Central Dakota Gem and Mineral Society
Mrs. Blossomae Campbell, Editor
1134 North 28th Street
Bismarck, North Dakota 58501

DIGGINS FROM DAKOTA

CENTRAL DAKOTA GEM & MINERAL SOCIETY

AIM:
1. The study of Mineralogy and Geology.
2. To foster field trips to collect minerals, gems and fossils.
3. The improvement of its members in the art of cutting, polishing and mounting gem material.
4. To provide opportunity for the exchange, purchase and exhibition of specimens and material.

MEETINGS: First Sunday of each month in the Hospitality Room of Capitol Electric Building on Highway 83, north of Bismarck.

VISITORS ARE ALWAYS WELCOME!

OFFICERS:

President	Earle Campbell	1134 N. 28th St.	Bismarck	255-3658
Vice-President	William Buresh	1527 N. 19th St.	Bismarck	223-0611
Secretary	Stanley Fairaizl	205 6th Ave. N. W.	Mandan	663-9712
Treasurer	DeLane Meier	RR 1, Mr. B's Est.	Bismarck	223-8579
Past President	John Dosch	1425 N. 15th St.	Bismarck	255-1924
Parliamentarian	Mrs. William Buresh	1527 N. 19th St.	Bismarck	223-0611
Program Chairman	Dick Bergantine	703 12th Ave. NW	Mandan	663-3419
Librarian	Owen O'Neill	906 1st Ave. NW	Mandan	663-3748
Field Trip Chairman	Harold Brady	1401 Sunny Road	Mandan	663-3904
Nominations	Ole Stavem		Wilton	734-6746
Refreshments	Mrs. Bob Randall	928 N. 16th	Bismarck	223-1625
Annual Show	John Dosch	1425 N. 15th	Bismarck	255-1924
Historian	Mrs. Albert Anderson	RR # 2	Bismarck	673-4585
Doorman & Greeter	Allen Strom	212 Ave. F West	Bismarck	258-3646
Editor & Publicity	Mrs. Earle Campbell	1134 N. 28th St.	Bismarck	255-3658
Pebble Pup Leader	DeLane Meier	RR 1, Mr. B's Est.	Bismarck	223-8579

All contributions for this bulletin should be mailed to the Editor, Mrs. Earle Campbell, 1134 N. 28th Street, Bismarck, by the 10th of each month.

Other editors may reprint any article from this Bulletin. A credit line would be appreciated.

The Central Dakota Gem & Mineral Society is a member of The Rocky Mountain Federation of Mineralogical Societies and The American Federation of Mineralogical Societies.

JUNE MEETING

The Central Dakota Gem & Mineral Society met on Sunday, June 2, at the Capitol Electric Co-op Building north of Bismarck. Meeting was called to order by the president, Earle Campbell. Secretary, Stan Fairaizl, read the minutes which were approved.

Treasurer Delane Meier reported that we are still well into the black side of the ledger as far as finances are concerned.

Field trip chairman Harold Brady announced that we would have a field trip along the Cannonball River -- if it didn't rain. As you all know, it has rained every weekend for several weeks.

Dick Bergantine, program chairman, will show our own slide program, "Jewels and Gems of North Dakota" at the July meeting.

Visitors were:

Edwin Arneson.....821 2nd Avenue West, Dickinson
Milburn Arneson.....Rte. # 3, New England
Mr. & Mrs. Ferdinand Blotske, Selfridge

New members are:

Ferdinand and Margaret Blotske.....Selfridge, N. D. 58568

Ole Stavem reported on the Wilton Jubilee. If the rainy weather keeps on, the new building will not be completed in time for the event. However, we can display our specimens in Ole's store. Five members indicated that they would have displays. The Jubilee will be June 22, 23 and 24. If any one would like more information, Ole's phone number is 734-6746.

Prexy Earle asked if anyone had a good specimen of teredo to send to Idaho. It was finally decided that John Tonander would furnish the specimen. He has a slab that is polished.

DeLane Meier resigned as pebble pup leader. If anyone would like to have this job, call Earle, 255-3658.

