AN ARIZONA SPECTACLE -- GRAND FALLS

By Susan Celestian

On Sunday March 10, Ed Winbourne let a club trip to DoBell Ranch, for petrified wood. A second stop was made at Grand Falls, aka Chocolate Falls, on the Little Colorado River (LCR). I highly recommend this spot as a day trip, or as part of a more ambitious trek north.

The site lies within the Painted Desert on the Navajo Reservation -- an area with the lowest average rainfall in Arizona. So why does this Arizona spectacle occur here???

To begin, the river’s headwaters lie within the White Mountains, over 185 miles to the east. And with recent rain and snowmelt, this more-often-than-not dry section of the river was running at over 2,000 cfs (cubic feet per second)!. And the waterfall was spectacular! The normal peak discharge of the river is 2000-3000 cfs. But it can go much higher: In September of 1923, the highest recorded discharge ever occurred -- a whopping 120,000 cfs!!! (The lowest peak high occurred in 1974 -- 1,590 cfs.) See Figure 1 for a 5-year history of LCR discharge history.

As you can see from the graph, the amount of water flowing through the river’s channel, at Grand Falls, varies many times over the course of a year. High peaks are separated by records of essentially zero discharge.


WIRE-WRAPPING CLASS

4:30-6:30 pm
Prior to the meeting on Tuesday, April 2, 2018

• Bring: cab or stone, about quarter-sized or larger; 20 gauge or higher round dead soft wire; Round nose pliers and wire cutter.

Free, but donations are appreciated. Questions? Contact Jennifer at Jennifer@eliteshuttersandblinds.com

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2014 ANTHEM GEM AND MINERAL SHOW

March 16 & 17, 2019 marked this year’s club mineral show. By all accounts, it was a great success! Attendance was at a record high -- 1000 attendees on Saturday, and Sunday was busy from beginning to end. 9 adults and 3 children paid dues and joined the club. Positive comments abounded about the marketing -- especially the sign on I-17. There was a wonderful array of vendors. The hamburger truck was a hit.
March 5, 2019
Board of Trustees Meeting Minutes

- In attendance: Bill F., Clark L., Claudia M., Cynthia B., Deanne G., Don R., Ed W., Howard R., Rebecca S., Tammy E. and Tiffany P.
- Minutes from February approved
- Cynthia B. discussed financials, you can also find the breakdown on GroupWorks
  - Income $2,574.99
  - Expenses $1,532.55
  - Total Cash $27,755.97
- Our rate change for the saw was discussed with North Mountain Visitors Center
  - After discussion the rates approved are now:
    - 20 cents/ sq. in for members
    - 24 cents/ sq. in for nonmembers
  - Will revisit how this works with the center in June
- Scholarship
  - Approved to vote at membership meeting to change scholarship to $1,500
- Claudia M. updated the membership paperwork
  - Form update approved
    - Will be used moving forward
  - Proposal for dues increase approved
    - 1st year: $45/couple, $30/individual
    - All other years: $25/couple, $20/individual
  - Pro-rating the year was discussed, but not decided upon
- ▶ Code of Ethics is now on the club’s webpage and on GroupWorks
- The paid raffle now has buckets for each prize, individual buckets being used
- The upcoming field trips were discussed
  - Sunday the 10th, Dobell Ranch and Grand Falls
  - No other March field trips
  - April 16th, near Payson, fluorescent rock-hounding at night
- The rock show was discussed
  - Finalizing looks good, everything set

