Jade State News

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

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Inside this issue:

WYOMING PALEGEOGRAPHIC HISTORY

The remarkable extent and great variety of the mineral deposits of Wyoming make their geological occurrence of special interest to the student, prospector and capitalist, and to all engaged in the great industries they represent.

Geology is the science which investigates the history of the earth. To properly consider the geology of Wyoming it will be necessary to briefly discuss the geology of the earth and compare conditions in Wyoming.

Scientists are agreed that the earth began its separate existence as a globe of fused or vaporous material, in which the various substances arranged themselves somewhat in the order of their density. The specific gravity of the earth as a whole exceeds 5, while that of the rocks on the surface ranges from 2.5 to 3., which shows that the interior of the earth is much denser than its outer surface. It has been learned that the interior of the earth is in a molten condition, and its shape that of an oblate spheroid flattened at the poles is that which would be assumed by a rotating liquid or a plastic body.

On the molten mass, an outer crust was formed by the slow cooling of the surface. How often this crust was broken up melted and formed again, we have no means of knowing, but eventually a solid, permanent crust was established and thickened by additions from below. When the crust became sufficiently cool to permit the condensation of water, oceans and streams were formed, the processes of erosion began, and animal and vegetable life appeared.

Precambrian: Archaean– The name Archaean has been given to the rocks formed during the period before the erosional processes began, which were the original rocks of the earth's crust. The Archaean is composed of completely crystalline rocks of various types confusedly mixed together. Massive rocks, such as granite and basic eruptives and foliated rocks, like gneissoid granite, gneiss, and various schist are intermingled in the most intricate way. In Wyoming the Archaean is exposed in most of the principal mountain ranges, these being mainly giant folds in the earth's crust, from which the rocks deposited later, have been removed by erosion, showing the Archaean granites beneath.

Wyoming Palegepographic History continued right hand column page 7

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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*

1. ***The WSMGS Board needs your help:***

A. – to encourage your club members to show off their special collections that are unique to Wyoming by displaying them at the 2015 RMFMS Show in Cody. Display cases can be furnished. onsite.

B. – for your club to consider hosting the 2016 State Show. The WSMGS will seek 501(c)(3) grants to reduce your expenses and provide assistance for the show.

C. – by considering becoming an WSMGS board member/officer. Most of the present board may be resigning prior to the 2015 Annual Meeting. With the work the present board has completed, being a future board member should require few changes.

2. On October 5, 2014 an email was sent to the WSMGS member club contacts concerning the following "Dates and Deadlines" (Note original message was in error for item "E".)

A. October 19th-Club News Due to Verne Orcutt for early publication of November JSN

B. November 1st to December 15th–WSMGS 2015 Dues & Club Officers Report to WSMGS Treasurer (Form can be found on the WSMGS website:wymineralandgemsociety.org under "Who We Are-Forms".)

C. November 1st to December 15th –RMFMS 2015 Dues to RMFMS treasurer (Form was sent to club treasurers October 14th and can be printed from the RMFMS website. RMFMS dues remain the same: $1.50/**individual** dues paying members 12 years or older and Liability Insurance is $0.65/each **individual** listed as a member of the club.

D. January 1st to May 15th- Form 990N must be electronically submitted to the IRS (The Registered agent for each club should receive this form from the IRS in advance of the deadline).

E. **Deadline for renewal of "Non Profit Corporation Annual Report" varies by club and is due the 1st day of the month in which the club was first recognized by the Wyoming Secretary of State as a Non Profit Corporation.** (The Registered agent for your club should receive this form in advance of the club's deadline.).

3. The WSMGS Board met on 10/03/2014 at the Riverton Senior Center. The following items were presented:

* Determined Due Dates concerning WSMGS and its member clubs
* Discussion of application of grants for 2015 show using WSMGS's 501(c)(3) status.
* Noted the use of 501(c)(3) Donation Form for donations for 2014 State Show
* Determined need for application for additional RMFMS insurance for all state shows
* Report on progress concerning 2015 RMFMS/WSMGS Convention & Rock Show
* Suggestions for advertising & speakers for 2015 RMFMS/WSMGS Show
* Permission for expansion of dealers for 2015 RMFMS Show to 18-24
* Reviewed People's Choice voting, judging, awards-include 3rd party judging in future.
* WSMGS trailer paperwork completed and in possession of Cody 59ers-Roger Lyons
* Development of Business Cards for WSMGS Board members
* Plaque for State Rockhounds of the Year to be donated with individual names engraved
* Report on website usage
* Suggestions for November Jade State News with early publication deadline
* Report from RMFMS State Director-2014 Tulsa Show
* Discussion of correct origin of WSMGS on WSMGS logo/ trademark(1937,1955,1964?)
* Researched benefactor's of Dissolution Clause cannot be member of WSMGS

HISTORIAN'S REPORT

State Historian's Report

On September 4th, I scaled out a 30 inch by 8 foot table on graph paper using a ratio of one-fourth inch representing twelve inches of table. Then I cut 200 scaled tables out of one-eighth inch masonite board, sanded the corners, and the sides.

On September 6th, Stan Strike (State WSMGS President), Roger Lyons (Cody 59ers State Show Chairperson), and I met at Stan's House for a meeting to put together a scaled map of the middle school gymnasium in Cody, which Stan had already drawn up. 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 was best to send out contracts to the dealers before an actual layout could be completed.

We then visited the Cody High School Gymnasium to check out the electrical outlets, exact measurements and layout of the gymnasium and foyer, discussed other rooms to be used for the meetings of the RMFMS delegates and officers, and decided where the best place to put the kids games.

The group then traveled to Rogers house to see all the rock material, the Cody 59ers Rock Club had acquired for Silent Auction. Several tons of various kinds of rock material has been donated for the 2015 RMFMS/WSMGS Rock Show. All in all, it turned out to be a very successful meeting. A lot was accomplished in a half-day meeting. This looks to be a record-breaking show, and the Cody 59ers should be very proud to host the 2015 Rocky Mountain Federation of Mineralogical Societies Convention and Mineral and Gem Show July 16-18, 2015.

This is Harvest time for me, so I have been busy, hunting, harvesting garden products, canning, & freezing. My mother & I have over 500 jars of canned goods and 3 freezers full of harvested products, so we should eat fairly well this winter and maybe a season or two more.

