



Vol. 36 #2

## DIGGIN'S FROM DAKOTA

2nd Quarter - 2024

This quarterly publication of the CDG&MS serves Bis/Man and the surrounding areas of North Dakota

### A message from Tim Wiser, President of Central Dakota Gem & Mineral Society:

Hi everyone! Its great to see it green up as we come into spring & summer. We are hoping to get more field trips done this year. One to be watching for is a possible trip to the new dinosaur museum in Dickinson. Details are still being worked out for the date and time.

**May 5:** We will be voting on the amendments to the constitution that our committee recommended. Also Steve Fasching will do a presentation on the Rocky Mountain Federation of Mineralogical Society.

**June 2:** We will meet at McDowell Dam Shelter #3 at 1:00 P. M. for our annual metal detecting & picnic meeting. Pizza and water will be provided by the Club. Hope to see you out there and together we can enjoy the great outdoors.

**July 7:** Terry Hoerer will give a presentation on Gold Panning.

Always remember that if you have something rock related, bring it for show & tell. You are always welcome to do so.

### The Officers of the CDG&MS:

Tim Weiser .....President  
Brenda Morgan ..... Vice President  
Skye Fasching ..... Treasurer  
Joe Martinetti..... Secretary  
Steve Fasching ..... Representative to the Rocky Mountain Federation of Mineralogical Societies.

### Membership:

Individual memberships \$20.00 per year.

Family memberships \$25.00 per year.

Visitors are welcome to attend.

Executive Board meetings 1:00 P.M.

Regular meetings 2:00 P.M.

We meet the first Sunday of each month at the Bismarck Public Library down stairs Room B.



The center photograph of balancing stones is courtesy of Tim Weiser, CDG&MS President

## BLACK GARNETS OF THE BLACK HILLS AND THEIR ORIGIN

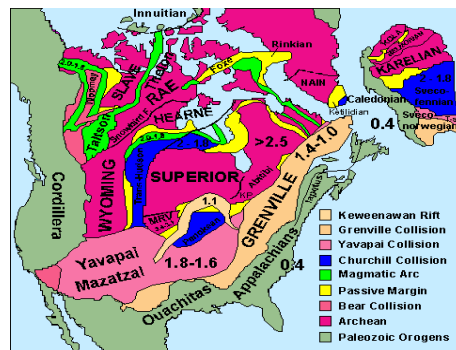
Garnets are silicate minerals that are in the isometric (cubic) crystal system. The common garnets are Pyrope, Almandine, Spessartine, Grossular, Andradite, and Uvarovite. Transparent garnets are semi-precious gemstones, usually red, yellow, and green.

Black is a relatively rare color for garnets. Melanite is the lustrous black variety of Andradite with a formula  $\text{Ca}_3(\text{Fe}^{3+}, \text{Ti})_2\text{Si}_3\text{O}_{12}$  rich in iron and/or titanium. Garnets are formed through igneous or metamorphic events and can be found in granitic rocks, gneiss, and schists. Garnet is an index mineral used to determine the grade of metamorphism in metamorphic rocks. Index minerals in schists, from low to high grade, are chlorite, muscovite, biotite, garnet, staurolite, and sillimanite.

We have talked about the garnets and grades of metamorphism, now let us discuss why black garnets are found in the Black Hills.

The Black Hills are part of the Laramide Orogeny when Pacific

oceanic plates were subducted under the North American plate. Instead of volcanism occurring, the ocean plates slid under the continental plate causing mountain building, or uplifts. We see the Laramie Mountains of Wyoming and the Black Hills of South Dakota forming at that time, from about 80-35 million years ago. Part of what was uplifted in the Black Hills were the metabasalts (metamorphosed oceanic basalts) of the Trans-Hudson Orogeny. About 1.9 billion years ago, there was a rift



valley that formed, creating an ocean between the Superior, Hearne, and Wyoming Cratons. The Superior Craton then reversed direction and the ocean floor was subducted as the three

cratons collided with each other. Further development of volcanism ensued resulting in the mountain building of the Trans-Hudson Orogeny. This was the beginnings of the North American Continent.

So, when the Laramide Orogeny occurred, it uplifted the volcanic rocks of the Trans-Hudson Orogeny. Part of the uplift included the metabasalts containing sulfide minerals, amphiboles, and the black garnets. Pictured here is a sample of the metamorphosed basalt of the Trans-Hudson Orogeny containing the black garnets



The above article submitted curtesy of Joe Martinetti, CDG & MS Secretary



Tony Goldade, a long time member of the Central Dakota Gems & Mineral Society found these fossils in Morton County

The first leaf is a nice specimen of a Zizyphoides. The second appears to be a hackberry leaf. Both are probably from the Sentinel Butte Formation in the Paleocene Period and are about 57 million years old. Article submitted by the Editor with permission of Tony Goldade.