Respectively submitted,
Rebecca Slosarik

March 5, 2019
General Club Meeting Minutes

- Catie Carter gave a presentation on the AZ M.M.N.R.E. (Mining, mineral and natural resources) Museum and its progress
  - Volunteers needed for several projects
    - Boneyard move and clear by end of March
    - Collections moved in near future
    - Outdoor demonstration area
  - Thanks to all who have volunteered so far to help this amazing museum come back to life
- Raffle raised $198, led by Robin
  - Thank you, Tammy, for donating the beautiful jewelry for the raffles
- Acceptance of meeting minutes from February
- Cynthia gave financial report
- Proposal for scholarship increase approved by membership
  - More in favor of 1 x $1,500 scholarship vs. several small denominations given
  - Application online will be looked at by subcommittee
    - If need to change how many scholarships awarded, can be discussed later
- Show preparations were presented
  - Bob E. now has business cards available for members
  - People went around to Anthem park during games and gave out flyers for the show
- Sunday Dobell Ranch trip was discussed
  - April 6th field trip to Belmont Mountain Region
    - Night time
    - Cookout until dark
    - Look for fluorescents at night
    - Email with more specifics will be sent to members closer to date
- Next month presentation will be Howard R.’s Jasper presentation
  - ▶ April meeting is a swap and sell meeting
    - Bring items to swap and sell!

Respectfully submitted,
Rebecca Slosarik
**STEM Night at the Canyon Springs Academy**

Bill Smardo, Claudia Marek, Ed Winbourne. The event was a great success.

Don R & Jennifer G share their talents with show visitors

All this excitement is just too much!

YUM!

*Gem Show continued from page 1*
The ever-popular fluorescent display looked great Dave! Hope you and Zach didn’t get “sun” burned!

There is a lot of energy in the Kids’ Corner! Club members joyfully sharing their love of rocks and minerals, exciting kids with treasures won at the MANY games, and helping kids get hands-on and close-up experiences with minerals, rocks and sand -- a reflection of the MANY hours put into preparing samples and prizes.
Big smiles on the faces of visitors who had geodes cracked. You never know what you are going to get!

All sorts of rockhounds out there!

Unusual “Fordite” -- layers and layers of paint oversprayed in car manufacture.

It’s great to see the floor crowded with shoppers!
To continue, once upon a time the Ancestral Colorado River wandered south across the landscape. As the Colorado Plateau uplifted, the course of the river was altered -- and the Colorado/Little Colorado River System was born. The LCR headed northwest to join the now east-flowing Colorado -- both cutting down into the rocks, to produce deep gorges. And then, about 20,000 years ago a lava flow, issuing from Merriam Crater (near Grand Falls), spilled into the 215-foot deep gorge of the LCR, flowed within the channel for about 8.5 miles, filled the gorge at Grand Falls, and continued beyond the river for over 1/2 mile. See Figures 2-4.


**FIGURE 2** Merriam Crater dominates the horizon in this photo, taken about 1974. Here, and in subsequent images, you can see that the larger cinder cone, flanked to the right by a smaller one, and in between is a basalt knob, over the vent that produced the lava flow that dammed the LCR. *Photo by Stan Celestian*

**FIGURE 3** Here is a topographic relief map view of Merriam Crater, the lava flow, and Grand Falls on the LCR. *Source: USGS*
When the lava dammed the river, water accumulated behind the barrier, producing an ephemeral lake. It took a while, as the LCR is intermittent, but finally the water worked its way around the lava flow, creating a significant bend in the river -- and returned to the original channel via a waterfall. (Of course, if there were many very high discharge floods, maybe it didn’t take so long) See Figure 5.

In this area, the LCR flows over the Triassic Moenkopi Sandstone -- a red stream/delta deposit. Erosion adds lots of red mud to the river.

At 185’, Grand Falls is 2’ higher than Niagara Falls, although it is not as wide. Definitely and Arizona Spectacle! (See Figures 6-12, for historical photos, and the field trip article for pictures of the latest spectacular flow.)
FIGURES 9-12 These pictures are of Grand Falls, during a time of zero discharge (but shortly after a time of flow). Revealed are the numerous potholes -- pits that have been drilled into the bedrock by rocks swirling in the flowing water.  