Richard Heumler

WSMGS State Historian

FROM THE EDITOR

I WOULD LIKE TO THANK ALL OF YOU WHO HAVE CONTRIBUTED ARTICLES AND PHOTOS TO THE NEWSLETTER. WITHOUT YOUR INPUT AND HELP, IT WOULD BE DIFFICULT TO PRODUCE THE QUALITY OF MATERIAL NECESSARY FOR AN EDUCATIONAL MEDIA SUCH AS WE HAVE.

BY CONTRIBUTING PHOTOS, ACCOUNTS OF YOUR ACTIVITIES AND FIELD TRIPS, OTHER MEMBERS AND GUESTS CAN BECOME EXCITED AND LEARN MORE ABOUT THE HOBBY,

WITH THE HOLIDAY SEASON JUST AROUND THE CORNER, THE WSMGS BOARD AND I WOULD LIKE TO WISH YOU AND YOUR FAMILY A JOYOUS HOLIDAY!

WYOMING FOSSIL HOUNDS

FOSSIL SHARK'S TEETH NAMED AFTER CENTRAL WYOMING TOWNS, COUNTIES, AND PEOPLE!

A scientific publication, printed in West Germany, names several fossils (shark's teeth) found in Washakie and Big Horn Counties. Some of these fossils are new to science and are named as follows:

* Hybodus wyomingensis, an "estuary" shark, named in honor of the State of Wyoming

*Ankistrorhynchus washakiensis, a "sawfish" named after the County of Washakie

*Brachaelurus bighomensis, a "nurse" shark, named after Big Horn County

*Centrophoroides worlandensis, a "dogfish" shark, named after the town of Worland

*Scyliorhinus tensleepensis, a "false-cat" shark, named after the town of Ten Sleep

*Ptychotrygon basinensis, another "sawfish" named after the town of Basin

*Ptychotrygon greybullensis, yet another "sawfish" named after the town of Greybull

The following fossils are named after the people of Wyoming:

**Sguatirhina roessingi, named after Gene F. Roessingi of Worland*

**Odontaspis steineri, a "sandshark" named after Dick Steiner of Worland*

**Ptychotrygon ellae, a "sawfish" named after Dick's wife, Ella Steiner*

The above fossils are together under the name: Odontaspis cheathami

Dick Steiner assisted the author, Gerard R. Case, in discovering many of the fossils in this scientific work, as well as a previous book on fossils authored by Mr. Case. Mr. Case spent 5 field seasons out in the Badlands' east of Worland, Washakie County, Wyoming during 1978 & 1979 studying the geology of the "Mesaverde" Formation of the Upper Cretaceous geological system in the Western interior of the United States. His assistance from the local people and authorities in Wyoming enabled him to produce this scientific work. The publication, "A New Selachian Fauna from the Late Carrpanian of Wyoming (Teapot Sandstone Member, Mesaverde Formation, and Big Horn Basin)" will be available after May 1, 1987. Mr. Case is a world-renowned paleontologist, having authored some 75 publications (scientific reports) on the subject of fossil shark and their kin, and other palontological subjects.

Adapted from JADE STATE NEWS, MAY 1987 via April 1987 PICK&PACK, and via many other bulletins.

FOSSIL WOOD DISCOVERED AND NAMED AFTER WYOMING ROCKHOUNDS:

1. Richard Steiner of Worland, WY discovered a new genus for fossil coniferous short shoots from the Upper Jurassic Morrison Formation, and it was named Steinerocaulis rechtenii.
2. Mr. Charles Bass was honored by naming of Steinerocaulis bassi for discovery of coniferous short shoots in the Morrison Formation.
3. Steinercaulis scotti was named for Mr. and Mrs. Walter Scott of Powell, WY for their assistance to the authors, William D. Tidwell and David A. Medlyn.

Adapted from Jade State News, February 1991-Helen Clark reporter for Cheyenne Mineral & Gem Society

WYOMING

State of the Most Diversified Assemblages of Gemstones

by Jan Baumeister-Editor of "The Ammonite" (Newsletter published for the Western Dakota Gem & Mineral Society)

What is a gemstone? A mineral or rock, after it has been cut and polished, and is pretty and hard enough to be worn as jewelry is called a gemstone. All gemstones have one thing in common—beauty. Colored gemstones were almost unheard of in Wyoming prior to 1975, merely some cobbles and boulders of jade, some petrified wood, a few agates and a couple of tiny diamonds that required a microscope to see.

Gold was discovered in the Lewiston district of the South Pass granite-greenstone belt in 1842 along the eastern margin of the complex In addition to gold, significant *iron ore* deposits were found along the northern edge of the South Pass greenstone belt. Some minor *copper, silver, tungsten, asbestos, beryl (aquamarine), ruby, including a couple diamonds* had also been reported within the region. Some aquamarine beryl is known in pegmatite was found in the South Pass Granite in the Anderson Ridge area in the northwestern corner of the greenstone belt.

Wyoming designated its *nephrite jade* as its official state gemstone in 1967. Jade is a compact, opaque gemstone ranging in color from dark green to almost white. The famed Wyoming jade fields occur in a rectangular band that runs roughly from Lander southwest to Farson, down to the Red Desert in Sweetwater County, east to Seminoe Dam, north to Alcova, and westward back to Lander in Sweetwater County, east to Seminoe Dam, north to Alcova, and westward back to Lander.

Faced Iolite from Palmer Canyon *Gem-quality pyrope garnet* pink - blue sapphire, and rubies (photos: www.gemhunter.web.com)

About 1975, Wyoming became known for more than it's huge *coal and gas deposits, uranium, jade, and rare earths*. Two professors proved that this land had more to offer but wind and cattle grazing! Dr. M.E McCallum and C.D. Mabarak, from Colorado State University, were poking around the Wyoming-Colorado border, when they discovered *diamonds* south of Laramie, Wyoming just north of the Colorado border. Over the next few years, more than 40 diamond pipes and dikes were discovered-half in Wyoming and half in Colorado! A few properties were mined for diamonds, like George Creek, Sloan, and Kelsey Lake, just inside the Colorado border. Over 130,000 diamonds were mined including gemstones larger than 28 carats. A 6.5 carat diamond was found in Wyoming along the northern edge of the Kelsey Lake mine and diamonds 14-28 carats were mined in Colorado. Professor McCallum also made a mark on platinum and palladium in the New Rambler district in Wyoming.

