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WYOMING STATE MINERAL AND GEM SOCIETY, Inc - CODY, WYOMING

Wyoming Geology-Part One

Authored by Dr. Mike Nelson –RMFMS Newsletter: October 2013 pp.3-8

and adapted for Wyoming State Mineral and Gem Society by Stan Strike

Dr. Mike Nelson has previously published an overview of the geology of several states (Arkansas, Colorado, Kansas, Utah, and South Dakota) in the Rocky Mountain Federation of Mineralogical Societies Newsletters, which can be found at the RMFMS website: www.rmfms.org.

This article will look at the exciting geology found in Wyoming. Dr. Nelson is highly qualified to discuss the geology of Wyoming because he has driven thousands of miles across the state, looked at numerous mountains and basins, and has collected at many localities.

His career in Wyoming started by exploring the fossiliferous Pierre Shale and overlying Cenozoic rocks during his two year stay in neighboring South Dakota. He then moved to Utah and concentrated on southwestern Wyoming as part of his dissertation work---Eocene mammals in the Fossil Basin. He migrated to Casper working for Texaco Inc. and was assigned to work with Cretaceous rocks in the south-central section of the state. Later in life, he decided that Wyoming was a wonderful place to camp and fish and has visited many of its outstanding mountain ranges.

The landscape of Wyoming is quite varied and includes sections of two major physiographic regions (Fig.1): Interior Plains and Rocky Mountains, each of which is subdivided into small provinces.

Rocky Mountain Physiographic Provinces of Wyoming:

1) the Southern Rocky Mountains “sticking up” from Colorado as the Laramie, Medicine Bow, and Sierra Madre Ranges;

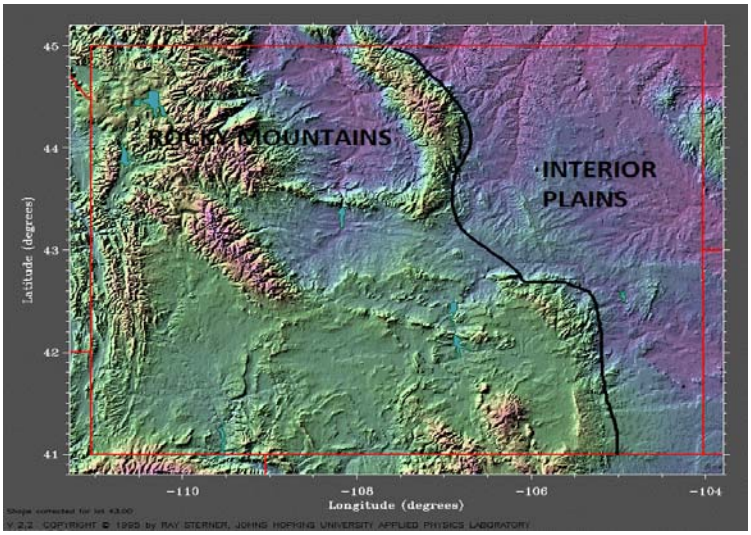
2) Wyoming Basin comprised of several intermontane basins, some with interior drainage;

3) Middle Rocky Mountains, the major ranges of the state; and

4) northern Rocky Mountains “projecting down” from Montana.

All of these provinces are directly related to the great Laramide Orogeny (mountain building event from late Cretaceous to the Eocene). Modern landscapes are often due to Pleistocene glaciation in the high mountains and epeirogenic uplift (broad continental uplift) and resulting erosion in the late Tertiary.

Fig. 1. Shaded relief Wyoming map showing major physiographic regions. Map with permission and courtesy of Ray Sterner and Johns Hopkins Univ.



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Wyoming State Mineral & Gem Society (WSMGS)
STATE OFFICERS

President: Stan Strike
2132 Gail Lane-Cody, 82414
Phone: 307-250-1244

Vice President: George Tillman
9075 N Mohican Road, Casper, 82601-7457
Phone: 970-405-5502

Secretary: Mary Ann Northrup
736 Lane 13-Powell, 82435
Phone: 307-754-4472

Treasurer: Jim McGarvey
P.O. Box 116-Kinnear, 82516
Phone: 307-856-6188

Richard Heumier: Historian
88 Triangle Ranch Road-Riverton, 82501
Phone: 307-851-1946

Verne Orcutt: Jade State News Editor
P.O. Box 697-Cody, 82414
Phone: 307-578-7091

Jim McGarvey: RMFMS State Director
P.O. Box 116-Kinnear, 82516
Phone: 307-856-6188

WSMGS Webmaster
Marlene Sibley

Wyoming WSMGS Affiliated Rock Clubs

Cheyenne Mineral & Gem Society:
P.O. Box 21412- Cheyenne, WY 82001
President-Bob King-2857 Olive Dr.
Cheyenne, WY 82001 (307-632-2702)
Contacts: Bob King
Carroll Schnell

Cody 59ers Rock Club:
Stan Strike-2132 Gail Lane
Cody, WY 82414 (250-1244)
President-Roger Lyons-P.O. Box 1251
Cody, WY 82414 (307-272-9985)
Contacts: Jenny Schneider
Beth Spears

Natrona County Rockhounds:
P.O. Box 123-Mills, WY 82644
President-George Tillman (970-405-5502)
Contacts: Helen Hoff
Jennifer Flowers

Rex Young Rock Club:
Ron Harroun-Box 373-Lingle, WY 82223
President- Kim Nielsen-50434 Leisure Lane
Scottsbluff, NE 69361(308-632-2385)
Contacts: Kim Nielsen
Joyce Trowbridge

Riverton Mineral & Gem Society:
P.O. Box 1904-Riverton, WY 82501
President-Linda Richendifer-10709 Hwy 26
Kinnear, WY 82516 (307-856-1532)
Contacts: Linda Richendifer
Alice Gustin

Shoshone Rock Club:
P.O. Box 256-Powell, WY 82435
President- Mary Ann Northrup-736 Lane 13
Powell, WY 82435 (307-754-4472)
Contacts: Linna Beebe
Jane Neale

WSMGS INFORMATION AND UPDATES

by Stan Strike, President

1. The **WSMGS Board Meeting** October 9, 2013. Topics discussed were:

* Bid for 2014 WSMGS State Show in Casper received and approved by WSMGS Board

* WSMGS 501(c)3 application received by IRS and WSMGS Board will not apply for grants until approved

* WSMGS Trailer & Jade showcase location identified with inventory to be completed by Riverton Club

* WSMGS will apply to WY State Office to protect the WSMGS "Trademark" for 5 year interval

* Board discussion with Helen Hoff about coordinating details for 2014 State Show in Casper

* Development & Distribution of WY Club Rockhound of the Year form to affiliated clubs.

