

# DIGGIN'S FROM DAKOTA



MONTHLY PUBLICATION OF THE CENTRAL DAKOTA GEM & MINERAL SOCIETY

P.O. Box 2445, Bismarck, ND 58502

SERVING BISMARCK, MANDAN, AND SURROUNDING AREAS IN

NORTH DAKOTA

Gen Buresh, Editor  
DIGGIN'S FROM DAKOTA  
44 Captain Marsh Drive  
Mandan, ND 58554

**FIRST CLASS**

# DIGGIN' S FROM DAKOTA



Published by the CENTRAL DAKOTA GEM & MINERAL SOCIETY  
P.O. Box 2445, Bismarck, ND 58502

Member,

Rocky Mountain Federation of Mineralogical Societies  
and

American Federation of Mineralogical Societies



- OBJECT: 1. To further the study of mineralogy and geology;  
2. To arrange field trips to collect minerals, gems, and fossils;  
3. To assist its members to improve in the art of cutting, polishing, and mounting gem material;  
4. To provide opportunities for the exchange, purchase, and exhibition of specimens and materials; and  
5. To share knowledge about gems, minerals, and activities of the Society with the general public. --Article II, CDGMS Constitution

MEETINGS: First Sunday of each month in the Hospitality Room, Capital Electric Building on Highway 83, north of Bismarck; 7:30 p.m. from April through October and 2:30 p.m., November - March. VISITORS ARE ALWAYS WELCOME.

ANNUAL DUES: Family - \$8.00; Individual Adult - \$6.00; Individual Junior - \$3.00

OFFICERS AND COMMITTEE CHAIRMEN, 1981:

President	Mary Beth Osborn	310 - 12th Ave. NW	Mandan	663-1056
Vice President	William A. Buresh	44 Capt. Marsh Dr.	Mandan	663-5397
Secretary	Jane Lanz	600 - 13th St. NW	Mandan	663-8621
Treasurer	Ronald P. Wandler	336 Shady Lane	Bismarck	255-4947
	Program Chr. Earle Campbell	1134 N. 28th St.	Bismarck	255-3658
	Hospitality (Lunch) Chr. Leota Jensen	1400 - 5th Ave. NW	Mandan	663-8217
Clip stamp on reverse side )	Field Trip Chr. Merle Lanz	600 - 13th St. NW	Mandan	663-8621
	Annual Show Chr. Don Campbell	1119 Memorial, #17	Bismarck	258-1194
	OTHER APPOINTMENTS, 1981:			
	Bulletin Editor Gen Buresh	44 Capt. Marsh Dr.	Mandan	663-5397
	Early Class Harold Brady	1401 Sunny Road	Mandan	663-3904
	Federation Rep. Bill Buresh	44 Capt. Marsh Dr.	Mandan	663-5397
	Greeter Mel Anderson	1521 LaForest Ave.	Bismarck	223-3558
	Librarian-Hist. Glenn Michaels	1700 N. 4th St.	Bismarck	258-8417
	Parliamentarian Al Hartl	1111 North 1st St.	Bismarck	258-0761
	Publicity Leota Jensen	1400 - 5th Ave. NW	Mandan	663-8217

All members are encouraged to submit articles/news for publication during the year. Advertisements from members will also be accepted for the bulletin. Material for the bulletin should reach the editor by the 10th of each month. Permission is given to reprint any article if proper credit is given.



## North Dakota's Annual GEM AND MINERAL SHOW

Mandan Community Center

SEPT. 25 - 26, 1981

NEXT MEETING: July 12, 1981, 7:30 p.m. (Discussion Class, 6:30 p.m.)

PROGRAM: To Be Announced

LUNCH COMMITTEE: Betty Nautz, Mariann Wandler, and Carol Hickie

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DELEGATES' REPORT, Rocky Mountain Federation of Mineralogical Societies, Inc., 38th Annual Meeting, Saturday, June 6, 1981, 1:00 p.m., Salt Palace Convention Center, Salt Lake City, Utah--House of Delegates

The 38th Annual Meeting of the Rocky Mountain Federation of Mineralogical Societies, Inc.'s House of Delegates was called to order shortly after 1:00 p.m. by Al Johnson, president. The opening session included a flag salute, an invocation, a moment of silence for departed members, and introduction of honored guests (officers of the American Federation, presidents of regional federations who were in attendance, and Mary Anderson, show chairman for the 1981 "Gemboree of the Rockies").

