Jade State News

WYOMING STATE MINERAL AND GEM SOCIETY, Inc. - P.O. Box 697, CODY, WYOMING 82414

Volume 2015, Issue 3

2015 RMFMS MINERAL & GEM SHOW

August 2015
Inside this issue:

What a great show!

The 2015 Rocky Mountain Federation of Mineralogical Societies (RMFMS) Mineral and Gem Show was hosted by the Wyoming State Mineral and Gem Society, the Cody 59ers Rock Club, and the Shoshone Rock Club July 16-18th. This event was unique in that this was only the 2nd time that Wyoming has hosted a RMFMS event.

Congratulations to the groups who hosted this event and to those individuals who worked to make it a success. The Shoshone Rock Club and the WSMGS and their members need to be recognized for furnishing the Thursday a.m. dealer / worker luncheon and volunteering many hours working at the show. A special thank you to Roger Lyons as show chairperson, who spent countless hours prior to the show managing and coordinating the materials and personnel needed to create a successful mineral and gem show.

With an attendance of 1080 persons, the public responded to the advertising via newspapers, radio, internet, hand out flyers/postcards, and a 4th of July float. The organization of the Show foyer included: separate admission and raffle tables, WSMGS club & individual club member displays, 4-H displays, and RMFMS displays. Additional signage directed the public to the UV Light display and to the Kids' Rock Activity Area and a Food Court.

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Wyoming State Mineral & Gem Society
STATE OFFICERS

President: Stan Strike
2132 Gail Lane, Cody, WY 82414
Phone: 307-250-1244
wsmgspres@wymineralandgemsociety.org

Vice President: Linda Richendifer
10709 Hwy 26, Kinnear, WY 82516
Phone: 307-856-1532
wsmgsvpres@wyminerandgemsociety.org

Secretary: Carla Tillman
9075 N Mohican Road, Casper, WY 82601-7457
Phone: 970-405-5502
wsmgssec@wymineralandgemsociety.org

Treasurer: Melvin Gustin
P.O. Box 468, Riverton, WY 82501
307-856-3699
wsmgstreas@wymineralandgemsociety.org

Historian: Rod Baltes
41 Y Road, Riverton, WY 82501
307-851-3838
wsmgshist@wymineralandgemsociety.org

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

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

Wyoming State Mineral and Gem Society Board meets quarterly

Wyoming WSMGS Affiliated Rock Clubs

Cheyenne Mineral & Gem Society:
Mail: P.O. Box 21412, Cheyenne, WY 82001
President: Bob King
Phone: 307-632-2702
cheyennemgs@wymineralandgemsociety.org

Cody '59ers Rock Club:
Mail: P.O. Box 1251, Cody, WY 82414
President: Roger Lyons
Phone: 307-272-9985
cody59ers@wyminerandgemsociety.org

Natrona County Rockhounds:
Mail: P.O. Box 123-Casper, WY 82644
President: George Tillman
Phone: 970-405-5502
natronarockhounds@wymineralndgemsociety.org

Rex Young Rock Club:
Mail: Joyce Troybridge, 112 East 3rd, Lingle, WY 82223
President: Kim Nielsen
Phone: 308-632-2385
rexyoungrockclub@wymineralndgemsociety.org

Riverton Mineral & Gem Society:
Mail: P.O. Box 1904-Riverton, WY 82501
President: Linda Richendifer
Phone: 307-856-1532
rivertonmgs@wymineralandgemsociety.org

Shoshone Rock Club:
Mail: P.O. Box 256-Powell, WY 82435
President: Mary Ann Northrup
Phone: 307-754-4472

Additional information on Club meeting days, times and locations is posted under the Club News and Announcements on Pages 12 and 13

The Wyoming State Mineral and Gem Society (WSMGS) is a non-profit organization, with the purpose of educating, promoting and developing an interest and understanding in the Earth Sciences, Lapidary Arts, and their related fields for its affiliated members as well as the general public. The WSMGS is a member of the Rocky Mountain Federation of Mineralogical Societies (RMFMS) and the American Federation of Mineralogical Societies (AFMS). WSMGS Member Clubs are located in Casper, Cheyenne, Cody, Powell, Riverton, and Torrington, Wyoming. The WSMGS invites you to explore our website for information about Wyoming's minerals, rocks, fossils, and gemstones as well as for an introduction to the people and places that rockhounds can visit, explore and learn. ***You can find us at:***

http://www.wymineralandgemsociety.org/index.html

WSMGS INFORMATION AND UPDATES *by Stan Strike, President*

I. WSMGS Annual Meeting-July 16, 2015-Cody H.S. Sweitzer Gym-Cody, WY

A. All WSMGS affiliated clubs were represented by delegates, except the Cheyenne Mineral & Gem Society. All current officers were present with the exception of Jim McGarvey, who resigned at the April Board Meeting and was temporarily replaced by Richard Heumier.

B. The July 11, 2014 Annual Meeting minutes were read and approved.

C. Richard Heumier reported that he had updated the WSMGS checkbook and the final balance matched the balance as recorded by the First National Bank in Cody. The balance on July 11, 2014 annual Meeting was $1,163.36. As of the July 16, 2015 Annual Meeting the check book balance was $1,984.28 which included $60 of outstanding checks. It was voted to cancel the $25 memorial check since it was 3 years old and had been lost. The adjusted balance was $2,009.28.

