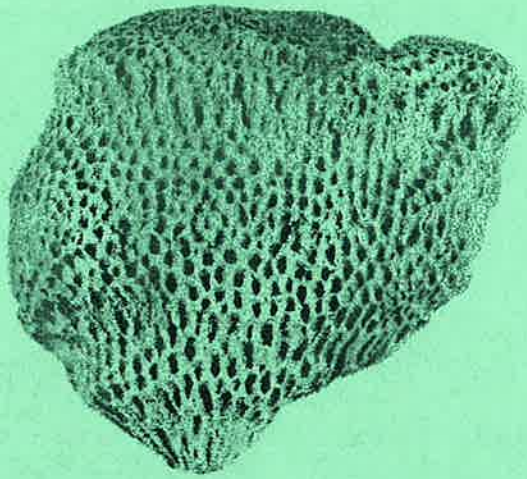


THE ROCKFINDER

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



THE ROCKFINDER

OCTOBER, 2001

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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 held the fourth Sunday of each month, 2:00 PM, EST, 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 general meetings. The annual club show is Labor Day weekend.



 Yearly Membership Dues (Payable by January 1)
 _____ Individual \$10.00 per year
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The Michiana Gem & Mineral Society, a not-for-profit organization, is affiliated with the Midwest Federation of Mineralogical Societies and with the American Federation of Mineralogical Societies.

The Rockfinder is published monthly except July and August. Editor, Tom Noe, 305 Napoleon Blvd., South Bend, IN 46617 (ph. 289-2028). Co-editor, Herb Luckert, 221 Marquette Ave., South Bend, IN 46617 (ph. 282-1354). Reporters, Bob Heinek, Herb Luckert, club members.

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

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PLEASE READ AND SIGN THIS SECTION:

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.

Signed _____ Date _____

THE ROCKFINDER

Newsletter of the Michiana Gem & Mineral Society

Volume 41, Number 8

October, 2001

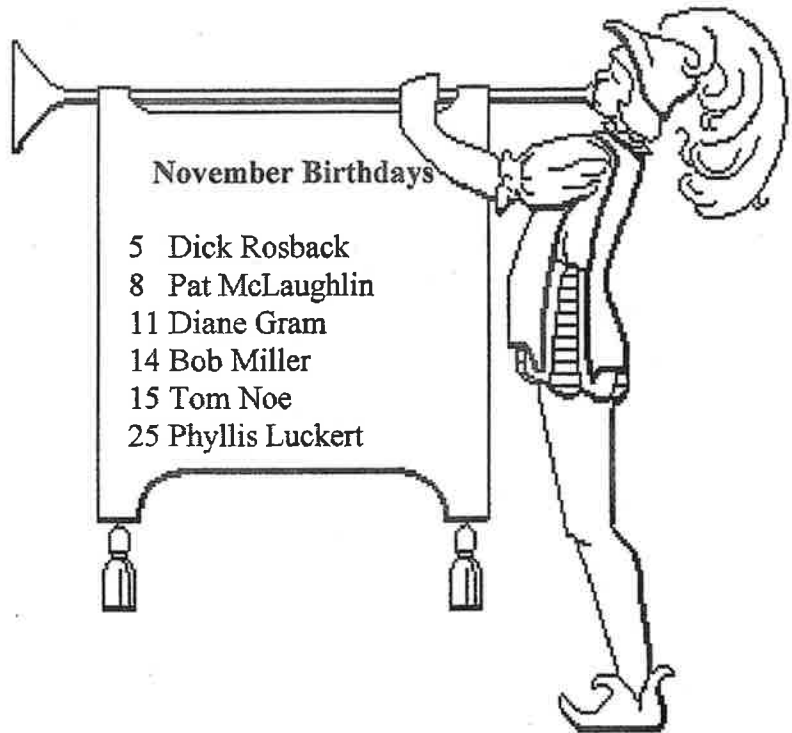
Meeting: Sunday, October 28
Doors open 1:30 p.m.
Meeting at 2:00 p.m.
Guests are always welcome.

Place: Our Redeemer Lutheran Church
805 S. 29th St. (29th & Wall)
South Bend, IN
(Upstairs)

Program: Show and Tell! Bring in your finds from the Mazon Creek trip or from summer hunting, and be ready to describe your treasures. We will also discuss the Christmas party arrangements, and the Nominations Committee will give a report. Remember, there is no November meeting, and voting for officers will take place at the Christmas party in early December.

