The last two primary sedimentary rock types are diatomite and coal -- both with organic origins. In other words, neither rock is composed of minerals. Refer to Table 1.

**Diatomite & Coal**

The last two primary sedimentary rock types are diatomite and coal -- both with organic origins. In other words, neither rock is composed of minerals. Refer to Table 1.

**Coal** occurs in coal beds or coal seams. While coal formed during most geologic periods, the Pennsylvanian Period is characterized by coal deposits across the northern hemisphere. In fact, the span of time called the Mississippian and Pennsylvanian Periods in the U.S., was dubbed the Carboniferous Period in Europe, due to the prominence of coal deposits.

Coal is brown to black, and composed of plant debris -- and hence, the primary component of coal is carbon, with varying quantities of sulfur, hydrogen, nitrogen, and oxygen. The various types of coal are produced through various stages of

**Diatomite & Coal continued on page 3.....**

### TABLE 1 Non-Clastic Sedimentary Rock Chart

<table>
<thead>
<tr>
<th>Non-Clastic Sedimentary Rocks</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIMESTONE</strong></td>
<td></td>
</tr>
<tr>
<td>- composed of precipitated crystals of calcite; will fizz in acid</td>
<td></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>* Chalky Limestone - composed of small spheres of calcite</td>
<td></td>
</tr>
<tr>
<td>* Coquina - 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>DOOLSTONE</strong></td>
<td></td>
</tr>
<tr>
<td>- similar to limestone, but composed of dolomite; will fizz weakly after powdered; generally devoid of fossils</td>
<td></td>
</tr>
<tr>
<td><strong>CHERT</strong></td>
<td></td>
</tr>
<tr>
<td>- microcrystalline quartz; conchoidal fracture; waxy luster; any color</td>
<td></td>
</tr>
<tr>
<td>* varieties include: flint, chert, jasper, chalcedony, agate, opal</td>
<td></td>
</tr>
<tr>
<td>(although chalcedony, agate, opal do differ a bit from flint, chert, jasper)</td>
<td></td>
</tr>
<tr>
<td><strong>ROCK SALT</strong></td>
<td></td>
</tr>
<tr>
<td>- composed of halite; cubic cleavage; salty taste</td>
<td></td>
</tr>
<tr>
<td><strong>GYPSUM</strong></td>
<td></td>
</tr>
<tr>
<td>- composed of gysum; easily scratched by fingernail</td>
<td></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></td>
</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<td><strong>COAL</strong></td>
<td></td>
</tr>
<tr>
<td>- composed of the carbonized remains of plant debris; brown-black; low density</td>
<td></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>
**Board Meeting Minutes — February 6, 2018**

The meeting was called to order by Vice President Stan Celestian at 5:10 p.m. Those present were: Tammy Early, Claudia Marek, Joe Gecho, Bob Salter, Victoria Peterson, Stan and Sue Celestian, Cynthia Buckner and Howard Roose. Bob Evans and Ed Winbourne entered the meeting at 5:35 p.m. A quorum was established.

**Past Meeting Minutes:** The January Board meeting minutes were unanimously approved with no corrections or additions.

**Financial Report:** Cynthia presented the financial report which was filed for audit. Cynthia reported on the just completed audit by Dave Haneline (attached to hard copy of minutes). She stated as a result of the audit, she will require receipts for all expenditures before reimbursement is made. Gratitude was expressed to Cynthia for her work as Treasurer.

**Motion:** Made by Ed, seconded by Cynthia and unanimously carried to approve the audit completed by Dave Haneline.

**Old Business:**

**Projector:** Discussion ensued relative to purchasing a new projector and screen for the club to be used for presentations by the club, for use of our speakers and for educational presentations.

**Motion:** That a projector and screen will be purchased by either Ed or Cynthia with approximate cost of $549.

**Walkie Talkie:** There was discussion as to whether Dave Haneline has walkie talkies that may be used by the Club and/or whether he has purchased same for Club. Ed will discuss this with Dave.

**Trustee Term Rotation:** The following Board members terms will be fulfilled in December of 2018: Bob Salter, Bob Evans and Susan Celestian. Claudia, Whit, and Jennifer’s terms will be up the end of 2019, and Joe’s will end in 2021.

There was discussion relative to Board members’ attendance at meetings. The ByLaws state that two absences from meetings by a member constitute removal from the Board by the President, unless the President has been informed of and approved a member’s absences.

*Board minutes continued on page 3...*
change. The precursor to the process is Peat, which is unconsolidated, boggy, partially decomposed plant material. Burial and pressure will lead to the formation of Lignite, a very soft, brown coal, in which plant fragments remain evident. Continued burial/pressure will produce Sub-bituminous, and then Bituminous Coal (60-80% carbon). The latter is soft, black, and high in bitumen. Ultimately, a higher grade of coal is produced, called Anthracite Coal. However, it is generally considered a metamorphic rock.

Because of its organic origins, coal is referred to as a “fossil fuel”. See Figure 1.

