

THE ROCKFINDER

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



THE ROCKFINDER

JANUARY, 2008

MICHIANA GEM & MINERAL SOCIETY

2008 BOARD OF DIRECTORS

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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 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
 Subscriber \$7.50 per year

Please indicate areas of special interest. (To be published in *The Rockfinder*).

General Geology _____ Beads _____
 Gems & Minerals _____ Fossils _____
 Cabochons _____ Field Trips _____
 Faceting _____ Crystals _____
 Carving _____ Micromounts _____
 Other _____ Jewelry Making _____

Name(s) _____

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HEADS OF COMMITTEES

Programs David Peltz 269-683-4088
 Hospitality Tom&Pat McLaughlin 574-259-1501
 Educational Jesse Zeiger 574-259-5944
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 Historian Ed Miller 574-498-6513
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 Membership Marty Perry 574-674-6762
 Field Trips Bob Miller 574-291-0332
 Jr Activities Cordelia Tomasino 269-684-3454
 Show Chair Marie Crull 574-272-7209

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, (ph. 574-289-2028). Co-editor, Herb Luckert, 221 Marquette Ave., South Bend, IN 46617 (ph. 574-282-1354). Reporters, Bob Heinek, Herb Luckert, club members.

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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 _____

Signed _____ Date _____

Additional family names:

Name _____

Birthday _____

Name _____

Birthday _____

Name _____

Birthday _____

Please send your dues and this form to
 Michiana Gem & Mineral Society
 c/o, Lana Wright, 24606 Rolling Oak Dr.,
 South Bend, IN 46628

THE ROCKFINDER

Newsletter of the Michiana Gem and Mineral Society

Volume 48, Number 1

January, 2008

Next Meeting:
Visitors are always welcome.

Date: January 27, 2008
Doors open at 1:30.
Meeting starts at 2 p.m.



If there is a note on the cover of your Rockfinder about dues, please pay them right away to continue your membership. Use the form on the inside cover.

Place: Our Redeemer Lutheran Church
805 S. 29th Street (29th & Wall)
in South Bend

Program: David Peltz will present a program entitled "Projects Using Meteorites."

Refreshments:
Julie Weiger, Kathy Miller, Linda Miller



- Feb. 23-24: Eastern Federation Convention, Jackson, MS.
Mar. 8-9: Geodeland Earth Science Club show, WIU Student Union, MACOMB, IL.
Mar. 15-17: Cedar Valley Mineral Society show, Teamsters Hall, Cedar Rapids, IA.
Mar. 29-30: Badger Lapidary & Geological Society show, Monroe H.S., Monroe, WI.
Mar. 29: Dearborn Club rock swap, Democratic Club, Taylor, MI.
Apr. 4-5: Columbus Rock & Mineral Society show, Veterans Memorial, Columbus, OH.
Apr. 5-6: Neville Public Museum Club show, Neville Public Museum, Green Bay, WI.
Apr. 5-6: So. Illinois Earth Science Club show, Williamson County Pavilion, Marion, IL.
Apr. 10-11: Indian Mounds Club show, Rogers Plaza, Wyoming, MI.
Apr. 19-20: Chippewa Valley Mineral Society show, Expo Center, Eau Claire, WI.
May 17-18: Parma Lapidary Club (Cleveland), County Fairgrounds, Berea, OH.
June 20-22: Lincoln Gem & Mineral Club 50th annual show & Midwest Federation Convention, Pershing Center, Lincoln, NE.
June 20-22: Northwest Federation Convention, Ontario, OR.
June 27-27 California Federation Convention, Venture, CA.
July 10-13: Wonderful World of Agates, U. of Wisconsin Fox Valley, Menasha, WI.
July 27-29: Bloomington show and swap, County Fairgrounds, Bloomington, IN.
Aug. 22-24: Our Own Michiana Gem & Mineral Society show, 4-H County Fairgrounds, South Bend, IN.