Hosts: Bess Wise and Addie Niebauer

SPECIAL NOTE: David Peltz will be appearing on WNIT's "Open Studio" on October 28th. His segment discussing fossil and rock collecting is scheduled for approximately 2:40 p.m. We will watch the segment on TV during the club meeting. Those who are not at the meeting can watch at home.



UP AND COMING

- Oct. 26-28: Central Michigan Lapidary Society show, Ingham County Fairgrounds, Mason, MI.
- Oct. 27-28: Akron club show, Emido Expo Center, Cuyahoga Falls, OH.
- Oct. 27-28: Evansville Lapidary Society annual show, Washington Square Mall, Evansville, IN.
- Nov. 2-4: Southeast Federation show, Mississippi.
- Nov. 10-11: Licking County club show, Teheran Grotto, Newark, OH.

BIRTHSTONES FOR OCTOBER

By Don Church

The original birthstone for October was the opal, but a second birthstone was selected because in some societies opal was considered bad luck—the stone was fragile and tended to fracture. So, a second birthstone was selected—tourmaline. The tourmaline is considered one of the most complex gemstones.

First, let us cover the opal. For centuries the opal was the most prized gemstone because of its color and flash. Recently the use of the electron microscope has shown the cause of the fire. The electron microscope showed that there is a regular pattern of tiny spheres in precious opal. These have the effect of breaking light into spectral (rainbow) colors. Precious opal is used in only a few ways: flat, cabochon (rounded stone), inlays and, if you can find a large enough piece, for carving. Precious opal is graded by the color of the flash and the type of flash, harlequin being the most expensive.

Opals are found in many countries, but few have flash. The ones that have flash are considered precious opals. Australia is considered the best; next comes Brazil, then the U.S. and Mexico. There are many books dedicated to opal. Check our library.

Tourmaline, the electric gemstone. In 1703 a strange yellow-green stone from Ceylon when heated drew ashes and dust to it like a magnet. The long prisms are trigonal hexagonal, but the faces on each end are different and it accounts for the magnetic properties or electrical properties.

Tourmaline has a complicated chemical composition of up to a dozen elements, with boron, aluminum and silicon being the most common. In 1820 two boys in Paris, Maine, found a gem pocket containing bright clear red, green and blue tourmalines. These were the first gem tourmalines. The red was called rubellite; the blue was called indicolite and the green was called tourmaline. Some crystals are multicolored: the red/green ones are called watermelon tourmaline.

MINUTES OF SEPTEMBER 23 MEETING

The meeting was called to order by President Don Church. The minutes of the last meeting were approved unanimously, as printed in the *Rockfinder*. Bob Heinek gave the treasurer's report, detailing expenses and profits from the Labor Day club show at Century Center. The report will be filed for audit. Guest Carol Wallace was introduced.

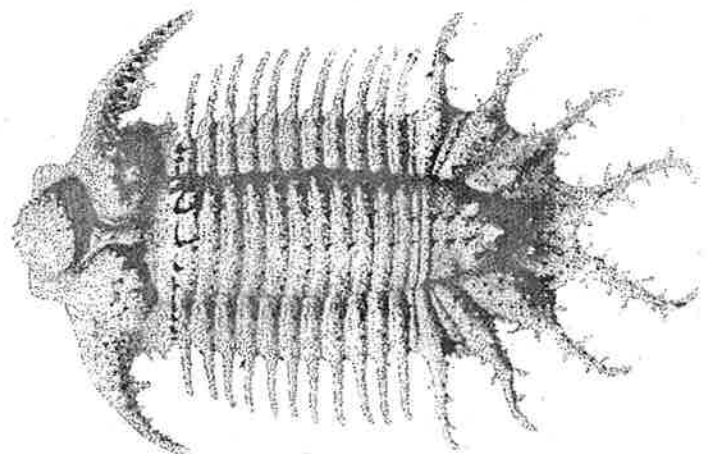
Don reported on the success of the Midwest Federation show in Rice Lake, Wisconsin, which he and Yvonne attended. He noted that it was well run and very interesting, with—understandably—a lot of Lake Superior agates in evidence. People seemed to have a great time.