D. WSMGS Officer Reports

1. The 2015 RMFMS Mineral & Gem Show report by Stan Strike:

-RMFMS Liability Insurance for Park Co. WY School District #6 and Park County WY Public Library

- Advertising in Powell and Cody newspapers, show flyers & postcards, internet.
- 21 Dealers from 12 states+ 3 Demonstrators + Rock & Fossil ID
- Displays: 4 Club, 4 RMFMS, 2 WSMGS State, 5 WSMGS members
- 4 speakers: Wyoming Dinosaurs, Jade, Petrified Wood, and Fossil Leaves
- 3 field trips on 7/19-Heart Mtn. Gravels, Cody/South Fork Geology, and Shell Dinosaur Track site
- New Judging Forms online for State Show. WSMGS will organize judging and ribbons
- Input & Discussion Meeting with U.S. Forest Service -7/17/15 at 8:30 in Gym Lobby

2. Electronic Board Meeting- George Tillman:

-To date most of the Board Business can be conducted via "Reply All" email discussions and voting.

- If visual person meetings are required Skype can be used.

3. Historian's Report-Richard Heumier (as attached in this newsletter):

- Helped plan & organize 2015 RMFMS Mineral & Gem Show
- Updated Rock shop contacts for the WSMGS website
- Collected raffle prizes for Cody Show
- Reported that Marbleton, WY persons are interested in forming a Rock club

4. Jade State News-Verne Orcutt:

- Club News is lacking-Please send in Club News/Minutes and especially photos

5. WSMGS Website-Stan Strike:

- iPage web hosting renewed until 3/16, 2017
- domain name renewal: wymineralandgemsociety.org – 3/13/2017, and,

-wygemandmineralsociety.org – 3/4/2018

- Consider shorter name?: wsmgs.org if available (WSMGS Radio? is wsmgs.blogspot)

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Historian's Report

Annual State Historian's Report July 16th, 2015

On Sept.4th, I scaled out a 30" X 8' O" table @ *Y4"* = 1'O" on graph paper. Then I cut 200 scaled tables out of *Ys"* Masonite board, sanded the comers, and the sides. On Sept. 6th, Stan Strike (St. Pres.), Roger Lyons (Cody 59ers State Show Chairperson), and I met at Stan's house for a meeting to put together a same scaled map (made by Stan) of the Cody High School gymnasium. We put the scaled tables on the scaled map to try and figure out a layout of the tables that would best fit the dealers. We finally decided that it would be best to send out contracts to the dealers before an actual layout could be completed. We also visited the School to check out the electrical outlets, exact measurements, layout of the gym & foyer area (this will be the public entrance, Showcase area, and kids game area), and discussed other rooms to be used for the Federation show. then, we went to Roger Lyons house to see all the rock material that has been donated to the show (several tons) and decide what pieces were to be used in raffles, door prizes, and silent auction. This looks to be a record breaking show, and the Cody 59ers should be very proud to put this show on in such a manner.

My mother, Letty Heumier, and I have been working on filling rock bags for the up & coming Federation, State, and hosting club (the Cody 59ers club) show. We fill each bag with 1 1to 13 minerals and fossils in individual zip-lock bags & identify w/ slips in bags. The show is to be held at the Cody High School Sweitzer Gym on 920 Beck Ave., in Cody, Wyo., July 16111, 2015. This is a little different for a State show in that it is being held Thursday, Friday, and Saturday, instead of on Saturday and Sunday, as in the past. This should help catch the tourists going through to see Cody's Museums & onward to Yellowstone National Park.

I have had several telephone conversations with St. Pres. Stan Strike and Cody's show chairperson Roger Lyons, on electrical problems in the past & present; grab bags for sale to the public; what is in the State trailer to be used for the show; ideas for showing fluorescent minerals; the different kinds & how many dealers should be at the show; and details needed for putting on the Federation part of the show. With many Kudos & thanks to the two mentioned, talented, & dedicated individuals above, this show is shaping up to be an outstanding show. I might mention that the State officers are putting on the part of the Federation show.

I have received the annual State Historian reports from: the Rex Young Rock Club (Torrington- Joyce Troybridge), the Shoshone Rock Club (Powell- Linna Beebe), and the Cody 59ers Rock Club- Jackie Platt. Many Kudos to Linna Beebe with her report that has a portfolio of pictures, club events, & highlights for the seventh year running. Outstanding & Dedication.

I have unofficially been informed that the Rex Young R.C. of Torrington has voted to make a bid at this annual State meeting in Cody, to host the 2016 State Show. This was done by their secretary, Helen Vogel.

I was asked by the St. Pres., Stan Strike, to update a list of: Wyoming Rock Shops, their E-mail addresses, phone numbers, and physical addresses. I looked up on the Internet, called, and visited all that I know about and have listed them by alphabetical towns. A list is available, and should be on our website.

On June 22nd , Ben Cassman (Rex Young member) & I went on a scheduled trip to the Trana mines to collect stalactites & stalagmites of Trona (Wyo.'s largest amount of any mined mineral). While on the trip, I picked up a few donations for the Show & passed out cards and flyers. I talked to Jim & Leanne Gray (JL Gray Inc. Rock Shop) of Marbleton about starting a new club in their area. They have a list of about 30 people who are interested in joining, but they need some help from the State organization to help them get started. They plan on being at the state meeting. They also donated 3 pieces for the Show.

I will be resigning my 6 year tenure as State Historian at the state meeting, due to family problems. I have completely enjoyed working with all the state officers. They are all top notch people in my book. I will miss them all.

Respectfully submitted,

Richard Heumier, State Historian

WSMGS UPDATES AND INFORMATION ***Continued from age 3***

II. OLD BUSINESS

A. 501(C)(3) Grants-WSMGS applied to 4 oil related companies, Walmart, Certainteed Gypsum, and Whofish resulting in $100 Marathon Oil, $100 Walmart, and free WhoFish ads. May receive more at years end.

B. Origin Date for WSMGS changed from 1964 to 1937 as approved at the April 23, 2015 WSMGS Board Meeting as researched and reported in the May 2015 Jade State News.

