

Midwest Mineralogical & Lapidary Society

2023 OFFICERS

President: Mike Bomba (313) 381-8455 Vice President: Dan Gumina (313) 766-8944 Recording Secretary: Diane Kuzara (734) 675-5237 Treasurer: Doris Snyder (313) 291-2133 Corresponding Secretary: Diane Kuzara (734) 675-5237 Liaison Officer: Peter Kuzara (734) 675-5237

COMMITTEE CHAIRPERSONS

Club Services: Ana Ferguson Door Prizes: Mike Bomba AFMS Scholarship: Pat Rutkowski Field Trips - Mike Bomba/Gary Slominski Education: Dave Hendershot Historian: Tom Morris Michigan Material: Tom Morris Membership: Ana Ferguson MMLS Scholarship: Velma Bradley Program Coordinator: Mike Bomba Property – Storage: Gary Slominski Sunshine Reporter: Velma Bradley Refreshments: Gary Slominski Web Site: Stacey Harper

ACTIVITIES

2023 Banquet: Andrea Rinker 2023 Club Picnic: Stacey Harper 2023 Swap: Lou and Cindy Talley 2023 Super Swap: Bill Barr 2023 Auction: Dwayne Ferguson

The Rockpile Staff : Editor Peter Kuzara, email: <u>Kuzara1126@gmail.com</u>734-675-5237

MMLS website – <u>www.mmls.us</u> Email - <u>rockhounds@mmls.us</u>

General Club meetings are held at 7:30 p.m. on every third Tuesday of the month (except July and August) at the Democratic Club of Taylor, 23400 Wick Rd., Taylor, MI 48180 GUESTS ARE ALWAYS WELCOME

STUDY GROUPS

Lapidary: Workshop at Frank Konieczki's Bead Study: Diane Kuzara Mineralogy: Bill Barr at David Esch's

PAST PRESIDENTS

Robert Ellison (interim) 1956 Louis Cox 1957 Robert Heldenbrand 1958-59 Ralph Gamble 1959-60 Fred Miller 1960-61 Bert Smart 1961-62 Leo Nieman 1963 Nicholas Rothenthaler 1964-65 Robert Fedoruk 1966-67 John Good 1968-69 Cecilia Duluk 1970 Stanley Franczak 1971-72 E. Donald Stinnett 1973-74 Ralph Goniea 1975-76 Norman Hanschu 1977-78 Thomas Gibbs 1979-80 Harry Nagy 1981-82 Elspeth Gibbs 1983-84 Loretta Franczak 1985-86 Roland Snyder 1987-88 Jay Ross 1989-90 Tom Morris Jr. 1991-92 Diane Kuzara 1993-94 Bill Orban 1995-96 Glenn Swain 1997-98 Bill Peach 1999-2000 Diane Kuzara 2001-02 Cecilia Duluk 2003-04 Russ Ranker 2005-06 Dick DePodesta 2007-08 Rich Williams 2009-10 Leonard Swisher 2011-12 Mike Bomba 2013 - 14 Diane Kuzara 2015 - 16 Dan Gumina 2017 - 18 Diane Kuzara 2019 - 2020 Dan Gumina 2021 - 2022

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June, 2023



From The President's

desk: Hello again from your president. My how time flies ! This being my last message till September ! We had a great turnout for the Club Banquet May 6 th ! 18 members enjoyed good food and fellowship ! Dan Gumina presented our "Rookie of the Year" award to Andrea Rinker !

Congrats to Andrea ! We will have another field trip possibly for some fossils in Ohio ! Come to the general meeting for details ! I want to mention the MWF show and convention hosted by the Livingston gem and mineral society ! It will be at the Hartland support educational service center in Howell Mi. September 16th and 17th . They are looking for delegates and exhibitors if anyone is interested, let me know ! I'll see you at the meeting and as always , Happy rock hunting ! Mike Bomba

June's Program: The program for June will be "What's Hot in Tucson 2018", hosted by famous collector Dave Wilber.

Congratulations: The Club's Rookie of the year award went to Andrea Rinker. Once again Congratulations Andrea.

