THE ROCKFINDER

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

MICHIANA GEM & MINERAL SOCIETY, INC.

AFMS

SCRIBE

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THE ROCKFINDER

October, 1997

MICHIANA GEM & MINERAL SOCIETY

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The purpose of the Michiana Gem & Mineral Society is to promote interest in and study of the earth sciences and the lapidary arts, and the sharing of 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. Exceptions include field trip meetings, May (third Sunday), June (field trip), July (no meeting), August (club picnic) and December (Christmas party).

Board meetings are held the second Wednesday of each month at 7:00 PM, St. Joseph County Public Library, basement level.

The annual club show is Labor Day weekend.

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. Staff: Editor, Tom Noe, 305 Napoleon Blvd., South Bend, IN 46617. Co-editor, Herb Luckert, 221 Marquette Ave., South Bend, IN 46617. Reporters, Bob Heinek, Herb Luckert, club members.

All contributions for publication should be in the hands of the editor by the 10th of each month. Call 289-2028 or 282-1354. Permission is hereby granted to reprint any original *Rockfinder* articles, as long as due recognition is given along with the reprint.

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Yearly Membership Dues (Payable by January 1)

_____Individual $6.50 per year
_____Family $10.00 per year
_____Junior $2.00 per year

Please indicate areas of special interest.

General Geology___ Beads___
Gems & Minerals___ Silversmithing___
Fossils___ Artifacts___
Cabochons___ Rockhound___
Faceting___ Crystals___
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Address_____

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Please send your dues and this form to
Michiana Gem & Mineral Society
c/o Margaret Heinek
7091 E. East Park Lane, New Carlisle, IN 46552

Name_____Birth Mo/Date____
will attend meetings, yes__no__

Name_____Birth Mo/Date____
will attend meetings, yes___no___

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will attend meetings, yes___no___

