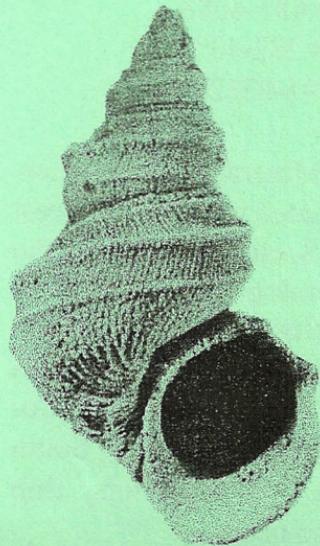


IND. IN.  
M.  
R.  
00  
61

# THE ROCKFINDER

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

SOUTH BEND, IN.  
PM  
MAR 15  
2002  
969



Perry, Martha  
58075 Potawatomi Dr  
Osceola, IN 46561

# THE ROCKFINDER

## MICHIANA GEM & MINERAL SOCIETY

### 2002 BOARD OF DIRECTORS

President.: Don Church 616-651-7616

Vice-Pres: Margaret Heinek 654-3673

Secretary: Sr. Jeanne Finske 284-5903

Treasurer: Bob Heinek 654-3673

Liaison: Sally Peltz 616-683-4088

Past Pres.: Margaret Heinek 654-3673

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.

## HEADS OF COMMITTEES

Programs Margaret Heinek 654-3673

Hospitality Pat McLaughlin 259-1501

Educational Emily Johnson

Librarian Diane Gram 272-6885

Historian Ed Miller 498-6513

Sunshine Sally Peltz 616 683-4088

Publicity Phyllis Luckert 282-1354

Field Trips Kathy Miller 291-0332

Membership All Members

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.

# THE ROCKFINDER

Newsletter of the Michiana Gem & Mineral Society

Volume 42, Number 3

March, 2002

## Meeting:

Sunday, March 24, 2002  
Doors open at 1:30 p.m.  
Meeting starts at 2:00 p.m.  
Guests are always welcome.

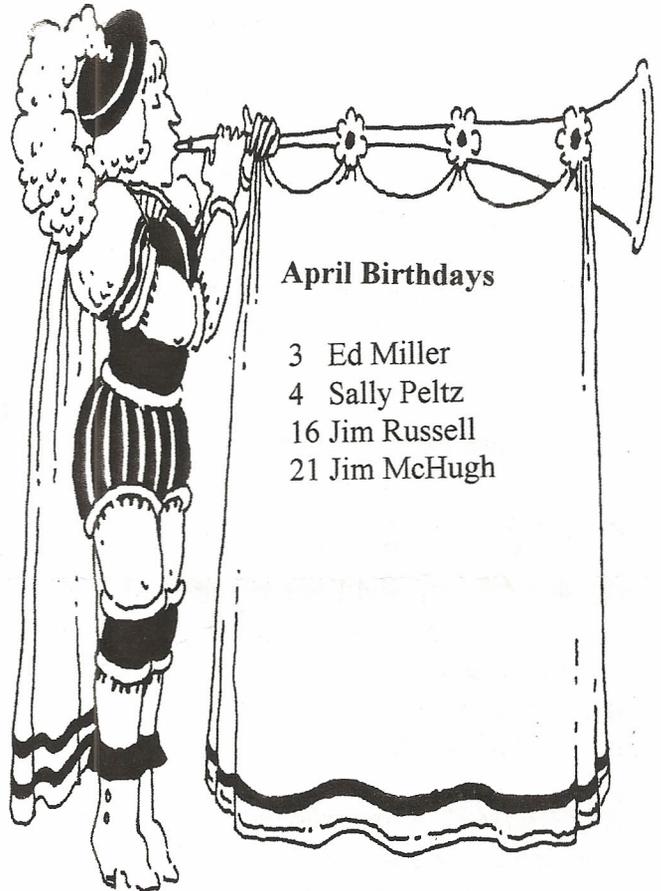


## Place:

Our Redeemer Lutheran Church  
805 So. 29<sup>th</sup> St. (19<sup>th</sup> & Wall)  
South Bend, IN