The Credential Committee Chairman, Orien Fairbanks, reported 136 delegates present. Many alternates and observers were also present, as meetings are open to any club member.

The delegates voted to omit the roll call of clubs and their voting delegates, the reading of the minutes of the last meeting, and the reading of the committee reports, since a copy of the minutes and each report was included in the convention packet for delegates. The minutes and reports were approved as printed. The Scholarship Chairman gave a supplementary report of contributions to the scholarship fund after the committee report was filed and thanked all clubs for their contributions.

(cont., p. )

#### CALENDAR OF EVENTS

- July 2-5      Winnipeg, Manitoba, Canada--12th International Gem and Mineral Show, Winnipeg Rock and Mineral Club
- July 12      Bismarck, ND--7:30 p.m., Regular Meeting, Central Dakota Gem & Mineral Society, Capital Electric Bldg., Highway 83 North of Bismarck
- July 23-26   South Bend, IN--Show, Midwest Federation of Mineralogical and Geological Societies
- Aug. 2      Sibley Island Park, south of Bismarck, 3:00-7:00 p.m. ANNUAL PICNIC, Central Dakota Gem & Mineral Society
- Aug. 8-9      Mitchell, SD--Gem and Mineral Show, Holiday Inn--Corn Palace Rock Club
- Aug. 15-16   Rapid City, SD--Annual Show, Civic Center, Western Dakota Gem & Mineral Society
- Aug. 21-23   Midway, Wash.--"Nature's Rainbow of Jewels" Show, Northwest Federation
- Sept. 5-7      Omaha, NE--Nebraska State Show
- Sept. 18-20   Williston, ND--Annual Show, Williston Rock and Mineral Club
- Sept. 19-20   Aberdeen, SD--Annual Show, Lakota Glacier Rock Club
  
- SEPT. 25-26   MANDAN, ND--NORTH DAKOTA'S SEVENTH ANNUAL SHOW, Mandan Community Center, sponsored by CENTRAL DAKOTA GEM & MINERAL SOCIETY. Show Chairman: Don Campbell, 1119 Memorial Highway, Bismarck, ND 58501

DELEGATES' REPORT, CONT.

Three proposed changes to the "Operational Procedures" were proposed by the Long Range Planning Committee. All were approved by the delegates:

1. To empower State Directors to appoint Assistant State Directors as well as zone coordinators
2. To ask the treasurer to "prepare a proposed budget for the next fiscal year within thirty (30) days before going out of office which will be presented to the new treasurer to use at his discretion."
3. "Upon notification of the death of any member or spouse of the Executive Committee or Past President or spouse, a memorial gift shall be sent to the AFMS Scholarship Foundation in the amount of \$50.00. Memorials may be made in honor of others at the discretion of the Executive Committee."

The treasurer presented a detailed printed report and gave brief explanations of income and expenses up to May 12, 1981. Having been audited by the Finance Committee, the report was approved by the delegates. The treasurer indicated that the current number of members, 7,770, is 230 less than last year.

Elections were stream-lined, with motions for the secretary to cast unanimous ballots except for the offices of vice president and for Arizona State Director, for which there were more than one nominee. Officers elected:

President: George Nobles, Oklahoma City, OK  
 V. Pres.: John Sanders, Sapulpa, OK  
 Sec.: Denamae Kirkpatrick, Newcastle, WY  
 Treas.: Tom Chatburn, Oklahoma City, OK  
 State Directors: Ariz. - Marianna Mills  
                   Kansas - Louellen Montgomery  
                   Nebraska - Wes Geiken  
                   North Dakota - Earle Campbell  
                   South Dakota - Betty Watts  
                   Wyoming - Adam Wensky

.....  
 1982 SHOW DATES/SITE  
 ANNOUNCED  
 Sept. 17, 18, 19--  
 Denver, Colorado  
 .....