C. Logo & Trademark Date also changed with WY Bucking Horse in trademark renewed (6/30/2017)

D. All income from 2015 State Show (except food and club table) will be collected by WSMGS to simplify sales tax obligation to Wyoming Department of Revenue using the WSMGS 501(c)(3).

III. NEW BUSINESS

A. Approved bid by Rex Young Club-Torrington to host 2016 WSMGS show June 25-26, 2016.

B. Elected WSMGS Officers:

President: Stan Strike, Cody 59ers, Shoshone Rock Club

Vice President: Linda Richendifer, Riverton Mineral & Gem Society

Treasurer: Melvin Gustin, Riverton Mineral & Gem

Society

Secretary: Carla Tillman, Natrona County Rockhounds

Historian: Rod Baltes , Riverton Mineral & Gem Society

Jade Newsletter Editor: Verne Orcutt, Cody 59ers Rock Club

WSMGS Webmaster Marlene Sibley, Cody 59ers Rock Club

C. Awards:

1. Service awards were presented to those officers who were retiring:

Mary Ann Northrup-Jim McGarvey-Richard Heumier-George Tillman

2. Service Awards were presented to those individuals who continue to do outstanding work:

Marlene Sibley-Verne Orcutt

3. Plaques were presented to the Wyoming Club Rockhounds of the Year: Glenn Laidlaw-Riverton Mineral & Gem Society, Stan Strike- Shoshone Rock Club

4. The Wyoming State Rockhound of the Year Award was presented to: Stan Strike-Shoshone Rock Club

5. Richard Heumier was presented with a belated WY State R.O.Y. Bolo-made of silver casting with Jade inset.

IV MEETING ADJORNED-2:30 p.m.

Cover Story:

2015 RMFMS Mineral and Gem Show continued from page 1

Inside the gymnasium were 22 dealers from 12 different states as well as designated Rock Identification and Fossil Identification persons. Demonstrators included flint knapping, cabochon lapidary, and wire wrapping. The public aisles and dealer arrangement was spacious with adequate seating for the public. With a P.A. system and a Cow Bell the public was aware of the club's Silent Auction/Club Table and special announcements.

Experimental features of the show that differed from most mineral & gem shows were: (1) the admission fees-$4 / adult, $2 student (K-12), preschoolers free, (2) clip out ads for ½ off family admission rate, (3) 3 day show beginning Thursday 4-8pm, Friday 10am-8 pm and Saturday 10am-4pm – note after dinner hours and no Sunday show, (4) door prizes given out as premarked tickets issued, (5) zip codes recorded for all persons admitted to show, and (6) all show income excluding the club table was deposited by the WSMGS as a 501(c)()3 organization, exempt from Wyoming sales taxes.

An educational event for this show were featured speakers at the Cody Park County Library:

- "Dinosaurs of the Bighorn Basin" by Cliff and Row Manuel of the Geoscience Center

- "Varieties of Petrified Wood" by David Ramberg of the Western Dakota Gem/Mineral Society

- "Wyoming Jade" by Wayne Sutherland of the Wyoming State Geological Survey

"Fossil Leaves as Indicators of Past Climate Changes" by Avid Aase - Fossil Butte Monument

On Sunday, July 19th field trips were offered to individuals that were affiliated with an RMFMS member club or joined the Cody 59ers Rock Club (= 14 new members):

- Heart Mountain Gravel Deposits (petrified wood, algae, agates, jasper, & chert)

- Red Gulch Dinosaur Tracksite (Sundance fossils, gypsum, varied colored siltstone)

- Shoshone Canyon & South Fork Geology (various sedimentary, igneous rocks and fossils)

Because of the previously mentioned features of this RMFMS Mineral & Gem Show, many compliments were received by the individuals hosting this event. Congratulations on representing Wyoming Cowboys/Cowgirls with this Show–by staying on and riding until the buzzer- and earning some recognition and prize money!

Article written by: Stan Strike-WSMGS President

Annual Meeting and Awards Presentation

Photos clockwise from top right: members present; other members were present, but not in view, Board President Stan Strike and Secretary Mary Ann Northrup, award recipients, Right to Left; Stan Strike, Mary Ann Northrup, Richard Humier, Verne Orcutt, George Tillman; center left: Stan Strike; top left, Board Members: Hueimer, Tillman, Northrup, and Strike.

Photographs are the work product of the Editor, Verne Orcutt

Guest Speakers and Demonstrators

Left, Michael Hunerlack, Minerals & Geology Management, USDA Forest Service
Right, Daniel Aklufi, Realty Specialist, Shoshone Nat'l Forest Supervisor's Office

David Ramberg, Western Dakota Gem/Mineral Society
"Varieties of Petrified Wood"

Photos by Verne Orcutt, editor

Samples of Jack's handy craft work

2015 RMFMS CONVENTION

The Wyoming State Mineral & Gem Society (WSMGS) was host to the 2015 Annual Meeting of the Rocky Mountain Federation of Mineralogical Societies (RMFMS) in Cody at the Irma Hotel's Governors' Room, July 16-18th. The RMFMS consists of 78 societies/ clubs with 9,014 individual members from 13 states. The annual meeting consisted of committee reports covering old business, adopting newly revised Operating Procedures and electing officers:

- President : Richard Yaeger

- Vice President: Beth Simmons

- Secretary : Liz Thomas

- Treasurer : Gene Maggard

- Historian: Cinda Kunkler

WY State Director Jim McGarvey

WSMGS promoted a raffle to cover convention costs and a "random" rock swap for delegates. The Wyoming Geological Survey furnished small pieces of Wyomingite which were fashioned into Table Favors for the Dinner / Award Banquet held Saturday evening. Hosting the RMFMS Convention required some advance communications, planning, and preparation but was a great benefit to the Mineral & Gem Show as well as to the Cody economy. I would recommend that Wyoming hosts it again in the near future and not wait twenty five more years.