* Investigating the possible formation of new Rock Club in Pinedale WY

Thank You's to:

Tina Kintzler/donation of professional time and services to submit 501(c)3

Clarence Ellis/ Group leader for WSMGS Field Trip to the Red Pryor Mountain

2. The American Federation of Mineralogical Societies has established a **Club Rockhound of the Year** for each of its seven regional divisions. The program is officially called ACROY-AFMS Club Rockhound Of The Year. WSMGS has approved a by-law (Article III-Section 8) to encourage each affiliated WSMGS Club to be honored to submit the name(s) of one adult member or (if a couple -2 adult members) and a junior member who will be honored at the WSMGS annual membership meeting and considered for the Wyoming State Rock Hound of the Year Award.

3. WSMGS will have a "**WSMGS Dealer's Table**" at the 2014 WSMGS Rock Show in Casper July 12-13. The WSMGS would appreciate any rock, mineral, or fossil donations by WSMGS Clubs or individuals that WSMGS could sell at this table. We would also appreciate any WSMGS members who are in attendance to help "man the WSMGS table" for an hour or so—email or phone us with your offers. Thank You

4. In the August 2013 Jade State News, WSMGS identified Eddie & Ava Cole as **Wyoming Rock Stars**. If you would like to nominate other Wyoming non-WSMGS members for recognition for their contribution to earth science or rockhounding, submit their name and a brief biography to the Jade State News Editor.

HISTORIAN'S REPORT

Oct. 9th, 2013

State Historian's report

I have been working on the State Club Directory, with lots of research involved, as there is not much history recorded before 1999. Still at it though.

I made it to Cheyenne and while there, I stopped at the State Secretaries office to ask if there were any recordings of our state seal. They could not find any, but we happen to have the state's bucking horse on our seal, they gave me a number to call at the Wyoming State University, who has the legal trademark of the bucking horse. I called them and found out we have a legal registered usage of the bucking horse, since 1964, with the exact seal we are using now. They have sent me a copy of this registered paper, so that it will be filed in the State Mineral & Gem Societies records for future use if needed. The State Board can also apply for a legal trademark with the State Secretary's office, so that no one can legally use this seal. The board will have to decide if they want to do this. It has a cost of $100.00 and has to be renewed every 5 yrs. with a cost. The registrar's office at the University of Wyoming's number for licensing the Bucking Horse is (307) 766-6927 or 766-5646.

That is all I have to report.

Richard Heumier
Richard Heumier
State Historian

Joke of the day: A Frog and an Iguana

Courtesy of jokeoftheday.com Author unknown

A man enters his local bar holding a frog and an iguana. He sets them down on the bar and says to the bartender, "I bet you $1000 that my frog here can sing any song you can think of." "Ok," says the bartender. "How 'bout 'Blue Moon'?" The man whispers something to the frog, and the frog starts singing blue moon. "That's amazing," says the bartender as he slaps down $1000. "I'll bet ya another $1000 that my iguana here can do that to." "Ok, I can believe a frog, but not an iguana. You're on. Have him sing the Star Spangled Banner." The man whispers something to the iguana and it sings the Star Spangled Banner. As the bartender hands over another $1000, a businessman comes up and says, "I just saw that and I was amazed. I want to buy your iguana for $100,000." The man said ok, and he exchanged the iguana for the money and the businessman left. The bartender said "What are you nuts?! You could have made millions with that iguana!" The man said "Oh, the iguana can't sing. The frog's a ventriloquist."

Natrona

County Rockhounds Club will be hosting the 2014, 76th WSMGS State and 67th Casper Gem and Mineral Show in Casper, Wyoming on July 12 & 13, 2014. This is an invitation for your Rock Club and members to participate and be represented.

This is your "show packet". You will get a "delegate packet" later, closer to the show. At this time we expect delegates will have a meeting and potluck Friday night the 11th at our lapidary shop and club house.

It's early. I have enclosed everything I know at this time. Some of you will get an email repeating some of what is enclosed. There are a few things you **need to know**:

I need a response from you about a display case for your club by April 1st, 2014.
After that date, I will open the availability to vendors at the show and others interested. So I have enclosed show categories, rules and judging score sheet for the cases. Club cases are one category and limited to one per club. **WE WILL SUPPLY THE CASE.** This should make it easier for you to participate, since you can just send the case contents with your delegates. Our cases have a 2 can & board shelving system and overhead lights. You will need the rest.

Vendor space is very limited. We are actually already a third full and I just mailed out the vendor contracts yesterday. I have enclosed a show contract. If you have club members who want to sell at the show, they need to get half the money in **NOW!**

This is also State's big fundraiser. We don't take your support for granted, we appreciate it!

We could use your help. Please. Casper does one fund raiser a year, which supports our clubhouse expenses. **There are flyers enclosed**, plus a sheet for making more copies. Please put them out at your meetings, your show, or a local event that seems related (gun show?).

State has a dealer table. They need help manning it. Even lunch break would help. Bring them a cup of coffee!

Both State and NCRHS club will take donations. Anything for a door prize, silent auction or sale table will be graciously accepted and receipted if you write non-profit donations off your taxes. **Thank you!**

Most of you know my name- I am a member of your club! I would love to see your face! If you have questions or concerns give me a holler-

Helen Hoff, 2014 WY State/NCRH Show Chairperson, 307-266-2839 hmhoff@bresnan.net

2013 WYOMING CLUB ROCKHOUND OF THE YEAR

Purpose: Each Wyoming State Mineral and Gem Society member club/society may nominate individuals as their Club Rockhound of the Year as to the WSMGS by-laws (article III-section 8): -- One (1) adult member OR one (1) adult couple — AND — one (1) junior member.

These WSMGS member nominees will be recognized at the Annual WSMGS Membership meeting and eligible to be selected as Wyoming State Rockhound of the Year. In addition all nominees' names will be submitted to the Rocky Mountain Federation of Mineralogical Societies (RMFMS) for possible recognition as American Federation of Mineralogical Societies (AFMS) Club Rockhound of the Year.

Procedure: Each WSMGS member club should submit this form to the current WSMGS Secretary:

Mary Ann Northrup-736 Lane 13-Powell, WY 82435

or email: man4472@hotmail.com (send in pdf format version only)

Deadline for Nomination Form Applications: March 1st

ROCKHOUND OF THE YEAR NOMINATION FORM CLUB

1. Name of Adult Nominee(s) _____

_____

2. Name of Junior Nominee _____

3.Name of WSMGS Member Club/ Society submitting nomination

_____

4. Name of Club individual submitting nomination form _____

5. Please include separate documentation for each nominee that includes a 75 word or less summary, photo(s), and any additional information that distinguishes the individual(s) as a WY Club Rockhound of the Year.