Diatomite or Diatomaceous Earth (DE) is an accumulation of fossil diatoms. Diatoms are microscopic (mostly) aquatic algae that produce two overlapping lacy shells (valves) of silica (opal). They generally float, are photosynthetic, and are found in...
Diatom Environment of Deposition: Diatoms generally live in relatively shallow water (less than 30 feet deep), due to their need for sunlight for photosynthesis. When the chemistry of the water is ideal -- pH, infall of siliceous volcanic ash, influx of the vital nutrient phosphorous, from the weathering of volcanic rocks, diatoms will ‘bloom’. As diatoms die, their siliceous framework sinks to the bottom of ocean or lake basins. See Figure 5. There they may accumulate to great thickness. In many basins, there may be a minimum of clastic sediments, and diatoms may compose in excess of 30% (by weight) of the sediment, That sediment is called a siliceous ooze. And it is this ooze that will become lithified into a relatively pure deposit of porous silica, called diatomaceous earth. Imagine how many trillions of these creatures must die to form a mineable deposit -- especially when you consider that on the way ‘down’, many of the shells may dissolve!

FIGURE 4 Diatomaceous Earth (Diatomite) This soft white chalk-like rock was mined near San Manuel, Arizona. The diatoms were deposited in a Upper Miocene-Pliocene lake environment. 
*Photo by Stan Celestian*

FIGURE 5 The orange areas are diatomite deposits that formed in intermontane and shallow coastal basins of the western U.S., during the last 20 million years. *Image courtesy of the USGS*
Ground littered with drill cores

Remnants of the stamp mill

The Thrill of the Hunt!

Field Trip continued on page 6....
In the end, it was just too big.

RED Jasper!!!!
### UPCOMING FIELD TRIPS

<table>
<thead>
<tr>
<th>WHEN: February 24, 2018</th>
<th>WHERE: Sycamore Canyon</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT:</strong> Jasper (bright red)</td>
<td><strong>MEET:</strong> 9:30, depart at 10 am  Take 87 north toward Payson, .75 mi past MP222, turn left at sign for Sycamore Canyon, go 1.2 miles to parking area where we will group before heading in. The road to the site should be suitable for any vehicle. Maps and directions will be emailed by Stan.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHEN: March 24, 2018 (tentative)</th>
<th>WHERE: Copper Chief Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT:</strong> COALITION TRIP - Siderite in Quartz</td>
<td><strong>MEET:</strong> 9:00 am  Get to Cottonwood, Arizona. Proceed to the intersection of Main Street and U.S. Route 89A. This is a major intersection with a Walgreens Drug on one corner and a Bank of America on the other. Turn left (south) on 89A, towards Prescott, and go 1.7 miles to west Mingus Avenue. There is a Maverick station on your right if you need fuel or snacks before heading up the mountain. From 89A, turn left on Mingus Avenue and go 3 miles to a fork. Continue on the pavement another .8 miles to a cattle guard where the pavement ends. This is the meeting place. Any car can reach the meeting place; 4 WD is required to get to the collecting site.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHEN: March 24, 2018</th>
<th>WHERE: Pete the Miner</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT:</strong> Gold mine tour (fee)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>WHEN: April 2018 (TBA)</th>
<th>WHERE: Peridot Mesa</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT:</strong> Peridot in basalt (fee)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHEN: April 28-May 1, 2018</th>
<th>WHERE: Topaz Mt., UT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT:</strong> Topaz</td>
<td></td>
</tr>
</tbody>
</table>

This trip will necessitate one day of travel to the site, camping overnight, at least one day of collecting, and camping one more night.

---

### NEEDED: QUALITY MINERAL (or OTHER) DONATIONS WITH LABELS -- for monthly raffle prizes, and for raffle and door prizes for the annual show. If you have specimens to donate, please see Robin Shannon. The Daisy Mountain Rock and Mineral Club is a 501(c)(3) non-profit organization, and will gratefully acknowledge your donation with a Tax Deduction Letter. Thank You!

<table>
<thead>
<tr>
<th>WHEN: May 2018 (TBA)</th>
<th>WHERE: Payson area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT:</strong> Zebra agate, peach agate, Pennsylvanian fossils</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHEN: June 2018 (TBA)</th>
<th>WHERE: Jerome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT:</strong> Fossils, possible Gold mine tour (fee)</td>
<td></td>
</tr>
</tbody>
</table>

**DATES SUBJECT TO CHANGE**

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Siderite in Quartz from the Copper Chief Mine, near Cottonwood, Arizona.

*Image by permission of Claude Yoder; www.crystalhabits.com*
UPCOMING AZ MINERAL SHOWS

March 10 - Coolidge, AZ  Pinal Gem and Mineral Club; Artisan Village of Coolidge, 351 N Arizona Blvd.; Sat 10-4; Admission: free.

March 24-25 - Anthem, AZ  Daisy Mountain Rock and Mineral Club; Boulder Creek High School Gym, 40404 N Gavilan Peak Pkwy; Sat 9-5, Sun 10-4; Admission: $3 adults, $2 seniors and children under 12, children 12 and under free.