Article written by: Stan Strike-WSMGS President

Cody 59ers

Preparing for the Big Event

Cindy Rockenfeld pricing slabs for the 59'ers Club table.. Photographer Joy Lyons

Larry Oliveria and Jim Platt sorting specimens for the 59'ers Club table.

Photographer Joy Lyons, other participants unknown.

SHOW TIME

Ready for guests ***"Photo copyright 2015 James A. Ingram. Used by permission"***

Photos by Verne Orcutt, editor

Children's Activities
Fossil Cupcakes and Pet Rocks

Photos by Verne Orcutt, editor

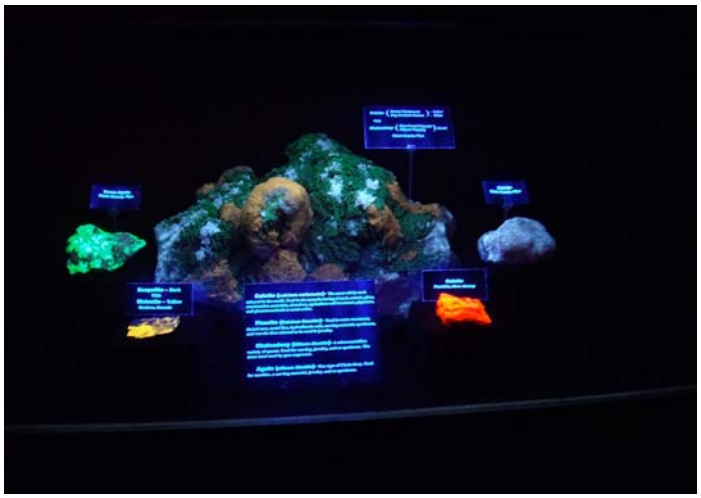
Vendors

Photos by Verne Orcutt, editor

DISPLAY CASES

Photos by Verne Orcutt, editor

Display as seen with ordinary lighting



Display as seen in the dark with Ultra Violet light

Show case by Riverton Mineral and Gem Society

Show case by Rex Young Rock Club

Show Case by Cody Fifty-Niners

Show case by Shoshone Rock Club

Wyoming State Mineral and Gem Society Heritage Show case

Rocky Mountain Federation of Mineralogical Societies Show case

2015 MINERAL & GEM SHOW JUDGING RESULTS

I. PEOPLES' CHOICE AWARDS: (TOTAL OF 666 PERSONS VOTED)

1ST PLACE – CODY 59ERS ROCK CLUB (35.3% OF VOTES)

2ND PLACE – RIVERTON MINERAL & GEM SOCIETY (32.3% OF VOTES)

3RD PLACE – REX YOUNG ROCK CLUB (22.2% OF VOTES)

4TH PLACE – SHOSHONE ROCK CLUB (10.2% OF VOTES)

II. INDEPENDENT JUDGING OF CLUB CASES:

1ST PLACE -- REX YOUNG ROCK CLUB

2ND PLACE – RIVERTON MINERAL & GEM SOCIETY

3RD PLACE – CODY 59ERS ROCK CLUB

4TH PLACE – SHOSHONE ROCK CLUB

III. INDEPENDENT JUDGING OF INDIVIDUAL CASES

DEALER - LINDA RICHENDIFER (ROCK EN DOLL) - ASSORTED - 1ST PLACE

AMATUER - LYNN NEALE – GEMSTONES – 1ST PLACE

AMATUER – RICHARD HEUMIER – ROCKS & MINERALS (UV) – 1ST PLACE

AMATUER – GARY OLSON – LAPIDARY - 1ST PLACE

AMATUER – RICHARD HEUMIER – EDUCATIONAL – 1ST PLACE

AMATUER – JACKIE PLATT – EDUCATIONAL – 2ND PLACE

JUNIOR – JUSTIN JOHNSTON - FOSSILS - 1ST PLACE
JUNIOR – JUSTIN JOHNSTON – ROCKS & MINERALS - 1ST PLACE

IV. RMFMS DISPLAYS - JUDGING BY RMFMS JUDGES
MASTER – JACK THOMPSON (COLORADO SPRINGS, CO) – EDUCATIONAL- 1ST PLACE
NONCOMPETITIVE- BILL SMITH (HARDTNER, KS) –ROCK CRYSTAL BUTERFLIES

"WYOMING GEOLOGY-PART IV"

By Mike Nelson csrockguy@yahoo.com

For this 'final" Wyoming offering I have chosen the hot springs area around Thermopolis where travertine terraces rival those of Yellowstone. Thermopolis, Wyoming, is an interesting city (pop. ~3200) located at the southern end of the Big Horn Basin on U. S. 20.

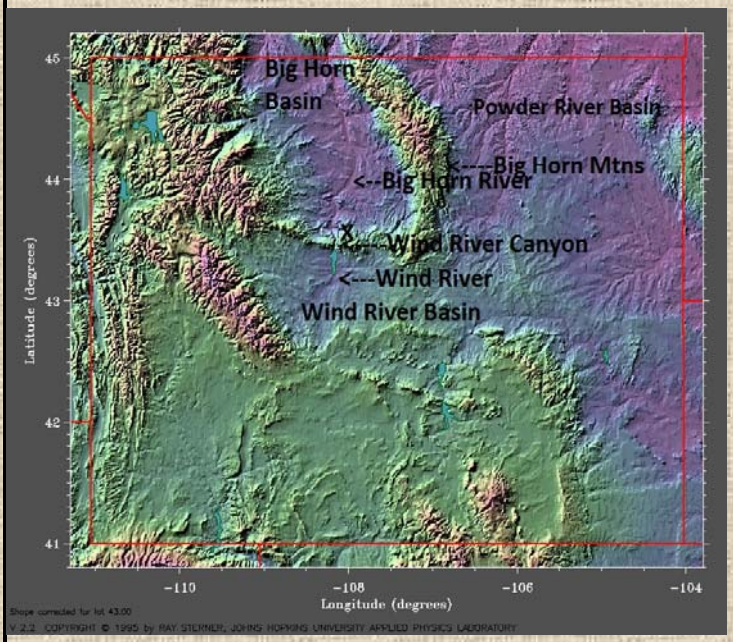


Fig. 1. Satellite image of Wyoming (provided by Ray Sterner, Johns Hopkins University) showing Big Horn Basin proximity with Thermopolis just north of Wind River Canyon.