**Program:** Probably a slide program  
on the making of intarsia (inlay)  
from the Midwest Federation Library

**Refreshments:** Yvonne Church and Sally Peltz



## April Birthdays

3 Ed Miller  
4 Sally Peltz  
16 Jim Russell  
21 Jim McHugh

## UP AND COMING

Mar. 23: Metro Rock Swap, Dearborn club, Democratic Club of Taylor, MI.  
Mar. 23-24: Des Plaines Valley club show, Des Plaines Leisure Center, Des Plaines, IL.  
Apr. 4-6: Indian Mounds Club show, Breton Village Mall, Grand Rapids, MI.  
Apr. 6-7: Central Ohio Mineral, Fossil, Gem & Jewelry Show, Veterans Memorial, Columbus, OH.  
Apr. 12-14: MAPS National Fossil Exposition, Western Illinois University, Macomb, IL  
Apr. 19-21: Rocky Mountain Federation show, Enid, OK. Apr. 20-21: Greater Cincinnati Gem, Mineral & Fossil Show, Cincinnati Convention Ctr.  
Apr. 20-21: Blossomland Gem, Mineral and Fossil Show, new location, Berrien County Sportsman's Club, 2985 Linco Rd., Berrien Springs, MI.  
Apr. 20-21: Greater Cincinnati show, Cincinnati Convention Center, Cincinnati, OH.  
Apr. 27: Gem, Mineral, Fossil and Jewelry Show, Miami County Fairgrounds, Troy, OH.  
Apr. 27-28: Summit Lapidary Club and Akron Mineral Society show, Emidio Expo Center, Cuyahoga Falls, OH.  
Apr. 27-28: Eastern Federation show, Franklin, NJ.  
May 3-5: Kalamazoo Geological & Mineral Society show, Kalamazoo County Fair-grounds. (See 8,000-pound copper boulder on display.)

## WEEKEND CLUB SUBSIDIZED BUS FIELD TRIP TO SHEFFLER'S GEODE QUARRY/MINES in Alexandria, MO

The Michiana Gem & Mineral Society has a Cardinal coach chartered for October 18, 2002 through October 20, 2002. This field trip is for collecting *Keokuk area quartz lined geodes, Pyrites, Barites, Selenite needles, Dolomite, Sphalerite, Kaoline, Aragonite, Goethite, Hematite and pink Dogtooth Calcite*. Mr. Sheffler opened up a second quarry last June; both are within walking distance of each other and bulldozes them at least three times a year. You will not come home empty-handed.

The following is a brief itinerary for those going on this weekend field trip:

**FRIDAY**, October 18, meet at the K-Mart parking lot on the corner of Ireland Road and 31 South. We will board the Cardinal bus at 4:15 p.m. and leave promptly at 4:30 p.m. Your cars may be left in the parking lot for the weekend. There will be one stop on the way to Keokuk, IA, where our Fairfield Inn is. Arrival time approximately 10:00 p.m.

**SATURDAY** after enjoying an excellent complimentary continental breakfast we board the bus at 9:00 a.m. (pray for good weather), and depart for Sheffler's. We will collect until 3:30 p.m., then take time to tour Sheffler's Rock Shop; you will enjoy seeing the exterior of the place.

### UP AND COMING

May 4-5: Canadian Federation show (25<sup>th</sup> anniversary), Calgary, Alberta.

May 24-26: Flint Ridge Runners Meet and Swap, Muskingum County Fairgrounds, Zanesville, OH.

June 21-23: Gem, Mineral & Fossil Show and Swap plus MAPS meeting, Monroe County Fairgrounds, Bloomington, IN.

June 29-30: MGAGS Rockhound Seminar, Roscommon Middle School, Roscommon, MI.

July 12-14: California Federation show, Placerville, CA.

July 16-21: Combined Northwest Federation and American Federation show, Port Townsend, WA.

Aug. 16-18: Midwest Faceters Seminar, Mott Community College, Flint, MI.

**Labor Day Weekend: Michiana Gem & Mineral Society Show, Century Center, South Bend.**

**Oct. 5-6: Midwest Federation show, Springfield, IL.**

**SUNDAY** we will leave the Fairfield Inn at 9:00 a.m. for home.

### ADDITIONAL INFO:

1. Expenses: Motel Room -2 queen beds/no smoke \$64.90 per night-**\$129.80 2 nights**. Sheffler's fees - Adults-12 and up \$15 each for 50 pounds, overrun 75 cents per pound. Children under 12 free. Saturday night meal (we are looking at a family type restaurant, cheaper but good home-style cooking). Bus driver tip, and up to you if you wish to purchase anything at the fast food stops.