Resolutions of appreciation were approved for services of past officers and committee members.

The 38th Annual Meeting of RMFMS House of Delegates was conducted in a friendly, orderly, and expeditious manner. The printed agenda and reports provided for the delegates were very informative. It appears that the Federation is operating efficiently.

It was a pleasure to represent Central Dakota Gem & Mineral Society at the 38th annual meeting of RMFMS House of Delegates and to have the alternates, Earle and Blossomae Campbell, attend with us.

William A. Buresh and Genevieve L. Buresh, 1981 Delegates

NOTE: It had been decided by the Executive Committee, which met prior to the House of Delegates, that North and South Dakota would be separated for the purpose of electing State Directors. As noted above, one director was elected for each state represented in RMFMS.

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PICNIC SITE, August 2--

Emma Fischer reports that the site for the annual picnic this year will be Sibley Island Park, south of Bismarck. The picnic will be on August 2, the regular meeting date. Remember the time change that month--3:00 to 7:00 p.m. instead of 7:30 p.m. More details will be included next month.

AT THE LAST MEETING, June 7

Glenn Michaels and Jane Lanz, Reporters  
Twenty-nine adults and five juniors were reported present at the June meeting. Ten adults and four juniors attended the discussion class, at which Larry Strand discussed the cycle of rocks (their breakdown and reformation of new rocks), crystal formation, and weight of rocks in relation to color. Betty Mautz then explained the process of digging for sapphires as they experienced it at the El Dorado Mine at York, Montana.

The three guests present were Ralph and Doris Leidholm of Clinton, Wash., and Esther Dronby, Dickinson.

The meeting was conducted by Jane Lanz, in the absence of the president and vice president. Ted Giese served as Acting Secretary and Glenn Michaels as Acting Treasurer.

A motion was passed to have the annual picnic for the Aug. meeting similar to last year's, with the picnic scheduled from 3:00 to 7:00 p.m., the meeting at 4:00, and the picnic supper at 5:00. Emma Fischer was appointed to secure reservations for a site in one of the available parks.

There was good participation for the program, "Show and Tell." Members showed and told briefly about the following items: Al Hartl, a "mystery" rock he had polished; Norman and Betty Mautz, sapphires; Rod Hickie, Mont. agate found in a ND cornfield; Ron Wandler, Mont. agate from a ND gravel pile, and newly made spheres; Glenn Michaels, wavelite and Neb. geodes; Evert Nelson, a huge Mont. agate and other agates; Melvin Anderson discussed the Mammoth Site in Hot Springs, SD; Jane Lanz showed flame agate from Mexico, Thompsonite from Minn. birdseye from Ariz., ammonite fossils from SD, and black jade from Wyo.; Ida Mae Ramberg showed walrus ivory jewelry from Alaska; Doris Leidholm showed concretions from Wash; and Henry Solberg and Pius Fischer also showed specimens.

The first door prize, a picture rock necklace donated by Rod Hickie, was won by Betty Mautz.

A specimen of rhodonite found in British Columbia and donated by guest Doris Leidholm was won by Norman Mautz. A special door prize for juniors only, a junior size rock hammer made by Ron Wandler, was won by Susie Mautz.

Member George Robinson, who is moving soon to California, donated eight 1-gal. pails of collected rocks for additional door prizes. The lucky winners were Fred Springer, Glenn Michaels, Betty Mautz, Vi Anderson, Pius Fischer, Evert Nelson, Dr. Gordon Bell, and Carol Hickie.

Lunch was served by Fred Springer, Don Campbell, and Glenn Michaels.

\* \* \* \* \*

FIELD TRIPS

May 29--Although the club trip to the sapphire mine in Mont. was canceled because of the severe flood in that area the week before the planned trip, two families--Norman Mautz's and Owen O'Neills made it to the site in spite of the mud and returned with a few nice specimens each. O'Neills also found some hematite.