W. Dan Hausel was hired by the Wyoming Geological Survey at the University of Wyoming. He mapped the diamond district, found more diamond deposits, diamond pipes, and backs. Professor Hausel spent the next few decades developing exploration ideas on how to find gemstones and gold. From 1977 to 2007, he found as many mineral and gem deposits as anyone in history**:**

- Found more diamond deposits after McCallum made his mark.

- Discovered at least six ruby and sapphire deposits including two of the largest rubies in the world.

- Discovered billions of carats of gem-quality kyanite - this gemstone was seen everywhere and no one had even recognized it although we were all walking on these deposits in the field.

- Found at least four iolite deposits including the two largest in the world (one with possibly more than two trillion carats of the gem), with one weighing more than 24,000 carats. Here is some of the fabulous gemstone deposits including the largest gemstones in the largest deposits in the world, completely new discoveries, and this gemstone looked just like sapphire or similar to Tanzanite.

- Found some onyx deposits - onyx was unknown in the state at this time.

- Found one of the largest opal fields in the world at Cedar Rim, located along the side of State Highway 135 between Sweetwater Station and Riverton in central Wyoming. Road cuts exposed Tertiary sedimentary rocks that had considerable opal.

- While mapping South Pass mines, Hausel identified more than 200 gold anomalies including gold veins found at Mineral Hill and at Purgatory Gulch.

In an area known as the Leucite Hills, north of Rock Springs, is a huge rugged desert with a low range of volcanic buttes where peridot -a gem-quality olivine can be collected. An amount of 13,000 carats of *peridot* was found in just two anthills at Black Rock. One area of this badlands country is Boars Tusk Peak, a distinct and prominent volcanic neck with Table Mountain in background and the rocks have a composition of *lamproites,* a variety of lamprophyric-an extrusive volcanic rock rich in potassium and magnesium. After processing some samples from Endlich Hill, which is in the center of the Leucite Hills and some chromite was recovered. The chromites had favorable chemistry and indicated that those particular *lamproites* originated at a depth where diamonds were formed.

Boar's Tusk at Leucite hills, WY Facted Peridot Gem Volcanic area of Leucite Hills (Wyoming landscape photography.com)

A specimen of high-quality *precious opal* from the Yellowstone region provided evidence for gemstones in that vol-

canic terrain. The nearby Absaroka volcanic mountains also provided geological evidence that both Yellowstone and the Absaroka mountain ranges contained significant *gold, silver and copper deposits*.

Over the years, Dan Hausel found a variety of other "gems" in the form of agates, including the long sought after source beds of the *Sweetwater agate* –which is a beautiful dendritic agate. He discovered and documented *jasper* deposits including boulders as large as a pick-up truck There are many other agate fields in Wyoming, besides Sweetwater agates.

North of Dubois, along the Wiggin's Fork of the Wind River, most of the pieces found are *petrified wood limb casts* that have been wholly replaced by chalcedony to form a water line agate called *Iris agate.*. Some of the layers have inclusions and are called moss agate while others are opaque to semi opaque. Some of the limb casts have botryoidal agate or quartz crystals inside.

Further to the southwest is the most famous area to dig for *agatized wood and limb casts which* is called, "Blue Forest Petrified Wood" in Eden Valley near Farson.

The famous *Dryhead fortification agates* were found on private land, on the west side of the Yellowtail Reservoir north of Lovell. The old claim wore out, but I've seen pictures of beautiful Dryhead agates in the Facebook Agate Collectors website telling they are being found at another area closer to the Montana border.

There are two locations where beautiful *black agates (Bear Canyon)* are found, one location is also close to the Montana border. I've camped and collected black agates in another location for years.

At the eastern end of the state, in the alluvial prairie hillsides near Glendo and Gurnsey areas are fortification banded agates similar to Fairburn and Teepee Canyon agates.

According to an article written by June Culp Zeitner in December 1966 issue of Lapidary Journal, the gemstone *Grunerite* was found on a cattle ranch in the prairie land southwest of Douglas. It was discovered among the diorite dikes of jade claims. It is defined as monoclinic amphibole; and belongs to the magnesium-iron-manganese amphibole sub-group. The gem grunerite gleams with flame shaped patterns of lustrous brushed gold color, unlike other glowing or flashing stones, the chatoyance of each patch of color is oriented in a different direction. As results, the brilliant changing lights on the dark background produces a shimmer resembling tiger eye.

Wyoming should be known as "The Gemstone State" now! It has become the gem capital of North American with the most diverse collection of documented gems of any state in the US or any providence in Canada. A collection that includes different types of *agate, jasper, common opal, fire opal, precious opal, onyx, gold nuggets, pryrope garnet, spessartine garnet, chrome diopside, enstatite, kyanite, iolite, ruby, sapphire, peridot, diamond, specularite, apatite, minyulite, amethyst, aquamarine, jade, almandine, chalcedony, silicified banded iron formation jasperoid, labadorite, grunerite, amber, chrysocolla, helidor, variste, specularite* and others.

Adapted from The Ammonite-January 2014 with references by the author: [1]www.gemway.blogspot.com; [2] www.gatergirlrocks.com/wy; [4]article and photos: www.iolite.blogspot.com; [5] www LeuciteHills-Blogspot.com; [6] www Wyominglandscape-photography.com, and [7] www.GemHunter.webs.com; [8] Lapidary Journal, 12-1966

WYOMING'S PALEOGEOGRAPHIC HISTORY

continued from front page feature article

Precambrian: Algonkian–The name Algonkian has been given to the great series of sedimentary and metamorphic rocks which lie between the basal Archaean complex and the oldest Paleozoic strata. The Algonkian rocks seem to represent the first series of deposits made under water and the first chapters in the history of life. Fossils have been found in the less changed sediments, but they are too few to tell much of the life of the times. It is believed, however, that both animal and vegetable life had their beginnings in this period. The Algonkian rocks are especially notable in the Black Hills region in Northeastern Wyoming, and also in the Hartville region where immense deposits of high grade iron ore occur. The most important gold bearing deposits in the state near Atlantic City and South Pass also belong to the Algonkian.