Continued from front page 1

Interior Plains Physiographic Provinces of Wyoming:

The Interior Plains is a vast region encompassing much of the interior of the U.S from the Rocky Mountain front eastward to the Appalachian highlands and north of the Coastal Plain/Ozark Plateau/Ouachita Highlands. The northeast boundary is established at the Superior Uplands (the western Great Lakes), but, in the west, the Plains extend for hundreds of miles north into Canada.

The High Plains Section of the Great Plains in Wyoming is that area in the southeast part of the state generally underlain by the Pliocene (mostly) Ogallala Formation/Group (Fig. 2). At one time, perhaps five millon years ago, the Ogallala extended from the Pine Ridge Escarpment along the Nebraska-South Dakota border into eastern Wyoming south to the Edwards Plateau in Texas and east from the Rocky Mountain Front to about the Missouri River. Erosion has occurred along the edges. The Ogallala is comprised of clastic sediments eroded off the mountains and transported eastward by numerous streams. Farmers and ranchers are familiar with the High Plains since water at depth is known as the Ogallala Aquifer. Paleontologists have often studied the Ogallala since the formation has produced thousands of vertebrate fossils now housed in museums across the world.

The Missouri Plateau is that section of the Interior Plains that has stream drainage associated with the Missouri River (Fig. 1). The eastern and northern section (Glaciated Missouri Plateau) has landforms generally associated with Pleistocene continental glaciers. The northeastern section of Wyoming, essentially the Laramide Power River . Basin is mostly a shortgrass, sagebrush prairie and is drained by the Powder River and Tongue Rivers. Today, it is best known for concentrations of coal and oil/gas. The surficial rocks are mostly Cretaceous to Tertiary in age and older than the Ogallala.

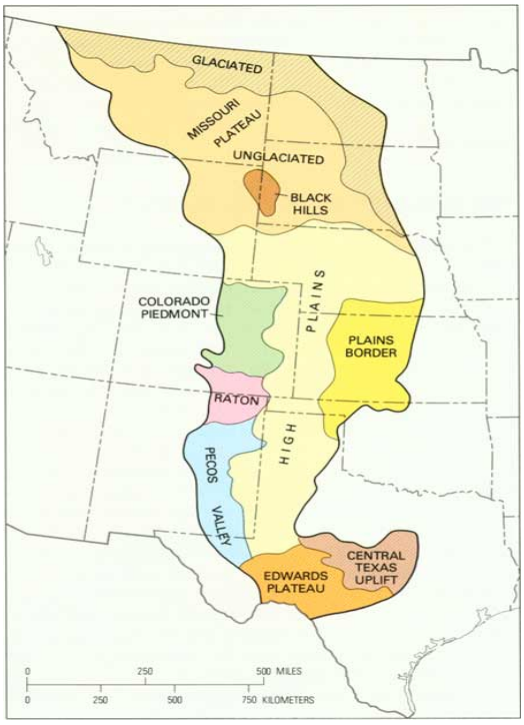

Fig. 2. The Great Plains Physiographic Province, a subdivision of the Interior Lowlands Region. Wyoming includes sections of the High Plains, Black Hills, and the Unglaciated Missouri Plateau. Map from Trimble (1980).

The Gangplank:

One of our country's greatest accomplishments was the completion, after the conclusion of the Civil War, of the first transcontinental railroad from Omaha to Sacramento. The Union Pacific worked on the eastern section and sort of zipped along at a fast clip until they reached the Rocky Mountains in southeastern Wyoming and encountered "trouble".

More specifically, the UP reached the Laramie Range, a northern extension of the Colorado Front Range that extends from the Colorado—Wyoming state line north and west to near Casper, Wyoming. East of the mountains is a section of the Great Plains termed the High Plains with Tertiary rocks exposed at the surface (Fig. 2). The Paleozoic and Mesozoic rocks, mostly in the subsurface in the Plains, are upturned and eroded as they meet the Precambrian granite of the Range. The Laramie Range, with Laramie Peak at 10,272 feet, is approximately 3000 feet higher than the rocks of the High Plains. So, if the Union Pacific Railroad was to ascend the Laramie Range, the challenge would be to establish a route with minimal grade, minimal fill work, and a minimum number of trestles. That route was later named the Gangplank (for an extended version of the history associated with locating the Gangplank see www.csmsgeologypost.blogspot.com, posting on August 29, 2013).

What is the Gangplank? Essentially it is a piece of the Ogallala Formation that escaped erosion along the mountain front and actually extends from the High Plains up to the summit of the granite core of the Laramie Range (Fig.3). The Gangplank is the only place along the entire Rocky Mountain Front, from Canada to Mexico, where a traveler could simply walk up a slope from the plains to a mountain summit.

The rest, as they say, is history as the Union Pacific passed through Cheyenne in September 1867, crested the Laramie Range at Sherman Pass (at 8640 feet, the highest point above sea level on the railroad) and reached Laramie in May 1868. The building of the first transcontinental railroad has often been hailed as the major engineering feat in U. S. history. However, few people know that an accidental erosional remnant, a geological oddity, helped pave the way for completion of this massive project. ***Continued top page 8***

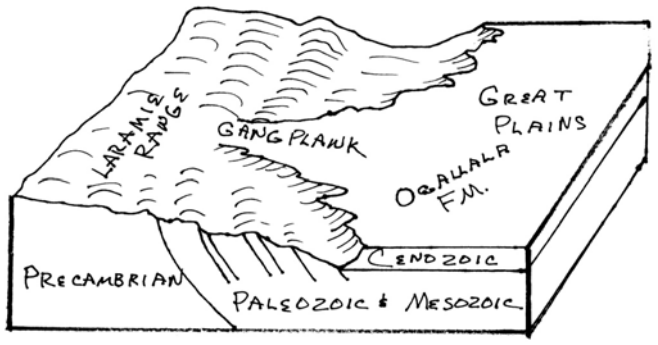

Fig. 3. Sketch showing relationship of the Gangplank (Ogallala Formation) to the Laramie Range. Adapted from Ostresh, 2011.

Black Hills:

The Black Hills---mostly in South Dakota but extending into Wyoming- are actually part of the Great Plains. The Hills is an oval-shaped dome perhaps 125 miles in length and 70 miles wide. Precambrian rocks form the core of The Hills and their presence attracts millions of tourists wanting to view the presidential busts at Mt. Rushmore and the work-in-progress at the Crazy Horse monument (near Custer). These same Precambrian rocks also are a rockhounds paradise as numerous pegmatites continue to produce a variety of collectable minerals.

Surrounding the Precambrian rocks are various sandstones, limestones, and shales (mostly marine) of Paleozoic age. Upturned, mostly marine, Mesozoic rocks then form a boundary encircling the entire dome.