Thermopolis, Wyoming was named after the Pass of Thermopylae, famed in Greek history as the Spartan battleground. The word is combined from the Greek derivative which is literally translated "City of Hot Mineral Baths." The Big Horn River runs through town and carves the beautiful Wind River Canyon as it cuts across the Owl Creek Mountains to the south (Fig. 2). As an interesting sidelight, the Wind River changes names (to Big Horn) as it leaves the canyon flowing north (Fig. 1)!


Figure 2

Fig. 2. Wind River Canyon south of Thermopolis (looking south as river flows north) as the river cuts through the Owl Creek Mountains and exposes rocks that range in age from Precambrian through Triassic. Relief in the canyon reaches 2500 feet.

Thermopolis is a common rest stop on the way to/from Yellowstone National Park and has a long history of thermal spring use by Native Americans and later settlers. Most of the springs were, at one time, located on the Shoshone Reservation (ceded to the tribes in the 1868 Fort Bridger Treaty) but were acquired, through purchase, by the U. S. Government in 1896. The city now bills itself as home to "The World's Largest Mineral Hot Springs" and also is home to Hot Springs State Park. In addition, there are at several other hot springs or wells in or near the city.

As the great conservationist Aldo Leopold once said, *everything is connected to everything else*. So it is at Thermopolis where all of the springs and vents are connected to the same thermal system with total discharge perhaps over three million gallons per day (Breckenridge and Hinckley, 1978). However, to a geologist, or even casual traveler, the most interesting aspect of these wells/springs may well be the related travertine deposits.

The springs at Hot Springs State Park are those most visited by travelers, especially visitors wanting to "take a soak"! Most of these related waters have high concentrations of Calcium, Magnesium, Sodium and Potassium ions and make human consumption somewhat problematic. I can personally attest to gastric discomfort (especially in 105^{O} F summer weather) after consuming similar water while working in South Dakota! The thermal springs also have fairly high concentrations of HCO_3 (bicarbonate ion), SO_4 (sulfate), and Cl (chlorine). The pH usually is calculated as between 7-8 (basic), about the same as sea water.

White Sulfur Springs is one of the largest springs in the park with a temperature of ~127^{O} F and flowing at a rate of about 200 gallons per minute (gpm) (Breckenridge and Hinckley, 1978). The name most likely comes from its content of Hydrogen sulfide (H_2S), a compound notorious for the foul smell of rotten eggs. At one time sulfur was mined from deposits near the spring.

Black Sulfur Spring in the park is now inactive but does form a pool in bottom of a 20 foot cavern with bubbling mud high in sulfur. Dye tests indicate the spring now has Terrace Spring as its outlet (Breckenridge and Hinckley, 1978).

The spring in the park that most visitors are familiar with, and the largest, is Big Spring with a temperature of ~133^{O} F and a flow of over ~2900 gpm (Breckenridge and Hinckley, 1978). The spring water enters a 25-foot pool and then feeds the State Bathhouse pools and pools/tubs of five commercial establishments. The commercial entities vent their water vapors via a standpipe and this action has created a really interesting phenomenon known as Teepee Fountain (Fig. 3). This feature is a 20-foot high cone of travertine streaked with algal growth, a

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Fig. 3. Teepee Fountain, a vent for pools/tubes of commercial entities.

very impressive piece of artwork.

North of town is another interesting thermal feature—Sacajawea Well (Fig. 4), first drilled for oil in 1918. Evidently at the 900 foot level the well hit artesian pressurized hot water that blew the drilling rig off the casing! Travertine began forming around the pipe and continues today. The well flows at 1.37 million gallons per day at ~130^{O} F.

Fig. 4. Sacajawea Well located north of town at Payne's Fountain of Youth RV Park and is, according to the park, the "third largest hot mineral pool in the World". Photo courtesy of www.city-data.com

Travertine is a sedimentary rock, a type of chemical limestone, that usually precipitates from carbonate-rich waters associated with springs (especially thermal springs), streams (especially waterfalls), and caves (Fig. 5). Both calcite ($CaCO_3$, forms in trigonal crystal system; most stable of calcium carbonate polymorphs) and aragonite ($CaCO_3$, a polymorph of calcium carbonate forming in orthorhombic crystal system; is metastable and alters to calcite) are found in travertine, with the former usually found in cooler waters and the latter in hot water (Pentecost, 2005). Travertine commonly forms when dissolved carbon dioxide (CO_2) in percolating groundwater, in this case the springs, creates a weak carbonic acid (H_2CO_3) that then reacts with lime stone ($CaCO_3$) to form soluble calcium acid carbonate [$CaH_2(CO_3)$] which then precipitates when the water evaporates at an exposed surface (Rogers, 2011).

