copper: Mined and Mineral, at the December 5th meeting.

DUES ARE DUE
Dues for 2018 are due before January 1st.

$25/two people in the same household  
$20 Adult individual  
$5 for additional children

You may mail it in or pay Victoria in person at a meeting. And let’s have another great year!!

Stan Celestian has created a page in Flickr where he is posting photos from club field trips. If you have some photos that could be added to the albums, send them to stancelstinian@gmail.com.

Post field trip pictures on the club website.  
His site can be found at:  
https://www.flickr.com/photos/149654042@N02/albums/with/72157682683515735

Don’t forget to also post good trip pictures on the club’s Facebook page!
If you are travelling, a good source AND clubs is http://www.the-vug.com/vug/vugshows.html or http://www.rockngem.com/ShowDatesFiles/ShowDatesDisplayAll.php?ShowState=AZ

For out-of-the-country shows: http://www.mindat.org/shows.php?current=1

A good source for a list of Arizona Mineral Clubs and contact information is http://whitemountain-azrockclub.org/Public AZ Clubs Links.html
USES (AND USEFULNESS) OF LIMESTONE

“Lowly” limestone is one of the most versatile rocks on Earth!

* Building stone, Facing stone, Curbing, Floor tiles, Countertops - 80% of the nation’s dimensional limestone comes from Indiana
  * Aggregate
    * Raw material for mortar and Portland cement
    * Roofing granules
    * Flux, as in smelting of iron ore
    * Sculpture
    * Lapidary stones
  * Soil conditioner to reduce acidity
  * General acid neutralizer (quicklime and slaked lime)
    * Mild abrasive in toothpaste
    * Antacid
    * Manufacture of glass
* Carpet backing: filler in adhesive increases durability of the carpet and lowers costs of manufacturing
  * Powder coating on chewing gum
  * Sugar refining (milk of lime removes impurities)
    * Animal feed filer
* Mine safety dust aka “rock dust”. White powder is sprayed on the coal walls in underground coal mines. The whiteness serves to improve illumination. The coating also reduces coal dust, thus improving air quality and reducing explosion hazard.