2. What to bring: Sheffler's will supply buckets for those that wish them but only as a loan while you are there. Bring a container for your specimens to be stored under the bus. You may prefer your own collecting bag while you are collecting. Bring a rock hammer, chisel, pick, rake, pry bar, safety glasses, boots or sturdy shoes (it can get wet/sticky in some places) **other** shoes for on the bus, dirty shoes or boots will **NOT** be allowed on the bus at any time, possibly a hard hat, be aware weather (rain gear), bug spray, extra socks, don't forget your camera.



## MINUTES OF THE FEBRUARY MEETING

In the absence of President Don Church, Vice-President Margaret Heinek opened the meeting at 2:04. We began with the program, a talk presented by Stephen Holland, who is a post-doctoral student at Notre Dame. The talk, on possible relationships between a nearby supernova and shellfish extinctions on earth, was very well received and provoked a lot of questions.

After the talk, we broke for refreshments, provided by Tom and Pat McLoughlin, and Margaret called the business part of the meeting to order. There were 41 members present and several guests. David Peltz moved that the minutes of the January meeting be approved as printed in the *Rockfinder*, and the motion was seconded and approved. Treasurer Bob Heinek read the financial report and it will be filed for audit. Margaret explained that there will be no April Gem and Mineral Show in South Bend because not enough dealers signed up to come.

Liaison David Peltz mentioned that a nice internet web site--[www.canadianrockhound.com](http://www.canadianrockhound.com)--is available for junior rockhounds. He also made mention of the current scholarship drive in the Midwest Federation, and Margaret explained that the club has given to the Endowment Fund in the name of the Scholarship Fund. Dennis Horrall invited any club members who are attending the Copper Country show in Houghton, MI, in August to contact them about spending some time at the Horralls' place in the Upper Peninsula during the show. They have plenty of bedrooms and would like to see some of our Michiana rockhounds who get up to that area.

David Peltz reminded members that he still has lots of petrified wood and miscellaneous rocks to sell. Contact him if you're interested.

Bess Wise commented on how interesting the *Rockfinder* is, and many of the members agreed with their applause.

The display table had, among other items, a selection of geodized fossils brought in by the Heineks and a selection of fossils and agates brought in by Tom Noe.

## ASTRONOMER PROBES CONNECTIONS: SUPERNOVAS AND EXTINCTIONS

By Tom Noe

At the February meeting, Stephen Holland, an astronomy postdoc at Notre Dame, passed along some recent speculations about connections between nearby supernovas and marine extinctions some 2 million years ago. The research, presented in January at the American Astronomical Society, is the work of Narciso Benitez of Johns Hopkins University. His thesis is that, two million years ago, supernovas exploded in a cluster of stars known as the Scorpius-Centaurus OB association. At that time, the cluster was very close to earth, perhaps only 130 light years away. The supernovas would have been visible during the daytime on earth, and would have released tremendous amounts of energy in the form of radiation, as well as a cloud of heavy-element particles.

Not knowing whether there were any supernovas in the cluster or not, Benitez started searching the geological and paleontological record to see if any evidence for supernovas could be seen in earth's history at about that time. Indeed, he found that deep-sea borings had previously located a two-million-year-old stratum with an abnormally high amount of iron-60, a radioactive isotope of iron which is formed in supernovas. The greatest amount of iron-60 was deposited when the cluster of stars was closest to earth.

Also, there was a very rapid extinction of shellfish at this same time. It might have been caused by a reduction in plankton, which in turn might have been caused by the supernova's destruction of part of the earth's ozone layer.

Benitez suggests that this combined evidence might point to a nearby supernova as the cause. The iron-60 definitely came from a supernova, and if the exploding star was close enough to bathe the earth in ultraviolet B radiation, it could have triggered the extinction too.

Interestingly, he also suggests that this proposed supernova might have started the Ice Age cycle, which began around the same time.

This research has been an interdisciplinary effort: an astronomer notices that a cluster of stars was once near earth. If there was a supernova within

it, this should have affected the earth somehow. He goes to geologists and paleontologists to see if any strange evidence crops up about that time. Indeed, some suggestive evidence is there. We can look forward to more research and perhaps some conclusions on this interesting problem.