Pure travertine is generally white but impurities commonly impart a brown/tan color to the rock. However, the bright colors at Thermopolis are due to thermophilic (heat loving) organisms: Bacteria (Schizophyta), Blue-green Algae (Cyanophyta), and Green Algae (Chlorophyta). The algae are photosynthetic in nature and contain green chlorophyll and impart a green color to the travertine. In addition, the Blue-green Algae have a blue pigment, phycocyanin. Some, such as those at Thermopolis also contain red, yellow, brown and orange pigments (Terrell, 1978). The Bacteria lack a cell nucleus and are non-photosynthetic but may use sulfur in the water as part of their food production. They may impart colors from white to pink/purple to yellow (Terrell, 1978).

Fig. 5. Travertine "terraces" at Hot Springs State Park.

Breckenridge and Hinckley (1978) described the geohydrology of the artesian Thermopolis thermal system as follows: water enters the Paleozoic rocks (all are aquifers but especially the Madison Limestone) exposed in the nearby Owl Creek Mountains (Fig. 6). These rocks are capped by the Jurassic Chugwater Formation, a rather impervious caprock, and dip away from the mountains toward the Big Horn River. At Thermopolis a large fold, with a crest fault, appears and brings the Paleozoic rocks to the surface and the water is released under pressure. The solution conduits of the Madison Limestone are thought to be the major source of the water. The next major question involves the source of the heat. Most thermal springs are related to either water heated at great depths in the earth's surface, or heat generated from nearby igneous activity. At Thermopolis "the water has become heated because it has circulated to great depths" (Whitehead, 1996).

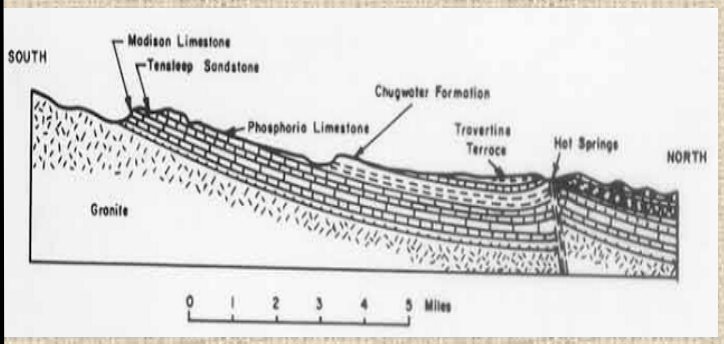

Fig. 6) Geologic cross-section through Hot Springs State Park. Sketch from Breckenridge and Hinckley (1978).

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Wyoming Geology concluded from Page 15

Thermopolis is a great little town to visit and I plan on going back and "taking to the waters". The price is right---free at Hot Springs State Park! In addition, the Wyoming Dinosaur Center in town is an interesting museum, and the nearby Wind River Canyon has some spectacular geologic outcrops.

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THE FORMATION OF WYOMING

PETRIFIED WOOD

The Wyoming forests that existed throughout middle and late geological time were subjected to volcanic eruptions which quickly covered them in volcanic ash which had a high silica content.

Rapid burial allowed the plant debris to escape destruction by oxygen and insects. The soluble ash was dissolved by groundwater flowing through the sediments replacing the original plant material, creating petrified wood. The petrifaction process is the result of pressure, lack of oxygen and the infusion of dissolved minerals. The most common infusion was chalcedony, which is pure crypto-crystalline quartz and appears as a translucent or cloudy mineral in petrified wood. Other common forms of crypto-crystalline quartz can be present, such as jasper, opal, and agate. Petrified wood can also contain pyrites, marcasite, calcite, uranium ore with carotid, malachite, and azurite.

Petrified wood can exist in a wide array of colors due to the elements present with the silicified water and the time involved in completing the process. Below is a list of the minerals and their respective color hue: Copper –green/blue, Cobalt –green/blue, Chromium –green/blue, Manganese –pink, Oxides –red, brown, yellow, Manganese Oxides –black , blue, and purple , Carbon –black, and Uranium / carnallite –yellow.

WYOMING'S ORIGINAL FORESTS

During the Jurassic and early Cretaceous periods of the Mesozoic era (160 - 60 mya), there was an 18 million year period when the land was raised above warm tropical seas. Forest growth was abundant and types of trees varied widely. These Wyoming forests were largely conifers, although the more open ranges supported vast tree forests with cycads and tempskya ferns. Fossilized wood of Cretaceous age has also identified the presence of figs, cinnamons, palms and cycads. Through these great forests and swamps, gigantic dinosaurs roamed.

During the Cenozoic era (40 -15 mya) there is also fossil evidence of the existence of Wyoming's forests consisting of willow, elm, grape, laurel, birch, oak, maple and hackberry.

[Adapted from The Ammonite - October 2014 by Western Dakota Gem & Mineral Society]

WHAT KIND OF PETRIFIED WOOD IS IT?

Petrified wood is an abundant fossil and is available worldwide. It is easily recognized and comes in a variety of colors. Petrified wood can usually be distinguished from ordinary rocks by the grain pattern seen on the surface.

Most people are familiar with some varieties of modern plants and can identify some based on their leaf structure, flowers, seeds, or fruit. However as some plant material became fossilized throughout geological time, the petrified wood that was produced lacked the features we use today for identification. Another problem is trying to match and identify extinct species of petrified wood that do not exist as modern plant species.

In order to study and possibly identify the species of petrified wood, specialized microscopic techniques must be followed in order to observe the cellular structure and patterns. In many cases, different tree species have distinctive cell patterns that allow them to be distinguished from each other. A website that illustrates and identifies a wide variety of fossilized wood cells and patterns is: www.evolvingearth.org/mcabee/fossilwoods/fossilwoodsmain.htm.

The cellular structure of angiosperm plants (flowering plants) are more distinct and varied than the gymnosperms that produce cones. Angiosperms usually grow in temperate climates which produce seasonal variations in the wood cells (larger & smaller) whereas gymnosperms tend to naturally grow where seasonal temperature and moisture changes are less extreme.