Dennis Horrall gave a description of what to expect on the club's upcoming field trip to collect Mazon Creek fossils in Illinois.

A motion was made, after some discussion, to donate \$500 from the treasury to the American Red Cross to help the victims of the September 11 attacks in New York City and Washington, and the motion passed unanimously.

After some delicious and beautifully displayed snacks provided by Emily Johnson and Patti Enos, Mitzi Weber gave the program, which was a workshop on beading bracelets. Each member received a packet of plastic line and a variety of beads, and Mitzi guided us in creating bracelets. Near-silence reigned as members carefully slid the beads onto the line and decided which patterns to create.

--Secretary pro tem Margaret Heinek



Terataspis grandis

A SUPERCONTINENT BEFORE PANGAEA?

by Michael Williams

While reading the April, 2001, issue of *Rocky Echoes*, I came across an article entitled "Trilobites." At the beginning of the article, the writer mentioned a supercontinent called Rodinia. The way that he chose to word his article made it sound as if Rodinia came together and tore apart in the Early Cambrian, which is when the first true trilobites appeared. This, however, is wrong.

The idea of a supercontinent before Pangaea is astounding. An article in *Discover Magazine* in 1996 entitled "Travels of America" tells the whole story of how the existence of Rodinia was discovered.

American geologist Bill Thomas spent 30 years studying the Appalachian Mountains in eastern North America. At the same time, Argentinian geologist Ricardo Astini was studying the South American Andes Mountains. In 1995, they unknowingly switched places, with Astini studying the Appalachians and Thomas studying the Andes. Soon, the two scientists finally met each other and realized that they were working on the same project.

Thomas and Astini discovered that the Cambrian limestone of the Andes and the Appalachians contained exactly the same chemical composition and exactly the same fossil species.

As these two scientists were working out their new map of the continents as they appeared 500 million years ago, two other geologists were working on seemingly the same project in totally different parts of the world. The two geologists were Eldridge Moores and Ian Dalziel. Moores studied the Great Basin, the Sierra Nevada and many other parts of western North America. In 1989, Moores and Dalziel included Antarctica, Canada and Australia in their study. They discovered that North America had been part of these continents some 700 million years ago, in the Precambrian.

Another astounding discovery was that of exactly the same rock types and exactly the same species of fossil bacteria in the one-billion-year-old Precambrian rocks of Peru, Labrador, the U.S., Canada, Antarctica and Australia.

So, the proof had been found. There was

indeed a supercontinent before Pangaea. This is how scientists have now described the movement of the continents for use in college level historical geology courses:

In the Precambrian, roughly one billion years ago, several land masses began to converge on each other. The result was the complete formation of the supercontinent of Rodinia some 700 million years ago. The supercontinent began to break up about 500 million years ago, near the beginning of the Cambrian Period. The separation of Rodinia resulted in the formation of several smaller supercontinents, including West Gondwana and East Gondwana, both of which were completely formed during the mid-Paleozoic. These two would later collide to form the supercontinent of Gondwana, which in turn would later help to create Pangaea.

The work of these geologists has now vindicated the theory of Canadian geologist J. Tuzo Wilson, who was the first to speculate about a "supercontinent cycle," where land masses come together to form a supercontinent, then break apart, then come together again, and so forth. His theory has come to be called "The Wilson Cycle."

REFERENCES:

- Appenzeller, Tim. 1996. "Travels of America." *Discover Magazine*.
- Wicander, Reed, and Monroe, James. 2000. *Historical Geology: Evolution of the Earth and Life Through Time*. West Publishing, New York.

Rocky Echoes (Sep., 2001)



**ROBERT BROWNING (1812—1889):
POETRY, GEOLOGY and ASTRONOMY**

By Sam Shapiro

After I retired as a college history teacher in 1991, I joined the Michiana Gem and Mineral Society and the Astronomy Society to pursue old interests and to fill up my leisure time. Margaret Heinek, Ed Miller, Phyllis Luckert, Tom Noe, Kathy Miller and other hardworking members of the society have made possible varied and delightful meetings, gem shows and field trips. Many thanks!

