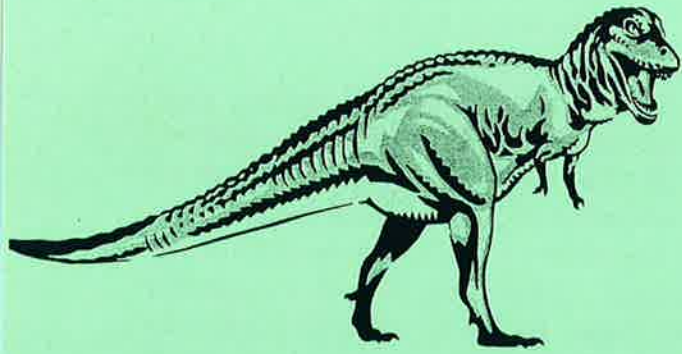


THE ROCKFINDER

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



THE ROCKFINDER

SEPTEMBER, 2000

MICHIANA GEM & MINERAL SOCIETY

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

General meetings are 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), June (field trip), July (no meeting), August (club picnic) and December (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.

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THE ROCKFINDER

Newsletter of the Michiana Gem & Mineral Society

Volume 40, Number 7

September, 2000

Meeting: There is no meeting this month other than the field trip.

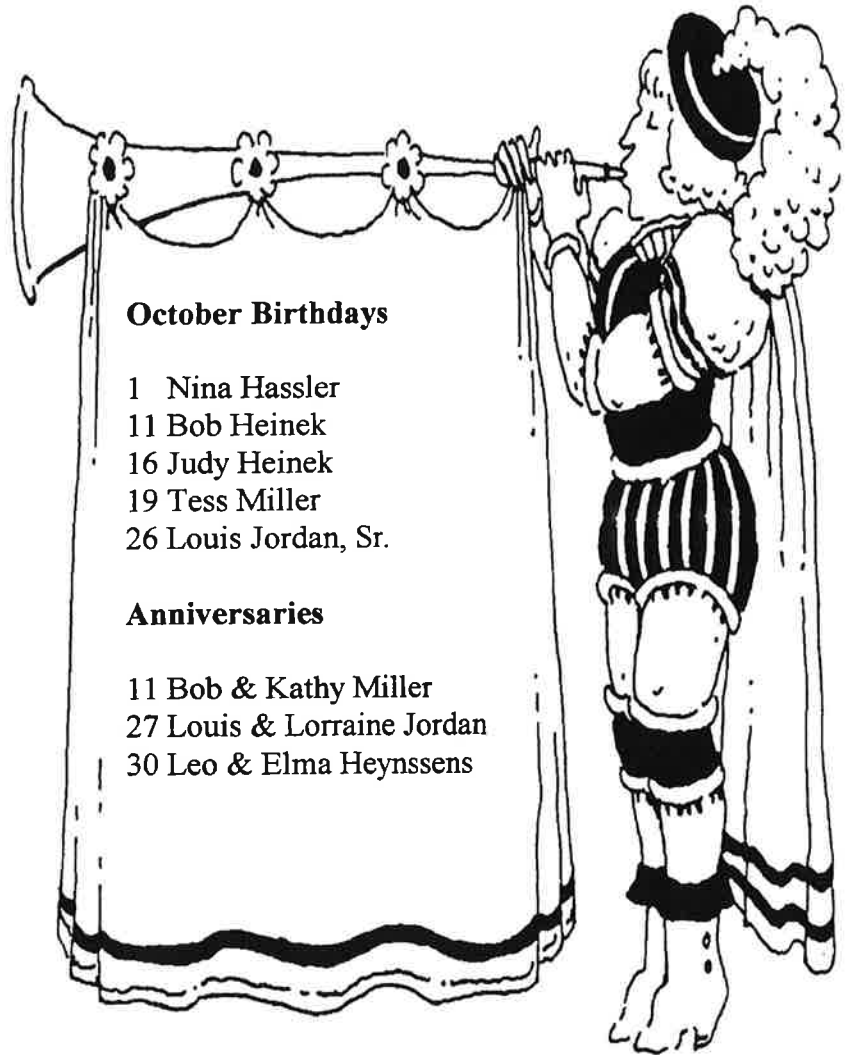
BIG SALE AT BETTY'S

All rock club members in the area are invited to Betty Stout's on Saturday, September 30. She has 148 boxes of rocks, and all are priced at \$1 or 50 cents per box. Lots of miscellaneous material from Indiana and Ohio collected on digs, many varieties of material collected out west, lots of turrutella agate and Wyoming petrified algae, Petoskey stones, fossils, crystals, etc., etc. Some geodes are loose, so you will need to bring some boxes yourself if you are interested in geodes. The sale starts at 10 a.m. Indiana time (11 Michigan time). Betty lives at 320 Davis Street in Niles. The easiest way to get there is to head for Dixieway just north of the state line, then go west to the first stop sign (Third Street) on either Fulkerson or Bertrand. Davis is a very short street off Third Street, north of Bertrand and south of Fulkerson. Betty's house is the last house on the right on Davis, which is a dirt road. This sale is not open to the public, just to members of any rock clubs in the area.



UP AND COMING

- Sept. 15-16: Tulip City Gem & Mineral Club show, Holland Civic Center, Holland, MI.
- Sept. 23-24: Gem City Rock Club Show, Columbus Road Baptist Church, Quincy, IL.
- Sept. 23-24: Buckeye Flint Festival, downtown Newark, OH.
- Sept. 23-24: Elgin Rock & Mineral Show, Hemmen's Cultural Center, Elgin, IL.
- Sept. 29-Oct. 1: Treasures of the Earth Show, National Guard Armory, Cincinnati, OH.