Bill Buresh was elected delegate to the June Jade Jubilee at Cheyenne, Wyoming.

Frank Herr gave a lovely Norwegian moonstone cab for a door prize. The names of Myra Meier, Gen Buresh, Margaret Tonander and Rosa Theis were drawn but they were all absent. Finally Mabel Stavem became the lucky owner of the cab.

The meeting was turned over to Harold Brady who gave a talk on North Dakota rocks. He told of speaking before the legislature and explaining to them about teredo wood so that they would pass the bill that made teredo our state fossil.

Hostesses for July are Verna Giese, Martha Knudson, and Beth Bell.

COMING EVENTS

July 6-12 FARGO, NORTH DAKOTA - - - - Red River Valley Fair & Rock Show, Lake Agassiz Rock Club
July 19-21 WINNIPEG, MANITOBA, CANADA Winnipeg Rock & Mineral Club
August 17-18 MITCHELL, SOUTH DAKOTA - -Corn Palace Rock Club
September 7 MANDAN, NORTH DAKOTA - - -Central Dakota Gem & Mineral Society
September 14 BISMARCK, NORTH DAKOTA - -Central Dakota Gem & Mineral Society
Sept. 20-22 WILLISTON, NORTH DAKOTA - Williston Rock & Mineral Club

** ** ** ** ** ** ** **

THIS 'n THAT

JENNIFER BURESH is the name given the new granddaughter of Bill and Gen Buresh. Parents are Mr. & Mrs. Dick Buresh.

Ardell Strom will be taking her Bell Choirs to Fargo for a national meeting of Bell Choirs later this month. At a benefit concert at the First Presbyterian Church the Bell Choirs were very well received. Ardell was given a standing ovation for her directing.

Ed and Katherine Muggli have really been getting around this spring! We received a post card from them telling us about diamond hunting in Arkansas (they had no luck whatever). They also visited Tennessee. Home again to do the laundry then they were off to Cheyenne for the Federation Show. After that, they were headed for Spokane, Washington!!!!

Ewald and Clara Muggli and their family will be attending the show in Lincoln, Nebr. They will then go further south to Florida.

Helen Nelson and her mother visited Helen's daughter, Jean and family, in Pullman, Washington. While there, they attended the fair in Spokane.

** ** ** ** ** ** ** **

OOPS! DEPT.

Just when I think I have seen the last of those pesky gremlins, they show up again! In the May issue of Diggins I listed the name of Elvin Haugen but his wife, Elaine, did not get her name in the paper. Sorry about that! I could promise that it wouldn't happen again but I am sure that next time someone else's name will not be printed.

** ** ** ** ** ** ** ** ** **

SHOP HINT

Mix a tablespoonful of Crisco with the same amount of Linde or other polishing compound and apply it to a felt polishing wheel or lap. Its viscosity prevents the powder from flinging off or travelling to the edge of the lap.

AFMS Newsletter

North Dakota State Fossil
"Teredo Petrified Wood"

by

Dr. Gordon L. Bell

The Teredo or Ship worm is not a worm as indicated by its outward appearance. It is a mollusk and classed as a pelecypod. These notorious and destructive wood-boring pelecypods are related to the clam, mussel and oyster. The paired shells of these bivalve mollusks are reduced through the process of specialization to two curved plates that lie alongside the animal's head below the cephalic hood. The outside and front of the typical teredinid shell surface is equipped with a knob and rows of fine pearly teeth for sawing the water-soaked wood fibers and rasping them away in a sort of spiraling back and forth motion of the head. Thus, each animal excavates its tunnel home and grows in length to maturity.

The worm-like body has also developed two paddle-shaped structures, the pallets, at the posterior or rear end. Variations in this rodlike accessory plate may be useful in distinguishing species and variations in the Family Teredinidae. Two tubes between the pallets control the water that enters or leaves the animal. These function closely, with the chiten covered calcareous pallets as explained more fully below. The pallets serve as plugs to seal off the minute entrance to the bore hole, and for pushing comminutes or pulverized wood out of the boring.