Photos by Stan Celestian

M-I-C-K-E-Y M-O-U-S-E

HOW TO GET THERE (Google Earth is a great place to start, to get the lay of the land)  I-17 north to Flagstaff, and take 89A north to Townsend/Winona Road.  Turn right, and drive 8 miles to Leupp Road.  Turn left, and drive 14.7 miles.  This will put you on the Navajo Reservation.  Just after entering the Reservation, turn left on Navajo Road 70 (or Grand Falls Road), and drive about 8 miles. This is a wide cinder road, and suitable for any vehicle. (If you miss this turn, you can take Indian Road 6910, a bit over 5 miles further down the road). At this point, you can see behind you, Merriam Crater on the left, and Sheba Crater on the right. This road dead ends in about 8.5 miles, at the Little Colorado River, during times of flow (you may drive across the river when it is dry). There is a left turn that goes a bit under .4 miles to the overlook, where you will find some picnic tables and small ramada. (If you miss this turn, you can turn around at the river and backtrack.) This short journey to the Falls is a bit rocky, as you will be driving over the lava flow, so take it slow.)  

Use caution if using Google Maps, as you may be directed through Leupp, and the road will take you to the “other side (north) of the canyon”. Views are spectacular, but won’t be frontal, as they are on the south.

At Grand Falls, there is a short trail that goes down to the bottom on the canyon. During times of high flow, this is an awesome way to view the falls! It is a pretty easy trail.

I’m pretty sure Navajo Nation permit is not required to visit Grand Falls. We have never gotten one, and I think you’d have to go into Leupp to acquire said permit. As long as you are not backcountry hiking, you should be ok sans permit.
FIELD TRIP
2 STOPS: DOBELL RANCH and GRAND FALLS
MARCH 10, 2019

Holbrook, Arizona -- Home to campy dinosaurs and ‘quaint’ street names, AND gateway to petrified wood.

Petrified Wood Everywhere --
5-gallon bucket for $30

Field Trip continued on page 10….
Dig for treasures in the piles of dirt, watch someone else dig, or pick up pieces just lying around. The white house is now a museum.

Noah DoBell is now utilizing the shop left behind by his father. He gave Stan & Sue a tour. On the left is a flat lap, upon which he simultaneously polishes two layers of fossil wood slabs, and on the right is a 32" saw.

Field Trip continued on page 11....
For video of the falls that day, go to the club Facebook page. There are several posted by Ed, and one posted by Tiffany.

https://www.facebook.com/groups/106017576621500/
https://www.facebook.com/edward.winbourne/videos/pcb.404667080089880/2078292878913358/?type=3&theater&lg=1

Sue and Stan ended up on the north side of the river, and got a different view. The lower right photo shows the mist rising from the frothy basin (in Ed’s video, on Facebook, you can see a rainbow), and you see Merriam Crater in the background.  Photos by Susan Celestian

Discharge graph of the LCR for March 10-22, 2019. The arrow points to the day of the field trip, when the river flowed at about 2000 cfs. See what the flow has been since then. It’s a good time to visit!


Field Trip continued on page 12....
Also in the Area......

Hopi Buttes and wild burros. 
*Photos by Susan Celestian*

The snowy San Francisco Peaks led our way back to Flagstaff and the way home. 
*Photo by Susan Celestian*

The Moenkopi Formation formed in sluggish streams and floodplains. Ripple marks, mudcracks, and sole marks are abundant. Additionally, there are some interesting weathering patterns that emerge. 
*Photos by Susan and Stan Celestian*
Daisy Mountain Rockchips

UPCOMING FIELD TRIPS

**WHEN:** April 6, 2019  
**WHERE:** Black Pearl Mine on Aguila Rd.  
**WHAT:** Fluorescent Minerals  
**MEET:** TBA  
**LEADER:** Ed Winbourne

**OTHER:** This will be an evening/after dark trip. Prior to dark, there will be a potluck. Sounds like fun! Portable UV lights will be coming along for the ride. (feel free to bring your own).

