THE ROCKFINDER

Joyce Larson, Editor
Michiana Gem & Mineral Society
144 Spruce Drive
Westville, IN 46391

FIRST CLASS MAIL

SCRIBE

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The MICHIANA GEM AND MINERAL SOCIETY, a non-profit organization, is affiliated with the MIDWEST FEDERATION OF MINERALOGICAL AND GEOLOGICAL SOCIETIES and with the AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES.

Regular Meetings

Time: 2:00 p.m. EST
Fourth Sunday of each month
June - Field Trip meeting
July - No meeting
August - Annual Club Picnic
December - Date to be announced
Christmas Party

Place: Westminster Presbyterian Church
1501 W. Cleveland Road
South Bend, IN
West of the St. Joseph River

Dues

Individual	$ 6.50 per year
Family	10.00 per year
Junior	2.00 per year

Rockfinder Staff

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Co-Editor.....Margaret Heinek	7091 E. East Park Ln., New Carlisle, IN 46552
Staff.....Bob Heinek/Club Members	

All contributions for publication should be in the hands of the Editor (219-785-4382) by the 10th of each month.

THE ROCKFINDER

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MEETING:
Doors Open - 1:30 p.m.
Meeting - 2:00 p.m.

PROGRAM: Several members of the Faceters Forum Society will present a program on "Beginning Faceting"

PLACE: Westminster Presbyterian Church
1505 W. Cleveland Road
South Bend, IN

HOSTS: Molly Elwell
Sister Jeanne
Sister Georgia

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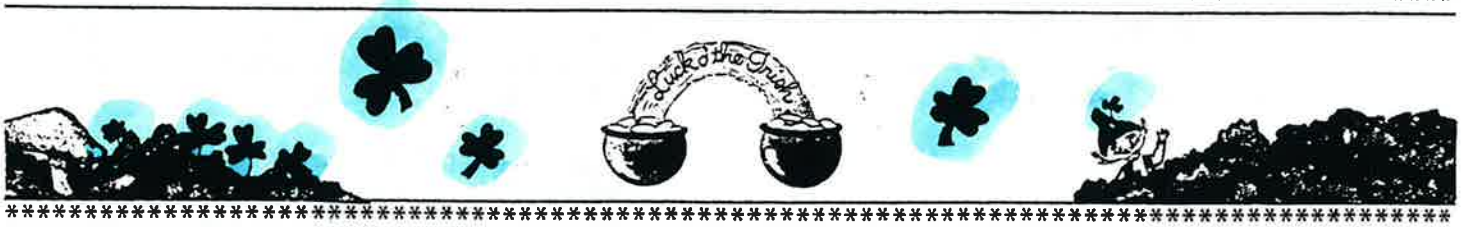

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MARCH BIRTHDAYS - HAVE A GREAT DAY!

3 - Stuart Biek
6 - Gladys Pacholke
7 - Barbara McHugh
8 - Joyce Larson
11 - Marie Crull
15 - Jane Kile
22 - Gloria Merrill
22 - Jim Cytacki
24 - Joe Kossack
27 - Kevin Klodzinski

WELCOME NEW MEMBERS:

Millie Schmaltz - 16587 Wilson Lane
Buchanan, MI 49107
Ph: 616-695-6049

Sherrie Stewart 2021 Delaware
Chance Stewart Mishawaka, IN 46544
Bill Bravo Ph: 219-258-4242

Chance is a new Junior member.
Again - welcome to our club!

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BIRTHSTONE FOR MARCH - AQUAMARINE

The March birthstone is Aquamarine. This gem ranges from nearly colorless with just a hint of blue to a deep blue. It may be greenish-blue, bluegreen, or crystal blue; but the most highly prized color is a blue which is not too pale nor too green. Since its shades reflect the many colors of the ocean and lakes, its name is derived from the Latin "Water of the sea". For a person who wants a large stone, aquamarine is perfect because, in spite of its delicate color, it is considered a fairly tough stone. Since it is often found in large crystals, it is available in large sizes. The wide price range of aquamarines makes them available to almost everyone.

(-via Fulton Cty. Rockhounders & Rock Rollers)

MINUTES OF THE FEBRUARY 1992
MICHIANA GEM & MINERAL SOCIETY

President Heinek opened our regular meeting. New members and guests were introduced.

A motion was made, seconded and passed to accept the minutes as printed in The Rockfinder.

Before committee reports were given, the passing of club member Dick Scherer and Laura Miller, mother of club member Mary Miller, was announced. Our heartfelt condolences go to Joan, Diane, Mary and their families.