KATHY'S COLUMN

**Happy New Year!**

Since this is the first newsletter for 2008, I wanted to take this opportunity to wish everyone the very best for the upcoming year--health, success and, of course, friendship. May this year be a joyous one for all, complete with the hope that all your goals and wishes can be attained.

Speaking of goals, I would like all our members to know who our committee chairs are and what they do for us. Look at the new listing on the inside cover of the *Rockfinder* to see their names.

I am adding the name of Junior Chair Cordelia Tomasino to this list because I feel very strongly about our program for juniors. It is by introducing young people to the arts and sciences that we achieve two goals. First, it insures the continuation of our hobby by having knowledge and skills passed on to younger individuals. Second, it provides a foundation for youngsters to build on at a later time.

All our committee chairs may call on you at some time this year to do a program, teach a class, write an article, bring refreshments, work on a committee or work at the annual show. Please say yes if called upon or, better yet, volunteer your services (as indeed many of you have) instead of waiting to be asked.

If you need to reach me, please call before 8 p.m., or be prepared to leave a message. Yes, I am one of those people who craves lots of sleep, and my day starts early.

I also have e-mail, but make sure you put "MGM club" in the message line so I know it's not spam. Our e-mail address is KandBrock@aol.com.

Bob and I are looking forward to this year with all of you. **We're a great club!**

Whoops! DID YOU PAY YOUR DUES? ☺

Kathy Miller, President

MINUTES OF THE DECEMBER MEETING

President Diane Gram called the meeting to order at 1:10 p.m. on December 2, 2007. In attendance were 33 members, 9 junior members and 6 guests. David Peltz made a motion to accept the minutes of the last meeting as printed in the *Rockfinder*. The motion was seconded and carried. There was no treasurer's report.

After presentation of the slate of nominations for 2008 officers, and in the absence of further nominations, Secretary Marty Perry cast a unanimous ballot. The new officers are:

President: Kathy Miller

Vice-President: David Peltz

Secretary: Marty Perry

Treasurer: Lana Wright

Liaison: Sally Peltz

David Peltz made a motion to thank Diane Gram for being president for the past three years and doing such a great job. The motion was seconded and carried. The club also offered their thanks and appreciation to all the officers for 2007.

Kathy Miller reported on the 2008 field trip. You must work at the show to be eligible to participate in the field trip. Kathy also brought a sign-up sheet for the trip.

Diane reminded everyone that the membership dues are due. Please fill out the form in the *Rockfinder* and send the form and your dues to Lana Wright. Her address is on the form.

David Peltz made a motion to adjourn the meeting and continue the celebrations with food and festivities, including the annual Christmas potluck dinner. The motion was seconded and carried, and great celebrations ensued.

Marty Perry, Secretary

2008 MIDWEST FEDERATION CONVENTION AND SHOW

The Lincoln Gem & Mineral Club is hosting this year's Midwest Federation convention and show in conjunction with their own 50th annual club show.

The dates are June 20-22 in Lincoln, NE. As always there will be lots of great displays, presentations and dealers.

JANUARY BIRTHSTONE

GARNET

From Wikipedia, the free encyclopedia

GARNET is a group of minerals that have been used since the Bronze Age as gemstones and abrasives. Garnets are most often seen in red, but are available in a wide variety of colors spanning the entire spectrum. The name "garnet" comes from the Latin granatus ("grain"), possibly a reference to the Punica granatum ("pomegranate"), a plant with red seeds similar in shape, size, and color to some garnet crystals.

Six common species of garnet are recognized based on their chemical composition. They are pyrope, almandine, spessartite, grossular (varieties of which are hessonite or cinnamon-stone and tsavorite), uvarovite and andradite. The garnets make up two solid solution series: 1. pyrope-almandine-spessarite and 2. uvarovite-grossular-andradite.

Bring, or wear, your Garnets to the January Meeting!