## Catlinite Pipestone & Pipes by Michael Simonson



Catlinite is the name for the sacred red pipestone of the Plains Tribes. It is named after George Catlin, the famous painter who visited, painted, and described the quarries in 1835. It has a deep cultural significance to Native Americans. Catlinite Pipestone is only found in pipestone quarries along the Pipestone Creek, in the Pipestone National Monument, near Pipestone City, in Pipestone County, Minnesota. Can you see a theme here?

Catlinite is formed primarily from kaolinite clay colored red by oxidized hematite. Although, technically a sedimentary rock, it underwent metamorphic like changes 1.5 billion years ago. Today, we have the Catlinite Pipestone and Sioux Quartzite that is currently quarried.

In the quarries, Catlinite is embedded within Sioux Quartzite, which is used in regional construction. Many buildings in nearby Minnesota, South Dakota, and Iowa are built from this beautiful red stone. Native Americans may not appreciate its presence in the quarries, as about 8-10 feet of this extremely hard stone must be removed by hand to get to the Catlinite layer. The Catlinite layer is less than 1 foot thick and split into 1-3 inches bands. The thickest bands are most desirable for making pipes. The thin bands are generally unsuitable for pipe making but have other uses. Catlinite has been mined for at least 3,000 years. It has become more difficult to mine over time as the layer slopes deeper to the east.

Many stories and beliefs are associated with Catlinite. One Sioux (Lakota, Dakota, Nakota) story concerns Wakan Tatonka - their highest spirit/god. The legend states that Wakan Tatonka (God) sent White Buffalo Calf Woman with a sacred Catlinite pipe to give to humans so man could communicate with God. The same pipe that she brought to humans is still in possession of the tribes. It is kept safe and in secret by the Keeper of the Pipe.

### Catlinite was used primarily for pipes such as:

1. **Tube Pipes.** The simplest pipe is the tube pipe, which is also one of the earliest types. It is a simple straight tube with no projecting bowl. They often were slightly tapered, with the wide end being the 'bowl' for the tobacco. They were often rectangular in cross-section and could be carved with winding motifs, etched designs, etc.
2. **Elbow Pipes.** The next simplest and most common is an elbow pipe. These have an "L" shape similar to Euro-American pipes. They range in style from simple to elaborate designs. They can be just a bowl with a wood stem or may have Catlinite stems.
3. **Calumets.** Named by French fur traders, the name generally means "pipe of peace." It was the predominant style used during the fur trade industry. They are large elbow pipes with an "anterior projection" in the front of the bowl. They are sometimes called "Plains Pipes" because that is the geographical area where they were most common.
4. **Crested Pipes.** They have a thin, vertical ridge running down the middle of the top of the pipe's stem side but not down the attached stem. They typically have a row of notches on the ridge top. Crested pipes are an older pipe type that was used less at the time of white contact.
5. **Effigy Pipes.** Effigy pipes are wholly or partially in the shape of animals or objects. Bison effigy pipes are one type - understandable given the importance of bison. Hopewellian pipes frequently have bird effigies. Animal effigy pipes include beaver, horse, wolves, etc. Continued on p. 4

## Catlinite Pipestone & Pipes by Michael Simonson - Continued from page 3

6. Claw Pipes. Claw effigy pipes are interesting in that they are an effigy of only one part of an animal - a raptor's (presumably eagle) claw. The claw appears to be holding the pipe bowl between its talons, with the leg forming the stem.

7. Trade Hatchet Effigy Pipes. Trade hatchet effigy pipes are very unusual in that they are a pipe effigy of a pipe, and not something from nature. They are an effigy of a French fur trade iron hatchet pipe. This fur trade item was an unusual combination of functional hatchet and pipe. The bowl was opposite the blade and smoked through a top projection. Catlinite pipes of this type copied the form including the hatchet handle in Catlinite. Like the iron trade item, they were functional pipes, but were unusable as hatchets. They typically were highly decorated.

Catlinite was ideal for pipes because it is very heat resistant. It does not crack/shatter from intense heat as it has a low and uniform heat expansion rate. It is interesting to note that Catlinite comes from kaolinite clay which is typically used for pottery for the same reasons.