Like its cousin, the clam that builds a strong house, a thick shell, in a rough water habitat, the teredo secretes thicker tube lining in rough coarse-grained wood. Unlike the clam, the baby teredo cannot start its home in fast-moving water. The University of Miami scientists have found that the borers cannot enter wood unless the current of water passing it flows at less than 1½ knots. Thus, a wooden ship in motion is quite free from teredo attack.

The teredo's tube is about one-fourth inch in diameter. Some are longer and they, with their neighbors, literally consume their wooden home. The entrance to the tubes may be the size of a pinhole. Most of them are no larger than needed to accomodate the siphons. The tubes or siphons extend from the tiny holes in pairs all over the infested piece of submerged drift wood, wooden piles or wooden boat. Each pair of siphons belongs to one teredo or shipworm. One tube, the inhalant siphon, draws water with any plankton that it may contain for breathing and planktonic additions to the diet. The used water with waste material is expelled through the exhalant siphon.

Shipworm infestations may spread quickly to unprotected and untreated wood in marine wood in marine water, and we try many ways to protect our wooden structures from their attack. Pressure treatment with creosote---coal tar solution preserves timber piling for wharfs and antifouling paint protects boats from the entrance of the famous teredo. However, this and the earlier use of lead and copper sheets were not used before the coming of man and the ancient wood borer had free access to all available wood. Very possibly this has been a service to the world. Otherwise many geologic formations may have been structurally weak and polluted with masses of partly decayed logs.

The baby larva-like mollusks are free swimmers and they seek out suitable wood for their diet and their home---a kind of personal condominium in a block of wood or submerged log. As sson as the individual selects a suitable spot on the wood and

as the burrow progresses the larva lengthens and expands to the size of a pencil. The University of Miami scientists found that the shipworm becomes sexually mature at the age of two months. The adult female secretes millions of eggs in a year to perpetuate the cycle of teredinid life in an atomic-like diffusion.

These myriads of wood-boring mollusks are especially active in warm tropical seas. Timber piling that is untreated, may be completely skeletonized in less than three months by these soft workers as they almost silently devour their wooden homes. Their work is more tubular than that of the termite but their effects on wood are similar.

Teredo tend to tunnel around knots in the wood. The burrows turn and curve and some cross others but they do not connect. When the tunnel wall is punctured, the animal's respiration fails and the animal dies. Although this is not common, the full life span need not be more than one year, with the help of its neighbors, to accomplish the complete digestion and destruction of a system of unprotected wharf or pier piling. The modern shipworms include the Australian marine borer called Dicyathifer who is an inch or more in diameter, that is three inches around, and many are six feet long. These giants are restricted in distribution and not reported from the other parts of the world.

We are concerned here with the fossil remains of Teredo and possibly others including ancestors of Bankia, Psiloteredo, Lyrodus, Nausitora, Nototeredo, and related forms. The numerous collections of this popular State Fossil of North Dakota should aid the scientists in making new findings and increase our knowledge of Teredo that roamed the ancient Cannonball Sea as it spread across much of North Dakota in the Paleocene Epoch of the geologic past. A few specimens of "Teredo Wood" are reported from the Cretaceous Pierre shale which is much older than the Cannonball formation.

Those interesting marine animals were apparently in the teeming billions through the warm water bays and estuaries of the Cannonball seaways where they lived and thrived in the logs and pieces of submerged wood about the deltas and the coastal swamps. Like their modern descendents, their home was their food and their protection including the secreted calcium lined tube, a kind of exoskeleton. Thus, they have persisted down through time, since the Jurassic Period, with almost complete protection from potential and real enemies, except man. Some of the people in the South Sea areas cultivate Teredo by placing wood in the lagoons for the Teredo to collect in and thus supply a good addition to the native diet.

Teredo left a good record in wood from the Sequoia, as well as deciduous forests that expanded across much of North Dakota following the advances and retreats of the Cannonball Sea water during the close of the Cretaceous geological period. This resulted when broad warping of the land spread from the rising Rocky Mountains to flush the sea and replace it with lakes and bordering fresh water swamps that supported the luxuriant vegetation that collected to form the younger Dakota-Montana-Wyoming lignite coal measures, or strata.