Practically all of the precious and base metallic minerals of the state are found in the rocks of the pre-Cambrian complex, which is exposed over an area of approximately 10,000 square miles, or one tenth of the area of the state. The principal exposures are the Laramie Range, extending from Casper Mountain east and south to the Colorado line, containing gold, copper, lead, zinc, titanium, iron, asbestos, graphites, mica, chromium. The Medicine Bow Range, a mountainous area of nearly two thousand square miles, lying west of Laramie and south of Rawlins is rich in minerals, having produced platinum, gold, silver, copper, in large quantities, in addition to other metals. The Fremont or Wind River Range is the largest exposure of pre-Cambrian rocks in the state, covering about two thousand four hundred square miles near the center of the western half of the state. It is also the highest and most inaccessible mountainous area, some of its peaks rising more than fourteen thousand feet above sea level. The southeastern end of this exposure is the Atlantic City-South Pass District, the most important gold bearing area in Wyoming. Other metallic minerals undoubtedly occur in this great area, and offer an attractive field for the prospector. The Big Horn Mountains covering probably one thousand square miles south of Sheri-

dan also contain extensive deposits of gold and copper bearing minerals.
The occurrence of metallic minerals is limited to the pre-Cambrian rocks, but practically every exposure of these rocks has associated with it metalliferous veins or other deposits, copper and gold being the most common. The attention of prospectors and rockhounds is therefore invited to these rocks.

PALEOZOIC ERA–The strata following the Algonkian are fossiliferous. and are divided into three main groups, the Paleozoic, Mesozoic, and Cenozoic Eras. The Paleozoic is composed of conglomerates, sandstones, shale, and limestone, attaining great thickness, though relatively less in Wyoming than in the eastern part of the United States. The rocks are in a majority of cases of marine origin. The first subdivision of organic and geographical development of the Paleozoic is the Cambrian, containing the first known and recognizable fossils, those of the simplest marine fauna, no plant remains having been identified.

Cambrian Period–In Wyoming the Cambrian is entirely missing in the southern half of the state, and not of great importance in the northern half, its main outcrops being in the Big Horn Mountains, and west of Big Horn Basin, attaining a thickness of seven hundred to nine hundred feet at the latter location. The rocks are mainly a red, basal conglomerate resting unconformably upon the Algonkian, also shale, limestone, and red sandstones. In the northeastern corner of the state, the Cambrian is very thin. So far as is known, the Cambrian contains no economic minerals.

Ordovician Period–The next succeeding subdivision of the Paleozoic is the Ordovician, which has a geographical distribution similar to the Cambrian, upon which it lies. Its greatest thickness, in the vicinity of Big Horn Basin, is only about three hundred feet, the rocks being siliceous, grey limestone, very hard and massive, not known to contain any valuable minerals.

Silurian & Devonian Periods–During the Silurian and Devonian Periods the entire area of Wyoming remained above water level, consequently there are no representatives of these rock systems, and sufficient time elapsed to allow the land surface to be reduced almost to a peneplain, upon which the Carboniferous sediments were laid down, almost conformably.

Carboniferous: Mississippian/Pennsylvanian Periods–The name Carboniferous was given to the next system of rocks because of the importance of the coal seams present in it in other parts of the world, though in Wyoming it contains no coal as the Carboniferous sediments were laid down in the deep sea and in salt lakes, resulting in massive limestone of great thickness in the Lower Carboniferous, and red sandstones, shale, and occasional gypsum deposits in the Upper. The thickness of the Carboniferous is about one thousand feet in the southeastern part of the state, about two thousand in the northeastern, increasing to approximately five thousand feet in the western part. In the southwestern part the lower member is a quartzitic sandstone over one thousand feet thick, overlain by more than seven hundred feet of sandy limestone.

Economically the Carboniferous is important as it contains immense deposits of pure limestone which occur in thick beds in the lower part of the system, which furnish excellent quarries wherever they outcrop under favorable conditions. The principal limestone quarries are at Hartville, while others are being worked at Laramie and Rawlins, and in the Big Horn Basin, the stone being used by the sugar refineries. Copper also occurs in the Carboniferous in the Hartville Uplift, also in the southwestern part of the state, among other localities, and warrants further prospecting. The Embar sandstone, in the Upper Carboniferous, is an important oil sand near Lander in the central part of the state, and north of Powder River Station. Some geologists assign this to the Permian subdivision.

Permian Period–The Permian is the latest subdivision of the Palaeozoic Era. It is of little importance in Wyoming, there being a thickness of only 80 to 100 feet in the Hartville and Black Hills regions, the rocks being thin, bedded, sandy limestone, sandstones, and thin red shale.

MESOZOIC ERA–The Mesozoic Era is distinguished by marked changes in plant and animal life, many new insects having appeared, fishes became modernized, birds and mammals made their first appearance, but the most characteristic feature was the reptiles, which attained an extraordinary state of development, being the dominant form of life. The Mesozoic Era comprises three periods, the Triassic, Jurassic and Cretaceous.

Triassic Period –The Triassic of Wyoming is of fresh water origin, in some localities resting upon pre-Cambrian crystalline rocks, but in general upon Permian or Carboniferous beds usually in apparent conformity. The rocks consist of bright, red sandstones and red, sandy shale, being well known as the Chugwater Red Beds, their thickness in the northeastern part of the state and the Hartville region being about 500 feet, in the Big Horn Basin, central part of the state, and southeastern part being about one thousand feet increasing to two thou-

sand feet in the southwestern part. An important characteristic of the red beds is gypsum, which occurs in beds of considerable thickness in many localities. Several plaster mills are located at Laramie where gypsum is mined. It is also mined near Sheridan. Thick gypsum beds of pure variety occur near Cody and will undoubtedly be mined when railroad facilities become available. Gypsum can be found in the red beds almost anywhere they outcrop. Fossils however are exceedingly rare.

Jurassic Period–The Jurassic in Wyoming was laid down in a great inland sea and thins out toward the east, the formations being buff sandstones at the base, above which are variegated shale and clays with occasional sandstones and limestone.

In the southeast part of the state its thickness is only 150 feet increasing to 350 feet in the northeast part, to 1,100 feet in the Big Horn Basin, and attaining its greatest thickness of 3,800 in the southwest. The name Twin Creek has been applied to the formation in the southwestern part of the state, and Sundance over the remainder of Wyoming.