WEEKEND FIELD TRIP TO CORYDON, IN —UPDATE

At the club's Christmas party this year, we had an overwhelming response for sign-up for the 2008 September field trip to the Corydon, IN, area. At this time we have enough seats left for 12 to 13 folks on the Cardinal bus, but the rooms at the Super 8 motel are now limited to a few nonsmoking king-size beds or a few two-bed smoking rooms. Twenty nonsmoking rooms have been reserved.

I will bring the lists for the bus and info for the motel to the January meeting. I can give you the telephone number of the motel if you wish to reserve a king or smoking room. You will still be given our block rate of \$50 per night, which includes tax.

--Kathy and Bob Miller

Cherry Angel Food Dessert

Marsha Miller made this dessert for the Christmas party and several members asked for the recipe, so she's making it available here. Thanks, Marsha!

1 angel food cake
1 pkg. vanilla instant pudding
1½ cups milk
1 cup sour cream
1 can cherry pie filling



Tear the angel food cake up into pieces and place them in the bottom of the bowl. Mix pudding and milk together, then add sour cream and mix together. Pour over the cake, then add cherry pie filling on top.

NATIONAL ROCKHOUND & LAPIDARY HALL OF FAME--SEEKING NOMINATIONS

By June Culp Zeitner, Founder, and Maxine Wilson, Curator

The National Rockhound and Lapidary Hall of Fame was founded in 1987 to recognize excellence in the earth sciences by inducting one or more persons each year in six categories: Education, Fossils, Lapidary, Metalcraft, Minerals and Tribute (Deceased). At this time we have 125 inductees representing 44 states. All the inductees are experts in their fields. Many of them have published several books and most of them have been active in community service. Inductees include Washington Roebling, designer of the Brooklyn Bridge, whose extensive mineral collection was donated to the Smithsonian, Paul Desautels, former curator at the Smithsonian, B. Jay Bowman, our current Publications Chair, June Culp Zeitner, the first lady of our hobby, and the most recent inductees: Roger Clark (Education), Ben Vrana (Fossils), Martin Hultquist, Ph.D. (Lapidary), Paul Cory and Sharon Bertch (Metalcraft), Steve Weinberger (Minerals) and Conrad Cone (Tribute). You can view the list of inductees by visiting the "Hall of Fame" web site at www.rockhoundhalloffame.org.

So how does someone "get into the Hall"? The process is a two-step process. First, and most important, the honoree must be nominated. To do this, chose a category--Education, Fossils, Lapidary, Metalcraft, Minerals or Tribute--and send Maxine Wilson a one-page (or less) nomination for your candidate. In your write-up, give the name and address of the person (or in the case of tribute, the name and address of a family member if you know it) along with a description of the nominee's accomplishments. Obviously, we'd like you to make your nomination write-up as glowing as possible.

The deadline for nominations for 2008 is March 31. Nominations received after that date will be held until next year. You may make more than one nomination. Shortly after March 31, all nominations will be mailed to the seven-member board of consultants, who will make their selections based

on the write-ups received. Send your nominations, by March 31 to: Maxine Wilson

NRL Hall of Fame

23530 263rd Av.

Murdo, SD 57559-6025

*American Federation of Mineralogical
Societies Newsletter (Feb., 2008)*

AT LAST, SCIENTISTS FIND BONES FROM A TENONTOSAURUS THAT DIDN'T LOSE ITS HEAD

by John Noble Wilford

The *Tenontosaurus*, a large plant-eating dinosaur, was to the predatory *Deinonychus* 110 million years ago what the wildebeest is to the lion: lunch.

Paleontologists have been turning up bones of tenontosaurus for years in Montana and Oklahoma. But until now they had failed to find an intact skeleton with a well-preserved skull.

Scientists at the University of Oklahoma reported yesterday that they had just excavated a nearly complete fossilized skeleton of a tenontosaurus almost 25 feet long. The specimen was found in rural Atoka County, Oklahoma, about 150 miles southeast of Oklahoma City.