Scholarship Award Winners: Congratulations To: Tim McNamara Lauren Sibu

Welcome New Member Edward Kisela

More Sad News

A sister of James Hildenbrand passed away and another sister was admitted to hospise care. Our condolences to the family

REMBER BEFORE TRAVELING A GREAT DISTANCE CHECK THAT THE EVENT IS STILL GOING ON!!!!!!

Dates to Remember!!

June 1st & 15th Bead Study group will meet at the Kuzara's 20281 Thomas, Brownstown at 7pm. Diane Kuzara 734-675-5237

June 5th, 19th & 21st Lapidary Work Shop 2009 W. Michigan Ave., Ypsilanti, Mi. 7pm. to 10pm. Space is limited so please call Frank Konieczki 734-323-2218 before attending.

June 15th Mineral Study Group Will meet at Dave Esch's house, 227 Barton Shore Dr., Ann Arbor, MI. At 7:30 pm. BEFORE ATTENDING CALL TO MAKE SURE THE GROUP IS MEETING!

June 20th Board Meeting will be held at the Democratic Club of Taylor, 23400 Wick Rd., Taylor at 6:30 pm.

June 20th General Meeting will be held at the Democratic Club of Taylor, 23400 Wick Rd., Taylor at 7:30 pm

August 18th Rockpile Deadline for September

SATURDAY, SEPTEMBER 16TH OUR CLUB PICNIC WILL BE AT STACY HARPER'S HOME IN BELLEVILLE, MICHIGAN FURTHER DETAILS WILL BE IN THE SEPTEMBER ROCKPILE.

SEPTEMBER 16TH & 17TH MIDWEST FEDERATION CONVENTION HOWELL,MI AT THE LIVINGTON GEM AND MINERAL SOCIETY SHOW.

October 7 & 8Midwest Mineralogical & Lapidary Society Rock Swap WhereWayne County Fairgrounds & RV Park, 10871 Quirk Rd, Belleville, MI 48111, Contact: Bill Barr; (505) 803-4888; wbarr@umich.edu; www.mmls.us

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Sister Club Events:

June 3 & 4 State Line Gem & Mineral Society

Annual Show Contact: Sherman Kardatzke; sakardatzke@gmail.com Junior Fair Bldg, County Fairgrounds, 8514 State Route 108, Wauseon, OH

June 10 Indian Mounds Rock Club Mineral

Swap Contact Kreigh Tomaszewski; <u>kreigh@gmail.com</u>. Where Woodland Drive-In Church, 2600 Brenton Rd. SE, Grand Rapids, Mi 49546

June 10-11-MANSFIELD, OHIO: Annual

show; Mid-Ohio Mineral & Fossil Club; Fairhaven Hall Richland County Fairgrounds, 750 North Home Road. contact Tom Kottyan, (419) 561-3595; Email: themineralhouse@netzero.net; Website: rlls.webs.com/

June 23-25-BEDFORD, INDIANA: Annual

show; Lawrence County Rock Club; Lawrence County Fairgrounds, Highway 50; Fri. 10-6:30, Sat. 9-6:30, Sun. 10-4; Free & free parking; 58th Annual Gem, Mineral Fossil Show contact Kathy Shaffer, (812) 929-5367; Website: www.lawrencecountyrockclub.org

Keweenaw Week

WhenMon, August 7, 2023, 8am – Thu, August 10, 2023, 6pm WhereVarious locations throughout the Keweenaw Contact: George Schriver; (906) 236-4716; pres@ccrmc.info; www.ccrmc.info

August 9—HANCOCK, MICHIGAN: Quincy mine hoist annual rock swap; Friends of the Quincy Mine Hoist Association; Quincy Mine Hoist, 49750 US Hwy 41 quincymine.com; contact Derek Ellis, Hancock, MI; Email: <u>derekdogg1@gmail.com</u>