Cretaceous Period–The Cretaceous is of great importance in Wyoming, as it contains most of the oil and gas bearing strata, and workable coal beds, and is displayed on a vast scale. At the end of Jurassic time Wyoming was a broad flat plain which slowly subsided causing the Cretaceous seas to invade gradually resulting in the deposition of the Lower Cretaceous sediments. These layers of sediments that formed Wyoming's High Plains were laid down under the Western Interior Seaway that connected the current Gulf of Mexico with the Arctic Ocean and Hudson Bay during the early Cretaceous Period, the age of dinosaurs, which ended 65 million years ago. During the Cretaceous, there were no Rocky Mountains. The North American continent was lower in elevation, the Earth was warm, and there were no polar icecaps, so sea levels were higher worldwide. (Reference 2) The formations first laid down were the Beckwith and Bear River formations in the southwestern part of the state, and the Morrison, Dakota and Fuson over the rest of the state.

The sediments deposited in the Cretaceous sea were mainly derived from a great land mass on the west, as the deposition is much heavier in the western part of the state. The Beckwith formation consists of yellow shale and sandstones with occasional conglomerate beds, and attains a thickness of 5,500 feet. The Bear River is composed of dark shale and thin-bedded sandstones, and is about 5,000 feet thick in places. The Lower Cretaceous over the remainder of the state is only 300 to 600 feet thick, the lowest member being the Morrison composed of purplish and greenish grey shale with inter-bedded sandstone; resting on this is the Lakota, massive buff sandstones, with local coal beds in the northeastern part of the state, followed by the Fusion composed of thin shale and sandstones.

The Dakota is the basal member of the Upper Cretaceous, and is of very uniform character over nearly the entire state. It is a coarse conglomeratic sandstone, the formation being from 50 to 300 feet thick, in places there are two sandstone beds separated by shale. The name Cloverly is also applied to it in the Big Horn Basin, where it is of great importance as the carrier of large quantities of oil and gas.

Colorado Group–Upon the Dakota rests a great thickness of shale, with beds of sandstone, the lower part being of the Colorado group of marine origin, and the upper, the Montana, of fresh water and marine origin, with coal beds and a greater proportion of sandstones.

The strata, or layers, of rock that formed the Colorado Group include limestone from the shells of sea creatures, shale from deposits of mud from streams, and sandstone (Reference 2). The Colorado contains near its base the Mowry shale member, with intermittent sandstone often productive of oil and gas also formed a bed of bentonite. The principal shale beds, however, are the Benton in the eastern and central part of the state, and the Frontier in the west and south, containing the famous Frontier or Wall Creek sands which are the most important oil producing formations in this part of the United States. The Frontier sandstones are greater in number and thickness in the western part of the state where there are eleven beds, thinning out toward the east, seven at Pilot Butte near Lander, three in the vicinity of Casper, and only one as far east as Lusk, while in the Newcastle district, there is no sandstone member in this part of the Colorado group distinguishable. The Upper member of the Colorado, is the Niobrara. The Colorado varies greatly in thickness in different parts of the state, approximately fifteen hundred feet thick in the southeast, central and northwestern parts, two thousand feet in the northeast, and possibly ten thousand in the southwest.

Montana Group–The Montana group is composed of interbedded shale and sandstones of great extent and thickness, containing many veins of coal that were deposited on top of the Colorado Group. The thickness of this group varies from about two thousand feet in the northeastern part of the state to six thousand feet in other parts.

WYOMING'S PALEPGEPGRAPHIC HISTORY CONTINUED ON PAGE 10

Conclusion ***WYOMING'S PALEOGEOGRAPHIC HISTORY***

The Montana Group sediments were deposited as a result of changing sea level advances and retreats, sedimentation rates, and basin subsidence rates. It is characterized by numerous asymmetrical fresh water delta deposits, and/or shallow-marine deposits that thin eastward and merge into thick offshore-marine and deep water deposits of the Pierre Shale. (Reference 3)

Fully half the area of Wyoming has the Cretaceous outcropping on the surface or covered by other formations, and as it is the great source of oil, gas, and coal, it can be readily understood why this state boasts of such great resources in these minerals.

Near the end of the Cretaceous Period, The elevation of the High Plains was uplifted along with the building of the Rocky Mountains as the North American tectonic plate moved westward over the Pacific Plate. As the Rocky Mountains rose, they also eroded and their sediments were deposited to create the high Plains of Wyoming. (Reference 2) Though laid down over the entire state, the Cretaceous has been removed from nearly half the area by erosion, as the end of Cretaceous time was accompanied by tremendous mountain building. All of the main mountain ranges of the state and probably most of the minor folds were made at this time and remain today the most important topographic features. These folds were so great that in most cases the pre-Cambrian crystalline rocks have now been exposed where the overlying rocks have been eroded away.

CENOZOIC ERA–This brings us to the Cenozoic Era, which by gradual steps leads to the present order of things. The rocks of the Cenozoic are loose and uncompacted and are locally restricted in their range. While rich in animal fossils, they are not important for economic minerals, and space does not permit great consideration of them. During Cenozoic time great lava flows occurred from the region of Yellowstone Park and covered about one-twelfth of the state with several thousand feet of andesite tuffs and lavas, which are of no importance in a mineral way. The Cenozoic sediments are characterized by red and drab clays forming bad lands, also terraces of gravel and conglomerate, and chalky sandstones. These overlie the Cretaceous in the great synclinal troughs between the mountain ranges usually unconformably with the Cretaceous.

Adapted by Stan Strike from:

1. "Geology of Wyoming" written by Albert E. Bartlett, M. E. in 1916 printed from:

http://www.rootsweb.ancestry.com/~wytttp/history/bartlett/chapter25.htm

2. "Landforms in Pueblo, Colorado" written by Sara Kirchheimer from

http://traveltips.usatoday.com/landforms-pueblo-colorado-58579.html

3."Stratigraphy of Upper Cretaceous Group in Powder river Basin, WY"

http://www.searchanddiscovery.com/abstracts/html/1989/annual/abstracts/0360.htm

4. Wyoming Stratigraphic Nomenclature Chart by Wyoming geological Association :

http://archives.datapages.com/data/wga/data/010/010001/19_wga0100019.htm

Airline humor, anonymous from USA, courtesy of "Joke of the Day.com

All too rarely, airline attendants make an effort to make the in-flight "safety lecture", and their other announcements a bit more entertaining. Here are some real examples that have been heard or reported:

1. On a Continental Flight with a very "senior" flight attendant crew, the pilot said, "Ladies and gentlemen, we've reached cruising altitude and will be turning down the cabin lights. This is for your comfort, and to enhance the appearance of your flight attendants."

2. On landing the stewardess said, "There may be 50 ways to leave your lover, but there are only 4 ways out off this airplane."