## A "PIG" OF A DIFFERENT SORT

By Donald Phillips

(4th Place AFMS 2000 Original Adult Article Contest) Art work by Russell Hawley

A horse is a horse, as the saying goes, but when it comes to a fossil animal with significant differences in anatomy from its living relatives, it may be a mistake to attribute to it a lifestyle similar to that of its living relatives. This may be the case for the giant fossil "pig," *Archaeotherium*.

### Pigs

Pigs and their close relatives are found in both the old and new worlds. True pigs (*Suidae*) first appear in the fossil record during the Lower Oligocene of Europe and have remained an old world group ever since. One distinctive feature of true pigs is the outward and upward curve to their upper canine teeth, as in wild boars. Our domesticated pigs are derived from these animals and, when they run feral (as they do in the southeast U.S. today), they frequently revert back to their wild state over generations. Another group of piglike creatures, the *Tayassuidae*, commonly called peccaries (or *javelinas* in Spanish) first appear in the Early Oligocene of North America, and later in Europe, Asia and Africa. During the Pleistocene, these creatures also crossed from North to South America. Visitors to the American Southwest and Mexico can sometimes see small groups feeding at night—but beware, don't approach them! Although generally piglike in appearance, their canine teeth remain vertically oriented, showing none of the curvature found in true pigs.

The lifestyles of both groups are similar. They are omnivorous feeders, including plants and small animals in their diet, and will scavenge meat when available. They also "root"—their piggy noses are useful in sniffing out and digging up roots, tubers and

mushrooms—all those fine French mushroom-like morels are found by domestic pigs led into the forest by their human handlers. They have generally stocky bodies and are not fast runners on the open plains. Herbivores basically have two ways to avoid predation—run or hide, or stand and fight. The pig family will do a little of both, but when cornered will be a fierce adversary. In Africa, a leopard will not attempt to attack an adult mate wart hog, since the outcome is highly uncertain.

There is one final piglike group, known only from the fossil record. These are the entelodonts. These relatively large, tall creatures are found only in North America and Europe during the Oligocene and Eocene Epochs. They possessed long, narrow jaws, with eyes far back on the head, and two distinctive knoblike processes (tuberosities) on their lower jaws. They also had large flanges on the zygomatic arch below their eyes (see Figure 1). They have relatively long legs, with the radius and ulna bones on their forelegs fused. They are also two-toed (like pigs), with vestigial lateral toes.

Traditionally, their similarity to living pigs has led paleontologists to speculate that they had a similar lifestyle. Fossils indicate that they had wear grooves on the rear side of the lower jaw teeth. This could possibly result from pulling up roots—the sand and dirt associated with them abrading the posterior tooth surfaces. The strong neck muscles may also indicate a root-pulling lifestyle. It was assumed that they also had a generalist diet, with scavenging possible.

What is absolutely clear is their size. The Oligocene entelodont *Archaeotherium* was about three to six feet high at the shoulders; the Miocene *Dinohyus* was even larger—a huge creature by any measure.

### The White River Area

A large area of what is today South Dakota and eastern Wyoming possesses rocks of Oligocene age (25 to 38 million years ago). The fossils found in these sediments are of terrestrial origin, with an extensive and well documented fauna ranging from turtles, snakes and rodents to large rhinoceroses. A common fossil is *Archaeotherium*. Another common mammal is the oreodont—curious herbivores about the size of sheep which have left no descendants and may have had an equally curious lifestyle. Rhinoceroses are also well represented—Subhyracodon being common,

but also another type with nostrils and eyes high on the head—almost hippolike—and possibly aquatic like them. There was *Hyracodon*, a rhino with long, slender legs that probably could run as fast as a horse. The three-toed horse *Mesohippus* was also fairly common, as were tapirs.

Carnivores are also well represented. The larger ones include *Hyaenodon*, a primitive carnivore about the size of a black bear. Canids are represented by the dog-like *Cynodictis* and *Daphoenus*, which could be as large as modern wolves. Catlike creatures included *Dinictis*, a smallish saber-tooth felid, while the leopard-sized “false saber-tooth” cat *Hoplophoneus* ranked with *Hyaenodon* as the largest members of the order *carnivora* (true carnivores) in the ecosystem.