- Sept. 30-Oct. 1: Flint Rock Club Show, Carter Middle School, Clio, MI.
- Oct. 7-8: Geology Arts Fair, Eddy Geological Center, Chelsea, MI.
- Oct. 13-15: Greater Detroit Show, South Macomb Community College, Warren, MI.
- Oct. 20-22: Three Rivers Gem & Mineral Society show, Allen County Fairgrounds, Fort Wayne, IN.
- Oct. 27-30: Central Michigan Lapidary Society Show, Marshall Street Armory, Lansing, MI.



October Birthdays

- 1 Nina Hassler
- 11 Bob Heinek
- 16 Judy Heinek
- 19 Tess Miller
- 26 Louis Jordan, Sr.

Anniversaries

- 11 Bob & Kathy Miller
- 27 Louis & Lorraine Jordan
- 30 Leo & Elma Heynssens

MARGARET'S COLUMN



Where has the summer gone? It seems like it hasn't started. Oh well, I guess we did have a nice summer, no rain, and not too much heat.

We had such a nice picnic, and I would like to thank the Churches for their hospitality. There were about 30 attending, and the food was so good, as usual.

The show is over, and our trip is upon us. Kathy has done a good job of getting the plans together. Thank you, Kathy.

The show was a good one, at least the Silent Auction was a big success. Thanks to Tom Noe, Bill Crull, Bill Nelson, Herb Luckert and any others who worked. I did not get back there too much, so I do not know all who worked.

The Kiddies Korner was busy, thanks to Emily Johnson and Don Church (who I heard had a ball with the kids). Kathy Miller organized the door, and thanks to the many members who worked. We had many good displays, and I am sure they were enjoyed by all. Kay & Jim sharp came from Ohio with 3 cases. Bob Miller did a bang-up job getting demonstrators. Thanks to all who worked in any capacity. It takes many to put on a show, so THANK YOU ALL. Bill and Marie Crull, former members, helped too. Bill worked in the silent auction and Marie worked on the door. It was good to see them again.

By now, I imagine most of you know we had a fire in our house on August 7, and are not back in the house yet. We lost almost everything in the kitchen, except the sink and faucet. We saved the cat and bird, they were fine. The girls who are cleaning the house can't get over the amount of rock and junk we have. Guess it is about time we get rid of some.