3. As the plane landed and was coming to a stop at Washington National, a lone voice came over the loudspeaker: "Whoa, big fella. WHOA!"

4. After a particularly rough landing during thunderstorms in Memphis, a flight attendant on a Northwest flight announced, "Please take care when opening the overhead compartments because, after a landing like that, sure as hell everything has shifted."

5. "In the event of a sudden loss of cabin pressure, masks will descend from the ceiling. Stop screaming, grab the mask, and pull it over your face. If you have a small child traveling with you, secure your mask before assisting with theirs. If you are traveling with more than one small child, pick your favorite."

RX FOR ATTRACTING NEW MEMBERS

by Ed Pederson

Two trends are prevalent in nearly every club: declining numbers and increasing age.

Part of this decline may be due to:

- Those with marginal interest drop out.
- "*Burn out*" by members who do the club's work year after year and retire to force others to volunteer.
- Members and/or clubs "getting in a rut" and dropping or de-emphasizing activities that attract new members.
- The next generation's work requirements and family responsibilities have changed.
- The club structure and activities schedule is determined by a club leadership composed mostly of older members that have time and are willing to work.

All of the above may be valid reasons but unless your Rock Club addresses these reasons with a Plan of Action this downward trend will continue. In 1975, there were eighteen Wyoming rock clubs affiliated with the Wyoming State Mineral and Gem Society- today there are six. However those clubs who meet their members needs are growing—such as in Riverton and Cheyenne!

According to my unofficial survey, the valuable and desirable new members are young adults and middle-aged adults (ages 20-50). If this is true, a club effort to target these individuals is required.

What factors are important to these individuals as prospective members?

A wide range of hobby activities (minerals, fossils, lapidary and opportunity to learn, study groups, classes, field trips, etc.) and club meeting programs that are diverse and interesting. Club meeting times that fit the schedules of working people, especially those with smaller children.

A minimum of meeting time and responsibility for club activities = A minimum of club business conducted at meetings. Members come to visit and see the program, not hear something they can read in a newsletter or an email. A maximum of field trips and other "exciting events".

A strong emphasis on "show and tell" at meetings -display tables for the before and after meeting discussion.

What are the best sources of new members of all ages?

1-Club Shows create an excitement and appreciation for rocks, fossils minerals and gems.

2-Offering classes or study group to the local community (senior centers, recreation agencies, parks and recreation districts).

3-Word of mouth.

4-Displays at schools, libraries, museums and visitor centers.

5.What about youth groups? Youth groups are the very worthwhile and satisfying activity, but ill not contribute members unless adults accompany their children and also become members.

Until these young adults grow older and have more time to devote to the Rock Club, the older members will have to carry the load. If your club meets the expectations of its members, these younger members will continue being members and will assume leadership in keeping your rock club alive and healthy!

Adapted from The Ammonite-November 2012 via "The Ventura Gem & Mineral Society, Inc./CA, "VGMS Rockhound", April 2006)

CLUB NEWS AND ANNOUNCEMENTS

WSMGS Sponsored Field Trip

September 6, 2014,WSMGS sponsored field trip to Cooke City Mining District—Lulu Pass, Henderson Mine site with the direction of "Doc" Ellis. Members from the Cody '59ers & Shoshone Rock clubs attended. *Photos courtesy of "Doc" Ellis*

Shoshone

Please note our next upcoming meeting for the Shoshone Rock Club is as follows:
When: Wednesday, November 19th

Where: Powell Library meeting room

Time: 7:00 PM Board meeting, 7:30 PM Regular meeting

Program: Elections for the New Year, and a program speaker, Gary Olson, visually impaired since birth, will talk about his story & use of lapidary.

Refreshments will be served, guests are most welcome. Please bring a rock, fossil or other for show and tell or help with identification.

Thank you and hope to see you there.

Linna Beebe, Secretary. 307 899 2518

Linna Beebe, Shoshone Rock Club submitted this photo; an image of the cast of an Icthyosaurs (fish lizard) brought into the October meeting by Jane & Lynn Neale. Jane bought it at the Billings rock show in September. The photo was taken by Ilene Olson, a guest at the Oct. Shoshone Rock Club meeting. Linna Beebe, Sec. SRC

Cody '59ers

Above, **Cody '59ers on the Lysite field trip**

Left, **Lysite agate specimens**

REMINDER '59ers: We announced the date change before summer break... Due to the holidays we will meet the 3rd Thursday...which is the 20th of November...we likely will not have a meeting in Dec as we have set the 2nd as the Christmas Party dinner at the Sunset house.. Dutch treat....

So. Dues are due...Please do not wait... send em in now Mail your checks to the PO Box, 1251, Cody, Elections this meeting, need candidates for office. Let your interest be known. No meeting in Dec... Christmas party on Tuesday, Dec. 2nd, 6:30 PM.. if you have not decided to attend. please do so... as we need a count for dinner arrangement...even if you do not wish to go I would really like to know.

In January we will resume meetings on 4th Thursday evening. *Roger Lyons, '59ers*

RIVERTON

Jim McGarvey, while on two different field trips with the Riverton Rock Club which were one week apart but in close proximity, found the two (or should I say 1) specimen. Take time to read his story.

Ken parked about 120 yards on up the road from where we had parked on the 20th. I went out looking and found some small pieces and when I was going back to the truck to rest, I ran across where I had dug and found that piece on the 20th after the garnets. I raked it a few times and found nothing so I went on to the truck. After I had rested, I decided I'd take another look at where I had scratched. I went back and scratched a few more times and exposed the +1 piece. I was really excited cause it looked like it might fit on the piece I had at home. When I got home, the first thing I did was check it out. I sat it on top and only had to turn it a couple times till it dropped into place ... I was ecstatic! I immediately came up with the idea of how I was going to tell you about it. Only problem was ... it was a really busy week and I wasn't able to implement the plan until today. Main problem was I wanted a use a "Light Tent" to take the pictures and I didn't have all the materials nor the time to make it. These pics came out better than those I took of the 1st piece originally.

Later in the day, I was resting on the tailgate and looked about 20 feet to the west and saw what looked like some wood branches. I finally decided I should go check them out. They were just shale pieces. As usual, I looked around a bit and saw a black rock. I had been finding black quartzy rock all day but decided I should scratch it up and look at it closer. I hooked my scratcher onto it and pulled ???? it didn't budge! So, I decided to scratch around it to maybe get it loose. After I had moved some of the dirt I tried to pull it up with the scratcher again .... still wouldn't come up so I scratched some more and was finally able to get it to the surface.