One of the interesting aspects of the Black Hills is the emplacement of numerous small intrusions both in the Hills and external on the surrounding plains (Fig. 4). Near Sundance, Wyoming, there are a series of related, small Eocene laccoliths (an igneous mass intruding between layers of sedimentary rock and doming the overlying layers; at times the domed sedimentary rock is eroded away and igneous rock is exposed) intruding through the Mesozoic rocks; all are easily visible from the highway--Sundance Mountain (5829 feet), Mineral Mountain, Black Buttes, Inyan Kara Mountain (6368 feet), Missouri Buttes (5055 feet) and the Bear Lodge Mountains (~6600 feet). A little further to the northwest of Sundance is the best known of the intrusions, Devils Tower (may not be part of a laccolith but some sort of an igneous intrusion; 5112 feet).

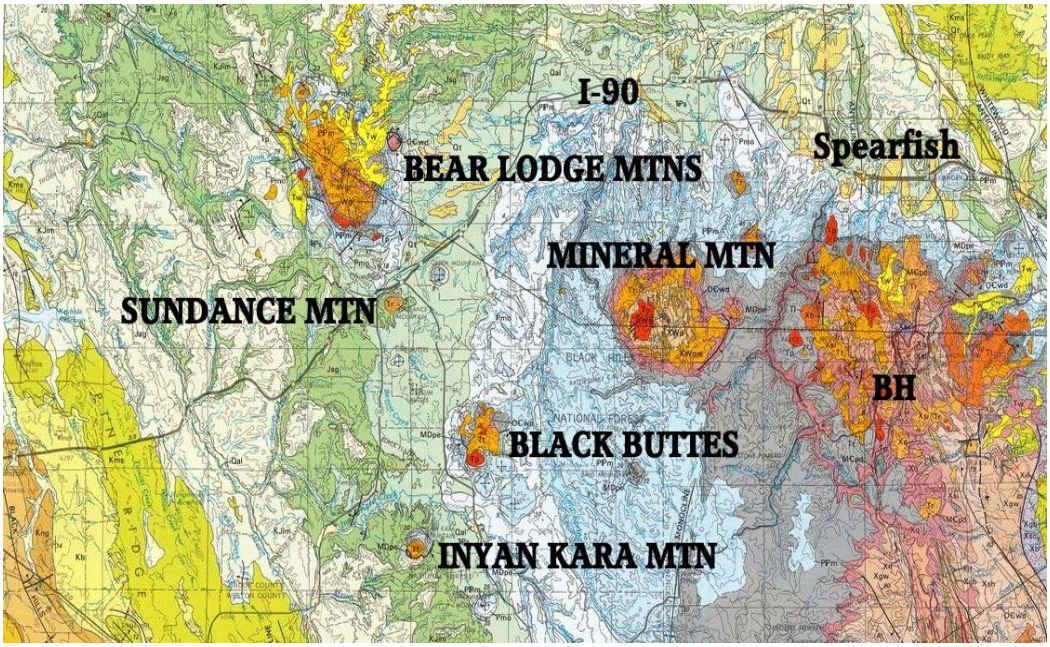

Fig. 4. Geologic map of the northwest Black Hills showing locations of Tertiary intrusives. I-90 travels from Spearfish, SD, west toward Gillette, WY (off map). Map courtesy of DeWitt and others, 1989.

Hartville Uplift:

Further south in Wyoming, and still in the High Plains, is an area termed the Hartville Uplift (Fig. 5). Like the Black Hills (but not nearly as high), the Hartville is a north-south trending Laramide (Rocky Mountain) uplift exposing Precambrian rocks in the center surrounded by outward dipping Paleozoic rocks (Sims and Day, 1999). The uplift, in the subsurface, ties together the Laramie Range to the Black Hills and also separates the Denver Basin (east) from the Powder River Basin (west); the core rocks are mostly Archean in age, but there are some Proterozoic igneous intrusions.

The Precambrian exposures in the Hartville are of interest to Coloradans since the rocks contain large deposits of iron, both banded iron formations and specular hematite. Iron was first produced from the Sunrise mine, and later the Chicago, Central, and Good Fortune mines, near the towns of Hartville and Sunrise in the late 1800's (Fig. 6). These mines then shipped this hematite ore to the Colorado Fuel and Iron Corporation open-hearth furnaces in Pueblo, Colorado (Sims and Day, 1999).

Having constructed a rail line spur for its own use, the Colorado Fuel and Iron Company transported iron ore from Sunrise via Guernsey to Hartville Junction, a distance of about fifteen miles, where it met the Colorado & Southern railroad. At the time when mining ceased at the Sunrise mine in 1980, the Hartville district had produced about 45 million tons of iron ore (Hausel, 1989).

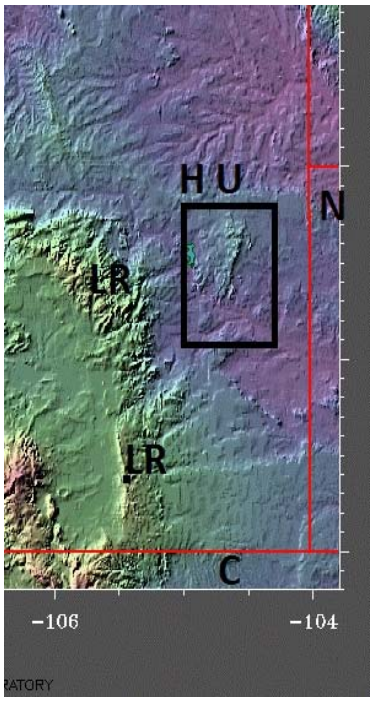

Fig.5. Southeast section of Figure 1 showing location of Hartville Uplift (H U). C: Colorado, N: Nebraska; LR: Laramie Range.

Credits and References cited top left column Page 9

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DeWitt, E., J.A. Redden, D. Buscher, and A.B. Wilson, 1989, Geologic Map of the Black Hills area, South Da-kota and Wyoming: United States Geological Survey Miscellaneous Investigations Series Map I-1910.

Hausel, W.D., 1989, The Geology of Wyoming's precious metal lode and placer deposits: Geological Survey of Wyoming Bulletin 68.