April 28 - Cornville, AZ  Verde River Rockhounds; Windmill Park, Cornville Rd; Sat 9-5; Admission: free.

May 5-6 - Kingman, AZ  Mohave County Gemstoners; Kingman Academy of Learning (H.S. Gym), 3420 N Burbank; Sat 9-5, Sun 9-4; Admission: free.

June 1-3 - Flagstaff, AZ  Coconino Lapidary Club; Silver Saddle Outdoor Market, 9001 US 89 N (US 89N & Silver Saddle Rd); Fri-Sat 9-5, Sun 9-4; Admission: free.

July 7-8 - Pinetop, AZ  White Mt. Gem and Mineral Club; Hon-Dah Casino & Resort, 777 Highway 260; Sat 9-6, Sun 9-4; Admission: $2.

August 3-5 - Prescott Valley, AZ  Prescott Gem and Mineral Club; Prescott Valley Event Center, 1301 Main St.; Fri-Sat 9-5, Sun 9-4; Admission: Adults $5, Seniors/Students $4, children under 12 free with paid adult.

October 13-14 - Sierra Vista, AZ  Huachuca Mineral and Gem Club; Cochise College, 901 N Colombo Av; Sat 9-5, Sun 10-4; Admission: Free.

If you are travelling, a good source of shows 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

NOTE FROM THE EDITORS

Have a geological interest? Been somewhere interesting? Have pictures from a club trip? Collected some great material? Send us pictures -- or write a short story (pictures would be great). We encourage topic suggestions also.

Deadline for the newsletter is the 22nd of the month.

Mail or Email submissions to:  
Susan Celestian  
6415 N 183rd Av  
Waddell, AZ  85355  
azrocklady@gmail.com

Facebook

Visit the club page periodically. See what is happening, and boost our visibility on the web. Go to:  The Daisy Mountain Rock and Mineral Club.  It is set up so you can post photos of outings or related items.

WEBSITE

http://www.dmrmc.com/

Here you will find photos highlighting field trips, activities/classes, and our show, links to rockhounding regulations, newsletter archive, geologic articles, and links to geologic resources.

If you have comments, contact webmaster, Nancy Gallagher.

Officers and Chairpersons

President: Ed Winbourne........ewinbourne@gmail.com  
Vice President: Stan Celestian  
Secretary: Victoria Peterson...g.victoriapeterson@yahoo.com  
Treasurer: Cynthia Buckner  
Publicity: Howard Roose  
Membership: Tiffany Poetsch...tnpoetsch@gmail.com  
Editors: Susan & Stan Celestian.........................azrocklady@gmail.com  
Field Trip: Stan Celestian...stancelestian@gmail.com  
Show Chair: Ed Winbourne

Meetings are held the 1st Tuesday of the month at the  
Anthem Civic Building, 3701 W Anthem Way,  
Anthem, AZ  85086. Business meeting at 6:30 pm. We do not meet in July or August.

DMRMCLUB@GMAIL.COM

Membership Dues:  
$20.00 Adults per Person  
$25.00 Family (2 people)  
$ 5.00 Additional children

Meeting Dates for 2018

Jan 2, Feb 6, Mar 6, Apr 3, May 1, June 5, Sept 4, Oct 2, Nov 6, Dec 4
USES of DIATOMITE*

♦ Filtering agent: beer, wine, motor oil, swimming pool water, pharmaceuticals  
  ♦ Additive/Filler:  
    • paint (modifies gloss/sheen, whitener, adds bulk/strength, enhances adhesion….)
      • plastics (helps in the consumer separation of plastic bags, & parts during manufacture);
    • strengthens dental composite fillings; matches, lacquers, sealants, paper
      • makes cement, plaster, stucco & mortar lightweight
      • asphalt shingles, rubber, paper
    ♦ Absorbent: industrial spills, waste remediation
  ♦ Soil amendment: holds water in soil, loosens hard soil, improves root growth, improves permeability of water and air
  ♦ Growing medium: hydroponics, bonsai
  ♦ Insecticide: glassy diatoms scratch insect exoskeleton & absorb waxy coatings -- leading to dehydration and death (This works great -- and no chemicals!)
  ♦ Seed coatings additive: binds seed to soil, provides leverage for root growth, increase seedling stability
  ♦ Explosives: absorbs & stabilizes nitroglycerin used in dynamite
  ♦ Abrasive (mild): metal polish, facial scrub, toothpaste

USES of COAL*

♦ Fuel: original coal, fuels formed through coalification & liquefaction, and refined coal
  ♦ Coke, used in steel-making and other industrial processes
  ♦ Activated carbon: filter for water, air, kidney dialysis
  ♦ Carbon fiber: strong, lightweight material for bike, tennis rackets, golf clubs……
  ♦ Additive in foundry sand & mold wash (as ground coal heats up it releases reducing gases, preventing liquid metal from penetrating the foundry sand or mold

*Some of the references used regarding diatomite and coal are:
  http://www.ima-na.org/?page=what_is_diatomite
  http://geology.com/rocks/diatomite.shtml