Dr. Richard L. Cifelli, a paleontologist and zoology professor at the university, said this was "probably the largest and certainly the most perfectly preserved *Tenontosaurus* ever found."

Dr. Cifelli and Dr. Nicholas J Czaplewski, another university paleontologist, were especially elated when researchers and volunteers, working at the Sam Noble Oklahoma Museum of Natural History in Norman, finally chipped away enough of the dinosaur's rocky tomb to reveal a complete skull. The heads on all previous tenontosaurus specimens were either missing or crushed and fragmented.

Although the skeleton may not be ready for display for two years, the public may view the preparations on the museum's web site: www.snomnh.ou.edu/tenontocam

New York Times no date given

SOME MID-CONTINENT CRINOIDS

By Roger K. Pabian

Over the years, I've had the chance to work with a few very interesting crinoid fossils from the late Pennsylvanian early Permian strata from the mid-continent. Several of those are shown here. All of the illustrations are by Frankie Gould.

Nebraskacrinus tourteloti Moore & Plummer 1940 was the late R. C. Moore's favorite crinoid. The holotype specimen (fig. 1) was described by Moore & Plummer from the Grant Shale of Permian age near Odell, Nebraska. The holotype has the anal sac intact. In about 1971, Gordon Baird collected an outstanding specimen (fig. 2) from the same horizon—it would be called a topotype specimen since it came from the same locality as the holotype.



Fig. 1



Fig. 2

Flexible crinoids such as *Cibolocrinus conicus* Strimple (figs. 3, 4) are fairly rare in late Pennsylvanian rocks of the mid-continent. W.D. "Ted" White collected the outstanding crown that is now on display at the University of Nebraska State Museum. This specimen is from the Stoner Limestone member of the Stanton Formation near Louisville, Nebraska.



Fig. 3

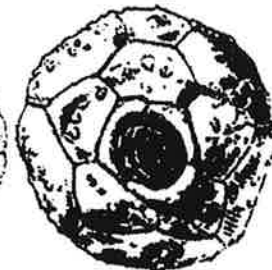


Fig. 4

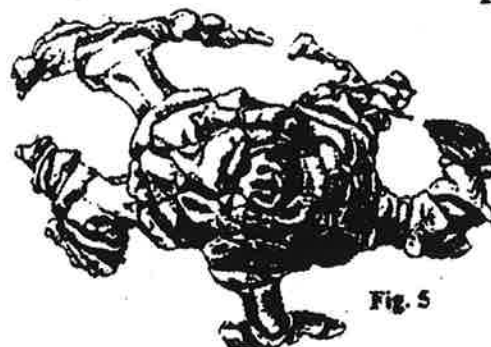


Fig. 5

Ted White has collected many nice examples of invertebrate fossils that have been a great addition to research collections. This spider-like crown of an immature *Brabeocrinus* sp. Also come from the Stoner Limestone (fig. 5).

Ted White also collected several very unusual crinoids that are called *Gloukosocrinus* (figs. 6,7). *Glaukosocrinus* is not common in the mid-continent but some very closely related forms are more common in the Pennsylvanian rocks of Missourian age in Illinois.



Fig. 7



Fig. 6



Fig. 8

This crown of *Erisocrinus typus* Meek & Worthen (fig. 8) is one of my favorites. I found it in the Bamsdall Formation of late Pennsylvanian age in northeastern Oklahoma. It is an immature crown that fits in well in a growth sequence of this species of crinoid. *E. typus* was the first fossil crinoid described from Nebraska, and it was first reported in the proceedings of the Academy of Natural Sciences of Philadelphia in 1865.

All of the above crinoids are deposited in the invertebrate paleontological collections of the University of Nebraska State Museum. They are among some of the more interesting creatures I've worked with over the years.