In his brief (13-line) "My Star," the great Victorian poet compares his beloved wife Elizabeth Barrett Browning to a double star, and also to a piece of Iceland spar (CaCO₃, calcium carbonate, calcite). Calcite is a common and interesting mineral, which sets the standard of 3 on the Mohs scale. It is usually white, but green, yellow, gray, purple, brown and red are also known. One colorless, transparent form, which was originally obtained from Iceland, has the interesting property of double refraction, and produces two images of a single object when placed over it, as:

Browning
Browning

MY STAR

All that I know
Of a certain star [perhaps Mizor, the double star in
the handle of the Big Dipper]
Is, that it can throw [like Iceland spar]
Now a dart of red,
now a dart of blue;
Till my friends have said
they would fain see, too.
My star that dartles the red and the blue!
Then it stops like a bird; like a flower hangs furl:
They must solace themselves with Saturn above it.
What matter to me if their star is a world?
Mine has opened its soul to me; therefore I love it.

**RESEARCHER SAYS TONS OF THE MOON
ALREADY ON THE EARTH: TEKTITE EVENTS
MAY HAVE TRIGGERED EXTINCTIONS**

Whittier, CA (Vector Science News)—The moon is not the geologically dead world that most astronomy textbooks claim, says Darryl S. Futrell, a California-based petrologist. Futrell believes there's strong evidence of massive, lunar-volcanic explosions right here on Earth. The most recent eruption on the Moon, which showered a portion of the Earth with many tons of natural glass, occurred within the past 770,000 years, he notes.

Futrell, who has written about his studies of meteoritic stones called tektites in the journal *Nature*, says he has amassed evidence that strongly suggests these natural glass stones are volcanic material blown off the Moon by eruptions. Futrell studied the long-debated tektite origin puzzle under the guidance of the famous Project Apollo lunar scientist John A. O'Keefe (1916-2000) beginning in the late 1960s; like his famous mentor, Futrell is convinced that the Moon periodically hurls volcanic debris into Earth's gravity well, causing climate change and extinctions.

"The Earth has experienced about 12 tektite events in the last 65 million years," Futrell says. "Even though another event may not occur for thousands of years, the slight possibility that it could occur tomorrow needs to be taken into consideration."

Futrell refutes the popular theory that tektites were formed when asteroids or comets impacted Earth and melted sediments and rocks. He has identified volcanic structures within chunky, layered tektites (called Muong Nong tektites), which cannot be explained in the context of a terrestrial impact-melt origin. According to Futrell, based on other physical evidence, including the fact that Apollo astronauts found rocks with tektite-like chemistries on the lunar surface, it's now easy to conclude tektites come from the Moon.

"There is another extremely important reason why the scientific community should take a closer look at the origin of tektites," he says. "If the massive biological extinctions do have a tektite association, and tektites are formed within the Moon, then we should be watching our natural satellite for signs of explosive volcanic activity."

Vector Science News Release (March 19, 2001)

A MYSTERIOUS, PUZZLING CONUNDRUM

By Herb Luckert

While visiting the Olympic Peninsula, west of Seattle, Phyllis and I spent a lot of time at shorelines. We found a lot of interesting things there, some quite puzzling. At a county park just west of Port Angeles we found a puzzle we could not resolve.

The entire Olympic Peninsula is formed of basalt, except for a little bit of ocean sediment which was scraped up as tectonic plates collided. The process is called obduction, the reverse of subduction. Much of the basalt is old ocean bottom, some is "new," that is, newly formed during the creation of the peninsula.

It was while observing the shoreline at this park during low tide that the puzzle appeared. There was basalt everywhere. The entire beach and shoreline was nothing but. In the midst of all this basalt we saw an astonishing sight. There was a strip of basalt about 7 to 10 feet wide running approximately perpendicular to the shoreline that contained what appeared to be fossil burrows. Closer inspection of the fossil burrows didn't seem to allow of any other explanation of their origin.