COMMITTEE REPORTS:

Program: We will have a slide program in March from the MWF library.
Education: Gordon Dobecki is starting a beginner's class Feb. 24th with 4 members.
Sunshine: Anyone who has not given Kathy Miller or Joyce Larson the day and month of their birthday or anniversary should please do so. Sympathy cards were sent to Richard Scherer's family, former member Doris Pletcher's family and to Mary Miller and her family.
Scholarship/Endowment: A small donation of $20.00 will be made in memory of Doris Pletcher to the MWF Endowment Fund.
Display: Sherrie Steward, a guest of Molly Elwell, brought in Herkimer Diamonds from the Fonda mine in New York. Paul Godollei brought in a fossil of a cross between an oyster and a crab. He also brought fossil books.
Correspondence: The club received an invitation to the Geode Land show in Macomb, IL, March 14-15. The Calumet Gem & Mineral Society show on April 24-25 is asking for displays. A card was received from Floyd Dopler concerning a field trip to the Rensselaer Quarry. He is from a club in Rock Island, IL., and wishes to meet some of our members at the quarry.

A show poster was sent to President Heinek, but due to the cost of printing, the idea was vetoed.

A book entitled "Rock Trails and Tales" by Marguerite Beymer was advertised. If anyone is interested in buying it, please contact Margaret Heinek.

Old Business: Many thanks to Larry Hess for the fine work he did on the club's directory. It really is outstanding!

New Business: A larger storage shed has been obtained for our club. This was voted upon at the January meeting. The club's material has been transferred.

Everyone agreed to put a new book on faceting into the club's library in memory of Richard Scherer. A donation of $25.00 will be made to Westminster Presbyterian Church in memory of Mary Miller's mother, Laura.

Program: Supplies provided by Bob and Margaret Heinek were distributed among members for a "hands on" jewelry making class.

Door prizes were awarded to Joyce Larson, Millie Schmaltz and Paul Stone.

The meeting was adjourned at 3:30 p.m. 28 members and four guests attended.

A big thank you to Kathy Miller for sitting in for me and taking these minutes!

Respectfully submitted,

Pam Rubenstein

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A taxpayer is a person who does not have to pass a civil service examination to work for the government.

One of the most exciting ways to travel is by wet soap.

(-via Chaparral Chatter, Color Country Chips & Scribe)

MARGARET'S COLUMN

Looks like winter's back is broken, the trees are budding and some of the flowers also have buds. Now if it does not get cold and kill them! Summer isn't too far behind. Maybe we can get out for a field trip!

There are several shows coming up in April, so plan attending some or all. Flint Rock & Gem Show, 3-5; Canton, Il 4-5; Cartersville, IL, 4-5; Des Plaines, Il, 4-5; Grand Rapids, MI, 8-11; Highland, IN, 25-26. There are others in Ohio, Illinois and Michigan, so check the Journal for dates and places. Get ideas for displays that you will put into our show - Labor Day Weekend. It is not too early to plan. If you do not have a display case, the Society has some you may borrow. Please let me know if you want to use one, so I can save it for you.

It looks like Lapidary Journal has "done it to us again", they put the dates for our show in the wrong month. Dealers are calling me, worried, that they have their schedule wrong. I called the Journal last month to complain, and I hope they will correct the dates in the next issue.

Speaking of the Lapidary Journal, did you see the article and pictures on Bob Miller's carvings? It sure is a good one! The pictures are great, and Bob is to be congratulated on being selected for this issue. The article was written by his sister-in-law, and a member of the Michiana Society, Marilyn Meier. It was well done!

If you are interested in attending the National and Midwest Federation show in Ohio this summer, let me know and I will see that you get some information for it. Kathy Miller will be the next Midwest Federation President, and it would be nice if some of our members could be there to see her sworn in office. I will be sworn in as the Regional V-Pres. representing the Midwest Federation on the American Federation Board. I also would like to see you there. I feel it is an honor to be chosen to these offices and hope both of us will do an excellent job. The next years will be busy ones for both of us.

I will see you at this month's meeting. I know Bob has a good program planned. I want to apologize for the February meeting, I was so sorry I was unable to get the agates I wanted. I hope in the next few shows we will attend, I will get them and have a work session - they are fun! We possibly could make a display for the show, it would be nice to show them off.

See you on March 22nd.

Margaret

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IT'S CONTEST TIME - LET'S HAVE SOME FUN!

Since this has turned into kind of a "St. Patrick's" issue I thought I would do something a little different, and maybe a little challenging. Count the 3 - leaf clovers throughout the pages of this "extra pages issue" of the Rock-Finder. When you come to the March meeting, write your count next to your name when you sign in. There will be a prize for the winner. If more than one of you have the correct count, we will then have to draw names. Give it a try and I'll see you at the meeting!

Your Editor - Joyce

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SHOP HINT:

To clean fragile crystals or hard to reach recesses in mineral specimens, try "Crew", a product of Johnson's Wax. Spray on this foam, let it stand a minute, then rinse with water. It is safe on all materials, including calcite and fluorite.

(-via Serendipity Gems & Rock Rustler's News)

SALT OF THE EARTH

Salt never sleeps. When given the chance, salt flows like a glacier, except it flows straight up.....By Patricia Barnes-Svarney

SALT mines are like no others.