***Most rockhounds have neither the knowledge, equipment, or expertise to identify what species of petrified wood they display. Therefore most fossil wood is identified by major locations where it is collected.

[Adapted from-Rock & Gem-July 2015-"Petrified Wood Identificaton"]

HOW TO IDENTIFY TYPES OF PETROFIED WOOD

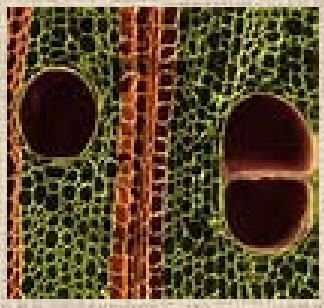
First Clues: The quality of the wood will determine whether the piece can be identified. Original cell structure is sometimes completely destroyed by the petrification process. If you can see patterns in the wood, there is a good chance the piece can be identified. Knowing what types of trees grew in the areas in which the wood was found can also help in identifying your piece.

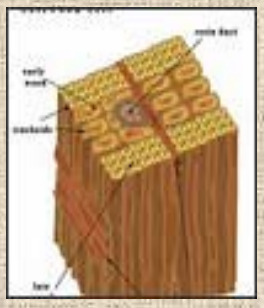
Continued on page 17

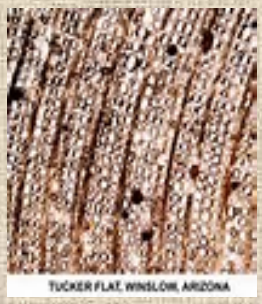
Continued from page 16

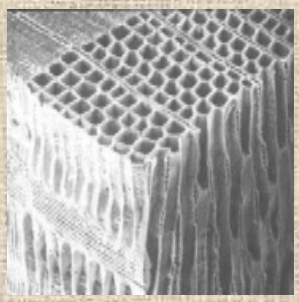
Examination Methods

Examination is often done by making a cube of the wood so it can be seen from different axis angles. The wood cubes are finely sanded to take out scratches that can hinder identification. If high levels of magnification are necessary, thin slices of wood only a few cells thick are used. The examiner must know the aspects of different woods, so some education is involved in the process, too. Technology is making identification easier with computer software that can aid in the identification process. This software can be purchased online by anyone who wishes to pursue the field of fossilized wood identification









If a specimen can be narrowed down to a few possibilities, some types can be ruled out because they would most likely not be found with known species of that area. The rest of the identification process requires magnification.

Cell Structures

Some cell structures are evident with magnification of only 10x. Others may need up to 800x magnification. Cells (tracheids) of different classes of wood are arranged in different patterns. For instance, when looking across the wood as you would when viewing growth rings, a conifer tree has small round cells that form fairly straight lines. Angiosperm (oak, walnut, sycamore) have vessels rather than tracheids, which are similar, yet they don't form neat rows nor are they always round. Ginkgo has yet a different cell formation which is similar to corn. Knowing the cell structure of different forms of wood is necessary for proper identification.

Rays And Other Distinctive Features

Rays are important indicators of wood types. Rays are lines of small cells that run from the center of the round to the bark. In some types of wood, these rays are thin, sometimes only one or two cells wide, and in others they are wider or of different widths. Fruit-bearing trees have many widths of rays while pine has narrow and uniform rays. Some woods have other distinctive features. Pine, for example, has "resin ducts." These ducts look like cells but are much larger. If they are found in wood with small straight lines of cells and narrow rays, no further examination is necessary to know the wood is pine.

(*Sources: http://www.ehow.com/info_8150213_identify-types-petrified-wood.html#ixzz2fOYbFe7D- no copyright stated, and The Ammonite- July 2015 by Western Dakota Gem & Mineral Society)*

WYOMING STATE MINERAL AND GEM SOCIETY
OFFICIAL LOGO AND TRADE MARK INFORMATION

The new logos and trademark images have been supported by research as published in the February 2015 Jade State News, approved by the WSMGS Board and confirmed at the July 16, 2015 annual meeting by the delegates present.

Logo - Grayscale

Logo - Color

Trademark

Trademark

CLUB NEWS AND ANNOUNCEMENTS

Shoshone Club

SHOSHONE

May 2015: Stan Strike and Roger Lyons gave an update on the July gem & mineral show. Delegates for the annual meeting will be Mary Vogel, and Donna Brasher. The RMFMS will hold their annual meeting on Saturday, 1:00 PM and delegates are needed. Stan showed the beautiful post cards advertising the RMFMS mineral and gem show. Roger brought in a form for volunteers for chairmen and co-chairs for various show committees. Lynn Neale won the door prize of petrified wood donated by Stan. Our refreshment host was June Rich and she brought an abundance of nice treats. Many items of jade were on display: jade slicks, faceted jade, jadeite cabochons, jade beads, rough jade, jade slices, jade ventifact (rock shaped by wind-blown sediments), and more. Former club member Glenda Bell is moving and donated to the club many maps, books, and pamphlets of WY areas. Roger read an article on jade written by the Breitweiser's, saved for posterity by Harold & Mae Williams and donated by Shirley Cox, their daughter. Guests: Shirley Cox and Georgia Cox (no relation) with a total of 17 in attendance.

June 2015: Eighteen attended the June meeting with one guest, Justin Johnston. Roger Lyons and Stan Strike gave a report on the upcoming RMFMS gem show. Roger and Joy Lyons are planning a get together for filling 500 bags for the silent auction at the gem show. Raffle items will be donated by dealers. A Youngite necklace has been donated by John and Jeannie Hurst and funds received for this item were requested to go to an educational purpose. Program for the evening was to bring samples of petrified wood for show and tell or use in the club display case to be set up this evening. Our refreshment hosts were Nancy Ryan and Mary Vogel, a fun part of the meeting to eat and see what is on display and visit.

July 2015: Guests at the meeting were Lane Schilling and Les Hunt with a total of 14 attending. Both guests were given the opportunity to pick out a rock from donations given that evening. Last minute discussions on the gem show and the luncheon the club will be providing on the first day of the show for dealers & helpers setting up. A picnic and field trip is planned for August and members will be notified later. Members were sorry to hear of the passing of Donald Sedwick, brother of Margaret Scranton. Our program was a silent auction of rocks, plus from the Dorothy Shinn estate, plus items from Marge Sheppard with many beautiful magazines she had collected for years, Gems & Gemology.

Enclosed please find some photos to use at your discretion taken at the gem show. Roger Lyons and Stan Strike with the Cody 59'ers and Shoshone Rock Club should be very proud of the great show. We heard many nice compliments and saw a steady stream of traffic. It was so nice to see the spirit of cooperation and willingness to help between those participating.

Lapidary tips

Handmade jewelry designs: Search the web for different designs after learning how to wire wrap. There a many pictures to look at to create in the future: Here's how to make:

Photo Bracelets:: (www.craftsunleashed.ccom/jewelry-main/diy-charm-photo bracelet.)

Beautiful Stone Bracelets: www..how-to-make-beaded-bracelets-e1381375098503.jpg

http://handmade-jewelry-club.com/2013/10/free-handmade-jewelry-making-tutorials-2.html

[The Ammonite-July 2015 -WSDGMS]

BRAD'S BENCH TIPS, POLISHING WHEELS:

In the finishing sequence there's a step called pre-polishing, between sanding and buffing, and one of the most effective tools I've found to help here is the little silicone wheels used in a Foredom or Dremel. They come in several different abrasive levels and several different shapes.

The wheels are color coded to denote their abrasive level. Different shapes (coin, knife, cylinder, point, etc.) are available to match the geometry of the area being cleaned up.

For a starter, I'd suggest a medium, a fine and an extra fine wheel in both the coin shape and the knife-edge shape. The thicker coin shapes are particularly handy. Be sure to get a few extra mandrels so you'll have one of each wheel shape mounted and ready to go. Cylinder shapes are nice for doing the inside of rings. Knife edges helps clean up the base of bezels quickly. Most jewelry catalogs carry these wheels.

[Rock Rollars, Seattle/4/2014, The Ammonite-July 2015 –WSDGMS]

SAFETY TIPS WHEN MAKING JEWELRY:

Jewelry making can be a most enjoyable hobby but there are certain hazards which must be avoided, and can be, by following a few simple rules.

Don't polish a wire or chain on a rotary tool without nailing the wire or chain to a board. This might wrap around the arbor and pull your hand with it.

Don't hold a piece being drilled with your hand; the drill might slip or break or the piece might spin when the drill breaks through. Use pliers.

Don't put your fingers inside any item being polished, examples: a belt-buckle, a ring, a bracelet

Hold the work being polished between finger-tips and thumb.

Don't wear rubber gloves or fingerstalls when polishing; these might wrap around the arbor. Don't work without some protection for the eyes such as plastic goggles or a magnifying eye piece, when using a rotating wire.

[Deming Rock Chips, Dec.2011, The Ammonite-July 2015 -WSDGMS]

Drilling a Stone:

One of the things my students often ask to do is drill a hole through a piece of gemstone. The usual thought is to get a diamond drill, but I've been disappointed with them. I think the reason is that the tip of the drill is just pivoting in the hole and fails to cut well. When it looks like the drill isn't cutting, the tendency is to push with more force. The drill gets hot, and the diamond grit falls off.

A much better approach is to use a core drill. This is a small hollow tube with a coating of diamond grit at the business end. The diamonds easily carve out a circular arc without undue pressure or heat buildup. Core drills are readily available from lapidary and jewelry supply companies. They come in sizes as small as 1mm and are very reasonable in price. For instance, a 2mm diameter drill is about $6. Chuck up the core drill in a drill press or a Foredom and be sure to keep the drilling zone wet to cool the tool and to flush out debris. Also, if you're drilling a through hole, go very easy on the pressure as the drill is about to cut through. Otherwise you will usually chip off some of the stone surface around the hole.

(Sedona AZ Red Rocking News- 4/2013)

JADE STATE NEWS

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ASSOCIATED CLUB MEETING DATES, TIMES AND LOCATIONS

If you are new or first time visitor, call the respective club you may be interested in to see if there have been any changes in the posted schedule

Cheyenne Mineral & Gem Society:

Meet Sept—May 2nd Wednesday—7:00 PM at the Laramie County Community College Campus, Health Science Blding, Room 309—Cheyenne, WY

Contact Bob King (President) 307-632-2702

Cody Fifty-Niners Rock Club:

Meet 4th Thursday—7:00 PM—Park County Courthouse, Cody, WY

Contact Roger Lyons (President) 307-272-9985

Natrona County Rockhounds:

Meet 1st Thursday—7:00 PM—5211 Rambler-Mills, WY (Clubhouse)

Contact George Tillman (President) 970-405-5502

Rex Young Rock Club:

Meet 2nd Wednesday—7:00 PM at the Senior Center—216 E 19th—Torrington, WY

Contact Kim Nielsen (President) 308-632-2385

Riverton Mineral and Gem Society:

Meet Sept.—May—2nd Monday—7:00 PM—303 E. Lincoln, Riverton, WY

Contact Linda Richendifer (President) 307-856-1532

Shoshone Rock Club:

Meet 2nd Tuesday 7:30 PM—Garland Church, Garland, WY. An alternative meeting location would be the Powell Public Library in Powell. ***Be sure to call for changes***.

Contact Linna Beebe (Secretary) 307-899-2518