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Sims, P. K. and W. C. Day (compliers), 1999, Geologic Map of Precambrian Rocks of the Hartville Uplift, Southeastern Wyoming *with a section on* Mineral Deposits in the Hartville Uplift *by* Terry Klein:

U. S. Geological Survey Map I-2661.

In addition to Dr. Nelson's information in this article, there are hundreds of professional publications describing the geology of the Wyoming which are widely available in Wyoming libraries and on the internet. The Wyoming Geological Survey has, on its web site, several popular publications (for free downloads see www.wsgs.uwyo.edu) describing rocks and minerals: Bulletin 50, *Mineral Resources of Wyoming;* Bulletin 51, *A Field Guide to the Rocks and Minerals of Wyoming*; Bulletin 55, *Traveler's Guide to the Geology of Wyoming;* Bulletin 54 *Fossils of Wyoming*; Bulletin 66, *Minerals and Rocks of Wyoming*; Bulletin 71, *Gemstones and Other Unique Minerals and Rocks of Wyoming;* Information Pamphlet 11, *Guide to prospecting and Rock Hunting in Wyoming*. Dan Hausel, a fellow Utah graduate, has written a fantastic book entitled *Gems, Minerals and Rocks of Wyoming: A Guide for Rock Hounds, Prospectors and Collectors* (2009) available from booksellers.

"EXCUSE ME, IS THIS A FOSSIL?"

In mid-July of 2013, the Smithsonian Deep Time exhibits team went to North Dakota to collect fossils. Our goal was to find 66-million-year-old fossils from the Late Cretaceous for our new exhibitions, and to learn more about paleontology. This is the first post in a series about our experiences in the field.

The Hell Creek Formation is a microfossil treasure trove— if you know what to look for.

Before our trip, many exhibits team members had no field experience. Luckily, we could turn to our curators for advice and encouragement. They helped us learn **what** to look for and **where**, and **how** to identify fossils. How do professional paleontologists know something is a fossil? Years of practice! But even with a little experience around fossils, you'll have an easier time picking one out from a pile of rock by looking for three traits: **color, texture, and shape.**

Figure 1: Photo of Abby Telfer collecting microfossils. Photo by Kay Behrensmeyer, Smithsonian Institution.

1. Color: Fossils tend to have a different color from the surrounding rock. They may be lighter than the rocky substrate, or they might be darker – it all comes down to the weathering process, and the fossil materials. Plant fossils are almost always darker than the rock in which they're found. If you're searching for microfossils on the ground, they'll probably be a lighter, almost creamy color since they have been exposed to the elements—though teeth, claws, and scales are dark and glossy.

Figure 2: Note the black and grey fossil bone fragment on the left is a different color than the surrounding reddish rocks. It is also denser than the weathered modern bone on the right. Photo by Juliana Olsson, Smithsonian Institute

2. Texture: Bones are more porous than rock, and this texture difference makes them easier to spot. Because of its "spongy" texture, if you touch a fossil to your tongue it will typically stick, whereas rock and soil won't. If you're not in the mood to do the tongue test, you can also look for pores through a hand lens. Some bone patterns can tell you who the original owner

Article continued at top of page 10

"EXCUSE ME, IS THIS A FOSSIL?" *Cont'd*

might have been. Turtle shells have little pits and grooves on one side. Crocodile scutes have even more pronounced pits.

Young and old members of the same species differ in the growth patterns on their bones, a fact which can help scientists determine the biological age of a fossil. Sometimes bones even have little marks on them where muscles used to be attached.

Figure 3: This piece of turtle shell embedded in the rock has a distinct, dimpled texture, which makes it noticeable even though it's only about 4 cm wide. Photo by Kay Behrensmeyer, Smithsonian

3. Shape:

If you're lucky, the item's shape will be an even bigger clue. While many bone fragments are unidentifiable, there are many bones that are highly diagnostic for an entire group of animals, if not for a species. These diagnostic bones tend to be things with complex shapes, like vertebrae, skull bones, and even teeth and claws.

Distinctive bones aren't the only fossils with easily identifiable shapes. Coprolites (fossil poop) look the way you'd expect them to, and tend to be a little bit lighter than the rocks around them. Casts, molds, and steinkerns (internal molds) look like the original organism; mollusks and other animals with shells are often preserved this way. For plants, the diagnostic features tend to be the leaf edges and bases, as well as the pattern of veins.

Figure 4: The fossils we found came in a wide variety of shapes, from blade-like gar scales (box at bottom right), to oval fish vertebrae (above the gar scales), to pointy conical teeth! Photo by Kay Behrensmeyer, Smithsonian Institution

If you spend even a short time looking for fossils, you'll learn how to tell that the thing in your hand is a vertebra or a root. But to know what genus it belongs to, you'll have to spend some time handling fossils and doing research. Generations of scientists have taken the time to describe in detail the anatomy of animals past and present, and you can compare your fossils to these descriptions. You can visit university websites like UCMP for more information on identifying fossils, volunteer at your local prep lab, or come see our fossil exhibits in person. You can also follow Deep Time at the Smithsonian (or the NMNH Facebook and twitter feeds) for more on fossils and updates about the exhibit.

"Excuse Me, Is This a Fossil?" was written by Juliana Olsson and reformatted by Stan Strike-WSMGS with permission from the Smithsonian Institution.

Warning to Rockhounds: Vertebrate fossils can only be collected on private land with the owners permission. Vertebrate fossils can not be collected on public land unless the collector has a registered permit from the appropriate government agency prior to collecting. Fossils(vertebrate or invertebrate animals and plants) that are collected on public land cannot be sold.

Baculite and clam cast identified by Mary Anne Northrup. See article bottom of page 15
submitted by Linna Beebe, Shoshone Rock Club

LAPIDARY HINTS-OCTOBER 2013, THE AMMONITE

Each time you clean your lapidary saw, reverse the blade. This will give longer life to the blade as you wear each side evenly. - The Pseudomorph via The Petrified Log Nov 2001.

Denim Iron On Patches make excellent polishing discs as they adhere to surfaces when ordinary glue and adhesives will not**.** - Chips 'n' Splinters 5-01 via Victor Valley Gem & Mineral Bulletin 11-01.

Want to try something different and beautiful? First, pick out a good grade of White Plume Agate and slice it thinner than usual, but thick enough to bevel. Then cut slabs of black jasper as thin as possible. Boil the slices to remove oil. Epoxy the jasper to the underside of the White Plume. Press together and rub slightly to get the bubbles out and then weight it down or clamp it together until it dries. Mark and cut the same way you would regular cabochons. These are stunning and you will surely want to cut more. - GEMS of the Foothills 11/1997 via Shasta Gem and Mineral Society Rollin Rock 10/1996.