If salt miners turn off all their equipment and are very quiet, they can hear the rock salt snapping and crackling as it assumes a new shape. You experience a remarkable, uneasy feeling listening to the walls, roof, and floor, knowing that the sound means that the room you are in is slowly growing smaller, closing in on you. Telling yourself that the opening will not completely shut for at least 100 years does not drive this feeling away. The sound, far from threatening, is actually reassuring to the seasoned miner - when salt grows absolutely quiet, it is accumulating stress. As with children, too much quiet means trouble. Each pop means that stresses built up in the rock salt have relieved a bit, producing a tiny pop rather than a big bang. IN THE GEOLOGIC BLINK OF AN EYE, A MERE 100 YEARS, AN OPENING 10 FEET HIGH BY 20 FEET WIDE CAN SHUT COMPLETELY...ALTHOUGH MOVING SLOWLY ANYTHING WILL BE CRUSHED: STEEL PIPES WILL BEND LIKE TOOTHPICKS, I-BEAMS WILL TWIST LIKE LICORICE STICKS.

This constant movement challenges those who are tapping the salt. Every time salt miners begin a new shift, the mine is subtly different: the walls are a bit rounder, and the roof has moved closer to the floor. What begins as a rectangular opening slowly becomes a flat figure-eight as the floor creeps up to meet the slowly descending roof. In the geologic blink of an eye, a mere 100 years, an opening 10 feet high and 20 feet wide can shut completely. Although the extremely slow movement seems benign, anything in its way will be crushed: steel pipes will bend like toothpicks, I-beams will twist like licorice sticks.

The miners cannot see changes on a daily or even weekly basis; the changes can be noticed visually only over the space of months or years. Sensitive instruments, however, measure the daily amount of closure. Miners place a bolt in the roof and another directly below the floor. They measure the distance between these two points with two sliding bars that act like giant calipers. The bars are made of Invar, an iron-nickel alloy specially blended not to change shape with temperature changes. If the measurements indicate that the roof is closing with the floor too fast, then all miners and equipment are cleared out of that area in short order.

PLAYING ATOMIC CHECKERS. Salt's curious properties arise from how its atoms are held together. Salt is made of only two elements: sodium and chlorine. Sodium has one easily released electron in its outer electron shell while chlorine has an opening for one in its outer shell of seven electrons, so the two atoms are predisposed to bond. These ionic bonds are wear for salt. In crystal form, the bonds are even weaker because each tiny sodium atom is surrounded by as many chlorine atoms as possible; likewise, each chlorine atom is surrounded by as many sodium atoms as possible. As it turns out, the atoms arrange in infinite sheets like a checkerboard, with red squares representing chlorine atoms and black squares representing sodium. In the crystal, these checkerboards are stacked on top of one another. No two squares of the same color touch either vertically or horizontally.

Because the bonds involved only one electron, entire checkerboards can slip two squares in either direction so that the same colors are never side-by-side again. In the salt crystal, these checkerboards form vast planes that parallel the faces of the salt cubes. These slippery planes allow salt to easily deform in all three dimensions; North-south, East-west, and up-down.

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SALT OF THE EARTH - continued:

These planes explain why salt deforms slowly without shattering like glass. If salt is struck with a sharp blow, it will break along these imaginary checkerboards, cleaving into clean planes, or crystal faces, each 90 degrees to the other. Looking at table salt under a hand lens reveals an abundance of cubic crystals. Seen under a microscope, ultra fine salt dust is also made up of cubes because of this tendency to split along crystal faces. Salt has perfect cubic cleavage.

But deep underground, rock salt is under enough pressure from the rock above to begin slipping and sliding along these molecular planes without breaking apart. It does not move quickly, but creeps one plane of atoms at a time. Indeed, the technical term for this slow deformation is 'creep'. Many materials exhibit creep when subjected to long periods of stress (or pressure): the ice in a glacier, for example, creeps down a mountain at about 10 feet per year. As with ice, salt subjected to long periods of constant stress bends without breaking. No other material we mine exhibits plastic behavior to the degree that salt does.

LIFE IN A SALT MINE. To mine salt, miners drive a grid of tunnels into the deposit, leaving pillars of salt about as wide as the tunnels. This technique is called room-and-pillar mining.

Standing underground in a salt mine is a clean experience. Salt mines tend to be brighter than many other mines because salt dust is white. The walls of solid rock salt are translucent, often with a slight tinge of gray.

Other mines are wet, muddy, and slippery, but a salt mine is refreshingly dry. Of course a salt mine has to be dry, or the walls would dissolve and wash away. The walls are cool and slick, but if you touch them, you notice they become sticky as the slight amount of sweat on your hand dissolves just a tiny amount of the rock salt. It is, of course, salty to the taste.

Humidity is generally not a hazard for several reasons. Salt mines are deep underground, often more than 1,000 feet (about 300 meters). The natural temperature of the salt at that depth is about 80° F (27° C). Moisture condenses from warmer air onto cooler objects, but the massive salt pillars holding up the roof tend to be warmer or as warm as the fresh air. Humidity entering the mine is soon absorbed by air-borne salt dust.