There is no meeting in September, since we will have the bus trip. The program in October will be given by one of our demonstrators, Heidi Santarelli, on "beaded gemstone jewelry." I am sure it will be a good program.

We have several new members who signed up at the show:

Cedric A. Sell, 60788 Cr 27, Goshen, IN 46528;

Richard A. Long, 1238 Edgewater Blvd., Elkhart, IN 46516;

Joseph M. Horvath, 18939 E. Auten Rd., So. Bend, IN 46637;

Linda Gearhart, 617 Erie St., Apt. A, Three Rivers, MI 49093 & LeRoy Powers;

Thomas, Cathy, & Tommy Thomasino, 439 Birch Pky., Westville, IN 46391-9766;

Junior members: Rebecca Lavengood, sponsored by Kent Hoffman, Logan Fagg, 3306 Grayfox Dr. Valpariso, IN 46383.

See you on the trip.

NEW HERKIMER LOCALITY OPENS

By Dean Lagerwall

The Treasure Mountain Diamond Mine in Little Falls, NY, has been opened as a fee site (as of Memorial Day Weekend). The smoky scepter quartz crystals that are found at this site are truly unique and beautiful (see recent *Mineralogical Record* for picture). In addition, jewelry quality crystals (with and without anthrazolite inclusions) and large "klunkers" can be found here, depending on the part of the mine in which you dig. The calcite crystals (can be larger than a fist) found here often have perfect "diamonds" inside.

This locality has the typically hard "Herkimer Rock" but the amount of overburden is much less than that of the other more popular Middleville, NY, mines. Thus, some hard work is required to get the desired scepters. However, because the diggings are closer to the surface, some cracks are in the rocks and wall mining is slightly eased. There are (as of yet) no signs of the huge vugs full of crystals as found at Middleville, but this is one of the few localities where these unique smoky scepters can be found.

To reach this promising locality, from the NYS Thruway take exit 29A (Little Falls). Go through the toll booth and travel about ¼ mile. Turn left onto route 169. Go another ¼ mile and turn right on SR 5S. Go 1.9 miles (up the hill) and the entrance will be on the right (barn next to 3 silos). The barn is the office and is open from 9 a.m. to 6 p.m. daily through November. Cost to collect is \$10.00 per person.

Geolletter Geological Society, (Oct., 1999)

PARABLE ABOUT ROCKS

This is not a joke, just a little bit of wisdom. One day, an expert in time management was speaking to a group of business students and, to drive home a point, used an illustration those students will never forget. As he stood in front of the group of high-powered overachievers he said, "Okay, time for a quiz," and he pulled out a one-gallon Mason jar and set it on the table in front of him. He also produced about a dozen fist-sized rocks and carefully placed them one at a time into the jar.

When the jar was filled to the top and no more rocks would fit inside, he asked, "Is this jar full?" Everyone in the class yelled, "Yes." The time-management expert replied, "Really?"

He reached under the table and pulled out a bucket of gravel. He dumped some gravel in and shook the jar, causing pieces of gravel to work themselves down into the spaces between the big rocks. He then asked the group once more, "Is the jar full?" By this time the class was on to him. "Probably not," one of them answered. "Good!" he replied.

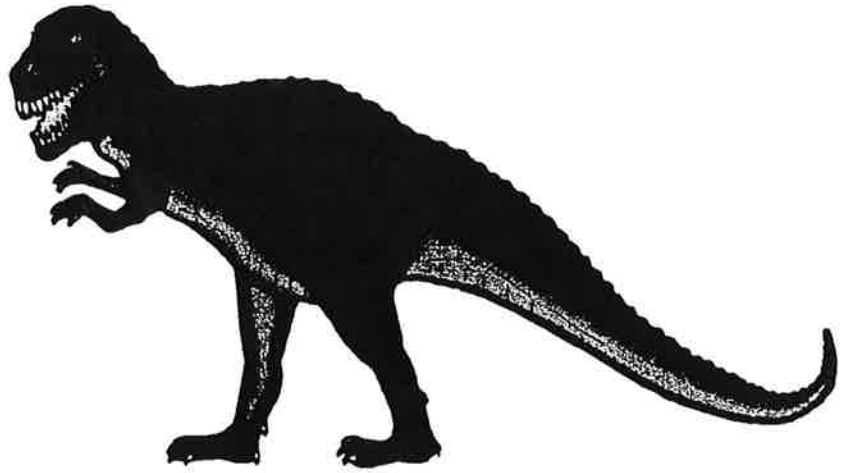
He reached under the table and brought out a bucket of sand. He started dumping the sand in the jar and it went into all of the spaces left between the rocks and the gravel. Once more he asked the question, "Is this jar full?" "No!" the class shouted. Once again he said, "Good." Then he grabbed a pitcher of water and began to pour it in until the jar was filled to the brim. Then he looked at the class and asked, "What is the point of this illustration?"