Finally, there was the little, long-necked camel *Poebrotherium*, only about the size of a sheep. Although camels first evolved in North America, today only the llama and its relatives remain in the Americas. During the Tertiary, many species roamed North America, ranging in size from that of goats to animals larger than today’s camels. Little *Poebrotherium* has a special place in the White River story. It was the first fossil ever described from these formations. In 1847, Joseph Leidy, the father of American vertebrate paleontology, described two specimens from the American Fur Company, a consortium of fur traders and mountain men active during the heady days of the beaver trade in the American West. Little *Poebrotherium* also is to play an important role in our story of *Archaeotherium*.

### Sundell's Hypothesis

Dr. Kent Sundell, a curator at the Tate Museum and professor at Casper College, Wyoming, has spent years collecting and studying fossils from the White River Formation (30-36 million years ago). He's seen and studied them all, and sometimes has noticed unusual things about their condition and taphonomy. One specimen that caught his attention was a slab containing multiple skeletons of little *Poebrotherium*. It contains the bones of seven camels. However, in all but one, the skeletons are lacking their hindquarters. The necks, skulls, rib cages and forelimbs remain articulated, however.

The skeletons are also densely stacked—four deep. There is also no evidence of an extensive die-off

area of camels around where the slab was found. A study of the mudstone matrix indicates that this is not a typical wash-in deposit, with no coarse sandstone as expected in a flood die-off. Also, they must have been rapidly buried—maybe within a day—since there is no evidence for disarticulation from decay or scavenging. Many of the skull crania are crushed, yet there's no evidence that the brains were eaten (curiously, a large number of skulls of *Archaeotherium* that are found elsewhere also have crushed crania). Most tellingly, there are bite marks on the back of the skulls and neck vertebrae of the camels. On comparing these bite marks to known carnivores of that time, he found no match. However, the bite marks (which align from the rear and side of the camel's head and neck) correspond perfectly with the cusp spacing and jaw width spacing of the premolars of a medium-size *Archaeotherium* skull (60 cm). On the one complete specimen with hindquarters, he also found a broken section on the lumbar (lower back) vertebrae—the section equal to the width of *Archaeotherium* jaws!

Bill Wahl and Dave Lovelace analyzed the jaw mechanics of *Archaeotherium*. The coronoid process on the lower jaw is very low and the articulation between the lower jaw and skull is far back on the head. This would allow the jaws to open widely (see figures 1 & 2). The back of the jaws is also very wide, indicating a huge throat that could gulp down large chunks of food. The four premolars are pointed and triangular, and even serrated in the juveniles of the species (serration is common in carnivore teeth, but not in herbivore).

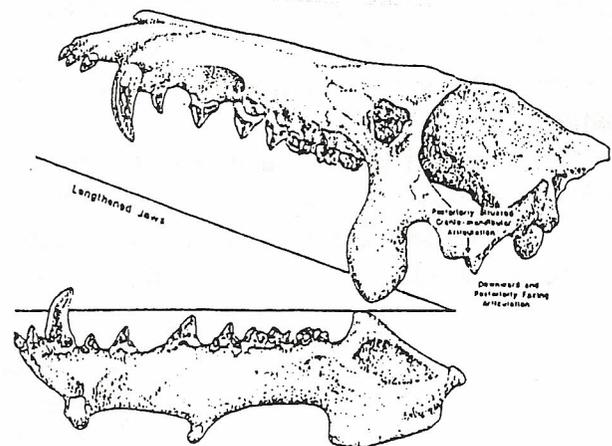


Figure 1. *Archaeotherium* skull. Note position and form of jaw articulation

Dr. Sundell hypothesizes that these camels were actively hunted and killed by *Archaeotherium*. The “pig,” probably a fast runner (long-legged), could have run up alongside a camel, turned its huge, gaping jaws toward it, and “snapped” down hard on the back of the skull and neck, killing the hapless little beast almost instantly. They could then carry the camel by the waist (broken lumbar, above) to a place to feed, or store the meat at a cache site. The hindquarters have

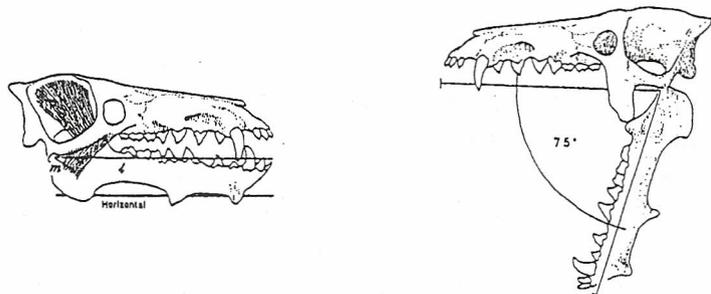


Figure 2. *Archaeotherium* jaw musculature and gape.