KEEP WATCHING THE GROUND

In the Nevada silver rush, treasure lay right at your feet!

The Nevada silver rush may be the truest example of a gold rush. In the California gold rush, like those before and after, the Forty-Niners swarmed into the land and panned the easy nuggets from the stream placers. Then the geologic pros moved in to finish the job. The mining corporations and hydraulic syndicates thrived on the deep veins and low-pay ores that the panners couldn't touch. Mining camps like Grass Valley had a chance to grow into mining towns, then into stable communities with farms and merchants and libraries.

Not in Nevada. Silver there formed strictly on the surface. Over millions of years of desert conditions, silver sulfide minerals weathered out of their volcanic host rocks and slowly turned, under the influence of rainwater, to silver chloride. The climate of Nevada concentrated this silver ore in supergene enrichments. These heavy gray crusts were often polished by dust and wind to the dull luster of a cow horn—horn silver. You could shovel it right off the ground, and you didn't need a Ph.D. to find it. And once it was gone, there was nothing left beneath for the hard-rock miner.

A big silver bed could be tens of meters wide and more than a kilometer long, and that crust on the ground was worth up to \$27,000 a ton in 1860s dollars. The territory of Nevada, along with the states around it, was picked clean in a few decades. The miners would have done it faster, but there were dozens of remote ranges to prospect on foot, and the climate was so damnably harsh.

In any one place, these "surface bonanzas" lasted only a few seasons, long enough to put up saloons and not much else. The rough, violent life of so many Western movies reached its purest state in the Nevada silver camps, and the economy and politics of the state have been deeply marked ever since.

Nevada horn silver, unlike Las Vegas silver, seems to be gone forever. The Nevada silver rush fed its own federal mint in Carson City, which made silver dollars with the "CC" mint mark. The rush also produced lots of ghost towns. Ghosttowns.com collects them all, including Silver Peak, Nevada.

geology.about.com

TINY STRAND OF SILK TELLS TALE OF MILLIONS OF YEARS

By Dale Gnidovec

When I recently renovated a room in our old barn, the hardest part was dealing with the cobwebs. They were everywhere.

Spiders have been making webs for a long time.

There was a report in the June 23 issue of the journal *Science* of the oldest known spider silk with prey trapped in it. Contained in a small amber stalactite from Spain were 26 silk strands produced by a spider that lived 110 million years ago, early in the Cretaceous period.

It is not the earliest spider silk known. That honor goes to a single strand with glue droplets found in Lebanese amber from even earlier in the Cretaceous, 130 million years ago.

Spiders have been around for much longer. A spinneret or silk spigot was found in Middle Devonian rocks near Gilboa, N. Y., indicating that spiders have been making silk for at least 380 million years.

What made the new find so interesting was the prey ensnared by the web: a fly, a mite and a wasp.

The Early Cretaceous was a time of great changes in land communities. Most land plants had been things such as ferns and conifers. Then the angiosperms, or flowering plants, took over. Now, angiosperms account for practically all of the plants we use for food.

Insects had been around since the Devonian period, but with the diversification of flowering plants, the insects also underwent a huge expansion.

A paper published on Oct. 27 in *Science* reported the oldest known bee. From early in the Cretaceous, the 100-million-year-old fossil, found in amber from Myanmar, is at least 40 million years older than other bee fossils.

It is a wonderful transitional form between pollen-eating bees and their carnivorous wasp ancestors. It is about one-tenth of an inch long. That is in sharp contrast to other fossil insects, which reached nightmarish dimensions.

Dale Gnidovec is curator of the Orton Geological Museum at Ohio State University.
gnidovec@geology.ohiostate.edu

DECOMPRESSION-DRIVEN CRYSTALLIZATION WARMS PATHWAY FOR VOLCANIC ERUPTIONS

The reason may be counterintuitive, but the more magma crystallizes, the hotter it gets and the more likely a volcano will erupt, according to a team of scientists that includes a University of Oregon geologist. The knowledge likely will aid monitoring of conditions at Mount St. Helens and other volcanic hot spots around the world.