June 21--Fourteen members were reported attending the successful field trip to the selenite beds on the McClusky Canal site. Specimens collected included crystals, selenite, and granite. Participants were Rod and Carol Hickie; Mautz's and guests; Mary Beth and Patrick Osborn; Nerle and Jane Lanz; and Bob and Sue Randall.

July--A field trip is being planned for July by Rod Hickie. Details will be announced at the meeting on July 12.

Aug.-Sept.??--The Field Trip Committee would like to find out how many members would like to participate in a weekend trip in late summer--either to the Black Hills or to a Montana sapphire site. Please let one of the committee members know if you are interested. Also please state your preference as to the site--Black Hills or Montana.

--Field Trip Committee: Nerle Lanz, Don Campbell, and Rod Hickie



AFMS/RMFMS "GEMBOREE OF THE ROCKIES"

Bill Buresh, Reporter

It is always a letdown to have to leave a great show such as the National Gem and Mineral/Rocky Mountain Federation Show which we just attended at the Salt Palace in Salt Lake City on June 4-7.

The exhibition hall of the Palace is very spacious and housed over three hundred beautiful exhibits, including many special exhibits and more than 100 in competition.

The fifty dealers had an excellent variety of items and there were also a number of working demonstrations as well as a wholesale dealers' area.

In attendance in addition to the Randalls, Earle Campbells, and Bureshes were Bill Collins, club member, now of Vernal, Utah and former club members Bertha and Leo Krank of Dickinson.

At the business meeting, as reported elsewhere, North Dakota was awarded its own director and Earle Campbell was elected to the post. The awards banquet was an eventful occasion for the club delegation, inasmuch as Bob Randall received both the RMFMS and AMFS trophies in addition to the blue ribbons for his case of fluorescent materials which he entered in competition in the Master's division. Earle Campbell was introduced with other new officers of the Rocky Mountain Federation. Gen Buresh was the lucky winner of a table centerpiece--a thick slab of Utah petrified algae with a large ceramic gull on top.

The Editors' Breakfast, which was attended by the Bureshes, was also very enjoyable. At this affair they were awarded a red ribbon for second place in the RMFMS Bulletin Contest in the "small bulletin" division.

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SOUTH DAKOTA STATE SHOW, by Bill Buresh

The persistent rain throughout the three days of the South Dakota State Gem and Mineral Show in Hot Springs, SD on May 14-16 did not seem to dampen the spirits of the rockhounds in that area. They turned out in large numbers and displayed more than one hundred exhibits.

Fossils, cycads, and agates dominated the exhibits, as would be expected in that area. Both the sponsors and the dealers were very happy with the outcome.

Central Dakota Gem & Mineral Society members attending the show were Viola and Melvin Anderson, Glenn Michaels, Ron Wandler, and Gen and Bill Buresh, who displayed their case of Ginkgo leaves. Bill won one of the door prizes--a Lortone Stroker, a hand cabbing system.

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THE SHOW CHAIRMAN SPEAKS--

September 25th and 26th are coming upon us fast. The building rent has been paid, the posters have been printed, the program committee is setting up special programs for the show. Blue, red, and white ribbons have been ordered for 1st, 2nd, and 3rd place "Best of Show" winners, and also the same ribbons for the junior exhibitors. A few of the members are already working on their exhibits for the show.

These long days of summer are a great time to set up one's case and lay out a display for this year's show. Normally we all wait until the night before the show and then try to decide what to show and how to show it. This year's theme really lends itself to different and exciting ways to show off your material.

I think I've talked myself into starting to work on my case--

How about you?

Don C.

\* \* \* \* \*

EDITOR'S NOTE: A special thanks to members for gathering information for this month's "Diggin's." The remaining items will be included in the July issue.

The attached copy of an article on teredo wood was provided by Glenn Michaels, who found it in the club library, and Ron Wandler, who furnished the copies.

G.B.

By ALAN M. CVANCARA

## North Dakota's State Fossil

A state bird, state tree, state flower, and now a state fossil! North Dakota's somewhat equivocal distinction of legally designating a fossil is shared with only one other state (Bates, 1968). Nebraska's fossil is the woolly mammoth; North Dakota's is "Teredo Petrified Wood."