Name_____Birth Mo/Date____
will attend meetings, yes___no___

Wedding Anniversary Mo/Date_____

Phone_____

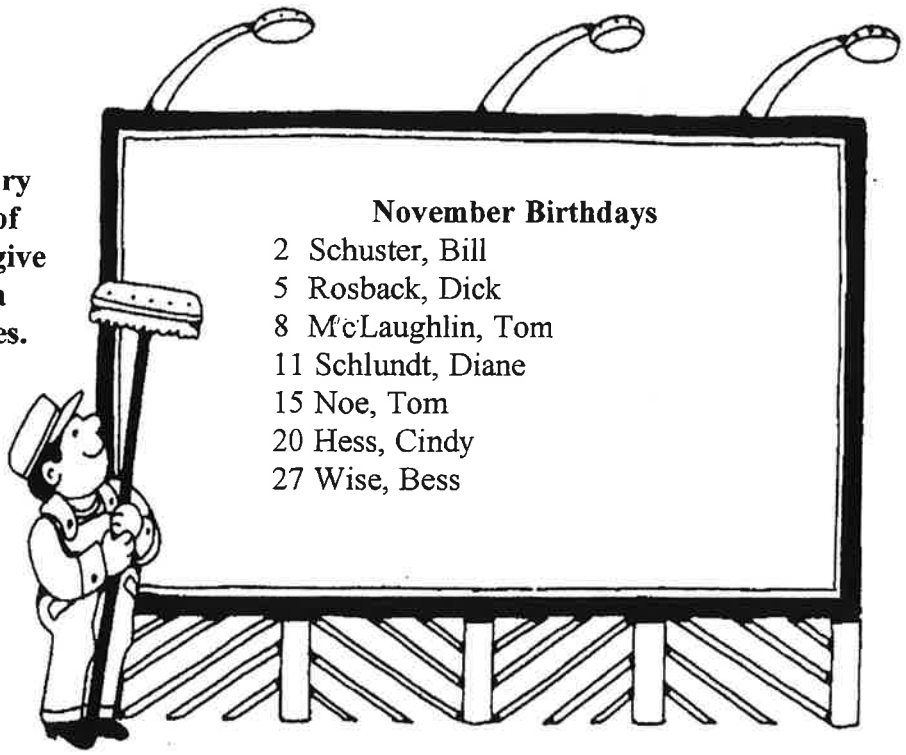
THE ROCKFINDER

Newsletter of the Michiana Gem & Mineral Society

Volume 37, Number 8 October, 1997

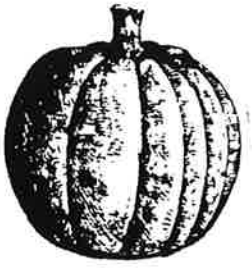
No meeting in October.
See Margaret's column.

For 1998 we are updating the birthday and anniversary list. We know your birthday and anniversary dates have not changed but much of our data is missing. Please either give the information to Marie Crull at a meeting or include it with 1998 dues.



November Birthdays

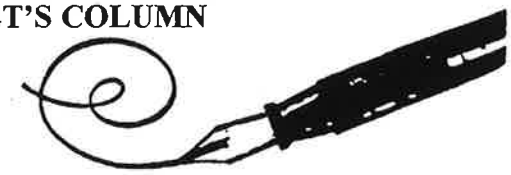
2 Schuster, Bill
5 Rosback, Dick
8 McLaughlin, Tom
11 Schlundt, Diane
15 Noe, Tom
20 Hess, Cindy
27 Wise, Bess



UP AND COMING

October 24-26--Gem & Mineral Show, Marshall Street Armory, Lansing, MI.
October 24-26--Midwest Federation Show and Convention, Davenport, IA.
November 7-9--Show sponsored by Midwest Faceters Guild, Dearborn Civic Center, Dearborn, MI.
November 14-16 Great American Show, 6200 Riverside Drive, Cleveland, OH.
November 28-30 Geodon Gem Shows, Wheaton, IL.

MARGARET'S COLUMN



This is a busy month for several of the members of the Michiana Gem Society, since the AFMS and Midwest Federation shows and conventions are being held.

We will not have a meeting this month, but I wanted you to know why. Bob and I, as well as Kathy and Bob Miller are leaving the 13th for Jackson, Miss. We will all return the 20/21st and will leave the 23rd (Thursday) for the Midwest Federation meetings in Iowa. Bill and Marie Crull will also attend the MWF meetings, Bill as the MWF Show Chairman, Marie as our club delegate. There will be a vote there on possibly raising the dues that all clubs send each year to the MWF.

We will not be back until late on the 26th, which would usually be our club meeting. The next meeting will be the 23 of November, at which time we will have our election of officers. Make an effort to attend that meeting; it is important that you have a say-so in who you would like as officers for 1998. The nominating committee has announced their selection, but if you would like to nominate any one for any office, DO SO with their permission.

We would like to up-date our birthdays and anniversary list, so if you would please write down your names on a piece of paper with the dates and give them to the secretary in November, we would appreciate it. Whoever takes over the sunshine committee will have an up-dated list, and you won't be forgotten on those "important" dates in 1998. (Don't need the year, just dates).

If you missed the program in September on "bead making" you missed a very good one. But she will return for another session after New Years. I do not have the date right now, but we will let you know.

Have a good month, and we will see you in November.

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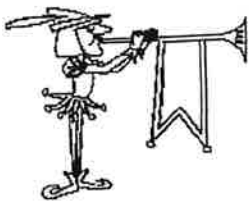


1998 OFFICERS WILL BE ELECTED AT THE NOVEMBER MEETING

The nominating committee has proposed the following slate of officers for next year:
President--Margaret Heinek
Vice-President--Sr. Jeanne Finske
Treasurer--Diane Gram
Secretary--Marie Crull and Pat McLaughlin
Liaison--Mike Slattery

The election will take place at the November club meeting, and all members are urged to be present. Nominations may also be made from the floor at that time. If you wish to nominate someone, please check to see whether the person is willing to serve in that office. Note: current plans involve moving the monthly meeting of officers from the second Wednesday night to just before the club meeting on the fourth Sunday.