You might expect the equipment in an underground salt mine to rust solid within a week. Actually, this is not the case. Because the mine is so dry, equipment stays in good shape, but there is a catch. If the equipment is ever taken out of the mine, rust begins as soon as moist breezes of the surface touch it. Any equipment that enters and exits the mine on a regular basis must be made of non-corrosive metal. The mine elevator, or skip, that takes miners and supplies in and out of the mine, for example, must be made entirely of aluminum or it will rust out in short order.

A legend circulates in the State of New York salt mining district about a four-wheel drive vehicle that was taken underground. (Most mines are large enough to drive a regular car through, even though they can be more than 1,000 feet deep.) The car performed well underground for years. Once it was brought to the surface, however, the bumper fell off within the week. When steel goes into the mine, it stays there forever. YOU MIGHT EXPECT EQUIPMENT IN A SALT MINE TO RUST SOLID WITHIN A WEEK. ACTUALLY THIS IS NOT THE CASE. EQUIPMENT STAYS IN GOOD SHAPE. IF TAKEN OUT OF THE MINE, IT BEGINS TO RUST AS SOON AS MOIST AIR OUCHES IT.

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SALT OF THE EARTH - continued:

After a day in an active salt mine you will be intimately familiar with salt, and in the shower you will notice layer after layer of salt dust washing away. Fortunately, this dust is not harmful (unless you have a medical condition involving a low tolerance for sodium). And, if you are like most miners, you will still enjoy the taste of salt. But you may lose the urge to salt your food for several days after you journey through the dry, ancient ocean of an underground salt mine.

WHEN OCEANS EVAPORATE. The smell in the vast cavities of the mine is vaguely salty. After some time underground, you begin to recognize the smell as being similar to that of the ocean shore. And that is partly correct, because the salt was at one time part of a vast and salty sea.

Salt dissolves easily in water, which is why the oceans are full of it: many rock formations wash or crumble to the sea eventually, but salt is among the first to go because it dissolves easily. The solubility of salt explains the taste of ocean water.

Most of us were introduced to salts solubility during crystal-growing experiments back in school. The experiment begins with the students dissolving as much salt as possible in a glass of water. The student then suspends a thread in the glass and set the whole apparatus on the window sill in the sunlight where it evaporates in about a week. Beautiful salt crystals result, most visible to the naked eye. The crystals, seen under a microscope show the familiar cubic structure of table salt. This simple experiment came into being: evaporation.

Water evaporates at a surprising rate--about an inch (2.5 centimeters) per day, more quickly if the air is dry and the temperature is high. While a simple experiment shows that the water level in a small dish drops with evaporation, it is sometimes difficult to imagine that entire lakes, rivers, and even oceans can lose the same amount to evaporation at the same rate. If a lake covers a large area, as is the case with the Great Salt Lake, water can be removed by a gentle breeze faster than rivers can replace it.

Salt deposits are still forming today. In the northern Chile high in the Andes Mountains, huge salt basins called 'playas' have had no rain in recorded history. The region is a textbook example of what salt deposits look like before they are covered with sediments. The playas is rich in evaporite minerals, some are mined for rare lithium salts. Other playas, such as Searles Lake in California, continue to get occasional rain and additional run-off water. This flat bed or undrained desert basin is occasionally covered with water that once again evaporates.

Evaporation, although significant, is often unappreciated. For example, imagine the Mediterranean Sea being cut off from the ocean at Gibraltar. Rather than filling up with water and flooding into the Atlantic, it would become a giant salt flat with no outlet to the Atlantic Ocean; the Gibraltar area was a continuous land bridge connecting Africa and Europe. All the rivers flowing into the Mediterranean, including the Nile, could not fill that huge area faster than the water evaporated. . Currently, rock salt mined in France, Italy and Spain is from this ancient Mediterranean salt flat, now deeply buried under many layers of sediment along the northern coasts.

Today, the Mediterranean receives water from the ocean, which prevents it from drying out and turning back into a giant salt flat. The influx of salty ocean water turns the water of the great sea slightly saltier than the ocean, and the Mediterranean would become a salt lake except for a two-way circulation at the Strait of Gibraltar. While lighter,

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SALT OF THE EARTH - continued:

less-salty waters of the ocean are flowing into the Mediterranean at the surface, denser salty water is flowing out of the strait at the deeper levels. As water evaporates from the sea, the salinity increases, the saltier water grows heavier, sinks to the bottom, and then flows past the Strait of Gibraltar to mix with the ocean once again.

These countercurrents of lighter surface water moving into the Mediterranean with deeper, denser water rushing out explains why submarines must be cautious passing through the strait. Submarines entering the Mediterranean use the surface current, and those leaving drift in the deeper outflow current. Either way, they can move silently, without engine power, if desired.

CURIOUS CHEMISTRY. Salt must have been among the first substance to be investigated chemically. For thousands of years, it was thought to be one of the basic elements, along with fire, earth, wind, and water.

Then, in the early 1800s, French chemist Antoine Lavoissier first discovered the true, elemental composition of salt. Not far behind was Sir Humphrey Davy, an English scientist, who heated sodium in a chlorine atmosphere to produce a "muriate of soda." "Muriate" is another name for chlorine, and soda is another name for sodium. Together, as muriate of soda, they form salt.

The characteristic of the sodium and chlorine to bond together in crystals, but disassociate from one another in a water solution, makes salt an ideal source of sodium and chlorine for living creatures. In their elemental state, sodium (Na) and chlorine (Cl) are hardly user friendly materials. Pure sodium explodes when dropped in water and chlorine gas is poisonous; but together as salt, they may be sprinkled on food.

Naturally occurring sodium chloride (NaCl) is known as the mineral 'halite'. It contains 39.3 percent sodium and 60.7 percent chlorine by weight.

If you look at the label on a container of table salt, you will notice another ingredient; iodine. Why iodize salt? Salt companies add 0.01 percent potassium iodide to table salt to prevent iodine deficiencies. Iodine, found in healthy quantities in the ocean, is absent in many inland areas. Our bodies need iodine to prevent glandular problems such as goiter. Iodine is cursed with a horrible taste, but salt manages to hide it completely.

SALT MUSHROOMS. Salt rises from the depths in the form of large bubbles, called 'diapirs' (pronounced die-appears). These diapirs may measure miles across and extend thousands of feet in depth. Two things make this movement possible. First, salt is plastic. The second reason is less obvious: salt is fairly incompressible. Incompressibility means that salt can change its shape but not its volume. If the salt is deep enough to be under significant pressure, it will start to creep upward, breaking through the brittle, overlying material. Sometimes the dome finds its way to the surface. Other times it may reach equilibrium before it reaches ground level.

The sediments that overlie the salt will, over time, compress and compact significantly. Sands and clays, for example, when first deposited are lighter and less dense than the underlying salt. Everything is stable because the dense material is on the bottom. Through time, the sediments compact and the same mass occupies less volume as the pore spaces are reduced. Density increases so much that the overlying blanket of sediments becomes denser than the salt. With any other set of materials, that would be the end of it -- but salt, being plastic 'and' the lighter of the two materials, will move just like a glacier, except

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SALT OF THE EARTH - continued:

straight up. Some compare the movement with toothpaste squeezed out of a tube. The movement is gradual, less than a few hundredths of an inch (one millimeter) per year, which is about a hundred times slower than the speed of the Earth's crustal plates.

Petroleum geologists are quite keen on understanding these vertical salt flows, or domes, because the domes tend to be associated with oil. As the diapirs rise from the depth, they disturb rock strata that may contain oil. As the salt moves up toward the surface, it creates large volumes in which oil may collect. This pooling effect by the diapirs simplifies the task of extracting oil from difficult strata. Many of the world's major oil fields are associated with salt domes.

Not all salt deposits form diapirs. The salt bed must be of sufficient thickness, and it must be deep enough to be under significant pressure. For example, a bed 10 feet thick and only 1,000 feet deep is equilibrium unless disturbed by mining. A rock salt bed several thousand feet in thickness and buried under a few miles of sediments is a better candidate. In some formations, the lateral stress is actually greater than the horizontal forces, in which case the salt will have an even greater chance of flowing upward.

In those rare cases in which a diapir reaches the surface without intersecting the water table, in dry areas of the world for example, the salt flows out like a glacier. One area in Iran is so dry that several salt diapirs have erupted on the surface and continue to flow down the countryside. A glacier in the middle of the desert is an unexpected sight.

If the diapir reaches the bottom of the water table, the salt dissolves readily and is carried away by the groundwater. Other less-soluble components of the salt dome form a layer at this active boundary. Many gypsum and anhydrite deposits have formed in this manner.

Sometimes a salt diapir reaches a water table where the groundwater is not fast moving. The entire water table can then become brackish (slightly salty) and may turn into brine (extremely salty). In some areas, NaCl-rich brine find their way to the surface through fractures in the rock strata to form salt springs. The once-active salt mines of Saltville, Virginia, called the Salt Capital of the Confederacy during the American Civil War, were briny salt springs. Saltville was one of the main targets of the Union Army because it was the South's main supply of salt.

SALT SPRINGS, ETERNAL? In North America, vast salt deposits formed during Silurian times (about 435 to 395 million years ago during the Paleozoic era). Once a vast inland sea covered parts of New York, Pennsylvania, West Virginia, Ohio, and Michigan (today, that sea is the Salina Formation). Other Silurian evaporite basins formed simultaneously in areas of Canada, eastern Europe, northern Russia, and Australia. ONCE A VAST INLAND SEA COVERED PARTS OF NEW YORK, PENNSYLVANIA, WEST VIRGINIA, OHIO, AND MICHIGAN. TODAY THAT SEA IS THE SALINA FORMATION.

Salt deposits in New York from the Silurian seas were formed by evaporation in much the same way that the Great Salt Lake of North America and Dead Sea of the Middle East were formed, but with an important difference. The Shallow Silurian basins were connected with the ocean. Rather than emptying into it, the basins took in more ocean water than they returned. The result was an increasingly salty pool of brine. The water became so loaded with salt that, just as in the school experiment, the salt crystallized out of solution, collecting on the floor of the basin.

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THE PENNSYLVANIAN AGE IN INDIANA - Part 4 ..... March 1992
by Paul Godollei, Club Member

The shallow seas that covered Indiana during the Pennsylvanian Period advanced and retreated many times, and the fossils that remain today are evidence of the types of invertebrates and vertebrates that lived in the seas. Fossil remains of brachiopods, pelecypods, snails (gastropods), ostracods, crinoids, blastoids, cephalopods, and fish remains are to be found in many of the formations in the southwestern part of Indiana.

The lowest portion of the Pennsylvanian strata is the Mansfield sandstone and conglomerate. It is exposed in many counties of the southwestern part of Indiana, and one of the best is at the Shades State Park in Montgomery County, at the ravine and gorge at the Devil's Kitchen where a 55 foot exposure exists.

The spillway at Cataract Lake in Putnam County exposes the Mansfield at the base of the spillway, where sandstone, shale and thin coal strata is exposed. A bluff at the roadcut at Jordan Creek one mile east of Indiana Route 52, north of the town of Jordan 0.1 mile, exposes limestone and coal.

At the Ohio River in Putnam County, the Mansfield overlies the Kinkaid limestone in an unconformity.

It is also exposed at Greencastle. Sandstone, coal, clay chips, chert, milky quartz, geodes and sedimentary iron ores are present along with plant and marine remains.

In western Clay County, the old Chinook mine exposes sandstone, siltstone and shale of upper Pennsylvanian age of the Staunton and Linton Formations.

Coral and microfossils can be found at the limestone ledges in the bluffs along the Ohio River, east of West Franklin in Posey County. Brachiopods and snail shells can also be found in the lower limestone.

The old Win-Min mine near Petersburg in Pike County is a good place to look for crinoid stems, brachiopods, gastropods, pelecypods and plant fossils in the black shale and limestone above the mined-out coal. Go 2.5 miles n.e. of Petersburg on Hwy. 57 to Lick Creek School and Church. The mine is a couple of hundred yards west of the highway.

Old strip mines throughout the southwest counties yield many marine and plant fossils.

Brachiopods include Composita, Derbyia, Marginifer, Juresania, Rhipidomella, Chonetes, Mesolobus and Punctospirifer.

Bryosoa include Pinnatopora, Rhombopora, Tabulipora Fenbestrellina and Polypora. Pelecypods include Pteria, Myalina Astaratella and Acanthopecten. Gastropods to be found include Schizostoma, Loxonema, Aclisna, Orthonema and Pleurotomaris.

Foraminifera, Ostrocods, Fish remains and some Nautiloids are also to be found. Ostracods and Forams are very tiny and difficult to identify.

Bibliography: Indiana Dept. of Conservation, Geological Survey, Circular #6, 1959
Indiana Dept. of Geology and Natural Resources, 21st Annual Report, 1896
by W. S. Blatchley, State Geologist - pp 8-10, pp 97-105
Indiana Department of Natural Resources, Geological Survey, Guidebook #12
1966.

MARINE FOSSILS OF THE PENNSYLVANIAN FORMATIONS

SALT OF THE EARTH - continued:

For thousands of years, an equilibrium between incoming water and evaporation allowed thick beds of salt to accumulate. Other small, thinner wedges of shale and limestone occasionally were layered between the deposits of salt.

The New York basin was eventually cut off from the sea because of the natural uplift of the eastern part of the continent. Estranged from its supply of water, the huge basin slowly dried up, leaving the salt basin thick with encrusted salts. And as millions more years passed, sediment covered the salt layers. By the Devonian period, around 410 to 350 million years ago, the salt was covered by sediments to its present depth. Salt from this ancient formation is still being mined across the New York area.

More recently, during the dawn of the Mesozoic era (230 Million years ago), shallow water seas and shifting continents were especially common. The giant continent, Pangea, was just beginning to rift into the seven continents we know today. Although salt deposits have been discovered that date from as early as 800 million years ago, the beginning of the Mesozoic was a hotbed of new salt deposits because of its vast flat basins, which were uplifted and cut off from the ocean.

As estimated 1.5 percent of the salt in the entire ocean system was removed in the Mesozoic period. The ocean would be saltier today if this large scale "salting away" had not taken place. Since the Mesozoic, some of that deposited salt has returned to the ocean, but a substantial amount remains where it was evaporated 200 million years ago, providing us a wealth of salt.

As you might imagine, rock salt is one natural resource that we are not in danger of running out of for the foreseeable future, at least for a few hundred years.

A VALUED COMMODITY. Rock salt has been a commodity ever since people first walked the Earth. While the body can store fat, it cannot store salt for future use and so must have a fresh supply. Any nation wanting the stability to grow and prosper must first have a reliable source of salt for its citizenry.

In earlier times, salt was used as a medium of exchange. Roman soldiers took part of their pay in salt, called Salarium argentum, which is where our word 'salary' comes from. Perhaps this is where the measure of value, "not worth his salt", originated.

In many areas of the world, salt is not merely a trade good. It is a goodwill gift, often presented with bread to guests at their arrival. On the Soviet space station "Mir" for example, it is a tradition for cosmonauts to carry aloft bread and salt to serve as presents for the next visiting crew.

Although the ancient uses for salt were primarily for human diet or medicine, today that accounts for less than four percent of total use. Dietary salt includes not just table salt, but all salt used in food preparation and preservation as well.

The greatest quantity of rock salt is used for highway de-icing. The rest is taken by the chemical industry. Rock salt for highway de-icing sells for less than a penny per pound. Of all the material necessary for life, only the earth beneath our feet is cheaper on a pound-for-pound basis.

(-via M.M.S. Conglomerate - EARTH MAGAZINE - 1992, Reprint permission by Kalmbach Publishing Company.)

I felt this was such an interesting article that it should be printed in its entirety, therefore the extra pages in this months ROCKFINDER)

Joyce - Editor

UTAH SEPTARIAN NODULES

Utah septarian nodules are found about 15 miles east of Zion National Park. They were formed in an ancient sea floor during the Cretaceous period 50-70 million years ago. They can still be found weathered out of the hills but the good ones are 20-30 feet underground and are dug out by dozers at mines.

Some geodes are completely filled with calcite, while others are hollows with calcite crystals. The composition of septarians are as follows:
Yellow centers ---------- calcite
Brown lines ---------- aragonite
Grey rock ---------- limestone
White or clear ---------- barite.

(-by Donna Anderson via G.I. Nugget)
BOTH ARTICLES.

THEY'RE SELLING WHAT?

Coprolite is a popular item in rock stores where bits are sold to tourists. At first shopkeepers would whisper the true nature of coprolite into a buyer's ear. Now it is fashionable to label it correctly. It can be found in various sizes from ½ lb. to 200 lbs. The size of the dinosaur "might" have something to do with it? Usually, when you find it, you will find a lot.

Did dinosaurs relieve themselves at the same place? That's what is told the tourists, but a more scientific explanation is that pre-historic waters pushed the waste material into a mass.

Tourists are impressed by the fact it is 140-175 million years old. But they still ask if it smells!

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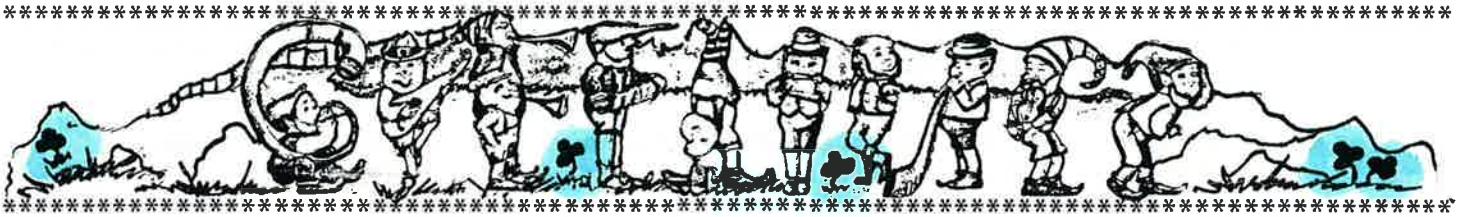

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ADDITIONAL COMING EVENTS TO ADD TO YOUR CALENDAR

April 8-11 Grand Rapids, Michigan
Indian Mounds Rock & Mineral Club
East Brooke Mall

April 25-26 Highland, Indiana
Calumet Gem & Mineral Society
Highland High School
9135 Erie Street

JUNIORS

You won't find any states in this issue of the Rockfinder. I plan on going to as many of the upcoming shows as possible and hope to find samples from the states we haven't covered yet.

Don't give up - we have 24 more to go!

Your Editor - Joyce

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H A P P Y S T. P A T R I C K' S D A Y ! !

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HINTS - HINTS - HINTS

FLANNEL SHIRTS CAN BURN EASILY - The nap of flannel shirts is easily ignited and burns readily according to a report from Redwoods by De Sharp. Welders are aware of this and avoid flannel shirts when working. You too should avoid flannel when you plan to be around flame.

TO BRING OUT COLOR IN AQUAMARINES - Embed crystals in sand in a ceramic jar, raise temperature slowly over a period of three hours to 800F. Then allow to cool for 12 hours.

TO REMOVE STAINS FROM MARBLE - Use a paste of cornstarch and water. Spread over the stain and allow to dry overnight. Rinse with clear water. If the stain remains, repeat with a paste of cornstarch and hydrogen peroxide, except rinse off after a couple of hours.

CHALCEDONY ROSES - Can be cleaned by soaking in Axion.