The petrified Teredo-bored wood characterizes the Cannonball formation where it crops out on each side of the Missouri River in the vicinity of Bismarck and Mandan, North Dakota. Specimens of the material are found at various horizons in the formation and range from petrified wood with a few borings with various amounts and types of mineral fillings and some replacements, to wood that was completely riddled with

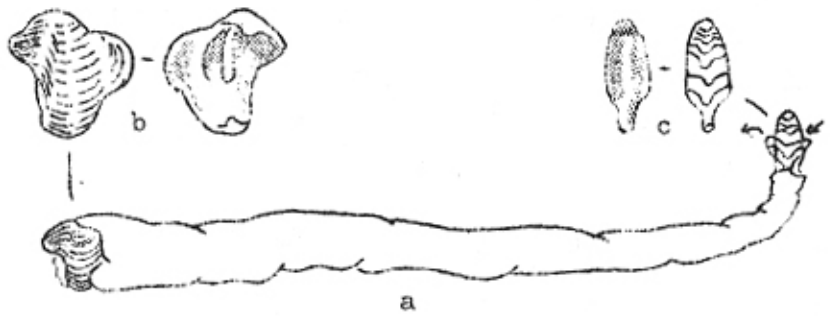
teredo borings and then petrified by being silicified, that is, partly or entirely replaced by silica and quartz. Some have turned to quartz, chalcedony and opal. Gem-quality "fire opal" is rare in the petrified wood but some of the filling and replaced teredos are of the gem material. Many of the teredo cavities and tubes (teredo-bored cavities) are lined with banded opal and amethyst or crusts of clear quartz.

Less spectacular specimens have resulted where they have endured the changed environments as erosion progressively exposed the host formation to the elements in the oxidation zone. Many more prime specimens have thus been altered by oxidation, softening, and partial replacement by iron oxide that in turn cemented sand and silt that entered cavities. Some of the wood was decayed and otherwise altered and mixed with sediments before petrification. Specimens of this material, as well as more perfect specimens have subsequently been oxidized to different degrees.

Each specimen expresses its history and collectively they have created such interest that the Fortieth Session of the North Dakota Legislative Assembly acted to designate them as the State Fossil. This is recorded in the "Laws of North Dakota," page 932, "Chapter 378. House Bill No. 933 (Sanstead (by request)). State Fossil. An Act. To provide a state fossil. Be It Enacted by the Legislative Assembly of the State of North Dakota: Paragraph 1. State Fossil-Teredo Petrified Wood.) The teredo petrified wood shall be the official fossil of the State of North Dakota. Approved March 15, 1967."

It is hoped that specialists and scientists will be able to add to the knowledge of this fossil, teredo-bored wood, by describing new species and genera of these ancient wood-eating animals.

** ** ** ** ** ** ** ** **



Reconstruction of a Paleocene (Cannonball) shipworm.
a. Body of animal with shells (left) at the front and pallets (right) at the rear; ca X 2, arrows indicate the direction of water inflow and outflow through the siphons. b. Outer (left) and inner (right) views of one of two shells which produce borings by rocking and rasping; X 4. c. Inner (left) and outer (right) views of one or two pallets which serve to close the entrance to the borings; X 4.

A VISIT TO THE RMFMS GEM AND MINERAL SHOW AT CHEYENNE

by

Bill Buresh

Visiting the RMFMS Gem and Mineral Show at Cheyenne, Wyoming, was really an inspiring experience. The main show was housed in the Frontier Pavilion which has a floor space that probably equals or exceeds that of the Bismarck Civic Center. The two hundred and fifty or more exhibits, all of them outstanding, were really too much for one to view at any one time and made me dizzy trying to absorb what they had to offer.

The exhibits were all categorized by types, such as minerals (miniature, thumbnail, and micromounts); lapidary; faceted stones; educational; jewelry and metalcrafts. I believe there were sixteen categories in all. The "All one type of material" exhibits were especially attractive. For example, a jade exhibit showed the various types of raw material and then the different forms of finished lapidary and jewelry products.

There were also displays of fossils and Indian artifacts. The Stone Fish display from Fossil Butte National Monument in Wyoming was large and varied. Included in this display was a fish specimen which measured about four feet in length.