One eager beaver raised his hand and said, "The point is, no matter how full your schedule is, if you try really hard you can always fit some more things in it!"

"No," the speaker replied, "that's not the point. The truth this illustration teaches us is, if you don't put the big rocks in first, you'll never get them in at all. What are the 'big rocks' in your life—time with your loved ones, your faith, your education, your dreams, a worthy cause, teaching or mentoring others?"

"Remember to put these *big rocks* in first or you'll never get them in at all. So, tonight, or in the morning, when you are reflecting on this short story, ask yourself this question: 'What are the *big rocks* in my life? Then, put those in your jar first.'"

Anonymous, from the internet



BOOK REVIEW

Tyrannosaurus Sue, by Steve Fiffer (Freeman & Co., NY)

Reviewed by Tom Noe

The South Bend library recently got this book in, and you should check it out, especially if you're interested in the story of Sue, the *T. rex* now on display at Chicago's Field Museum. Fiffer details the history of the finding, excavation and preparation of this grand fossil--the most complete *T. rex* ever found--and also follows the court battle which resulted in the Sotheby's auction at which Sue was purchased for over \$8 million. It's quite a read.

Quoted in the book is our local *T. rex* expert, Keith Rigby, who leaves Notre Dame every summer for Montana to beat the bushes for dinosaurs. (He thought the sale was one of the worst things ever to happen to paleontology.)

The book is remarkably fair and evenhanded. The author is a lawyer, and appears to have untangled the legal issues quite well. He sets the story of Sue in the context of the current battle over fossil ownership and hunting rights, but also delves into the history of fossil collecting in the U.S. Unfortunately, there are no photos except for a great cover shot.

Others have told this story in terms of villains and heroes; this account is so pleasant that you'd think everybody came out of the storm contented and philosophical. I doubt that's the case for the finder, who thought he had bought the fossil fair and square, then ended up with two years in jail for not filling out some forms.

Obviously, this book hasn't changed my opinion, but it did offer a coherent history of the battle, and that's valuable in itself.

CALCIUM CARBONATE: A VERSATILE MINERAL

By Ted Robles

When someone says "calcium carbonate," the hearer customarily thinks calcite, and envisions a crystal-clear rhomb or perhaps something that comes to a point and vaguely resembles a canine tooth, hence "dogtooth" calcite. However, it's not that simple, and that creates the opportunity for me to tell you a little about the different forms of calcium carbonate, and what its uses are. I expect a lot of you already know most of this, but maybe you could use a refresher.

There are basically two types of calcium carbonate: calcite, which crystallizes in the hexagonal system, and aragonite, which is orthorhombic. The less said about the crystalline modifications of calcite, the better; there is even some disagreement about how many different crystalline species there are. Dana says there are over 300 known modifications of the crystal, while Sinkankas blithely says there are over 700! (Two dozen main forms and hundreds of combinations.)

Then, of course, there are the microcrystalline or massive forms. Aragonite is nicer. It only has three main modifications: a hexagonal prism (frequently twinned), slender radiating crystals, and a twisted mass of crystals called "*flos ferri*," or "flowers of iron," possibly because it is frequently found in association with siderite, an important iron ore.