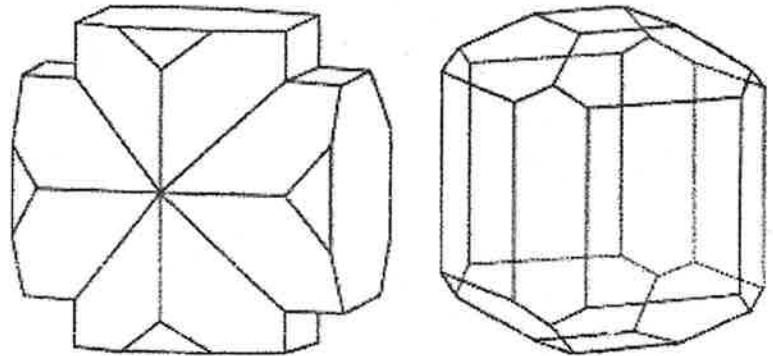
The puzzle is how to explain fossil burrows in basalt. It is pretty obvious that no animal burrows through molten lava. It is just as obvious that no animal burrows through solid, cooled basalt. We walked around the area scratching our heads trying to make additional observations which might help us solve the riddle. We found none.

This puzzle nagged at something in the back of my mind for four years until we found ourselves in the same area again. We went back the same spot. Again we observed nothing but basalt and the same blatant fossil burrows. This time, however, we were fortunate enough to make an additional observation, the one which would help us solve the enigma.

We observed the arrival of a geology class from a nearby college, led by a professor who had taken his class to this spot precisely to confront them with this mystery.

The class all found seats on the driest rocks and listened while Phyllis and I stayed out of their way. After he was through lecturing I approached the professor about the problem of finding fossil burrows in solid, igneous rock. We finally got our explanation.

It seems that, although the rock was basalt, it was not igneous. We were standing directly on the rift where the basalt poured out of the earth and met cold seawater. This caused an explosion of the lava, turning the hot magma into cool, solid basalt sand. In this instance the sand apparently lay undisturbed long enough to be burrowed through by animals. Later the sand was recemented so thoroughly that it could be distinguished from regular, solid basalt only with magnification.



Staurolite (twin) / Vesuvianite

FROM THE *SCIENTIFIC AMERICAN* OF AUGUST, 1851

"Mr. George Gibbs of Newport, R.I., who founded the magnificent cabinet of minerals at Yale College, was once collecting in the northern part of Vermont with the aid of three or four workmen. One day an acquaintance of Mr. Gibbs arrived by coach at the tavern where he was staying, shook hands with him, and mutual expressions of kindness were passed. Observing this, the landlord took the stranger aside and informed him that his friend was insane: he had been employing men for nearly a month in battering stones to bits, and if he had any friendship for the gentleman, he ought certainly to inform his family of his condition."

Editor's comment: no comment.

LAKE YIELDS COPPER GIANT

34,000 - POUND NUGGET TO BE CENTERPIECE OF KEWEENAW DISPLAY

By John Fiesher, Associated Press

A gigantic block of copper was raised from the bottom of Lake Superior on Thursday, July 12, 2001, and hauled ashore for display on Michigan's Keweenaw Peninsula, where mining was a way of life for more than a century. "It's all in once piece—no stresses, no strains," said project coordinator Bob Barron, who discovered the boulder a decade ago and has worked since then to retrieve it. "It's a gorgeous hunk of the Keweenaw."

The boulder, which lay nearly one mile offshore in 30 feet of water, was lifted onto a U.S. Army Corps of Engineers barge by a crane that had a built-in scale. The slab's estimated weight: 34,000 pounds. It measures more than 18 feet long, 8 feet wide and 15 inches thick. The predominant color is a light green, with patches of brown and purple, Barron said in a phone interview.

It will be one of the world's largest copper specimens on display and is the biggest chunk of copper ever pulled from the lake, said officials with the Seaman Mineral Museum at Michigan Technological University in Houghton.

Barron and his team used a 20-ton jack to lift the boulder and slip heavy-duty nylon straps underneath. He then attached the straps to the crane, which easily brought the boulder to the surface. The boulder was later transferred to a flatbed truck. "I think it will be a real shot in the arm for the area," he said. "It will be a big tourist draw."

Volcanic activity millions of years ago created vast deposits of copper on the Keweenaw, which juts some 80 miles into Lake Superior in the northwestern corner of the Upper Peninsula. Aborigines mined copper between 3,000 and 7,000 years ago, using it for weapons and tools. White explorers discovered it anew in the mid 1800's, touching off a mineral rush and economic boom.

Mining ended in the region by the late 1960s. Although there was more copper underground, producing it had become too costly to compete with open pit operations elsewhere, said Stan Dyl, director of the Seaman Museum.