Reporting in the Sept. 7 issue of the journal *Nature*, the researchers show that rapid crystallization of magma within one to two kilometers of the surface (about one-half to one mile) causes magma to heat up to as much as 100 degrees Celsius (212 degrees Fahrenheit).

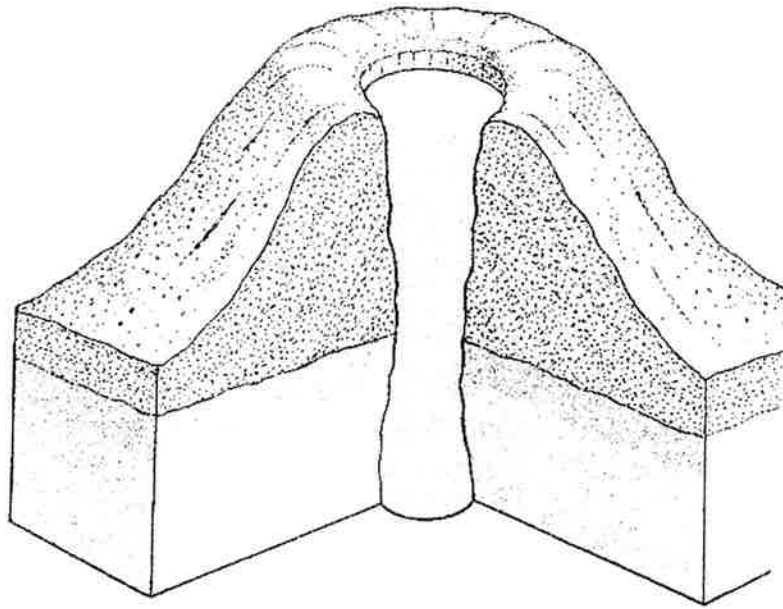
"While this sort of heating has been expected in theory, we are the first to show that we can measure it," said Katharine Cashman, a professor of geologic sciences at the University of Oregon. "These results have important consequences for models of magma ascent beneath volcanoes, as increasing the melt temperatures causes the melt viscosity to decrease so that it can flow more easily, like heating up a jar of honey to allow the honey to flow out of the jar."

Explosive volcanic eruptions are fueled by the escape of volcanic gases from magma stored in underground reservoirs and pipes several kilometers below the surface. Predicting such eruptions requires a real-time knowledge of just where the magma is at any one time and what it is doing.

"This work is now being used to gauge the direction of the volcanic activity currently happening at Mount St. Helens and could be applied to any active volcano for which monitoring and petrological records are available," said Jon Blundy, professor of earth sciences at the University of Bristol (United Kingdom), in a news release.

Cashman and Blundy have now collaborated since 1998, when Blundy took a sabbatical at the University of Oregon, on four published studies on Mount St. Helens, located 53 miles northeast of Portland, Ore. Cashman has studied the volcano and similar ones elsewhere for more than a decade.

The latest study was a follow-up to one Blundy and Cashman published in *Geology* last year (October, 2005), in which they used small pockets of melt that get trapped in crystals as they expand to demonstrate that the crystals grow by decompression as magma rises toward the surface.



That paper also showed that these crystals grow rapidly, in months rather than years. The new study refined their conclusions in *Geology* by using experimental calibrations to show the rapid heating as magma nears the surface.

"This may sound counterintuitive, but think about the need to add heat to something to melt it," Cashman said.

In this follow-up study to last year's report, the researchers were able to reconstruct changes in pressure, temperature and crystallization that occur in magma before an eruption. They showed that, as pressure decreases, crystallinity increases; the more magma crystallizes, the hotter it gets.

The finding that a drop in pressure rather than a loss of heat to surrounding rocks, as previously thought, means that there are more possibilities for eruption dynamics, the researchers concluded.