Among the more interesting forms of calcium carbonate to the rockhound are the massive forms: travertine, or Mexican onyx, which, with a hardness of only three, is readily carved into a variety of objects of more or less artistic merit; limestone, which is used for a whole lot of purposes, of which more later; satin spar, fine parallel crystals which give a "cat's eye" effect when carved into a rounded relief; chalk, which is mostly the consolidated shells of microscopic marine invertebrates; cave onyx, which is actually stalactites; and marble, which is metamorphosed limestone and, being tougher, has a number of structural uses. Many of us will spend eternity with a slab of marble holding us down.

Most limestone, marble and chalk are the products of living organisms. Actually, it seems reasonable to suppose that limestone was the original product of recycling, and that every seashell contains calcium carbonate molecules that have been part of other shells, stretching back through eons. The reason for this is that, while calcium carbonate is quite insoluble in water (about ½ ounce per ton), it is very soluble even in such dilute acids as carbonated water. (The soluble species in that case is calcium bicarbonate.) So the cycle (marine animal takes in calcium in solution, converts it to shell, dies, shell slowly dissolves, to become shell again) goes on forever, and has gone on since the first foraminiferas or diatoms used calcium carbonate in their shells. The largest pile of diatom shells I know of is the famed white cliffs of Dover, which literally are cubic miles of one-celled creatures' shells.

Mankind is peculiar. Given the massive deposits of calcium carbonate that exist everywhere in the world, what can we do with it? Fair question, presupposing our right to do something with everything.

First and foremost, we burn it for lime, which has so many uses that I'll only give you a few. We use it for mortar, we fuse it with potash and silica to make glass, we fuse it with clay to make cement. We use it as a starting material for calcium salts which are used as fertilizers and drying agents. It used to be (and in some places still is) used for paint, as whitewash, and is the basic ingredient in many forms of tempera.

Cedar Valley Gems (May, 2000)

HANDOUT FROM SHOW

The last four pages of this month's *Rockfinder* are a handout prepared for the Labor Day show by Tom Noe. It's intended to give information to those who are interested in the geology of Indiana and the rockhounding possibilities of our state. Feel free to duplicate this section and pass it around to people who have an interest in geology and fossils.

HUNTING ROCKS AND FOSSILS IN MICHIANA



If your love of nature is down to earth, if you like to get off the main drag and into the little byways where you can see things you've never seen before, then you will enjoy rock collecting (it's called rock-hounding) and fossil collecting in Michiana.

Before describing what you can find in our area, let's take a look at the geological history of northern Indiana. That has a lot to do with the minerals and fossils you can find.

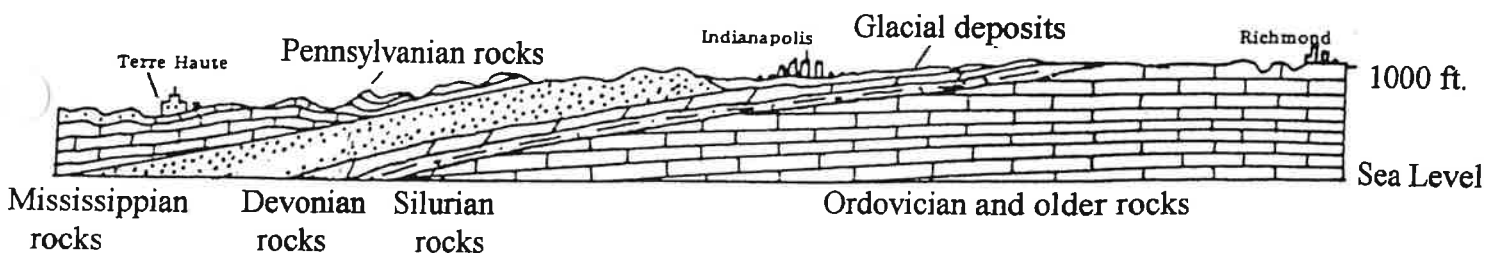
Off and on, for millions upon millions of years, the land we call Indiana was at the bottom of warm, shallow seas. Marine life flourished there, creating shells out of calcium, silicon, oxygen and hydrogen. As the ocean-dwelling creatures died, their shells fell to the bottom, layer upon layer. Most were gradually destroyed and compressed into limestone, but others became fossils, preserving their original shape down to the present. Limestone built up into layers hundreds of feet thick.

At the same time, erosion of the land surface was bringing various kinds of sand, clay, dirt and rocks to the ocean bottom, and these layers are still found among the limestone layers.

Between submersions, Indiana was dry land and was covered by forests and a variety of plants. These also died and formed thick layers of organic material, which gradually was transformed into coal. When Indiana rose from the sea for the last time, nature had something else in store. Masses of ice, some as thick as a mile, came grinding down from the north, covering nearly the whole state of Indiana. Trapped inside all this ice were rocks, dirt and soil from Canada and Michigan. The glaciers eroded some of the layers that were here already, and also deposited all the trapped rocks as the ice melted, forming a new ground level. In St. Joseph County, for example, bedrock is about 90 feet down; the surface we live on is the layer of debris left by the last glacier, which melted finally about 12,000 years ago.

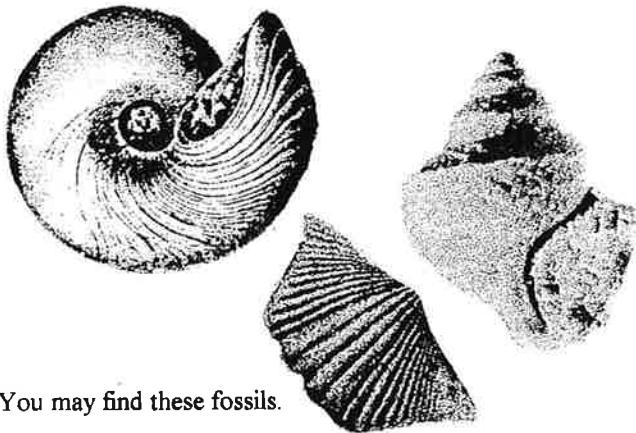
Stones which were formed here include limestone, sandstone, calcite, gypsum, fluorite, dolomite, selenite, celestite, sphalerite, marcasite, pyrite, limonite, hematite, onyx, galena, quartz, siderite and shale. Stones which were pushed here by the glaciers include most of the preceding types plus some which are a little more exotic: gold, silver, copper, amethyst, agate, jasper, olivine, sapphire, garnet, magnetite, granite, marble and even diamond.

Generalized geologic cross section along U.S. Highway 40 in central Indiana.



In northern Indiana, you will do your searching in the layer of glacial debris, unless you have a 90-foot hole in your back yard!

As a novice rockhound and fossil collector, you should be able to find 20 or 30 different kinds of rocks in any gravel pile. Some are extremely rare (diamond), but others are quite common (granite, quartz). Because the glaciers brought down material from the Upper Peninsula, masses of native copper occasionally turn up, and a metal detector would be helpful in locating them. Geologists tell us that the northern third of Indiana undoubtedly contains silver and gold and precious stones, but in such small amounts that they would be very hard to find. Some of the fossils you might find include corals and the shells of snails, clams and other invertebrates. They will still be encased in limestone rock.



You may find these fossils.

When searching for mineral or fossil specimens, areas of erosion are good places to start: hillsides next to a creek or river, places where construction is going on, areas that have been plowed recently. You'll encounter fossil corals and shells pretty often; they got mixed up in the glacial debris when the ice scoured the bedrock in Michigan. Petoskey stones are sometimes found this far south, as rounded lumps which have been smoothed by the abrasive movement within the glacier and the later erosion by water into streams and rivers. In fact, all the stones you find will be rounded by the forces of glacial action and erosion.

Perhaps you recall the fossil known as "Indian beads" from your childhood. These are actually pieces of an ancient animal called a crinoid. Each little ring is one segment. In fact, they can be strung as beads, but they were created by nature, not by the

Indians. South of here, in the bottom third of the state, there is little glacial debris covering the land, and bedrock shows through. In these areas you can find geodes, plant impressions in the coal beds and lots of fossils in the limestone (including trilobites). Even as far north as Fort Wayne there are quarries which mine limestone; they sometimes allow collectors into the quarries to collect fossils, marcasite, fluorite, etc.

Where can you hunt? You can start in your own back yard, the schoolyard, or anywhere you find stones mixed in with the soil. The public right of way surrounding all roads is open for collecting, with appropriate safety precautions. You can also ask permission at construction sites to go in and collect when they are not working, or you can stop at a farmhouse out in the country and ask to look through the fields and ditches, or to investigate the large rocks that the farmers have taken out of their fields and piled up into mounds.






Indiana has many good rock clubs. In the Michiana area, the Michiana Gem & Mineral Society meets once a month and puts out a regular newsletter. The club also schedules a variety of field trips to look for minerals and fossils. Club members can help to identify that interesting rock you've found. One member of the club was recently walking through a housing development under construction in Mishawaka, and happened to see some pieces of bone in the area where a bulldozer had scraped the ground. The bone pieces led to fragments of a baby mammoth. The teeth and bones were identified by a scientist downstate. This was a very unusual find, but it shows that there are important and interesting fossils and minerals literally under your feet.

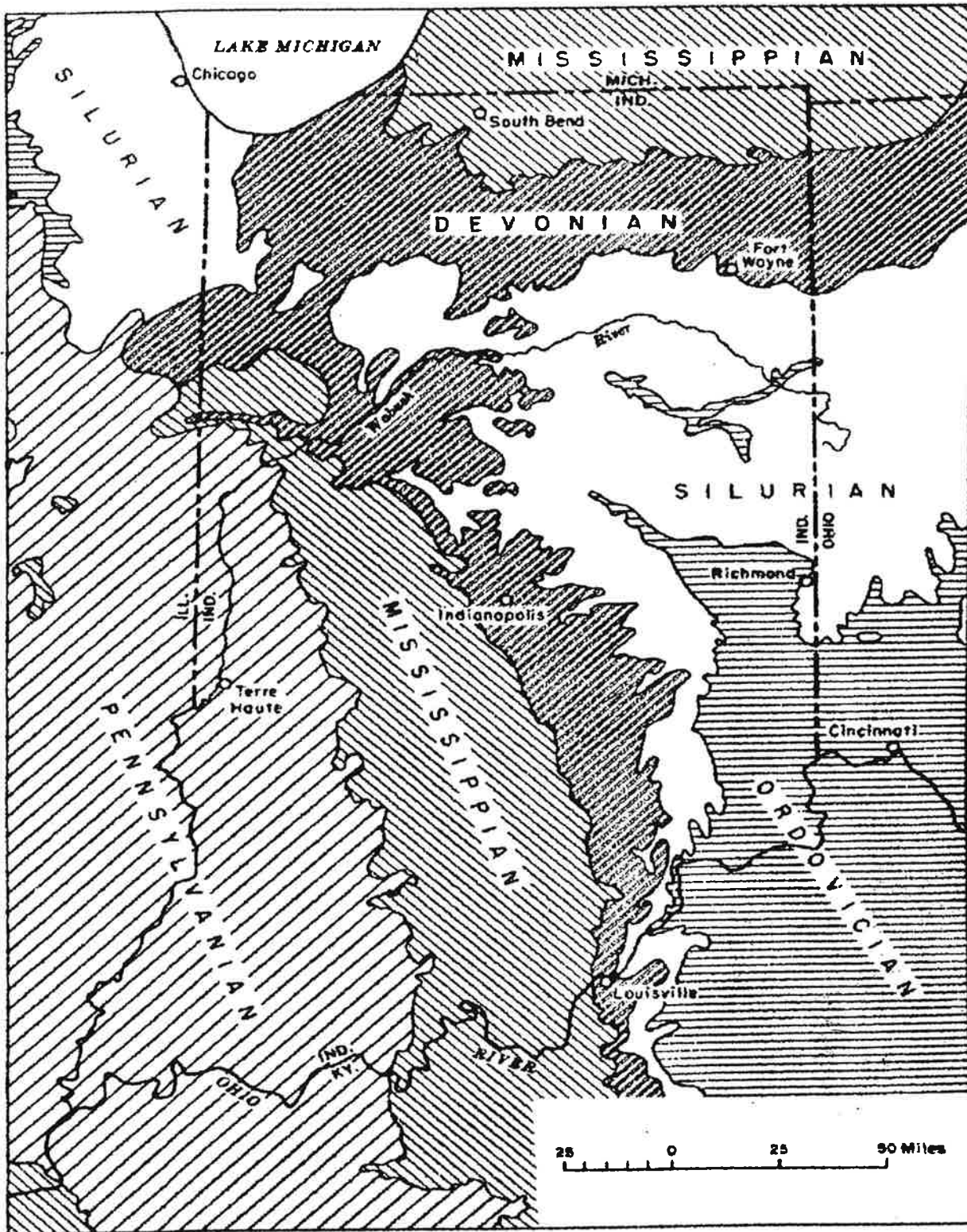
As you get more interested in rockhounding, you will find books and maps at the library which will provide more information in the particular areas of this hobby that appeal to you. You might also want to swap some of your finds with others, or attend some of the public shows put on by the Michiana Gem and Mineral Society. You'll find rockhounding and fossil collecting a rich and rewarding experience, one that connects you to nature and builds your love for our environment. Happy hunting!