**WHEN:** Saturday, May 11, 2019  
**WHERE:** Payson area  
**WHAT:** Zebra Chert, Pennsylvanian Fossils  
**MEET:** TBA  
**LEADER:** Ed Winbourne

**WHEN:** Saturday, June 1, 2019  
**WHERE:** Lynx Creek near Prescott  
**WHAT:** Gold  
**MEET:** TBA  
**LEADER:** Stan Celestian

**WHEN:** June (TBA)  
**WHERE:** New River  
**WHAT:** Banded Iron & Yellow Jasper  
**MEET:** TBA  
**LEADER:** Ed Winbourne

DATES SUBJECT TO CHANGE

Stan and the field trip committee will be actively looking for productive spots for field trips. If you have any suggestions, you are encouraged to contact him at stancelestian@gmail.com

NOTE FROM THE EDITORS

当月信息:
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注：日期可能发生变化

Stan 和实地考察委员会正在积极寻找合适的实地考察地点。如果您有任何建议，请联系他 at stancelestian@gmail.com

需要：高质量矿物（或其他）捐赠

**NEEDED:** QUALITY MINERAL (or OTHER) DONATIONS WITH LABELS -- for monthly raffle prizes; and for raffle, door prizes, and sales tables at 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!

**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).

**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

Visit http://rmfms.org/ for news about conventions, events, and associated clubs. If you are travelling, you might want to contact a club local to your destination. Maybe they have a field trip you could join, while in town.
UPCOMING AZ MINERAL SHOWS

April 5-7 - Tempe, AZ  Flagg Mineral Society 2019 Minerals of Arizona Symposium; Drury Inn & Suites, 1780 W Ranch Rd, Tempe, AZ; Fri 3-5 Micro-mineral Session, 5-10 Mineral Sale, Sat 8-4 and 6 p.m. banquet; Sun 9-11; Registration required.  http://flaggmineralfoundation.org/home/minerals-of-az-symposium/

April 27 - Cornville, AZ Verde Valley Rockhounds; Windmill Park, 9950 E Cornville Rd; Sat 9-5; Admission: free.

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

July 6-7 - Pinetop, AZ White Mountain Gem & Mineral Club; Hon-Dah Casino and Resort, 777 Hwy 260; Sat 9-6, Sun 10-4; Admission: $2 adults, free for children under 16.

October 12-13 - Sierra Vista, AZ Huachuca Gem & Mineral Club; Cochise College, 3420 N Columbus 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?State=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

FACEBOOK
Visit and join 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/
If you have comments, contact Nancy Gallagher.

GROUPWORKS
As a DMRMC club member, your name should be available at https://app.groupworks.com/#/login, and you should receive an email linking you to registration. Create an account and receive reminders about club events, meetings, and important club information. You may post pictures and information – all seen only by club members.

Upcoming Meeting Programs
Club President, Ed Winbourne has been working hard to schedule great programs for this season’s club meetings. Below is a list of the current program offerings:

• February: Australia by Susan Celestian

Officers, Chairpersons, & Trustees
President: Ed Winbourne…ewinbourne@gmail.com
Vice President: Stan Celestian
Secretary: Rebecca Slosarik .. rslosarik1@gmail.com
Treasurer: Cynthia Buckner
Publicity: Howard Roose
Membership: Tiffany Poetsch tnpoetsch@gmail.com
Editors: Susan & Stan Celestian…………………azrocklady@gmail.com
Field Trip: Stan Celestian… stancelstian@gmail.com
Show Chair: Ed Winbourne
Trustees:

Claudia M
Cynthia V
Susan C
Tammy E
Bob E
Jennifer G
Don R
Tiffany P
Jim R
Witt R
Howard R
Bob S
Rebecca S

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 2019
Jan 8, Feb 5, Mar 5, Apr 2, May 7, June 4, Sept 3, Oct 1, Nov 5, Dec 3

Gray Bird Grasshopper (Schistocerca nitens) Spotted at White Tanks Regional Park. Photo by Susan Celestian