Catlinite had other traditional uses such as: Amulets, round earplugs, beads, bangles, tubes or even Post-contact souvenirs such as salt & pepper shakers, stamp holders, ashtrays, toothpick holders, and many effigies such as arrowheads, turtles, tomahawks, etc.

Although Catlinite souvenirs were sold for decades, they are less common today. Most Native American Tribes disapprove of the sale of Catlinite. The complete article may be found on the Club Website under the heading of the Conglomerate.



Exceptional example of a Catlinite Hatchet Pipe, an elbow pipe and also a Eagle Claw Pipe

### Dickinson Museum Center & Badlands Dinosaur Museum Field Trip Opportunity

In April, members of the Central Dakota Gem & Mineral Society (CDG&MS) have been in contact with representatives of the Dickinson Museum Center.

The Badlands Dinosaur Museum, curated by Dr. Denver Fowler, is open year round: Mon. - Sat. 9: a.m. to 5: p.m. MT. Sundays 12 – 5 MT. (between Memorial Day and Labor Day only) Closed on most Federal Public Holidays.

For those of us who have never been to the Badlands Dinosaur Museum, this tour would provide another opportunity to learn more about Dinosaurs and other artifacts.

Adult Rates (ages 17 - 64, normally \$6.00), our group \$5.00: Senior Rates (ages 65 and older, normally \$5.00), our group \$4.00: Rates for children, (ages 3 to 16 normally \$4.00), our group \$3.00: Children 2 and under get in free.

It is roughly 102 miles from Bismarck to Dickinson, which is about 1 1/2 hours each way. Our Society would need to make arrangements for car pooling and give the Museum some lead time for our arrival date and time. When CDG&MS Members suggest a convenient date and time for our tour, we can make this happen.

## **Petrified Trees of Western North Dakota**

A subtropical to temperate forest existed in western North Dakota during the Paleocene epoch. This time line existed 55 to 67 million years ago. The best known petrified forest in North Dakota is found in what is now known as the South Unit of Theodore Roosevelt National Park.

Swampy areas had a variety such as Cypress, Tamarack, Black Spruce, Cedar while temperate areas contained forest of Redwood or other Deciduous trees such as Oak, Walnut, Sycamore, Box Elder, Ginkgo, Elm, Maple, Birch, Hickory and many others

The wood of these trees, stumps, logs or smaller portions gradually became petrified over a period of millions of years. They are now part of the rock layers exposed in the Sentinel Butte, the Bullion Creek Formations, and also the Hell Creek Formation. They are found in badlands areas, where entire logs and even upright stumps are exposed.

A petrified forest in North Dakota, found in the South Unit of Theodore Roosevelt National Park contains, coniferous stumps related to the modern *Sequoia*; Two successive forests have eroded out of the Sentinel Butte Formation.

The Petrified Wood Park in Lemmon, South Dakota. The brainchild of O. S. Quammen, was completed in 1932 with petrified wood collected in North Dakota.



On the left— A small piece with a nice exposure of the wood grain. Photo by

Editor.

To the right— A large stump located in the Theodore Roosevelt National Park.



Article summary from “North Dakota Petrified Wood” by John Bluemle of the North Dakota Geological Survey.

## **Central Dakota's 50th Annual Gem and Mineral Show**

The 50th Annual Gem and Mineral Show sponsored by the Central Dakota Gem & Mineral Society will be held at the Bismarck Eagles. Set up time is on Thursday, October 24, (4 PM to 8 PM) Show hours for Friday, October 25 (10:00 AM to 6:00 PM) and Saturday, October 26 (10:00 AM to 5:00 PM), 2024. There will be lots of activities for children, demonstrations for the adults, and free prizes on Saturday.

All CDG&MS members are encouraged to submit articles & photographs to the editor, Darrel Spencer

Permission is granted to reprint non-copyrighted articles if proper credit is given.

Disclaimer: CDG&MS newsletter editor cannot guarantee 100% accuracy with information received.



### **Thank you for the gift.**

A check in the amount of \$75.00 was gifted to the Central Dakota Gem & Mineral Society from the family of Dave Schmidt. David had unexpectedly passed away. The fund is to be used for educational purposes.

Several of our members had met Dave at a previous Bismarck Gun show, he had been planning on becoming a member of our Society.

### **Important Grant Funds Awarded to Central Dakota Gem & Mineral Society**

The Central Dakota Gem & Mineral Society as a non profit organization is very grateful for having received an \$800.00 educational grant from The Fraternal Order of Bismarck Eagles #2237. The grant will be used exclusively to promote the study of mineralogy & geology within our organization and also to the general public.