The region still celebrates its mining heritage—a national historical park was established there in 1992. For now, the boulder will be stored inside a building at the privately operated Quincy Mine Hoist north of Hancock, where visitors can see how miners and equipment once were lowered deep into the earth. A video program will show footage of the slab on the lake bottom and the salvage operation, manager Ed Yarbrough said. Michigan Tech is raising funds to move the Seaman Museum from the university campus to the Quincy Mine Hoist grounds. Officials plan to make the copper boulder the museum's centerpiece.

The Conglomerate (Oct. 2001)

CUSTODY BATTLE OVER THE COPPER BOULDER

By Jessie Drake

COPPER HARBOR - A 16-ton copper boulder hauled from Lake Superior last month should be returned to Keweenaw County, the Grant Township board said Wednesday. The board showed its support Wednesday night for an ad-hoc "copper nugget" committee's tentative, unwritten proposal to have the boulder returned to Keweenaw County.

The nearly 19-foot boulder, discovered about 10 years ago by Robert Barron, an amateur diver and manager of the Seaman Mineral Museum, was lifted July 12th some 27 feet from its longtime resting spot atop a sandy shoal about a mile offshore between Eagle River and Eagle Harbor.

Township officials imagine a satellite museum of Michigan Tech University's A.E. Seaman Mineral Museum could be funded and suggested temporarily storing the boulder in the Copper Harbor Fire Hall. They say a non-profit, privately owned maritime museum to house it permanently could be funded thereafter. The location of the museum is not determined as yet, and township supervisor Ken Korhom said the proposal is still in "the talking stage."

"The number one thing we were trying to avoid happened," said Downtown Development Authority Chairman Don Kauppi. "We lost one of our treasures." Officially the property of the State of Michigan, the specimen is to become the centerpiece of the mineral museum. Museum officials hope to

move the museum from its current home in MTU's Electrical Engineering Resources Center to two old mining buildings—the former Quincy Mine blacksmith and machine shops just north of Hancock to house the boulder, possibly in 2005. As for the boulder, it currently takes up residence in the 1894 Hoist House, a part of the Quincy Mine Hoist complex near U.S. 41 on Quincy Hill, where it's on display.

Museum Director Stan Dyl said he was aware of the committee's formation, but because the retrieval was funded through a state grant and the museum entered into a custodial agreement, plans for the boulder have not changed. "As far as we're concerned, we have to keep our agreement," he said. "The state is the driver on this." Despite this, Keweenaw County Commissioner Don Keith lends his support to the idea of the boulder coming home. "I'm aware of the activities (of the nugget committee)," He told the township board Wednesday. "I am supportive of your efforts."

Korhom said Copper Harbor would be "a perfect place without a large expenditure," but in the resolution worded by township trustee Richard Powers, the "return of the float copper specimen" is to come to Keweenaw County not Copper Harbor specifically.

"We need to speak with one voice," said trustee Gary Barker, advising that Grant Township requires the support of all township and county boards concerned. "The key thing is it ought to be in a place with space readily available to accept it," Korhom said. "This (resolution) is based on the fact that (the boulder) has a significant tourism impact... We should share it."

The Daily Mining Gazette (Aug. 9, 2001)
via *The Conglomerate* (Oct., 2001)

WHAT LAND ANIMALS HAD THE LARGEST SKULL? — The Learning Kingdom's Cool Fact of the Day for March 1, 2001.

Of all the animals that ever walked on land, those with the largest skulls of all were the Torosaurus. These ceratopsians (horned dinosaurs) lived between 65 and 70 million years ago during the late Cretaceous Period, in what is now North America. Measuring up to nine feet (three meters) long, the skull of a Torosaurus had a thin, bony frill with two holes. They were also decorated with two large horns over the eyes, a third horn at the tip of the narrow snout, and a pointed beak. The entire animal was up to 24 feet (7.5 meters) long, and weighed up to five tons.

Little is known about Torosaurus; only 21 specimens have been identified and there are no complete skeletons so far. From the shape of the skull and beak, it seems that they lived in herds and ate plants, as did the better known herbivorous dinosaurs like Triceratops. It is believed that the beak was adapted for tearing up very tough vegetation.