State Representative W. C. Sanstead of Minor proposed the state fossil in House Bill 933, which was approved on March 15, 1967 (Legislative Research Committee, 1967, p. 932). Representative Sanstead acted at the request of R. W. Carlson, formerly of Bismarck and former president of the Central Dakota Gem and Mineral Club. Promotion of "Teredo Wood" as the state fossil was largely due to the efforts of H. A. Brady of Mandan, who presented a plea before the Legislature.

"Teredo Petrified Wood" refers to fossil wood riddled with irregular, very elongate borings (Fig. 1). Each boring is provided with a whitish, limy lining (Fig. 3). The fossil wood is variably preserved. It may be extremely compact, with good preservation of wood structure (Fig. 3), or somewhat splintery. Not uncommonly, little of the wood or wood structure remains, and borings are largely contained in mudstone or sandstone.

Borings in the fossil wood are the result of worm-like, bivalve mollusks ("clams") which are common in present seas. Originally named "shipworms" because of their riddling of wooden ships, they now are infamous because of damage to pilings and other wooden structures. These mollusks are exclusively woodborers.

The long, worm-like body possesses two globular shells at the front end and two paddle-like structures, the paliers, at the rear end (Fig. 4). On the inside of each shell at the top and bottom are short, blunt knobs (Fig. 4b, right). On these knobs the shells rock back and forth as shell muscles contract. Finely toothed ridges on the outside and front of both shells rasp the wood as rocking occurs. A suction-disk-like organ between

Alan M. Cvanara, who received his Ph.D. at the University of Michigan, is Associate Professor of Geology at the University of North Dakota. His specialty is the study of fossil and living mollusks. Drs. F. D. Holland, Jr., and Walter L. Moore, Department of Geology, University of North Dakota, critically reviewed the manuscript of this article. Dr. C. A. Arnold, Museum of Paleontology, University of Michigan, identified the fossil wood shown in figures 2 and 3.



FIGURES 1-3. Specimens of shipworm-bored fossil wood.

1. Broken surface of wood from the Cannonball Formation (Paleocene), near Mandan, North Dakota (1962); X 21/3. Tpa-17
2. Thin-section of hard wood (possibly Magnolia) showing both arcuate shells in partially sediment-filled boring, Cannonball Formation (Paleocene), Mandan, North Dakota (1961); X 6 1/2. Tpa-23
3. Thin-section of soft wood (possibly Sequoia) showing one boring filled with sediment and two others seemingly clear, but calcite-filled. Note the limy linings of the borings, and the wood growth rings and cells. This specimen was collected from the Cannonball Formation (Paleocene), near Flahert, North Dakota (1961); X 6 1/2. Tpa-11

"Teredo Wood" has apparently not yet been recovered from the Fox Hills Sandstone, but it is known to occur in the directly underlying Pierre Shale. Occurrence of this fossil wood has also not yet been verified from the Hell Creek Formation, which is partly of marine origin and directly overlies the Fox Hills. All three of these formations are of Cretaceous Age (about 70 million years ago) and occur predominantly south of the Bismarck-Mandan area and near the southwest corner of the state.

The phrase, "Teredo Petrified Wood," is somewhat of a misnomer. The first term is the scientific name of only one genus or type of shipworm and should be cited *Teredo*, as should, technically, *Geranium* and *Begonia* for two common house plants. It has not been established, however, that all fossil wood bored by shipworms in North Dakota was the work of this one genus, *Teredo*. Other genera may, quite possibly, have been involved. Several specimens of fossil wood from the Cannonball Formation are known to have been bored by *Nototeredo*, not *Teredo*. This has been verified by the form and structure of the pallets, since shells are of almost no use in identification. The Cannonball pallets, incidentally, are the oldest known from North America (Cvancara, 1964, p. 38-39).

In regard to the term, "petrified," more than one possibility exists for the preservation of the wood. As the general term "petrification" is commonly used, it may mean that the original wood has been replaced by mineral matter, or also that mineral matter has simply filled pore space within the wood. The net result is that the wood becomes heavier and harder. However, some of the state fossil wood has been only very slightly altered and, technically, should not be termed "petrified." More importantly, clam borings are commonly contained in mudstone or sandstone where little or no wood structure remains. Speaking of "petrified wood" in this sense is not meaningful.