If ascending magma is able to heat itself up simply by crystallizing, they report, it may provide an important trigger for eruption without the need to invoke an extraneous heat source such as a shot of hotter magma from deep below the surface. The new findings also suggest the possibility that volcanic crystals grow in response to decompression by heating on an unexpectedly short timescale of several years, a period during which volcanoes can be more effectively monitored.

Funding for the research came from grants from the National Science Foundation to Cashman and the United Kingdom's Natural Environment Research Council to Blundy and co-author Madeleine Humphreys, a doctoral student at Bristol.

University of Oregon Date: September 20, 2006

TEXAS COUPLE MAKES JEWEL OF A FIND—6.35 CARAT DIAMOND

Murfreesboro, Ark. A Texas couple found a 6.35-carat diamond over the weekend (Sept. 23, 2006) at the Arkansas Crater of Diamonds State Park. The diamond was the eighth largest found at the site since it became a state park in 1972. It was also the largest diamond found in eight years.

Donald and Brenda Roden of Point, Texas, named their gem the Roden Diamond; they weren't certain if they would eventually sell it.

Park Superintendent Tom Stolarz said the diamond was about the same size and color as a large coffee bean. It has a somewhat distorted octahedral shape.

Since the park opened, 25,714 diamonds have been discovered. Each day, one or two diamonds are found at the park.

The park is the world's only publicly operated diamond site where the public is allowed to search and keep any gems they find.

*Michigan Mineralogical Society Conglomerate,
(Dec., 2006)*

"Professor Goddard does not know the relation between action and reaction and the need to have something better than a vacuum against which to react. He seems to lack the basic knowledge ladled out daily in high schools."--1921 *New York Times* editorial about Robert Goddard's revolutionary rocket work.

"You want to have consistent and uniform muscle development across all of your muscles? It can't be done. It's just a fact of life. You just have to accept inconsistent muscle development as an unalterable condition of weight training."--Response to Arthur Jones, who solved the "unsolvable" problem by inventing Nautilus.

NEW DINOSAUR SPECIES FOUND IN S. DAKOTA

Scientists unveil fossil of flat-headed plant eater

Reuters_ May 2 , 2005 CHICAGO - A fossil found in South Dakota is that of a never-before-seen species of dinosaur, a horse-sized plant eater with spikes on its bony flat head, scientists said Monday. "When my colleagues saw a CAT scan of the new fossil, they tore up their family tree diagrams and said, 'Back to the drawing board!' We never suspected such a creature existed," said paleontologist Robert Bakker.

Discovery of the flat-headed member of the pachycephalosaur family changes the view of dinosaur history during the final days of the Cretaceous period 66 million years ago, showing that family trees were still evolving even as the entire dinosaur world was about to go extinct, the Children's Museum of Indianapolis said in announcing the find.

The nearly complete pachycephalosaur skull was donated to the museum by three amateur fossil hunters from Iowa who found it in 2003 while exploring the Hell Creek Formation in central South Dakota.

The discovery was announced in Indianapolis in conjunction with the annual meeting of the American Association of Museums.

The museum said the pachycephalosaur family is marked by dragonlike heads covered with horns, knobs and bumps. The most famous family member, Pachycephalosaurius, had a solid, domed bone helmet up to 8 inches (20 centimeters) thick, used to ram other dinosaurs in their sides, it said.

The new species has a flat head with no bone dome. The only other flat-headed pachycephalosaurs discovered were found in China and Mongolia, but all of those had had short muzzles and no long horns anywhere on the skull, the announcement said.

The pachycephalosaurs in general all had massive necks and could inflict significant "blunt force trauma" on other dinosaurs, Bakker said.

"This new species...likely pressed their foreheads together and shoved one another really hard," he added. The museum, billed as the largest of its kind in the United States, said the fossil would become part of its dinosaur exhibit.