Filtering Saw Oil: Saw oil is used to cool and clean the saw blade. If the oil reservoir contains too many rock particles, it is time to clean your saw oil because these rock particles tend to wear down the cutting edge of your saw. Most rockhounds don't "throw out the baby with the bathwater" when it comes to saw oil because the oil is expensive so it is recycled by filtering out the rock particles. Paper grocery sacks are becoming scarce, so try using a shop vacuum filter and a paint filter. Position the paint filter or colander over the rim of a plastic bucket. Cut off the top of the shop vacuum bag and slowly add the dirty oil. It usually takes several weeks for most of the oil to be filtered. (Stan Strike-WY State Mineral and Gem Society)

A Submersible Pump to Supply Water for your Lapidary Equipment. Place a 5-gallon pail on the floor filled 2/3 full with water. Set a brick on the bottom of the pail and position a submersible pump on the brick which has the appropriate diameter and length of plastic tubing to reach the top fitting of your lapidary equipment. Use a paint filter that fits over the top of the pail and direct the return water flow via plastic tubing through the filter. The water flow can be adjusted at the output of the pump. The following product sold by Harbor Freight can be used: Pacific Hydrostar-Miniature Submersible Fountain Pump- # 68372-200 gallon/minute-4.6 feet maximum head lift-5/16 or ½ inch discharge port.

(Pete Jaskow/Stan Strike-Cody, WY-59ers Rock Club)

Lynn Neale with Brazilian Agate Slab purchased while at the Billings Rock Show

59'rs ROCK CLUB

CHRISTMAS PARTY

DEC 11, 2013

SUNSET HOUSE

TIME: 6:00 PM

COME JOIN THE PARTY WITH GOOD FOOD AND FRIENDS

DON'T FORGET YOUR EXCHANGE GIFT:

$12:00 max and appropriate for anyone

CLEANING STALACTITE AGATE

Bob King

After you have worked hard to dig out a potentially nice stalactite agate specimen you want to clean it to show off its beauty. This will also clean the tortilla agate found neat Wamsutter, WY.

Clean your specimen OUTSIDE not in your house or garage.

The warmer the day, the better. Heat is a catalyst. The higher the temperature, the faster the chemical reaction will occur.

First use water to get off all of the dirt. A garden hose will do. To get the dirt out of the crevices use a slender pointed stick and a steam of water. Wood will not scratch your specimen. I was given a Water Pic a few years ago and it works well to get dirt out of small crevices, but they are expensive (About $50 at Safeway). Old toothbrushes work well to rub off of the stubborn dirt.

All of the stalactite agate that I have collected from the Glendo, Wyoming area has a calcium deposit on it. To remove this coating, use a mixture of water and Muriatic Acid. Muriatic Acid is industrial grade hydrochloric acid (HCl) and may be purchased at most hardware stores. It is used to clean concrete and brick work. Look in the paint department. I bought a gallon of it at Menards last week for $5.28. A gallon will clean off a lot of calcium.

Put your specimen in a 5-gallon PLASTIC bucket and add enough water to just cover it. There should be at least 10" of space from the top of the water to the top of the bucket. I'll tell you why in a moment. These buckets can be obtained for free at most fast food restaurants or you could buy one at a hardware store for around $4. **Don't forget to get the lids**. Get three buckets. Gently pour the Muriatic acid into the bucket containing the water and specimen**. Add acid to water NOT water to acid.** How much acid should you use? Good question. As you add the acid, bubbles will start to form in the water from the chemical reaction of the acid and the calcium. This generates foam. The more acid that you add, the greater the chemical reaction. If you put in a lot of acid, the foam created by these bubbles will overflow the bucket so use enough acid to get bubbles, but not enough to make a mess**. Try not to breath the vapors given off by the chemical reaction.**

How long will it take the acid to clean off the calcium? Another good question. This depends on three things: 1) How much calcium is there. 2) How strong the acid solution is. 3) What the temperature is. The hotter the solution the faster the chemical reaction. Your specimen may be clean in less than an hour or in a day or two. You may leave the specimen in for as long as you wish. The Muriatic Acid will not affect the agate.

When you think all of the calcium has be dissolved use **LATEX EXAM GLOVES** to take the specimen out of the acid. I have never purchased rubber gloves as our daughters give me boxes

of them for my birthday and/or Christmas. I also use them when I do painting. They tell me that you can get a box of 100 gloves for $6 to $7 at a medical supply place or at Harbor Freight.

Rinse the specimen with water to get most of the acid off it. Again you might use a hose or soak it in a bucket of water.

Put a lid on the bucket that you put the Muriatic Acid in and label it MURIATIC ACID.
You can reuse this acid.

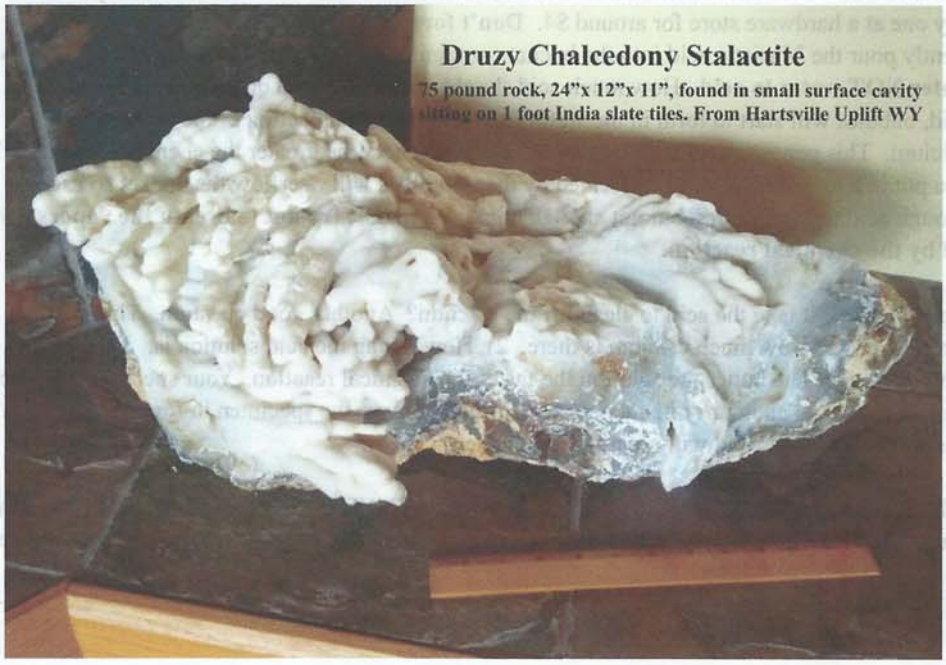
You are almost done. You should neutralize any acid residue that might still be on your specimen. To do this take another 5-gallon bucket and fill it with enough water to cover your specimen. Shake BAKING SODA into this water. How much you dump in depends on how large your specimen is. Baking soda is cheap (Less than a dollar per box.) so use enough to generate some bubbles.

After no more bubbles are seen in the water, take out your specimen. NO rubber gloves are required to do this.