Also, thank you Susan Gerenz and Tom Tupa for preparing the Grant proposal to the Eagles.

Our 50th Annual Gem & Mineral Show that will be held at the Bismarck Eagles Friday, October 25 (10:00 AM to 6:00 PM) and Saturday, October 26 (10:00 AM to 5:00 PM), 2024 will feature a special display case using a UV light (a black light) that allows the public to safely view fluorescent minerals when they release small amounts of energy that appear to glow with different colors.

There will be lots of activities for children, demonstrations for the adults, and free prizes on Saturday.

### **Show & Tell**



**Zebra Stone**

This reddish-brown and white-banded sedimentary rock is located in east Kimberley of Western Australia, south of Kununurra, near Lake Argyle. It is called 'zebra rock' or 'zebra stone'. It is made of a fine sand like quartz and 'sericite' (fine-grained white mica), zebra rock also contains the minerals kaolinite, dickite and alunite.

If you look at this specimen from the correct angle it actually has a resemblance of a Zebra head.

Zebra stone is also believed to have protective properties, fending off negative energy.

This photo is courtesy of Susan Gerenz, a long time member of C. D. G. & M. S.

**Why weren't the  
Geologists  
hungry?**

**They lost their  
Apatite.**



### **Bottineau Rock Hounds**

A New Rock Club has formed in North Dakota, The Bottineau Rock Hounds currently has 60 students members in grades 3-9 that meet each Thursday from 3:30 P. M. to 5:15 P. M. at the Bottineau Elementary School. The three officers are Michelle Cauley (President), David Cauley, (V. P.) and Carrie Reimche, (V. P.) The officers serve one year terms.

The goal is to provide hands-on-learning through experiments, games, and projects that provide education in the areas of geologic time, fossils, gemstones and more.

There will be more information in the 3rd quarter issue of "DIGGIN'S FROM DAKOTA"

**CENTRAL DAKOTA GEM & MINERAL SOCIETY**  
**CLASSIFIED ADS DIRECTORY**

**Susan Gerenz**

**Call: 1/701/400/7440**

For Sale: Leaf fossils from Morton County \* A variety of Petrified Wood \* crystals \* A variety of rough material specimens & shells.

**Tony Goldade**

**Call: 1/701/223/8359**

For Sale: A larger collection of rocks. \* A custom made, portable display case that has a storage compartment in the back.

**Jolene & Brenda Morgan**  
**Treasures of Sea & Earth**  
**609 Memorial Highway**  
**Bismarck, ND 58504**  
**Call: 1/701/224/0103**

For Sale: rocks \* crystals \* jewelry  
wire wrapped pendants \* beading & supplies

**Diane & Mark Rau**  
**Call: 1/701/258/6669**

For Sale: wire wrapped jewelry \* crystals \*  
unique mineral specimens \* Petrified Wood \*  
rock polishing

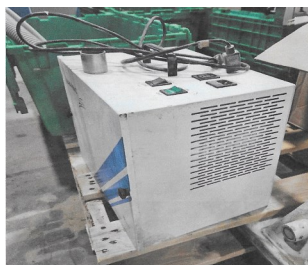
**Kimberly (Christianson) Reuer**  
**contact: peacegardengirl@gmail.com**

For Sale: Gems, minerals, jewelry and precious/  
semiprecious gem & mineral infused art

**Tom Rutledge:**

**Call : 1/701/799/3687**

For Sale: "Covington 12" flat lap, used 1 time,  
2 grind pans, 4 pads, coarse, 220,600, & polish,  
2022 price, \$767.00, asking \$575.00, or OBO



**Russ & Carrie Schneider**

**Call: 1/701/400/1958**

For Sale: We have fossils from land & sea. \*  
crystals \* Pine Needle baskets inlaid with  
unique Cabochons \* Petrified Wood \* rough  
material specimens \* A faceting machine and  
other lapidary equipment.

**Michael Simonson**  
**Call: 1/701/391/8451**

For Sale: Jewelry \* cabochons \* gems  
mineral specimens

**Tom Tupa**

**Call: 1/701/319/6665**

For Sale: Gem \* mineral specimens  
rock tumbling

**Tim Weiser**  
**Worker of Elements**  
**Call: 1/701/319/1958**

For Sale: Fine hand made silver jewelry orders

**As a member this could be your Ad**  
**Call:**

For Sale:

**As a member this could be your Ad**  
**Call:**

For Sale:

**As a member this could be your Ad**  
**Call:**

For Sale: