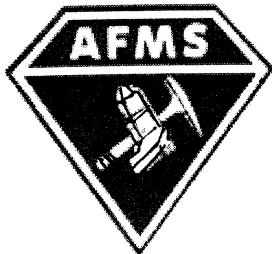


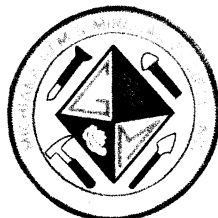
# **THE ROCKFINDER**

Michiana Gem & Mineral Society  
Tom Noe, Editor  
305 Napoleon St.  
South Bend, IN 46617



# **THE ROCKFINDER**

OCTOBER, 2010



# MICHIANA GEM & MINERAL SOCIETY

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The purpose of the Michiana Gem & Mineral Society is to promote the study and enjoyment of the earth sciences and the lapidary arts, and to share lapidary knowledge and techniques.

General meetings are usually held the fourth Sunday of each month, 2:00 p.m., at Our Redeemer Lutheran Church, 805 S. 29th St., South Bend, IN. Regular exceptions include May (third Sunday), July (no meeting), August (club picnic) and the November/December meeting and Christmas party. Board meetings are held before the monthly meetings. The annual club show is in late August.



Yearly Membership Dues (Payable by December 15)  
 \_\_\_\_\_ Individual \$15.00 per year  
 \_\_\_\_\_ Family \$20.00 per year  
 \_\_\_\_\_ Junior \$1.00 per year  
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Michiana Gem and Mineral Society (www.sauktown.com/Michiana), a not-for-profit organization, is affiliated with the Midwest Federation of Mineralogical Societies (www.amfed.org/midwest.htm) and with the American Federation of Mineralogical Societies (www.amfed.org).

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Permission is hereby granted to reprint any original *Rockfinder* articles, as long as recognition is given along with the reprint.

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With my signature I hereby release the Michiana Gem and Mineral Society, Inc., and its individual members and the owners of any premises upon which I enter under permit granted to the society, absolutely free of any liability whatsoever, to my person or my property, and further I will respect the equipment and property of the aforesaid owners.

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 IN 46514

# THE ROCKFINDER

Newsletter of the Michiana Gem and Mineral Society

Volume 50, Number 8

October, 2010

**Next meeting:** October 24, 2010  
Visitors are always welcome.  
Doors open at 1:30. Meeting starts at 2.

**Place:** Our Redeemer Lutheran Church  
805 S. 29th Street (29th & Wall)  
in South Bend, River Park area.

**Program:** Presented by silversmith Doug  
Kile on working with silver.

**Refreshments:** Annette Freel, Randy and  
Joan Hill, Jan Pellus



## UP AND COMING

### *Michiana Gem & Mineral Society events:*

**Oct. 30:** Michiana club field trip to Granitech in Elkhart.

### **October:**

**15-17: Ft. Wayne, IN.** Three Rivers Gem & Mineral Society's Show; Allen County Fairgrounds.

**16-17: Cottage Grove, MN.** Minnesota Mineral Club's Show; National Guard Training & Community Center.

**16-17: Springfield, MO.** Ozark Mountain Gem & Mineral Society's Show; Expo Center.

**16-17: Clio, MI.** Flint Rock & Gem Club's Show; Carter Middle School.

**23-24: Davenport, IA.** Black Hawk Gem and Mineral Club's Fall Rock, Gem and Jewelry Show; Mississippi Valley Fairgrounds.

### *Federation Conventions and Shows:*

South Central Federation, December 11-2, DeRidder, LA.

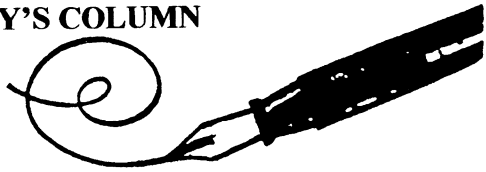
## FIELD TRIP TO GRANITECH OCT. 30

All club members are welcome to an urban field trip to the Granitech plant in Elkhart on Saturday morning, October 30, from 9 to 11. We've been to Granitech before and the pickings are great—a wide variety of granite slabs and broken pieces, leftovers from their countertop and bath-remodeling business. The slabs are polished on one side and are handy for garden steps (rough side up to prevent slipping), for controlling erosion or for making craft items such as bookends. Some people have even used them for small table tops. Sizes and colors will vary. Small pieces of marble may also be available. We just go through the plant's remnants to see what we can find.

Show up at Granitech anytime after 9, remembering that we have to be out by 11. Work gloves will be useful to protect your hands from the rough edges. Wear your grungies.

**DIRECTIONS:** This is the *plant location*, NOT the classy Granitech showroom on Old U.S. 20. From the intersection of State Road 219 (Ash Road) and Old U.S. 20 (Wal-Mart on the corner), go east on 20 (passing the Granitech showroom) for two miles to County Road 3. Turn north on CR 3 for a quarter mile. The plant is at the SW corner of Lexington Park Road and County Road 3.

KATHY'S COLUMN



**Once upon a time**, there were four people.

Their names were Everybody, Somebody, Nobody and Anybody. Whenever there was an important job to be done, Everybody was sure that Somebody would do it. Anybody could have done it, but Nobody did it. When Nobody did it, Everybody got angry because it was Everybody's job. Everybody thought that Somebody would do it, but Nobody realized that Nobody would do it. So consequently Everybody blamed Somebody when Nobody did what Anybody could have done in the first place.

(*Rockhounder*) Eastern Federation, 2010

Dear Members,

We need **SOMEBODY** as our new **junior leader** for the coming year. Won't you help? You need not know everything about minerals, fossils and gems to be able to help with our youth. Plenty of support will be provided. We are fortunate to have so many young members and families belonging to our club. Contact any board member if you are willing to chair or fill this position

How neat is this? I'm sitting in the dentist's office today waiting for my appointment when the dental hygienist (the dentist's wife) pops her head out into the waiting room to tell me how much she enjoyed our club show and that she is thinking of joining our club. Bob and I also asked our veterinarian to come to the show, and they are considering a family membership. Is our club making waves, you bet! Seriously, you members and your outgoing friendliness make our club grow! They commented on what a good time they had and said everyone was so nice to them.

I have lots to remind you of before this month's meeting. Diane Gram and Lana Wright should have the new cookbooks for us--Thank you, ladies. I can't wait to use mine (:).

There will also be two signup sheets passed

around. One is for our annual Christmas party, which is a potluck. I hope all of you are planning on attending the party Sunday, December 5, and sign up. It is particularly important to sign up if you are bringing children or young adults up to 17. This gives us an idea on attendance for seating and some extra items needed.

The other signup sheet will help our Hostesses organize refreshments for the coming year's monthly meetings. You can contribute refreshments for the month of your choice. There are normally three members (or families) volunteering each month to prepare treats for the break.

In this issue of *The Rockfinder*, I asked our Editor, Tom Noe, to put in a rope graph illustration that shows you how we are involved from a local earth science club to a national organization, like other national clubs such as Audubon, etc. It is wonderful to know we have mutual kindred spirits all across the United States with the same interest in our hobby. If you have any questions regarding the graph example, ask Sue Brown, a club member and Midwest Federation Indiana State Director, for help.

Please remember there is NOT a November meeting, since the meeting date would fall on Thanksgiving weekend. Instead, we will combine November and December meetings when we gather on December 5 to celebrate a year of Good Will, Good Collecting, Good Friends and God's Blessings.

I'm looking forward to the October meeting, where Vice-President David Peltz will present a proposed slate of officers for 2011 (any member may also propose nominations from the floor at that time). Then a vote will be taken and the installation of our officers for 2011 will take place at the December Christmas party. We need you as a whole to place your votes!

There's a field trip to Granitech for those who are interested on October 30. See the information on page 1.

The program this month features a silversmith, a real art in our hobby. It should really be interesting.

Rock On,  
Kathy

**AMERICAN  
FEDERATION  
OF MINERAL  
SOCIETIES**

THE AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES  
KEEPS CLUBS ACROSS THE COUNTRY  
IN TOUCH WITH EACH OTHER AND  
DISPERSES INFORMATION OF  
INTEREST TO ROCKHOUDS

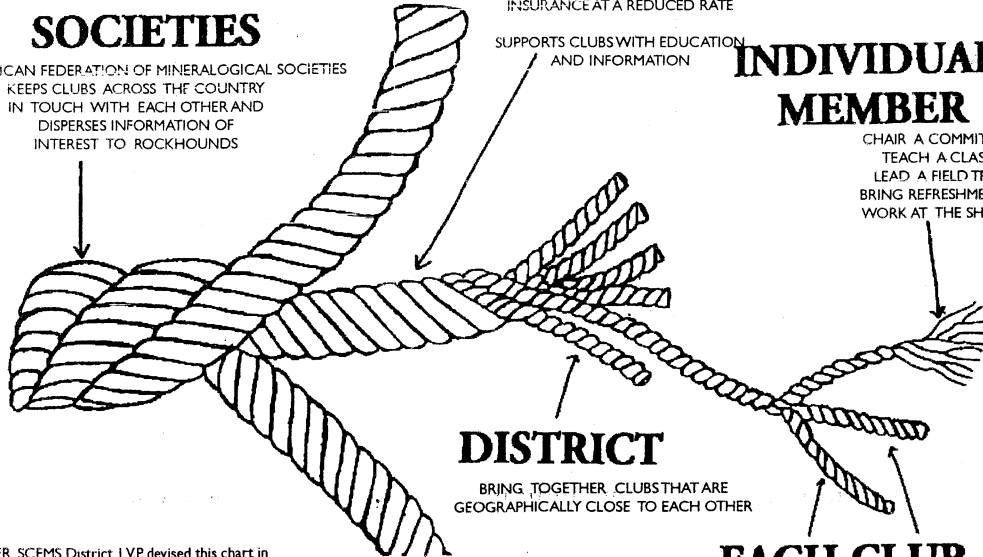
**7 FEDERATIONS  
IN THE U. S. A.**

SCFMS PROVIDES LIABILITY  
INSURANCE AT A REDUCED RATE

SUPPORTS CLUBS WITH EDUCATION  
AND INFORMATION

**INDIVIDUAL  
MEMBER**

CHAIR A COMMITTEE  
TEACH A CLASS  
LEAD A FIELD TRIP  
BRING REFRESHMENTS  
WORK AT THE SHOW



**DISTRICT**

BRING TOGETHER CLUBS THAT ARE  
GEOGRAPHICALLY CLOSE TO EACH OTHER

**EACH CLUB**

PROVIDE A LOCATION  
COORDINATE CLASSES  
HOST SPEAKERS  
HAVE A SHOW

DALE MILLER, SCFMS District I VP. devised this chart in  
a simple explanation about the Federation chain. From  
the SCFMS Newsletter, May-June, 2001.

**WHAT IS A ROCKHOUND?**

By Cecilia Duluk Member of MMLS D

What is a Rockhound? He is a special breed -he is hunter, collector and craftsman. He loves Nature's hills but is always trying to bring them home! He appreciates natural beauty -but is never satisfied until he has polished it! He is a safety-minded citizen -but is willing to scale a mile-high cliff for that special specimen!

A Rockhound has the natural swapping instincts of a pack-rat, the agility of a mountain goat, the generosity of a philanthropist, the immunity to rain of a duck, and the perseverance and patience of a Job (especially when that crystal is impossibly imbedded in that vug!)

A Rockhound has a house whose rooms are overflowing with rocks of every size and shape -filling display cases, tables, chairs, drawers, kitchen sink and basement. The big ones crowd his porch, back yard and garage. You can always recognize his car by its sagging axle and its thick coating of dust. A Rockhound is generally considered an ODD-BALL by non-rockhounds, a NUISANCE by farmers and quarry superintendents, an UNLIMITED SUPPLIER by jewelry loving wives, and a BOON COMPANION by other Rockhounds!

What is a Rockhound? He is a POLITICIAN with a mineral club ambassadorship; a VISIONARY with a diamond saw; a PIONEER -in a station wagon; a WORLD EXPLORER -in his own back yard! But most of all, the ROCKHOUND is a person who searches for, finds and cherishes forever those bits of chemical beauty called Rocks and Minerals, which afford him a glimpse of INFINITY ON A SHELF!

## THE FOOTPRINT OF A GIANT

Bob Horning

The only undisputed fossilized footprint of a *Tyrannosaurus rex* dinosaur is in North Ponil Canyon on the Philmont Scout Ranch near Cimmaron, New Mexico. The track, made by the dinosaur's left hind foot was discovered in 1983 by Charles Pillmore, a research geologist with the U.S. Geological Survey in Denver, CO. It was identified 10 years later as a footprint made by the giant *T-rex*, and presently is recognized as the only known fossilized track made by the creature. Although several nearly complete fossil skeletons of the large dinosaur have been found, until 1993 no tracks attributable to this creature had been reported.

**Discovery:** Pillmore recalls chancing upon the track while he was mapping geology and tracing the K/T boundary in north Ponil Canyon. He noticed an unusual shape on a large block of sandstone a short distance above the creek and observed that it resembled the footprint of a large three-toed animal, probably a dinosaur. The block appeared to have fallen from a ledge higher up on the slope and to have rotated as it moved down the hill, so that the bottom of the block now faces upward. He noted the discovery in his field notebook and took some samples of the sandstone, but didn't suspect it was anything particularly unusual.

**Identification:** Several years later Pillmore showed pictures of the Philmont track to Dr. Martin Lockley, a dinosaur track specialist at the University of Colorado at Denver. Lockley agreed that it was the footprint of a dinosaur and proposed that the animal that made the track was probably a large hadrosaur. He agreed to accompany Pillmore to the site and confirm the identification. In late summer of 1993 the two men made the trip to New Mexico to examine and make a mold of the track. As they began to clear away the leaves and dirt that partly covered the track, Lockley noted that it was too big for a hadrosaur and that its heel was much larger than any hadrosaur heel he could recall. He then noticed a distinctive shape on the side of the track and speculated that it might have been made by a fourth digit call a hallux. (Editor's note: a hallux as described in Webster's as "the innermost digit (as the big toe) of a hind or lower limb.) He then proposed that the size and shape of the track and the presence of the fourth digit were convincing evidence that they were looking at possibly the first *Tyrannosaurus rex* track ever seen.

After sketching an outline of the track on clear plastic, the scientists made a latex mold of the track.

**Position in the Rocks:** Dr. Parley Fleming, then a USGS fossil pollen specialist, helped to establish the relative age and stratigraphic position of the track layer. He determined that the track was made in Late Cretaceous time 65 - 70 million years ago, the proper age for a *T-rex*, and that the dinosaur was walking across a vegetated wetland mudflat, dominated by palm trees and ferns.

**Significance:** The discovery of the natural cast of the *T-rex* provided much important information: (1) the shape of the bottom of the dinosaur's foot contributes to knowledge of the soft tissue and the probable muscle structure of the foot and how it supported the animal's great weight; (2) the position of the hallux on the foot is apparent in the footprint. The track indicates that the hallux was fairly high on the foot and well back on the heel, which could assist in skeletal reconstruction; (3) the presence of claw marks suggest the foot had large claws, which may indicate a predatory way of life (4) the range of the *T-rex* is extended south about 250 miles from the nearest known occurrence to the north; and (5) sixty-five to seventy million years ago, *T-rex* roamed across a broad river floodplain in a subtropical wetlands environment, as indicated by palm leaves and other fossils in rocks nearby and by fossil palm pollen and fern spores noted in samples of the muds he/she walked in.

**Preservation:** A number of circumstances occurred that enabled the *T-rex* track to be preserved. First, the mud that the dinosaur was walking across had to be of a particular consistency and character - firm enough to preserve the shape of the foot, but not so soft or fluid as to allow mud to flow back into the cavity, destroying the footprint. Second, the footprint had to remain open until a nearby river flooded and sand-laden water flowed across the mudflat, filling the footprint and depositing a three-to five-foot layer of sand on the mud surface. The flood current had to be strong enough to carry the sand sediment that filled the footprint yet gentle enough not to wash away the mud containing the track. This sand layer was later covered by several thousand feet of sediment layers that solidified into rock. These layers of rock were eventually eroded away by streams to form the valleys and ridges that we see today, finally exposing the sandstone bed that contained the footprint.

**Vital Statistics:** The footprint on the rock is 33

inches long by 28 inches wide. The depth of the infilling was about nine inches. Lockley determined from its position on the block that the animal's stride was at least nine feet. He estimated from the size of the footprint and the stride of the animal that it was probably moving at least six to seven miles per hour. When mature, *T-rex* reached a length of about 60 feet, stood nearly two stories tall, and weighed approximately 8,000 -12,000 pounds.

**Official Name:** In 1994, a paper proposing the name *Tyrannosauripus pilomorei* for this track was submitted by Lockley and associate Adrian Hunt to honor Pillmore's discovery. The paper was published later that year in *Ichnos* (volume 3, pp. 213-218) an international journal for plant and animal traces, assuring that the name will be an official part of the scientific record.

*Obsidian Observer* (Oct., 2001)

## ROCK HUNTING IN A WEIRD WAY

By Val Carver

Yeah, yeah, I know that it is getting a little late in the year to talk about rock hunting techniques. However, after coming back from a trip to a really large gravel pit, I would like to pass on one of my rock hunting techniques.

When I go out to hunt rocks where I may be wandering over a large area I always carry a bundle of surveyor's flags with me. You know these are the small (say 3" by 3") bright colored flags on an 18" length of wire that people use to mark underground pipes, wires and cables. They are available at places like Menard's, Home Depot, etc. for about \$5.00 per bundle of 50.

The first thing I do with my flags is to take a big black magic marker and number them consecutively. Then I roll 25 of them into a bundle and stick them in my rock hunting sack.

What I use them for is to mark a path for myself so that I will not get lost when I am in the wilds. I also use them to mark stacks of rocks that I collect so that I will not have to carry these rocks all over the place while I am looking for more.

I always pick up my flags on the last pass through the area. That way I am not littering the area and I do not have to purchase more flags every trip I take.

*The Rock Rustler's News* (Oct., 2006)

## TEXAS AGATES: A WORLD OF WONDER

By Richard Dee Purkeypale

Texas has an abundance of fine agate material. The most famous and important collecting site for agate in Texas is the Woodward Ranch located 18 miles south of Alpine, Texas, on Texas 118 in Brewster County in the Del Norte Mountains. The ranch has a lapidary shop and is open year round for collecting on over 3,000 acres.

The Woodward Ranch is famous for its red plume agate, which has beautiful red and red-brown plumes in a translucent chalcedony which can vary in color from clear blue gray to amber and carnelian color. These agates are often found in the bottom section of flat round agate nodules referred to as "biscuits," according to John Frank "Trey" Woodward III, who along with his wife, Jayson, run the ranch. "It takes a while to train your eye for plume," he explained. "You have to look for the biscuit shape in order to distinguish it from the igneous basalt. The biscuits will always have a flat bottom if it's plume. All of the plume has a quartz crystal or cavity in it. You just shave it, just like cutting open an oatmeal biscuit-parallel to the bottom."

Plume agate of all colors, moss agate, banded agate, picture agate and iris agate can also be found on the ranch. Iris agate is agate that is usually sliced very thin and exhibits a rainbow effect when looking through the agate into a light source, due to the diffraction of light through the closely spaced bands of chalcedony. The following is from an article posted in the *American Mineralogist*. "Iris agate owes its spectral colors to the presence of a diffraction grating structure. The sties in the grating are the edges of thin lamellae having alternately high and lower refractive indices. Iris agate is agate whose thin section shows spectral colors when viewed in transmitted light. The iris grating structure, when present, is usually associated with the "turtleback" type of chalcedony crystalization. It has often been found in the chalcedony layers adjacent to quartz layers in the center of an agate amygdule or geode."<sup>2</sup> The search for iris agate was once a very popular pastime with many of our older rockhounds, who would sometimes display the polished thin slices on a rotating lighted display that caused the iris effect to travel around the agate.

Pompom agate and the very rare thistle agate can be found at Needle Peak near the played-out mercury mining district of Terlingua, Texas. Pompom agate has yellow and golden balls of sagenite surrounded by green moss or dendrites. The very rare thistle agate has yellow sagenite balls along with smaller white balls that form thistle-like flowers.

## MGMS 2010 Show Dealer Report

Joe Perry

The Michiana Gem and Mineral Society's annual show was held August 27, 28 and 29, 2010. Show Chair Marie Crull asked me to again be show dealer chair. Like the last several years, we had a total of 16 dealers: 12 had full-size booths, the remaining were half-size booths. Four dealers were new to us this year, two of which were late replacements for dealers that had paid but had to cancel.

The dealers were solicited for comments on the show. All wished to return next year, but unfortunately one is considering going out of business.

Some of the dealer comments were:

"We love this show. Food is terrific too!"

"Thanks for the hard work involved in putting on the show! We always enjoy coming here. Also, thanks for all the great food!"

"I always enjoy the pleasantness of all the club members."

"Great food. Great show. Most of all, Great Club!!! Thank you for all your hard work. God bless!"

"This is our first year at the show and everyone made us feel so welcome!"

Thanks to all the MGMS members for your help at the show this year. The dealers appreciate your efforts in again making it a success.