a lot of meat, and he postulates that the *Archaeotherium* preferentially broke off the meaty hindquarters whole and gulped them down pelvis-first, leaving the bonier front of the carcass to eat at a later time. Carnivores faced with easy, abundant prey frequently only eat preferred parts, leaving the rest. Thus, the slab represents a meat cache site for the “pig” (see figure 3). One should note, however, that this does not negate the possibility that *Archaeotherium* could also scavenge meat and eat roots (remember those wear marks on lower teeth) and other vegetation like modern pigs. Also, this same killing strategy could have been used in intraspecific combat between the “pigs”—hence, all those crushed *Archaeotherium* skulls found in the White River Formation.

All well and good, you might say, but are there other explanations? Maybe an *Archaeotherium* found a bunch of dead camels and scavenged them. But, if so, why would they crush the skulls if they're

Figure 3. A reconstruction of the *Archaeotherium* meat cache site.



already dead? Remember, the brains were uneaten. O.K., but what if the cache belonged to carnivores like *Hyaenodon* or *Hoplophoneus*? Forgetting the excellent match between the bite marks and *Archaeotherium*, Dr. Sundell has found many other species whose bones apparently have been disarticulated by carnivores (including oreodonts). But these camel skeletons show no sign of similar carnivore disarticulation.

It is always problematic to try to describe the behavior of extinct animals from their fossils, especially when they differ significantly anatomically from modern ones. But the case made above has some pretty hard evidence—especially those bite marks—that make this conclusion feasible. In the end, the behavior of the “pig” might also not be “kosher” as compared to that of its modern relatives.

#### References:

- Carroll, Robert. 1988. *Vertebrate Paleontology and Evolution*, W.H. Freeman.
- Romer, Alfred S. 1966. *Vertebrate Paleontology*, University of Chicago Press.
- Sundell, Kent A. *Taphonomy of a Multiple Poebrotherium Kill Site—an Archaeotherium Meat Cache*. Poster at the Society of Vertebrate Paleontology Annual Meeting, Oct., 1999, Denver, Colorado.
- Sundell, Kent A. *Archaeotherium* kill site, personal communication. March, 2000.

*Newsletter of the NY Paleontological Society*  
(May, 2000)

**GEM CARE**

By John Harvey

Although gemstones are among the most durable of substances, they do need some care. Following a few general rules will make sure they last for generations still looking like the day you bought them.

First of all, keep them clean! Rings in particular tend to collect dust and soap behind the stone, particularly if you wear them all the time. To clean transparent crystalline gemstones, simply soak them in water with a touch of gentle hand soap. If necessary, use a soft toothbrush to scrub behind the stone. Even the hardest gemstone variety can be vulnerable to breakage if it has inclusions that weaken the crystal structure. Exercise common sense. If you have a ring set with a softer gem variety or an included stone, take it off before strenuous exercise.

Diamonds are very hard, but can shatter in two with a single well-placed blow. Rubies and sapphires are the toughest gems, but even they can chip if hit sharply. Think twice before putting gems in an ultrasonic cleaner. Diamonds, rubies and sapphires will be fine, but many other gems—especially emeralds—may not be. When in doubt, leave it out. Diamonds, rubies, sapphires and other single crystal gems can be cleaned in water to remove all films and add extra sparkle.

Opaque gemstones such as lapis lazuli, turquoise and malachite require special care. Never use an ultrasonic cleaner and never use ammonia or any chemical solution. These gem materials should just be wiped gently with a moist cloth. These gemstones can be porous and may absorb chemicals, even soap, which may build up inside the stone and cause discoloration. The reason these materials need more care than transparent gemstones is that these materials are essentially rocks—not crystals of a single mineral. Think about it, when you put a rock in water, it absorbs the water and is moist all the way through. A single crystal gem like sapphire will not absorb water—all the molecules are lined up so tightly in the crystal that there is no room for water to enter.