More about Torosaurus:

www.rogerwilliamsparkzoo.org/what_to_see/dinosaurs/torosaurus.htm

www.geocities.com/CapeCanaveral/Hangar/3404/
www.bbc.co.uk/dinosaurs/fact_files/volcanic/torosaurus.shtml

MORE SIGNIFICANT DISCOVERIES

German scientists dug 50 meters underground and discovered small pieces of copper. After studying these pieces for a long time, Germany announced that the ancient Germans 25,000 years ago had a nationwide telephone network. Naturally, the British government was not that easily impressed. They ordered their own scientists to dig even deeper. One hundred meters down, they found small pieces of glass and they soon announced that the ancient Brits 35,000 years ago had a nationwide fiber optic network. Irish scientists, not to be outdone, dug 200 meters underground, but found absolutely nothing. They concluded that the ancient Irish 55,000 years ago had cellular telephones.

Calumet Gem (Oct., 2000)

I'M NOT SCARED, I'M JUST OLD—ARIZONA PETRIFIED FOREST NATIONAL PARK

By Carolyn Tunnicliff

Petrified Forest National Park is located in what is now northeastern Arizona. Some of the largest logs of petrified wood in the greatest concentration known to man are located in the park. These trees are not only known for their size—some over 200 feet tall and 10 feet wide—but for their exquisite color and detail.

The park covers approximately 100,000 acres and contains five separate forests: the Jasper Forest, the Crystal Forest, the Black Forest, the Rainbow Forest and the Blue Forest. The petrified wood is found in the colored sand, silts and muds that make up some of the badlands known as the Painted Desert. In addition to the trees there are also some animal fossils and over 40 different ancient plant species found there.

Once upon a time, roughly 200 million years ago, in the Triassic time, this part of Arizona was swampland. To the south and southeast of this flat, marshy region there was a chain of volcanic mountains, the Mogollon Highland. Trees were toppled by the blasts of the volcanic mountains and were carried into the swampland by flooded streams and buried by silica-rich volcanic ash and other sediments. It is estimated that over 400 feet of sediment was deposited in what is known as the Chinle Formation. The conditions for petrification were ideal. The wood did not rot away because the oxygen level was too low, and the high level of silica from the volcanic ash helped to replace the wood cells.

Various elements, compounds and minerals give the wood its brilliant rainbow of colors. The green and blue colors are derived from trace elements of copper, cobalt and chromium. The unusual pinks are due to the presence of manganese. Carbon and manganese oxides produce the black colors, while silica causes the white and gray shades. The brilliant reds, browns and yellows are due to the presence of iron oxides.

Three major types of trees are found in the Park. *Araucarioxylon*, also known as the Araucarian Pine, is the most dominant, comprising almost 90% of the wood found in the park. These ancient trees are similar to the modern redwoods. They grew to be 80-100 feet tall and 3-4 feet wide and are the most brilliant colored. *Woodworthia* were cone-bearing trees that grew up to 50 feet tall and 3-4 feet in diameter. The third type of tree, the *Schilderia*, has peculiar radiating rays in the wood and is the smallest of the three types, growing to only 20-30 feet tall.

The first known writings about the wood were in reports drafted by Lt. Lorenzo Sitgreaves of the U.S. Army as he explored northern Arizona. The first geologist to visit the area was Julius Marcou in 1853. The Whipple Expedition, under the direction of Lt. Amiel W. Whipple, discovered wood in the park area itself. This expedition included 200 scientists, engineers, soldiers and teamsters. As knowledge of the petrified forest grew, the Smithsonian Institution in Washington, DC, requested specimens of the wood.

Soon after, in 1883, the Atlantic and Pacific Railroad was completed through central Arizona, creating a large influx of people into the area and a rapid increase in visitation to the petrified forest. Destruction ensued, brought on by the greed of those collecting the wood for personal gain. Large trees were dynamited by crystal collectors, and other trees were crushed for abrasives.

Finally, in 1895, the Arizona Territory legislature petitioned Congress to make the forest a national park. On June 8, 1906, Congress passed the Antiquities Act and on December 8 of the same year President Theodore Roosevelt utilized the provisions therein to create Petrified Forest National Monument. On December 8, 1962, the monument was upgraded to national park status.

Collecting is illegal in the park. However, there are many areas, mainly private, where the wood can be collected for a fee. Check with the Chamber of Commerce in Holbrook, Arizona.

The Pica Pick (Apr., 2000)