Joe Perry

## A.L.A.A. NEWS

by Dick Pankey, President, American Lands Access Association

### *Listening Session for the America's Great Outdoors Initiative*

On July 6, 2010, I attended a Listening Session for America's Great Outdoors Initiative held at U.C. Davis in Davis, CA. The Blue Ribbon Coalition has published several alert messages about the America's Great Outdoors Initiative and the Listening Sessions that tell what it is and give the background on it. To me there is a lot of effort and money being expended for questionable, unclear, poorly stated objectives. What is unsaid is what should concern us. The stated reasons for this Initiative are to:

- Reconnect Americans, especially children, to the out-of-doors.

- Build upon state, local, private and tribal priorities for their conservation.

- Use science-based management practices to restore and protect our lands and waters for future generations.

New focus may be needed to address Reason 1, but there are procedures, laws and regulation in place to address Reason 2 and 3. This Initiative is just another mechanism/tool that the conservation/preservation extremists are trying to use to keep people off our public lands and control our use and activities. We must be vigilant. We must be aware. We must be involved and participate in the process. This Initiative could affect how all public and private lands in the United States is used. This affects everyone in every state. We all need to be involved and participate.

**Why should this matter to you:** There is a very real possibility this might just end up being a giant vehicle to hand the conservation community whatever is on its latest wish list. Please educate yourself on the Initiative; inform others; and involve yourself in the process. Listening Sessions are being scheduled all around the country. Watch for them and find one in your area and attend it.

Check out these web sites for more information: remarks by President Obama at America's Great Outdoors Conference: ([www.whitehouse.gov/the-press-office/remarks-president-americas-great-outdoors-conference](http://www.whitehouse.gov/the-press-office/remarks-president-americas-great-outdoors-conference))

and the BRC web site: [www.sharetrails.org](http://www.sharetrails.org)

(Excerpted from *AMFS Newsletter*, Oct., 2010)

## WHY?

Do they sterilize the needle for lethal injections?

Don't sheep shrink when it rains?

Are they called apartments when they are all stuck together?

Is the man who invests all of your money called a broker?

Isn't there mouse-flavored cat food?

Didn't Noah swat those two mosquitos?



Many ranches in this Trans-Pecos and west Texas area have wonderful agates tucked away in the weathered basalt of old volcanic mountain ranges. Marfa bouquet agate has inclusions of moss and dendrites of many colors of red, yellow, pink and cream that look like a bouquet of flowers in clear chalcedony. Balmorhea blue agate is a variety of dark blue chalcedony with white banding that really sets off the blue color and can be found near the city of Balmorhea. Other fine material includes Christmas Tree agate, a beautiful stone with a green rind and a brilliant red moss interior, and Flower Garden agate, which has brilliant reds, golds, and brown moss. An excellent source for locating potential sites for collecting agate in this area is found in Brad L. Cross's book, *Gem Trails of Texas*.

The most abundant agate region in Texas is located along the Rio Grande from Eagle Pass down to McAllen, Texas. Gravel pit operations in Eagle Pass allow agate hunting with permission. These pits have large piles of discarded cobbles which are considered too big to be used as commercial gravel. These areas can be very productive and are known to have great supplies of a Rio Grande moss agate which is a moss agate with green, red, yellow and brown moss in clear chalcedony. These agates are exceptionally hard and dense and take an excellent polish. One can obtain hundreds of specimens in one outing if desired.

The agates are thought to have weathered out of the Big Bend and West Texas area and were washed downstream along the Rio Grande in ancient floods. The cobbles are found in alluvium deposits in the river and all along the antedeluvian floodplain outside the banks of the river. In fact, when excavating for lakes and large canals, this layer of cobble-gravel can easily be found. The cobbles usually have a white caliche rind that will need to be washed off to assess your finds. An even quicker way to assess your prize is to chip a small window on one end of the cobble to view the quality of the agate within. Rio Grande moss agate is underappreciated due to its abundant availability; however, it is one of Texas' most beautiful agates, second only to red plume.

Plume agate has also been found in the Canadian River area of the High Plains of Texas. Black, red and brown plumes are found in an opaque white background of chalcedony.

Special mention should be made of the agatized petrified woods that are found in Texas. Highly agatized palm wood is found in a band 50 to 125 miles inland from

the present day Gulf coastline. This is the location of ancient coasts where tropical environments once existed. The agatized palm wood is found in many different colors which range from caliche beige to black with blue agate in the fibrovascular bundles that once provided food and water for the tree.