TO KEEP SPECIMENS FROM SCRATCHING - The glass or wood below it, place three dots of silicone rubber caulk on the bottom and place on waxed paper to cure for a day. This produces a nice smooth rubber-like cushion that protects both the shelf and the specimen.

SOME BRAZILIAN AMETHYST TURNS GREEN - When heat treated. This is called prasiolite. It has been around for years, but is not well known.

POLISH SILVER - By soaking in water from boiling potatoes.

USE INDIAN GARNETS AS A TUMBLING MEDIUM - As the garnets are ground down, the small pieces of garnet that are removed act as a grit. The garnets can be used several times. They're inexpensive ($3-$4/lb.) When finished, they are sparkling gems themselves.

TO KEEP BUGS AWAY - Let a coat of moist soap dry on your exposed skin OR squeeze and rub an orange peel on your skin. Bugs are attracted by banana smell, floral odors in your perfumes, shaving lotion or other cosmetics, so avoid these outdoors.

(-via Osage Hills Gems)

You can test turquoise by putting a drop of ammonia on back of the stone; real turquoise will turn white.

If you like to put small rocks in milk cartons of plaster of paris and then slab them, add some silica sand to the mixture. This will help keep your saw blade from loading up.

(-via The Opal)

If you want to bring out the color and banding of Lake Superior agates without tumbling them, rub with heavy mineral oil, place on a cookie sheet for 20 minutes in a 200 degree oven. Remove the excess mineral oil with a paper towel. The results will surprise you.

(-via Michigan Gem News

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I hope all of you have enjoyed this 'lengthy' issue. It's back to the normal 6 pages next month. I've found one of the great things about being the Editor is access to the many exchange bulletins from around the country. There are many good articles in these bulletins and I hope the other clubs keep The Rockfinder on their mailing lists.

Joyce

The following article was taken from the SCFMS Newsletter and appeared in MAPS DIGEST, via Backbender's Gazette (7-90) and the CFMS Newsletter

THE FOSSIL THAT LIVES TODAY

What would you say if you suddenly came face to facewith a creature who hasn't existed on earth for millions of years? "Impossible" you say. It just might not be as impossible as it sounds.

Take into consideration the following occurrences: On December 22, 1938, a fishing boat under Captain Goossen was trawling about 18 miles south of East London, off the southern coast of Africa. Hauling their nets from about 40 fathoms, the fish were dropped on the ship's deck. Among the fish was one that could not be identified by anyone on board. It was 5" long, had a second dorsal fin, brilliant blue scales, and large dark blue eyes! Captain Goossen took the dead fish to the East London Museum and gave it to Miss Courtenay-Latimer, the museum curator. She could not identify this unusual fish either.

Sensing the importance of the specimen she wrote to South Africa's leading ichthyologist, Dr. J.L.B. Smith. However, Dr. Smith was away when Miss Latimer's letter arrived and he did not get to read it for 10 days. By this time the fish had spoiled. Miss Latimer decided to have the fish mounted, and threw the flesh and the organs away. The only parts saved were the skin, skull, vertebral column, and the pectoral girdle. When Dr. Smith saw her sketches he knew at once that the fish was a coelecanth, a prehistoric sea creature thought to be extinct for 70 million years. Dr. Smith was very upset to find the body had been mostly disposed of by the time he answered the letter.

In appreciation of her efforts, Dr. Smith named the coelecanth "Latimeria" in honor of Miss Courtenay-Latimer. Dr. Smith decided that the East London Latimeria was probably a stray, and that the fish came from the Mozambique Channel between Madagascar and the African mainland. Dr. Smith prepared a leaflet in English, French, and Portuguese with a description of the fish and offered a reward of 100 pounds for each of the first two specimens caught and brought to him.

In 1952, another coelecanth was captured by Ahmed Hussein who was fishing off the coast of Anjouan in the Comoro Archipeligo. He took the 100 pound fish to a fish market not knowing at the time what a prize he had caught. Before it was cut up for food, however, a second native recognized it from one of Dr. Smith's pamphlets. The fish carcass was transported to Captain E.E. Hunt, skipper of a trading schooner. Captain Hunt salted the fish and wired Dr. Smith that a Latimeria had been found. Dr. Smith flew down and verified that this was indeed a second coelecanth.

The following September, a third specimen was landed, and by the middle of 1954, three coelecanths were captured. In less than 16 years' time the structure of this extraordinary "living fossil" whose existence had previously never been known, came to light. Who says it can't happen to you?

(-by R. Christiansen)

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NEW MINERAL STAMPS:

Dr. Daniel Appleman elaborated on the fact that the U.S. Postal Service plans to issue another set of mineral stamps on September 17, 1992, and that the location of the first day of issue will be the Smithsonian. The four specimens chosen are all from the Museum an Azurite from Bisbee, Arizona; a Michigan Copper; a Wulfenite from the famous Red Cloud Mine, Arizona; and a Variscite from Utah. The prototypes seem excellent, produced by the latest techniques, and with descriptive material on the side of the sheets they create nice publicity. (-via M.M. Conglomerate)