Applying computer technology is simply finding the right wrench to pound in the correct screw.

MINUTES OF THE MICHIANA GEM AND MINERAL SOCIETY MEETING HELD SEPTEMBER 28, 1997

President Heinek opened the meeting at 2:05 P.M. She was so glad to see so many there and asked if everyone had a good time on the field trip. Everyone answered yes.

Sister Jeanne made a motion to accept the minutes as printed in the *Rockfinder*, seconded by David Peltz.

Pam Rubenstein gave the treasurer's report about the September show. It will be filed for audit.

President Heinek thanked Margaret Schultz, Kathy Miller and Tom McLaughlin for the good job done on the trip.

Marie Crull reported on the picnic for next year which will be August 16, 1998 at Clay Park, south shelter. There will be no charge.

A motion was made for Mike Slattery to send a letter of appreciation for the excellent service by the motel staff during the field trip, seconded by Tom McLaughlin.

Bob Heinek had raffle tickets from the American Federation and Facetor's Guild for anyone to purchase.

President Heinek said the next board meeting would be October 8th at the St. Joseph County Public Library at 7:00 P.M.

Tom Noe presented the slate for the coming year as follows:

President	Margaret Heinek
Vice-Pres.	
Secretary	Marie Crull (May-Dec)
	Pat McLaughlin (Jan-Apr)
Treasurer	Diane Gram
Liaison	Mike Slattery

There is no club meeting next month because of the Midwest Federation Show that some members are attending.

Club members showed specimens from the field trip in September.

Hospitality was handled by Margaret Schultz and Joan Rosback. Nice job, ladies!

Edie Simmons gave our program on lampwork beads which was very interesting.

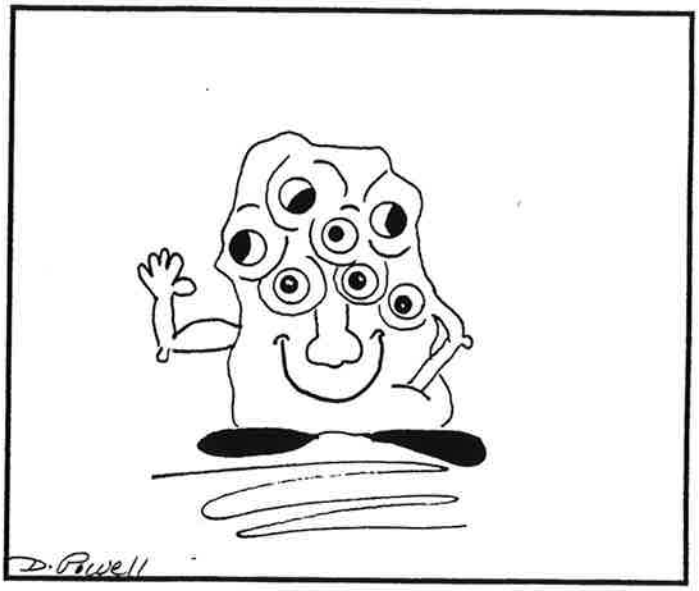
Door prizes went to Sally Peltz, Sister Georgia, Sister Jeanne and Lauren Slattery.

There were 25 adults and 1 junior present at our meeting.

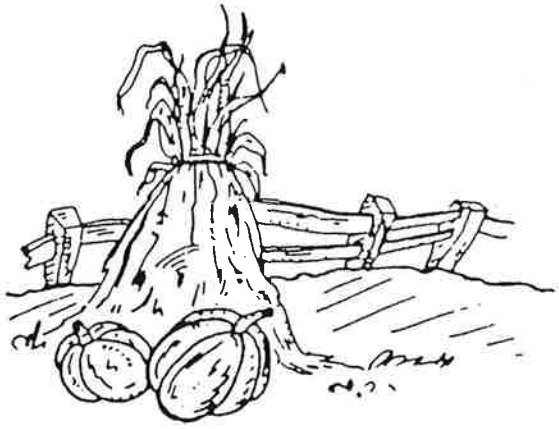
David Peltz made a motion to adjourn the meeting.

Respectfully Submitted
Marie Crull, Secretary

Crystal Faces by Darryl Powell



Mr. Agate's friends never did know which eye was really looking at them.



HOURGLASS GYPSUM

One of the wonders of the mineral kingdom is the occurrence of hourglass shaped inclusions of sand grains within gypsum crystals.

The most famous, but not the only, locality for these is in the clays of the Great Salt Plain in Alfalfa County, Oklahoma. Here, in a 30-square-mile area, the Salt Fork of the Arkansas River has deposited a delta of sand, silt and clay on top of salt beds of Permian age. Ground water flowing through the salt and upward into the river sediments precipitates halite crystals on the surface. Within two feet of the surface, these same waters have deposited many gypsum crystals. One can dig up single, twinned and clusters of well-formed gypsum crystals over 4 cm. long. Some of these crystals have abundant brown to pinkish sand inclusions, forming an hourglass pattern in otherwise clear gypsum. The sand inclusions range from 1 mm to 0.1 mm. in diameter, and narrow waspishly to a point in the center of the crystal (Fig. 1). Some areas of the Plain have been specifically set aside for rockhound digging, which is best done in dry weather.

The formation of such patterns seems mysterious, but has a relatively simple explanation. It relates to two aspects of the growth rate of gypsum.

First, the number of sand particles included in a crystal depends on the speed at which a crystal grows. When a crystal grows slowly, its faces are able to push aside the surrounding sediments, forming few inclusions. If the crystal grows fast, exceeding a critical speed, sediment particles are surrounded and engulfed by the crystal, resulting in many inclusions. This critical speed depends on the particular mineral and the size of the surrounding sediment particles. In general, the inclusion of smaller particles require a faster rate of growth because they are otherwise easily pushed aside.

Second, many crystals grow at different speeds in different directions. As an analogy, kids tend to grow fastest in a vertical direction but adults faster in a horizontal direction. In crystals, the difference in growth rates relate to the internal symmetry of the mineral. In the Oklahoma gypsum, the growth rate is *fastest* parallel to the a crystal axis, thus parallel to the long direction in the crystal. Fig. 2 shows a highly magnified view of several early stages in the growth of a gypsum crystal. The sand in each successive stage is preferentially included on certain faces. If one adds hundreds or thousands of other stages to this, and imagines looking at a less magnified view, an hourglass crystal like Fig. 1 will result.

So the recipe seems to be: take a clear mineral, grow it in sand or silt, at a fast rate, with particular faces growing at different rates in different directions. Such a combination, though rare, will form hourglasses.

Fig. 1. Hourglass gypsum.

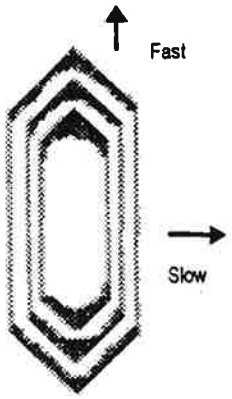


Fig. 2. Magnified growth stages in hourglass gypsum formation.

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Kastner, Miriam, 1970, "An Inclusion Hourglass Pattern in Synthetic Gypsum," *The American Mineralogist*, vol. 55, pp. 2128-2130.

Slaughter, C.B. and Cody, R.D., 1989, "Geochemistry of Near-Surface Ground Water, Great Salt Plain, Alfalfa County, Oklahoma," *Oklahoma Geology Notes*, vol. 49, pp. 200-223.

— Bill Cordua, University of Wisconsin — River Falls,
Leaverite News, St. Croix Rockhounds,

Chemical Compositions of Minerals

What do you know about each of the following minerals? You know that galena is an important ore of lead. When a chemist separates galena, he/she finds two kinds of matter: lead and sulfur. The symbol for lead is Pb and the symbol for sulfur is S. So the chemical formula for galena is PbS. Think about which chemical elements these minerals are composed of, then correctly list each mineral next to its chemical formula.

barite	calcite	chalcopyrite	cinnabar	corundum
fluorite	galena	halite	hematite	pyrite
quartz	rhodonite	rutile	smithsonite	sphalerite

Chemical Elements	
Al	aluminum
Ba	barium
C	carbon
Ca	calcium
Cl	chlorine
Cu	copper
F	fluorine
Fe	iron
Hg	mercury
Mn	manganese
Na	sodium
O	oxygen
Pb	lead
S	sulfur
Si	silicon
Ti	titanium
Zn	zinc

Al_2O_3 _____

$BaSO_4$ _____

$CaCO_3$ _____

CaF_2 _____

$CuFeS_2$ _____

Fe_2O_3 _____

FeS_2 _____

HgS _____

$MnSiO_3$ _____

$NaCl$ _____

PbS _____

SiO_2 _____

TiO_2 _____

$ZnCO_3$ _____

FROM: HY GRADER; JUNIOR CLUB NEWS PAGE by Karen James

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A continuation of student comments gleaned from essays, examinations and classroom discussions. These beguiling theories are in no way hypothetical. They are all real and attest to the high level of scientific literacy in our nation.

by Paul Sparks on the internet 1/97

You can listen to thunder after lightning and tell how close you came to getting hit. If you don't hear it, you got hit so never mind.

A major discovery was made by Mary Leaky, who found a circle of rocks that broke wind.

The skeleton is what is left after the insides have been taken out and the outsides have been taken off. The purpose of the skeleton is something to hitch meat to.

Genetics explains why you look like your father and if you don't why you should.

Hot lather comes from volcanoes, when it cools it turns into rocks.

GIGANTOSAURUS
KING OF THE DINOSAURS

By Randall Mikkelsen

The new owner to the title "King of the Dinosaurs"' took its place of honor in a Philadelphia museum on June 13th and left *T. rex* skulking in the background.

The first reconstructed skeleton of *gigantosaurus*, a fearsome, flesh-ripping predator whose bones were discovered in Argentina in 1993, went on display at the Academy of Natural Sciences of Philadelphia. The dinosaur was an estimated 45-47 feet (14 meters) long and weighed about eight tons when it roamed what is now South America about 100 million years ago. It eclipses *Tyrannosaurus rex* as the largest meateating dinosaur ever known.

"It deserves that title," museum paleontologist Ted Daeschler said of the new dinosaur. "That's hard to talk about scientifically but certainly in the public eye," he said. The *T. rex* skeleton is still imposing but now is looking like a younger sibling of the new attraction by about 30 million years.

The two dinosaurs were roughly similar in appearance, with tall rear legs, tiny forelegs, large heads and big teeth. But *gigantosaurus*, whose name means "giant southern reptile," had three fingers or toes on each limb, compared with *T. rex*'s two.

Its head was relatively narrow, and it had daggerlike teeth, as opposed to the wider skull and conical, bonecrushing teeth of *T. rex*.

Scientists speculate that *T. rex* was a scavenger, while *gigantosaurus* hunted live prey, possibly even the 100-foot-long plant-eating dinosaurs it lived alongside.

The dinosaurs were members of different families and were widely separated by age and geography. *T. rex* lived around 65 million years ago and lorded over North America. The gap makes their superficial similarity all the more interesting, Daeschler said.

via *Smoke Signals* (July, 1997)

Ako Akoa Eleele (Black Coral)

For countless numbers of years the Hawaiians found segments of hard, jet-black gem-like stones washed up on their Island shores. These findings were rare and their source of origin remained a mystery. The Islanders handcrafted and polished these black ocean gems into jewelry and charms. To the Hawaiians, these gems signified "true love" and were regarded by them as precious as diamonds. Not until 1958 was the mysterious source of these black gems revealed.

It was while laying fish traps in the deep waters between Lanai and Maui that a group of Island skin divers chanced upon a fantastic and exciting discovery. They found intricate black, branching animal growths, eerie and graceful, spreading out in forests of stunted "Bonsai" type trees. Here was the mysterious source of Ako Akoa Eleele!

Like all gems of high value, Black Coral is rare and exceedingly difficult to obtain. Beds of Black Coral are found at depths of over 200 feet, and exact locations are closely-guarded, well-kept secrets. Adding considerably to the hazards of Black Coral "ocean mining" are the ever-present and extremely dangerous tiger sharks and the skin divers most dreaded occupational peril, the bends.

Using the methods of their ancestors, Hawaiian craftsmen have skillfully fashioned this Black Coral into rare and exqusite designs of authentic Hawaian jewelry. Here is Ako Akoa Eleele.

- Mr & Mrs H Lambeth (Hawaii)
via Gemstone Diggings

ODDITIES OF OBSIDIAN

by Dolores E. Rose

Obsidian is an extrusive igneous rock formed when the magma of an erupting volcano reaches the earth's surface and cools rapidly. It is an extrusive rock because it was pushed out onto the surface. The cooling of the extrusive rock occurs so rapidly that the magma doesn't form minerals at all but a volcanic glass.

It derives its name, according to Pliny, an ancient Roman naturalist, from a fellow named Obsius, who found it in Ethiopia. Originally it was named "*obsianus lapis*," but the spelling was changed over the centuries to its modern form.

Obsidian occurs in many colors, black being the most common. It can also be red, brown or even green. It can contain inclusions of magnetite, ilmenite, iron oxide, potassium oxide, sodium oxide, lime and magnesium. It is composed of 66-77% silica, with about 13-18% alumina. Magnetite most likely gives obsidian its black color, and oxidized magnetite or hematite the reds and browns.

With slow cooling, silica crystals called cristobalite form, giving the "snowflake" obsidian or "flowering" obsidian. Iridescence reflected from many minute inclusions arranged in layers is known as "rainbow obsidian." Another kind with gold inclusions, with a strong metallic luster, is called "gold sheen obsidian" and if the inclusions are grayish silver in color, it's called "silver sheen obsidian."

Obsidian is interesting in many ways, but mainly because, for all practical purposes, it is a true glass. It has a hardness of 5-5.5 on the Mohs hardness scale. It represents a quickly congealed mass of molten rock, for if it had time to cool slowly it would have crystallized into a rock similar to granite or rhyolite. It shows no trace of crystalline structure nor does it possess any established composition, and must be considered a rock instead of a mineral. It is amorphous, having no regular internal arrangement of atoms, as crystals do. The word "amorphous" is taken from the Greek and means "no form," because there is no pattern to amorphous materials. The atoms are jumbled together in small groups like particles in a pile of sand. It is extremely brittle and breaks easily with shiny, conchoidal fractures -- a feature so perfectly developed that it is easily identifiable in the field. It is translucent and will not soften when heated to a bright red.

Obsidian is found throughout the western United States, mostly in Alaska, Colorado, Utah, New Mexico, Arizona, Wyoming, Oregon, Nevada and California. It is also found in British Columbia and throughout Mexico.

American Indians valued obsidian highly. Its perfect texture and easy fracture made it a prized possession for chipping into arrowheads and large ceremonial spear points.

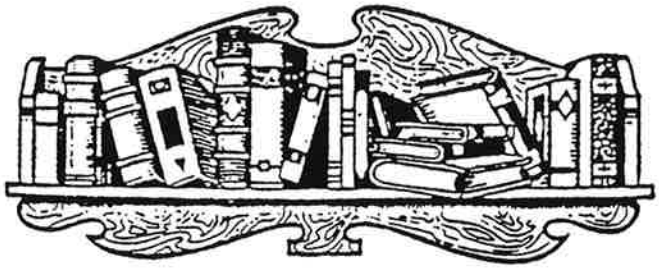
The Aztecs called obsidian "*iztli teotetl*," or "divine stone," because of its usefulness in carvings and ceremonial blades. One of their gods was named "*Itzoppzlotl*," meaning "obsidian butterfly."

Obsidian is also used to make attractive jewelry, as cabochons or faceted. Thin slabs can be cut with a common glass cutter. Due to its extreme heat sensitivity, great care must be taken in working obsidian. Industries use obsidian as a raw material to make rock wool. Surgeons have even used thinly chipped obsidian knives in surgery because of the fine, exact cut an obsidian knife makes.

References:

Rocks & How They are Formed, Herbert S. Zimm
Simon & Schuster's Guide to Rocks & Minerals, edited by Martin Prinz, George Harlow and Joseph Peters
Gemstones of North America, John Sinkankas
Gem Cutting, John Sinkankas

From *TGMS Rock Talk* (December, 1995)



FOR FURTHER READING....

Researchers at an ancient lake site in Cuenca, Spain, have announced the find of three-dimensional dinosaur soft tissues. The tissues are mineralized, and come from an ornithomimosaur of the early Cretaceous. The tissues are preserved in both positive and negative, as impressions in microbial mats which formed over the tissues in the decaying carcass. The tissues confirm the existence of a soft occipital crest as well as a pouch near the throat.

Journal of the Geological Society, London
Vol. 154, pp. 587-8

STREAKING MINERALS!
By Dr. Bill Cordura

Streak tests are easy tests which are helpful in mineral identification. The streak is simply the color of the powdered mineral. It doesn't matter how the mineral is powdered; you can scrape off some with a nail or pound the mineral to bits with a hammer. More commonly, mineralogists use a streak plate, a piece of unglazed porcelain usually cut in a square or hexagon a few inches across. Streak plates have a hardness of about 6.5, so if you want to test the streak of anything harder, get out the hammer! Streak plates can be bought from most mineral supply houses. For example, the latest Ward's Natural Science Establishment catalog lists them at 10 for $2.90. When they get dirty they can be cleaned by scrubbing them with an old toothbrush. I often use some sand with the water to scour off resistant streaks. If they get too dirty, heck, toss them out; they cost less than 30 cents each. When I was a kid, I used the back of old bathroom tiles to make an even cheaper streak plate.

Why do a streak test instead of just looking at the color of the bulk mineral? The color of a larger chunk of mineral can really vary, depending on what trace elements or impurities may be present. Calcite, for example, can be any color of the rainbow (and a few that aren't on any rainbow). But calcite always has a white streak. So why don't the impurities color the streak? They do, but only to a slight extent. This is because light going through a small grain of a mineral has less chance to interact with the impurities than light going through a big chunk of the material. Powdering the material thus minimizes the effect of the impurities.

Streaks are most useful in identifying the oxides and sulfides. Silicates and carbonates generally have white or light-colored streaks. The oxides are fun to streak. Hematite's red streak is distinct from goethite's yellow-brown streak and pyrolusite's coal-black streak. Sphalerite is another mineral that can be lots of colors, but gives a yellow streak.

The streak of rock materials, in contrast to minerals, is generally not distinctive. They usually give a light streak that reflects their dominant silicate or carbonate composition. If they give a red or brown streak, it suggests the presence of iron oxides. Of course, if the rock is coarse-grained, you can try the streak test on the individual mineral grains.

Mineral databases and texts sometimes list the streak colors and sometimes don't. It depends on the tastes of the author and the data available. All minerals have streaks (you can powder anything if you put your mind to it) but they may not be too distinctive (hundreds of minerals have white streaks). I think that, when a new mineral is described, the streak should always be included. After all, the material had to be powdered in order to do its microprobe or X-ray analysis, so all someone needs to do is remember to record the color. That would be a real help to those of us who don't have well-equipped analytical labs in our basements.

Dr. Cordua is professor of geology/mineralogy at the University of Wisconsin, River Falls WI 54022.