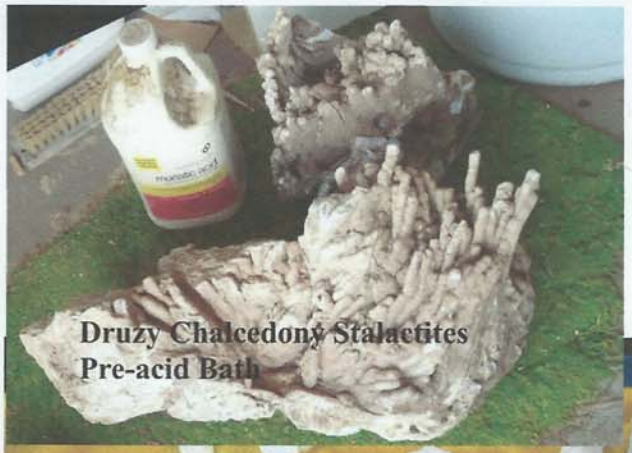
Put a lid on the bucket that contains the Baking Soda solution and label it BAKING SODA.
You can reuse this solution.

Again rinse the specimen with water and let it dry. Enjoy your "treasure."

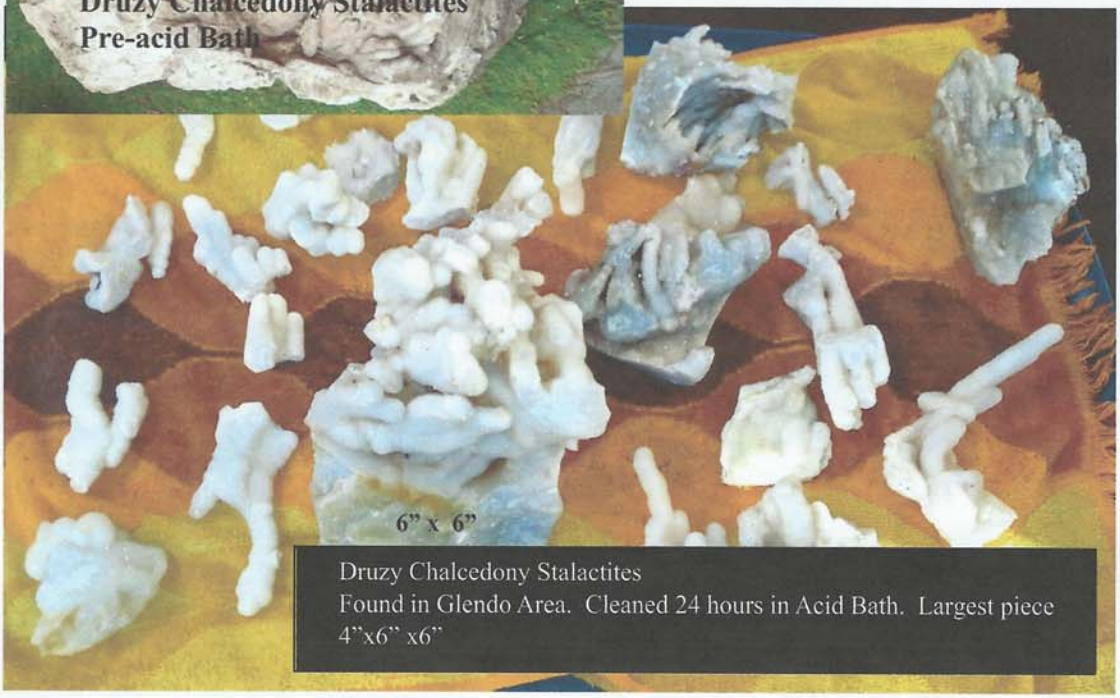
Images below by Bruce Keating



Druzy Chalcedony Stalactite
75 pound rock, 24"x 12"x 11", found in small surface cavity sitting on 1 foot India slate tiles. From Hartsville Uplift WY



Pre-Acid Bath



Druzy Chalcedony Stalactites
Found in Glendo Area. Cleaned 24 hours in Acid Bath. Largest piece 4"x6" x6"

Druzy Chalcedony Stalactites. Left piece cleaned in acid bath for 24 hours. Two 35 lb pieces. Right piece approx 12" x 10" x 11".

Article courtesy of Bob King, Cheyenne Mineral & Gem Society
Images by Bruce Keating

CLUB NEWS AND ANNOUNCEMENTS

CLUB HEALTH CHECKUP

BY STAN STRIKE

It is that time of year when club officers are elected and members are asked to pay their dues for another year. The health of your club is not only measured by the # of new members & the # of members who rejoin but if your club addresses these questions:

___ Does your club encourage & support new officers?

___ Is your club structured to allow your members to participate on committees & in meetings?

___ Are your club programs related to your club's objectives?

___ Do your members share/show their "finds" & their finished lapidary products?

___ Does your club continue to educate its members?

___ Do your members have the opportunity to learn lapidary skills?

___ Is your club membership a mixture of retirees, working persons, & school age students?

___ Does your club provide field trips to new collecting sites & to those visited in the past?

___ Are your members encouraged to adhere to the AFMS "Code of Ethics"?

- **Indoor Field Trips?**?: When the weather is too cold (or too hot or too wet), keep your club moving with indoor field trips. Local museums, RMFMS Films, local rockhound?
- **Lapidary Time!!:** Many Rock Hounds collect rocks, minerals, and fossils when the weather is "nice" Now is the time to sort / organize and prepare your new finds for display - or else you will end up with boxes of rocks soon forgotten? Perhaps club members with equipment would be willing to share and teach the necessary lapidary skills that would turn some of your finds into Gems!

Girls from the Powell Boys and Girls Club are holding up Apache tears given to them by the Shoshone Rock Club. ***Photo Courtesy Linna Beebe***

SHOSHONE ROCK CLUB

BY LINNA BEEBE

September Club Meeting: 16 members and guests were in attendance at the meeting. WSMGS state president, Stan Strike, discussed with the club a joint effort between the Cody 59'ers and Shoshone Rock Club to host the Rocky Mountain Federation show in early August 2015. Board and members approved.

David and Astrid Northrup used the library Smart Board for the presentation, "The Rio Grande Rift" which runs from Colorado to Chihuahua, Mexico.

A rift is a thinning or tear in the earth's crush where heat and magma push up causing faulting. Precious metals can be brought up in a rift such as in the Leadville, CO area which brought up gold, etc. Other well known rifts discussed were the East African Rift and the Baikal Rift in Russia centered in Lake Baikal.

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Article continued from bottom page 15

Betty Kersting, a guest, brought in a rock to be identified found on her place many years ago, left by the previous owners. Mary Ann Northrup identified it as a baculite in a clam cast. (photo enclosed). Artelle Sedwick won the door prize of a small septarian nodule sphere, donated by Linna. Mary Ann and Donna Brasher served refreshments. Boys and Girls Club program started up again this month and Linna Beebe presented a program on WY rock and fossils, plus. Students were given an Apache tear. (photo enclosed.)