For more information about the Michiana Gem and Mineral Society, call Margaret Heinek at 219-654-3673.

GEOLOGIC TIME SCALE FOR INDIANA

ERAS
CENOZOIC
MESOZOIC
PALEOZOIC

PERIODS	YEARS FROM PRESENT	ROCK TYPES IN INDIANA	PRINCIPAL MINERAL PRODUCTS
QUATERNARY (PLEISTOCENE EPOCH) 	2 million	Glacial drift: till, gravel, sand, silt (including loess), clay, marl and peat. (Till and gravel contain boulders of many kinds of sedimentary, igneous and metamorphic rocks.) Thickness 0—500 feet.	Sand and gravel. Clay, marl, peat, and groundwater.
TERTIARY	65 million	Cherty gravels, sand and clay.	0—80 feet. Glass sand.
CRETACEOUS JURASSIC TRIASSIC	141 million 195 million 230 million	No deposits in Indiana.	
PERMIAN	280 million	No deposits in Indiana.	
PENN-SYLVANIAN	310 million	Shale (including carbonaceous shale, sandstone and limestone).	Coal, ceramic clay, shale, oil and gas, crushed stone, building sandstone, refractory gravel.
MISSISSIPPIAN 	345 million	Upper; alternating beds of shale, sandstone and limestone. 500 feet. Middle; limestone, dolomite, beds of chert and gypsum. 300 feet. Lower; shale, mudstone, sandstone, some limestone. 600 feet.	Oil & gas, building limestone, crushed stone, gypsum, ceramic shale.
DEVONIAN 	395 million	Upper; carbonaceous shale. 100 feet. Lower; limestone, dolomite, some sandstone. 40—80 feet.	Oil & gas crushed stone
SILURIAN	435 million	Dolomite, limestone, chert, siltstone and shale. 100—300 feet.	Crushed stone
ORDOVICIAN 	500 million	Upper; shale, limestone and dolomite. 700 feet Lower; limestone, dolomite and sandstone.	Crushed stone, oil & gas.
CAMBRIAN	570 million	Sandstone and dolomite.	
PRECAMBRIAN ERAS	4.5 billion	Granite, marble, gneiss and other igneous and metamorphic rock types.	Not exposed at the surface in Indiana.



Generalized geologic map of Indiana and parts of adjoining states. Part of geology modified from Stose, 1932, Patton, 1956 and Illinois State Geological Survey, 1961. These are bedrock formations. Much of northern Indiana is covered by glacial debris, and bedrock formations are not at the surface.