By Jim McGarvey

This is the piece I found the 20th of Sept. 2014 with Janet Chimenti!

A rockhound math question: When does 1 + 1 = 1"? Here is #1, the piece I found on the 20th of Sept.

This is the piece I found on the 27th of Sept. with Ken, Linda Richendifer!

Here is #2, the piece I found on the 27th of September

They fit together!!!!!

They fit together!!!!!

Lapidary tips

From Rough Rock to Cabochon:

For those of you who are interested in learning basic lapidary, cutting and polishing gemstones, Lapidary Journal - Jewelry Artist Magazine offers a free download of an E-book called "The Complete Lapidary Experience: Hunt, Cut, and Set Gems". This collection of articles takes you on a field trip to collect rough moonstone then through the cutting and polishing phases and finally to setting the stone in a piece of jewelry. To be able to cut or modify your lapidary work gives greater depth to the feeling you get when you can say, "Yes, I made it myself".

Get your free E-Book at: http:// jewelerymakingdaily.com/Lapidary-hunt-cut-set/utm_Source-megalist

The Ammonite-Western Dakota Gem & Mineral Society-November 2012.

Fix the Dried Polish in Surface Pits:

Working with dark moss agate, like the black Montana variety, small pits may sometimes appear on the finished, polished product. The light colored polishing powders, such as tin oxide and cerium oxide, often pack into these pits, making removal difficult, and white spots surely distract from the stone's appearance. Try rubbing a small bit of black India ink into spotted areas, and then try to rub off the ink. The white spots will disappear.

(Adapted from The Ammonite Western Dakota ***Gem & Mineral Society-October 2012 via Chips & Tips, date unknown, and Rockhound Rambling, 9/2008.)***

Burp that tumbler!

If your tumbler keeps burping gas and making a mess it's due to gas generated by acids and metals such as the iron in a stone, reacting with the weak acids formed by grinding other rocks. Drop a couple of antacids in the tumbler and the problem will be reduced or go away!

Tums for the tumbler! (adapted from The Ammonite-Western Dakota Gem & Mineral Society-May 2013 via Brecia-4/03 via Del Air Bulletin 9/03.)

How To Cut Rocks To Make Jewelry

I bought it from Harbor Freight for about $50. It is a Chicago Electric 7" Portable -Wet Cutting Tile Saw #40315. This is how I cut the rocks that my wife uses to make some of her jewelry. We usually polish these small slabs in a vibratory tumbler, but sometimes use a barrel tumbler, or a combination of the two types. Some of the slabs will be wire wrapped. Some will be drilled and have a small finding attached. I have the fence set to about 3/8ths of an inch. Too much thinner and some types of rocks may break easier than others, leaving extra material that will be lost during the polishing process. These slabs can also be used to make cabochons.

(Adapted from The Ammonite-Western Dakota Gem & Mineral Society-November 2014.)

("How To Cut Rocks to Make Jewelry"video-7-2013-YouTube-It shows you how to cut rocks using a cheap tile saw.)

LAPIDARY SWAP SHOP

http://www.facebook.com/groups/ lapidaryswapshop/?ref=ts&fref=ts

There's a new Facebook group called "lapidary swap shop", designed for people that have lapidary equipment, rocks, findings, gems fossils, rough material, minerals, crystals or anything used in the lapidary trade that they don't need and are willing to trade.

Go to Facebook and type in the website listed above and RMFMS News=3/2/01

(Adapted from The Ammonite-Western Dakota Gem & Mineral Society-May 2013 from Source: Carmel Valley Prospectors Oct./Nov. 2012 , Via CHIPS December 2012, The Rockhound Gazette, Jan. 2013.)

BENCH TIPS by BRAD SMITH

RMGS and WSMGS Members,

Here are the "Bench Tips" for November. Brad would appreciate any comments you might have about his tips. Let him know what you think! Jim McG

SOURCE FOR PLASTIC

We often use plastic in our studios, like for a single part die or for a template. So it's handy to have a small supply along with the rest of your sheet, wire, copper and bronze. But we seldom think to buy and stock any plastic.

The plastics store I go to has a scrap bin out back where they give away small pieces and scraps. I usually opt for the 3/8 and 1/2 inch thicknesses for use as forming dies, but there's always a variety of sizes and colors to choose from including thin sheets that are good for templates.

You can find a shop with Google or the Yellow Pages. Next time you go to your local shop, it's worth asking to see if they have a scrap bin.

SMALL PARTS CONTAINERS

I'm always on the lookout for small containers to use for holding those various little parts and tools we deal with in making jewelry, especially since I go back and forth to classes and workshops. My latest find are some plastic vials about 15 mm in diameter and 75 mm long. Best part is they are free.

The vials are used in hospitals and doctor's offices to draw blood samples. They must be thrown out after their expiration date. On my last doctors visit, I asked the nurse if they had any expired vials. She tried to give me 400 of them. We settled on 200.

The ones I have are called "Vacutainers", but there are probably other brand names. They are sterile and made of clear plastic with a rubber stopper and a paper label all ready to write on. I find them really handy for small parts like jump rings, prong settings, small drills, nuts & bolts, faceted stones, and precious metal filings.

Also shown below are some other handy containers - pill bottles, the old 35mm film cans, and metal breath mint boxes.

You can get all 101 of Brad's bench tips in "Bench Tips for Jewelry Making" on Amazon http://amazon.com/dp/0988285800/

By Anonymous from USA.

Wife: "There's trouble with the car. It has water in the carburetor."

Husband: "Water in the carburetor? That's ridiculous."

Wife: "I tell you the car has water in the carburetor."

Husband: "You don't even know what a carburetor is. Where's the car?"

Wife: "In the swimming pool."