Lastly, the phrase, "Teredo Petrified Wood" could be misleading because some persons may assume that it means a type of wood, such as *Sequoia* wood or oak wood, not realizing that "Teredo" is the name of an animal. An alteration to "Teredo-bored Petrified Wood" could, at least, make this point clear.

Because of uncertainty as to what shipworm or shipworms produced the borings, and because of uncertainty in the intent of "petrified," it might be better to apply noncommittal terminology. Perhaps more appropriate and less restrictive phraseology would be "clam-bored fossil wood" or "shipworm-bored fossil wood."

Fossils, as well as other natural objects, should be conserved. Their conservation is necessary because of the scientific information gleaned from them for understanding the geologic past. The designation of a state fossil for North Dakota will advertise the state and its natural resources, but it will also attract persons who will exploit this and other fossils which have not been adequately studied. I strongly urge all collectors to refrain from extravagance in collecting. And, too, I strongly encourage collectors to donate specimens to universities and museums for study. By the combined effort of specialists and non-specialists, we are better able to unravel the history of the geologic past.

the shells, the foot (Fig. 4a), maintains position as the rasping ensues. Adjustment of the foot, with accompanying rotation of the body, results in a circular boring. Figure 2 shows two shells in a boring as they appear in a slice through and across them both.

The paddle-like pallets (Fig. 4c) are hard structures, like the shells, and they serve to seal off effectively the entrance to a boring. This they may do when the animal is physically disturbed or when water quality is lowered. Water enters and leaves the animal via two tubes or siphons between the pallets (Fig. 4a).

Besides shells and pallets, additional shelly material is secreted by the shipworm. This is in the form of a limy tube which completely lines the enclosing boring (Fig. 3). The lining affords additional protection for the wormlike body, and varies in thickness partly because of wood type. Smooth, fine-grained wood usually reflects a thin lining, whereas rough, coarse-grained wood is covered by a relatively thicker lining (Turner, 1966, p. 64).

Realizing that living shipworms inhabit seas, one would search for "Teredo Petrified Wood" in rock formations of marine origin. In North Dakota, three exclusively marine formations are rather extensively exposed at the surface: Pierre Shale, Fox Hills Sandstone, and the Cannonball Formation. Most of the "Teredo Wood" has been collected in the state from the Cannonball Formation of Paleocene Age (about 60 million years ago) and represents a record of the last sea to have covered North Dakota. This formation is best exposed in the Bismarck-Mandan area and southwest of these two cities. Some "Teredo Wood" has also been taken from younger gravel deposits in the same area, but this material has resulted from a reworking of Cannonball sediments. All of the specimens illustrating this article were collected from the Cannonball Formation.

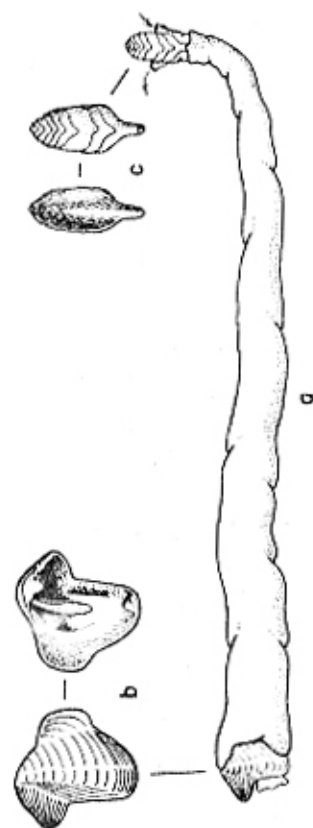


FIGURE 4. Reconstruction of a Paleocene (Cannonball) shipworm.  
a. Body of animal (with stippled shading) with shells (left) at the front and pallets (right) at the rear; ca. X 2; arrows indicate the direction of water inflow and outflow through the siphons. b. Outer (left) and inner (right) views of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