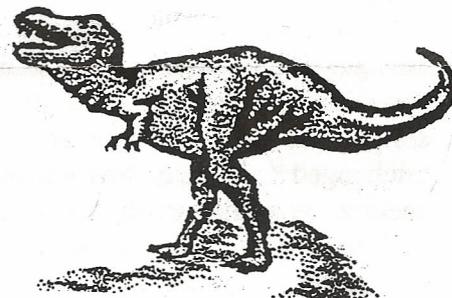
Opals also require special care. Never use an ultrasonic cleaner, never use ammonia, and avoid heat

and strong light which can dry out the water in opals.

Organic gems such as pearls, coral and amber should only be wiped clean with a moist cloth. Due to their organic nature, these gems are both soft and porous. Be careful about chemicals in hair spray, cosmetics, or perfume—they can, over time, damage the gems, pearls in particular.

Store each piece of jewelry separately so that harder stones do not scratch softer ones. Almost every gemstone is much harder than the metal it is set in. Gems can scratch the finish on your gold, silver or platinum if you throw your jewelry in a heap in the drawer or jewelry box.

*Rockin' Around* (Jan., 2001)

**FOSSIL NEWS**

By Keri Dearborn

Paleontologists in southwestern Saskatchewan, taking a break from unearthing a T-rex skeleton, noticed a “whitish gray mass” sticking out of the ash hillside. What they found was a piece of coprolite 17" long, 5" high and 6" wide. Throughout the mass were fragments of bone. The crushed pieces of bone were jagged and pointed, proving that they passed through the stomach of some meat-eating creature rather rapidly. The only known carnivorous dinosaur in the area 67 to 65 million years ago large enough to create such a large dung specimen was T-rex. The contents of the coprolite provide evidence that T-rexes were strong enough to crunch bone and help to give us an idea of how its digestive system worked. And I bet you thought poop was worthless.

*Del Air Bulletin* (Dec., 1998)

## “Punk Ek”: Niles Eldredge, Stephen J. Gould and Punctuated Evolution

By Sam Shapiro

Charles Darwin was troubled by the fact that the fossil record in his day did not reveal any of the intermediate stages that would be expected in gradual evolution by natural selection. He hoped that these gaps would be revealed by future discoveries, but he confessed that “he who rejects these views on the nature of the geological record will rightly reject my whole theory.” In recent years many of these intermediate stages—snakes and whales with legs, anthropoid ancestors of *homo sapiens*—have been found, but many species still have no intermediate stages, or are still without any fossil ancestors at all.

In the 1960s Niles Eldredge made an intensive study of the trilobites, which lived from about 540 million to 245 million years ago. He was seeking to document their evolution through intermediate stages, but was troubled when he found none. One trilobite species lasted eight million years without change. Eldredge concluded that he had discovered something important—that the fossil record was simply showing him that stasis, a long period of unchanged existence, was normal for at least some species, and that evolution might proceed in occasional rapid spurts—in tens of thousands, instead of millions, of years. Creationists were delighted by the division in the ranks of paleobiologists. One of them happily wrote that “it is undeniable that the credibility of our religious and scientific position has been greatly strengthened by the recent lapse in neo-Darwinian morale. And this is something we should exploit to the full.”

The controversy continues. You can find further information in many recent books, for example, *The Evolutionists: The Struggle for Darwin's Soul* (2001), with its extensive bibliography of articles, books and internet sites.

Stephen J. Gould's study of land snails in the Caribbean at about the same time was revealing the same phenomenon—long periods without any change at all, and then a short period when new species arose. Gould and Eldredge, like Darwin and Alfred Wallace, put their findings together, and published a paper entitled “Punctuated Equilibria: an Alternative to Phyletic Gradualism,” in 1972. It

gave rise to a great deal of controversy, as orthodox Darwinists came to the defense of the idea of natural selection taking place over millions of years. One critic derided the idea of “punk ek,” as a theory of “evolution by jerks.” Another charged that Gould and Eldredge had concocted a Marxist “revolutionary” tract masquerading as a serious scientific idea.

## INTELLECTUAL PASTIMES MAY PREVENT ALZHEIMER'S

Although there have not yet been enough studies, adults with hobbies that exercise their brains appear to be less likely to have Alzheimer's disease.

A survey of people in their 70's showed that those who regularly participated in hobbies that were intellectually challenging during their younger adult years tended to be protected from Alzheimer's while those whose main leisure activity is dominated by TV watching tended to have an increased risk.

The finding supports other studies showing that brainpower unused is brainpower lost.

*Baltimore Sun* (Mar. 6, 2001)