August 11 thru 13 Copper Country Rock & Mineral Club Annual Show

WhereHoughton Elementary School, 203 W Jacker Ave, Houghton, MI 49931, Contact: George Schriver; (906) 236-4716; pres@ccrmc.info August 18-20—SOUTH BEND, INDIANA: Annual show; Michiana Gem & Mineral Society; St. Jpseph 4-H Fairgrounds, 5117 South Ironwood Road, Cloverleaf Villas contact Bob Chapa, (989) 392-25; Email: bobchapa1@gmail.com

September 8-10—BOWLING GREEN,

OHIO: Annual show; Toledo Gem & Rockhound Club; Wood County Fairgrounds, Pratt Pavilion, 13800 W Poe Rd contact Jerri Heer, (419) 344-9999; Email: jheerx6@aol.com; Website: rockyreader.com

September 16-17—HOWELL,

MICHIGAN: Annual show; Livingston Gem and Mineral Society; Hartland Educational Support Service Center, 9525 East Highland Road;contact Sandra Jo Wrestler, (248) 875-5921; Email: sjwrestler@gmail.com; Website: https://livingstongems.com/

September 15, 16 & 17 Tulip City Gem &

Mineral Club Annual Show WhereSoccer Stop Sportsplex, 5 River Hills Dr, Holland, MI 49424, USA (<u>map</u>) Contact: Michelle Bennett; (712) 240-0490;

mickieannbennett@gmail.com; www.tulipcity.org

September 30 & October 1 Grand Traverse Area Rock & Mineral Club Annual Show WhereVFW Post 2780 Canteen, 3400 Veterans Dr, Traverse City, MI 49684, USAContact: Lauren Vaughn; (231) 276-6150; <u>maple28@aol.com</u>; tcrockhounds.com



The Michigan Mineral Beginning with the Letter U: Uvarovite : Ca₃Cr₂(SiO₄)₃.



Uvarovite is a chromium-bearing garnet group species with the formula It was discovered in 1832 by Germain Henri Hess who named it after Count Sergei Semenovitch Uvarov (1765–1855), a Russian statesman and amateur mineral collector.[2] It is classified in the ugrandite group alongside the other calcium-bearing garnets andradite and grossular.[5]

Uvarovite is the rarest of the

common members of the garnet group,[6] and is the only consistently green garnet species, with an emerald-green color. It occurs as well-formed fine-sized crystals

Color: Green, Emerald-Green and Green-Black Hardness: 6.5 to 7.5 on the Mohs scale. Occurrence: Genesee County From the internet Wikepedia

JASPER



Poppy Jasper from Morgan Hill California.

America's First Gold Rush

The first gold rush in America happened some 20 years before the famous California 49er Gold rush.

In the forest south of what is now Dahlonega Gorgia, a young man out hunting stumbled across a rock which on examination, was laced with Gold. Within a year the word had gotten out and thousands of miners and prospectors flocked to the area which at the time belonged to the Cherokee. The area was initially rich with surface gold, and all that was necessary was a pan and a shovel. Once the surface gold was exhausted, the miners turned to sluice boxes and then to mining the gold bearing quartz veins. The hard rock mining ended up being limited by shallow ground water levels. Hydraulic mining was also eventually employed.

Dahlonega was said to have supported 15,000 miners at the height of the gold rush. During this rapid influx of prospectors and settlers, tensions with the Cherokee increased. Before long, gold mines appeared in most counties in the North Georgia mountains, The culmination of tensions between the Cherokee and various states, including Georgia, led to the forced migration of Native Americans, later known as the Trail of Tears. President Andrew Jackson authorized the Indian Removal Act in 1830, which would allow a takeover of the gold mining areas among other places desired by white settlers.

The Philadelphia Mint received more than half a million dollars in gold from Georgia in 1832. The state of Georgia held the Gold Lottery of 1832 and awarded land, which had been owned by the Cherokee, to the winners in 40-acre tracts. The Philadelphia Mint received \$1,098,900 in gold from Georgia between 1830 and 1837. In 1838, the Dahlonega Mint was established by Congress, as a branch of the United States Mint. This was a testimony to the amount of gold being produced in Georgia at the time. It is estimated that Georgia produced about 870,000 troy ounces of gold between 1828 and the mid-20th century, when commercial gold production ceased.