Due to floods that have buried many trees in the rivers and creeks of Texas, many species of agatized wood can be found in sand and gravel pit operations as well as creek beds across the state.

The variety and availability of agate in Texas is staggering. If you want to find a single rare specimen or if you want to fill up your new display case, you can find any number of places to successfully find agate in Texas. Simply join your local gem and mineral society and participate in field trips and have a great time discovering the wonders of nature.

Footnotes:

1. Denise Gamino. "Romancing the Stone." *Austin-American Statesman*, (Nov. 15 2003).

2. Francis I. Jones, *American Mineralogist* (Mineralogical Society of America, Vol. 37, 1952. pages 578-587).



**SAUROPODS MIGHT HAVE EATEN BETTER THAN ONCE THOUGHT**

By Dale Gnidovec

Nothing like the huge, long-necked, long-tailed, four-legged, herbivorous dinosaurs called sauropods ("brontosaurus") exists today, so determining how they lived is an enigma. One problem is how they managed to eat enough food to keep going. To get sufficient nutrition, a modern 5-ton elephant must spend 12 to 14 hours a day eating. Calculations suggest that with a similar metabolism, an 80-ton sauropod would have had to eat 35 hours per day, which is clearly impossible.

Compounding the problem is that many sauropods lived before the evolution of angiosperms, or flowering plants. Today, angiosperms account for about 80 percent of the plants that cover the land, including grasses and most trees -- in other words, most food for modern herbivores.

During much of the time when sauropods lived, most land plants were conifers, rushes, cycads and ferns. Few animals today eat those plants, and it has usually been assumed that the reason they don't is that those plants are not very nutritious.

That assumption might not be correct, as shown by recent research reported in the *Proceedings of the Royal Society*.

To test this, researchers ground up leaves from the types of plants available to sauropods and put them in airtight glass syringes that contained microbes from sheep stomachs. The fermenting plant material produced gases. The higher the nutritional value, the more gas that is produced; the technique is often used to test the quality of livestock feed.

Among the plants tested were ginkgo, equisetum, the primitive conifer araucaria, ferns and cycads.

The results were surprising. Many of the "primitive" plants produced as much nutrition as -- and in some cases, more than -- angiosperms. The sauropods might have lived well on their diet of rushes and conifers.

Also, elephants must spend a lot of time chewing their food before swallowing it. Sauropods didn't have teeth suitable for chewing; their food was ground up in a muscular gizzard or crop, sometimes with the aid of gastroliths, or stomach stones, so they could dispense with chewing and spend that time just acquiring food. *The Columbus Dispatch* (June, 2008)

**DEEP-SEA SCAVENGERS HAVE ANCIENT COUNTERPARTS**

By Dale Gnidovec

When a whale dies and sinks to the bottom of the ocean, its carcass provides a windfall of food for deep-sea organisms. The soft parts are consumed quickly, but the bones can remain for years, to be slowly eaten away by algae and bacteria that feed on the fats and oils in the bones.

Those microorganisms in turn are fed upon by larger animals, especially snails.

Those snails often are close relatives of species that live around deep-sea vents, either hot ones (so-called "black smokers") or cool seeps, both of which also support large populations of bacteria and algae.

Such whale-fall communities are known but rare in the fossil record, going back to some of the earliest whales 34 million years ago.

A recent article in the journal *Acta Palaeontologica Polonica* extends the known record of each communities back to the Cretaceous Period 90 million years ago.

That was long before whales evolved, so what was supplying large bones to the bottom of the sea? Plesiosaurs.

Plesiosaurs are just one group of reptiles that took to the high seas during the Mesozoic Era. Plesiosaurs came in two varieties: pliosaurs, which had short necks and large skulls, superficially resembling killer whales; and elasmosaurs, which had small heads on long necks.

The report concerned two plesiosaur skeletons found in northern Japan. One was a 26- to 39-foot long elasmosaur and the other a 36-foot pliosaur. Intimately associated with both skeletons were fossil snail shells of species closely related to snails found in nearby Cretaceous cold-seep fauna.

Also, the bones were filled with channels and canals similar to those made by microorganisms in modern whalebones. Some bones were coated with pyrite, an indicator of high sulfur content, another characteristic common in modern whale-fall communities.

Cretaceous seas were filled with many organisms that would look strange to a modern scuba diver, but this report seems to support that adage: The more things change, the more they stay the same.

*The Columbus Dispatch* (July, 2008)