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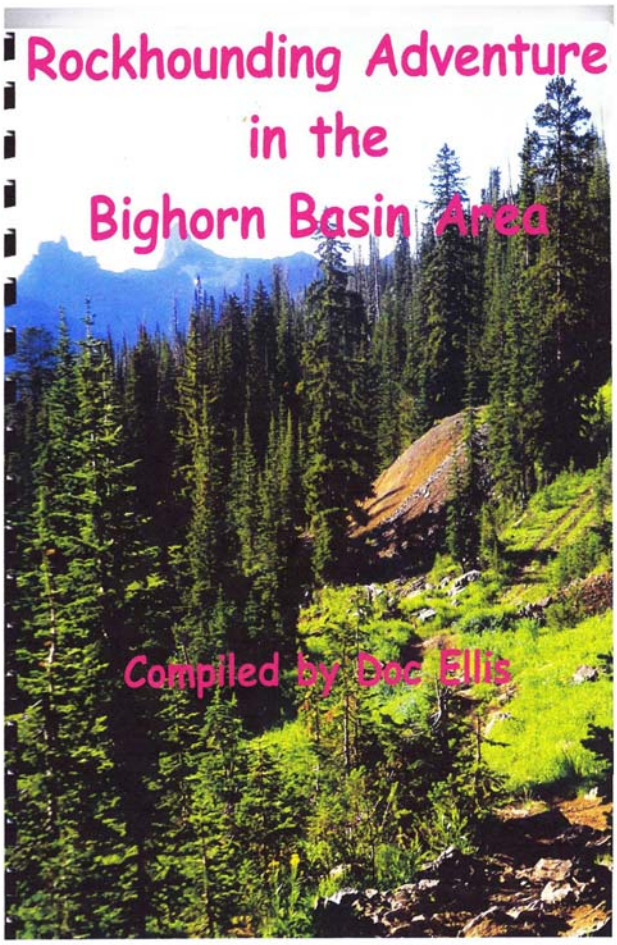

Rockhounding Adventure in the Bighorn Basin Area is written by Clarence "Doc" Ellis, retired U.S. Bureau of Mines exploratory geologist.

In his retirement, Doc has explored the Bighorn Basin and documented its wealth of rocks, minerals and fossils. In this publication, he details 22 different locations with maps, photos, and detailed geologic descriptions. I highly recommend this publication for every rockhound who wishes to visit these sites!

Stan Strike-Wyoming State Mineral & Gem Society President

Copies can be ordered for $20

Doc Ellis docellis@wildblue.net
25 Bison Lane
Powell, WY 82435

1908 HISTORICAL WYOMING RAILROAD & ORE DEPOSIT MAP

After 5 years of searching, the Little Ol' Printshop has found and is selling a high-gloss FULL COLOR 2 ft by 3 1/2 ft copy of a 1908 Railroad & Ore deposit map of Wyoming for $35. Some of its features are: WY had only 13 counties then, locations of the gold, silver, copper, lead mines are shown along with ore body locations, towns are listed with their population, mountains & lakes are listed, and all of the railroad section camps are shown.

You can order LARGER maps, have the map laminated, have it glued to foam board, etc. Contact the Little Ol' Printshop for more information: (307)632-0628, 320 E. 20th St., Cheyenne, WY 82001

Editor's note: Stepping back in time, Stan found this prose first published in Jade State News in Dec 1954, then again in November 1983

JADE STATE NEWS, NOVEMBER, 1983

WYOMING STATE MINERAL AND GEM SOCIETY
DECEMBER, 1954, BULLETIN

A very merry Christmas and a Happy, Prosperous New Year to all our Rockhound Friends everywhere.

The Night Before Christmas (Rockhound Style and with Apologies)
By Edna F. Pauli, Golden Spike Gem and Mineral Society

'Twas the night before Christmas and all through the house
Not a creature was stirring, there wasn't room for a mouse.
With geodes and nodules under table and chair,
A wee little mouse can't squeeze in anywhere.
The children were nestled all snug in their beds
As visions of fossil fish swam through their heads,
And Mother, dreaming of opals and me of a lap,
Had just settled down for a long winter's nap.
When out in the street there 'rose such a clatter,
I jumped out of bed as mad as a hatter,
Stumbled down stairs, two at a time,
Just as our clock tolled its 3 a.m. chime.
I opened the door and took a long look,
The sight that I saw there would make quite a book.
For parking in front with a roar and a squeak,
Was dear old St. Nick in a well-loaded jeep.
He paused just a moment to check his long list
And make doubly certain no one would be missed.
There's agate, onyx, turquoise, and rhodonite,
Carnelian, crystal, sapphire and malachite.
He named every stone I ever had heard,
And my heart was so happy it sang like a bird.
For rocks to a rockhound are really a must
Right next to that stuff labeled, "In God we trust."
It took quite a while to do this little chore,
But as soon as he'd finished, he came straight for our door
And I can't understand, though I've honestly tried,
But before I could turn, he was right there inside.
He spoke not a word but went straight to his work
And I stood there and watched though I felt like a "jerk,"
For he knew what I wanted more than I did myself
And was wise beyond reason, this right jolly old elf.
The gifts he had brought were trips for next year,
And the making of new friends from far and near,
The singing of old songs around campfires bright,
And being with the gang every rock meeting night.
He picked up his pack and prepared to depart
And I gave him my thanks from the bottom of my heart.
For friendship we know is a wonderful gem,
And the principal key to Peace Among Men.
He sprang to his jeep, and stepped on the gas
And left 'mid the snowflakes which sparkled like glass,
But I heard him exclaim as he drove out of sight,
"Happy Christmas Rockhounds and to all a good night."

Gems and Minerals, De. 1954.

14.

ROCKY MOUNTAIN FEDERATION
OF MINERALOGICAL SOCIETIES

2015 Mineral and Gem Show

"Wyoming's Petrified Forests"

JULY 16 - 18, 2015
CODY, WYOMING

Hosted by
WYOMING STATE MINERAL AND GEM SOCIETY
CODY 59ERS ROCK CLUB SHOSHONE ROCK CLUB

CODY HS SWEITZER GYM
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CODY, WY 82414

THURSDAY, JULY 16, 4PM - 8PM
FRIDAY, JULY 17, 10AM - 8PM
SATURDAY, JULY 18, 10AM - 5PM

Demonstrations/Displays

Fluorescent Light Show
Goldpanning
Cabochon Making
Wirewrapping
Flintknapping

Multi-State Dealers

Jewelry/Beads
Fossils
Gems
Rocks
Minerals
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Educational Activities

Mineral/Rock Identification
Kids Rock Area
Guest Speakers
Exhibits/Showcases
Field Trips

$4 ADULTS | $2 STUDENTS (K-12)
PRESCHOOLERS FREE

Show Co-Chairmen: Roger Lyons and Larry Oliveria
Email Contact: 2015codyrockshow@wymineralandgemsociety.org

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Asking $24,900; contact Verne at 336-403-3123 or kotrpublicity@gmail.com for additional information.