October Club meeting: The meeting was conducted at the Powell Homesteader Museum. The Smithsonian Traveling Tour: Key Ingredients, American by Food, was featured, plus members brought in items for "Show and Tell". The museum has rocks and fossils on permanent display. Tuesdee Oswood and Roger and Joy Lyons brought in rocks to be identified. Mary Ann showed banded iron and a stromatolite which was thought to be 500 million years old. Linna brought in some calcite sand crystals (which are found in relatively few places, but several locations in WY). The two locations were listed in a book, Gemstones and Other Unique Minerals and Rocks of Wyoming, by W. Dan Hausel and Wayne M. Sutherland, Bulletin 71, Wyoming State Geological Survey, published in 2000, and Linna suggested members get a copy. This comprehensive book contains many places to hunt for rocks, fossils or other. She had thought the original book price was $20.00, but found out a day later, the book is extremely hard to find, and the few copies available were selling for $169.00. Information in the book is as follows: Wyoming State Geological Survey, PO Box 3008, Laramie, WY82071-3008, phone, 307-766-2286. Perhaps they have extra copies, or if enough interest is shown, a second edition could be printed. A guest at the meeting Julie Hoot, signed up to be a new club member and 13 were in attendance. Art & Judy Schatz hosted the meeting and Mary Ann won the door prize, a polished Pryor Mtn. Swirl sandstone brought in by Roger Lyons. Club members will meet at the library on Nov. 8 for the next meeting, a silent auction & elections. A program on Crystals was presented to the B & G club by Linna and the students received a fluorite octahedron.

June 22, 2013 Trip to the Gas Hills for Selenite

By Richard Rogers, Riverton Mineral & Gem Society

On 06/22/2013 I lead a field trip east of Castle Gardens in the Gas Hills.

We arrived at the site, looked on one hill for rocks, was going to move to the next one and one of the participants heard on the radio that there was a storm heading our way--high winds, hail and then she heard a tornado was sighted also. Her granddaughter wanted to go home as she was frightened by the alert. I decided to get back to a better road before we got stuck where we were.

We went back to the road that runs from the Gas Hills road to the Riverton-Casper highway. We stopped and waited to see what would happen next. I went back and talked to the people in the three other pickups in the group to see what they wanted to do. Most wanted to wait it out for awhile or go back to Riverton on the Gas Hills road, but it looked like we would be heading straight into the storm.

Just as I got back to my pickup, it started to hail. It sounded like someone was shooting at the roof of my pickup. I decided to try to outrun it by going to the Riverton-Casper highway. The hail was so bad I had to stop to push it off the hood so I could see to drive. It hailed most of the 28 miles to the highway. As we got to the highway we were behind the storm. It was calm but all of the pickups on the trip had hail damage--one had to get a new windshield.

Don Weeks thought I should take a picture of the clouds in the backside of the storm and send it to News 13. They put it on air during the news the following week. We did not get very many rocks but we did get a lot of hailstones.

Great Field Trip

At 8:00 AM on Saturday, September 28, 30 club members gathered at the north end of Cheyenne and caravanned north on I-25 to Howard's store and gasoline station in Glendo. In Howard's parking lot Bob King showed what we were to search for, stalactite agate, and mentioned the common practice of leaving your digging tools at a your hole when you leave the hole, which marks the hole as "claimed." The group then traveled north on highway 319 to the collecting area which was discovered a year ago by club members, Harry Kittleman and Jason Williams.

The hike up the hill.

It was a beautiful day. Not a cloud in the sky, pleasant temperature and no wind. After parking our vehicles we hiked up a steep hill with our tools and were shown possible places to dig. In just a few minutes, Paul Gregg, uncovered a 20" by 15" plate of crystals which he immediately stated would be given to a person on the field trip by a drawing. During the morning David Richmond carried this specimen down to where the vehicles were parked. When he returned to the dig area he told us he had disturbed a 4-point deer that had been resting on the ground around the vehicles. The deer got up and walked back up a nearby canyon. At the end of the day the Ruybal family won Paul's "treasure."

During the day several other large plates of crystals were unearth along with several smaller specimens. These specimens have a coating of calcite on them which can be removed with hydrochloric acid. Steve and Jessie Ruybal found a 112 pound (25" by 22") specimen which

Jessie & Steve Ruybal's 112-pound Specimen of Stalactite Agate

they carried down the hill. Bruce Keating hauled a 70 pound piece down on his back. Dave Richmond carried out an 85 pound piece for Bob King after Bob slid it part way down the hill.

We left that area and drove less than a half a mile to an area where Jason Williams showed us a spot to find some very nice agate, which besides being good specimens also fluoresce dark green under short wave. Dave and Chris Richmond then took us to a spot that we had driven past on our way to the initial collecting area where we found plates of small-bladed calcite crystals.

What a day!

Gordie Mills unearths a good one.

Riverton Mineral and Gem Society
Sweetwater River Trip for Garnets

August 31, 2013

The Riverton Mineral and Gem Society's trip to the Sweetwater River for Garnets produced 15 individuals enthusiastic about wading in the river, moving big rocks, trying to keep the garnets on the shovel as you brought them to the surface and dumped them into a bucket or into a gold pan, panning them out of the river sand and gravel and occasionally falling into the river!

It was a great day for rock hunting! Warm but not too hot, cool water (I can attest to this as I was one of the "fall in the river" ers) GREAT Company and downright nice day for rockhounding!

Thanks to Helen Hoff, Price Purdum and Jimmy Mac for the photos!


Tomi Sue heads in to help gather Garnets


Garnets collected by Helen Hoff 8-31-2013

Private Opal Claim
Bob Carlson, Riverton

Sunday, May 19, 2013

Ben Struempf, my cousin Cameron, his wife Andrea and son Magnus spent a memorable afternoon near the Platte River southwest of Casper, WY where we had been invited to a private opal claim. More people were to meet there for a day at the claim but less than perfect weather left the 5 of us alone at the mine.

I was able to bring a generator and jackhammer which let us work an opal vein for a couple of feet back into the hillside and left each of us with a nice bucket of opal. As you can see in the pictures we were able to bring home some nice rock. The opal fluoresces green very nicely under a black light and the white fluoresces purple. I look forward to working some of the rock in the near future and hope to make another trip to the claim in the not too distant future.

Bob Carlson

Riverton mineral and gem society

JADE STATE NEWS
WYOMING STATE MINERAL AND GEM SOCIETY
VERNE ORCUTT—EDITOR
P.O. BOX 697
CODY, WY 82414
307-578-7091

VISIT US ON OUR WEBSITE

WWW.WYMINERALANDGEMSOCIETY.ORG

Best wishes for the Holiday Season

Photo courtesy wordpress.com, Simply Marvelous Horse World