The fluorescent exhibit was very attractive. It featured a display of lapidary products mounted on pedestals which were in constant motion while the lights went on and off.

Other displays were massive specimens of crystals and agatized woods. One was a cycad stump of about two feet in height and approximately twelve inches in diameter and highly polished on the top end; another was a massive iris agate, beautifully displayed with a mirror background, which brought out the rainbow effect to its maximum.

The exhibit I liked best was a display of slabbed agatized wood. There were about one hundred different slabs, all uniform in size from ten to twelve inches in diameter, mounted on wooden pedestals and all identified as to type of wood. Included was a piece of toredo from Mandan. They were beautifully displayed on a riser type pyramid stand. Next to this was a revolving display of small odd-sized specimens, including many limb casts.

The exhibitors displays were surrounded by twenty or more dealer displays plus a number of demonstrations in adjoining rooms.

There were swap tables outside the main entrance with lots of material for trading. They seemed to be having a booming business.

The wholesalers' displays were in an adjacent building, which was a show in itself.

I should mention that I was accompanied by a fellow club member, Emil Hilken, Wilton, whose company I appreciated and enjoyed. We visited a number of rock shops both on the way to and from Cheyenne and purchased a few specimens and some rough material.

MONTANA'S STATE SHOW ** MILES CITY

by

Gen Buresh

As compensation for missing the Cheyenne show, I boarded the train to attend the Montana State Gem and Mineral Show in Miles City on June 7-8. Getting off at 3:15 a.m. was a little difficult, but the ride was soothing and the scenery very beautiful after sunrise. Most of the way from Glendive to Miles City the train follows the Yellowstone River, which was running bankfull--too high for good agate hunting according to the natives.

The show was held in a Fair Grounds Pavilion just west of the city with the familiar pattern of exhibits to be judged arranged in the center section and commercial displays along the outside walls. I counted eleven commercial exhibits and some sixty-five cases in the central exhibits, with some exhibitors showing three cases each. A swap table and silent auction were also in action.

Displays of Montana agate were most frequent, with some outstanding designs and mountings. As I roamed through the pavilion these items caught my untrained eye: a 24½ lb. agate, still uncut, found near Miles City by Earl Steiner; a display of Montana gemstones (sapphires); miniatures carved from agate--a bar, bar stools, beer keg complete with slats, metal bands, and a spigot, drop-leaf table with hinged extensions, 4-wheel buggy, lamps, and spitoons; a large fluorite-calcite crystal from Illinois and dogtooth calcite from Missouri; fossils; ancient pottery and basketware; fossil dinosaur vertebra, teeth and footprint; a shell display; a cuff link collection from many countries; carved amber; agates and more agates, especially Bernice Vasher's necklaces, tie clasps, rings and cabochons and Ed Klapmeier's beautiful matched scenic agate cabs and original mountings. Even the "Welcome" sign was made with letters shaped with agate cabs arranged to spell out "WELCOME TO OUR STATE SHOW" in a display case.

Others attending the show from this area that we saw included the Harold Brady and Ronald Stelter families and Emil Hilken.

The field trip Sunday morning provided needed exercise but few gems. Because of the trip we also missed the "Rolling Rock" offered to our club on Saturday by the Regina delegation. It is a "traveling" rock that started in Vancouver and must cross the Canadian-U. S. border at each exchange between clubs. According to word from Mrs. Olga Game, Regina, the rock was "rolled" to the Williston Club, the originally intended recipient.

** ** ** ** ** ** **

SHOP HINT

In sawing geodes or agate filled nodules, first look for the largest dome on the specimen. This dome is in the upright position when the specimen was forming. Saw through the largest dome and it is likely that you will expose the "picture" or surface best for polishing. If the specimen is elongated or egg-shaped, saw lengthwise to obtain the best exposure. While there is no certain means of determining what may be on the interior of agate-filled nodules, thunderegs, or geodes, the above suggestions are likely to prove helpful.

from Geode Newsletter, via Petoskey Stone, via Rockette, Lakeland Gems, Chips and Bits