When news of the California Gold Rush reached Georgia, many miners moved west in search of more

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gold. Their experience helped establish gold mining in other places like California, Colorado and Montana. Despite the departure of many miners, the mines in the Georgia Gold Belt continued to produce gold for years. The Civil War brought most operations to a halt, but a few operations continued after the war, and several mines were reworked in the 1930s, during the Great Depression.

Relics of the gold mining era can be seen at the Dahlonega Gold Mining State Historical Exhibits housed inside the 1836 Lumpkin County Courthouse. Another tourist site is the Consolidated Gold Mine where visitors can enjoy guided tours in the original tunnels. Visitors can also try their luck in panning for gold at the Crisson gold mine. It was the site of a stamping mill where ore was crushed allowing the metal to be extracted. The old US Mint building is no longer with us as it burned down. Dahlonega is in the Georgia mountains about an hour north of Atlanta. Info from wikipedia,

Via *The Trilobite* via www.dahlonega.org, www.exploregeorgia.org

America's First Gold Rush The first gold rush in America happened some 20 years before the famous California 49er Gold rush. From The Quarry 2/23

GOLD IN MICHIGAN? MAYBE!

Gold can be found throughout Michigan. In addition to glacial deposits, there are also some known lode deposits that are found here. Lode discoveries have been made across the state, but most have been very low-grade, and gold production has been a byproduct of other mineral extraction efforts.

Most placer gold found throughout Michigan is very small, and not in quantities suitable for commercial extraction. Due to the low volumes, not much exploration has been done on a large scale. It is very possible for small amounts of gold to be recovered from just about any creek or river in the state if you use the proper methods to find it

The Ropes Gold and Silver Company

<u>Mine</u> is west by northwest from Ishpeming in Marquette County by three to five miles on the north side of the Marquette Iron Range, and located in Michigan's Upper Peninsula, is a very noteworthy gold location. It was the only major gold producer in Michigan. In 1881, Julius Ropes discovered gold in some rock outcroppings in the area, and formed the mine company to expand works on the discovery.

Gold mining continued for decades, changing hands numerous times until it was closed in 1991. Ore values were generally low, but new extraction methods allowed the mine to remain active, though intermittently, for over a century. This is one of the few active mining operations of any significance that operated in this part of the country.

Two miles northeast of the Ropes Mine are additional locations of gold that can be found. North from Ishpeming is the **Dead River District** in the Dead River Valley, which extends north to Lake Superior and for several miles west. About two and a half miles west of the Ropes Mine was the **Michigan Gold Mine**. It produced some of the finest museum specimens of native gold from the area. Ore was so rich that "high graders" made a practice of stealing it during the peak production years of 1890. Just west of the Michigan Mine was the **Gold Lake Mine**. It also produced some fine native gold specimens. East of the Michigan Mine was the **Superior Gold Mining Company Mine**. It had limited production, but some excellent specimens were produced.

Another proximate mine from Michigan Mine was the **Peninsular Gold Mining Company**. It produced gold in granite. Other prominent mines in the area during the 1890's were the **Grummett**, **Swains, Mocklers, Grayling and Giant Mines**.

In Marquette County, all regional stream gravels and **glacial moraine debris contained placer gold**. This made the county as the most prolific gold-producing area in Michigan. Several other streams located near the Ropes Gold Mine, where some of the old area prospect pits were situated, contained placer gold.

Actually, any waterway in Michigan has the potential to hold gold. Below are some additional rivers and streams in Michigan that have produced gold in the past.

Most of the streams and other waterways in the Allegan Township area have very fine placer gold.

Placer gold can be found in the gravel

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deposits all along the **Antrim River**. Sometimes there were occurrences of sizable nuggets.

Placer gold exists in the low water gravels along the **Boyne River** in northern Michigan.

The Little Traverse Creek and its tributaries have been found with gold. Some very fine placer gold can be found in the low water gravel bars around the area creeks in the town of Walton in Grand Traverse County. The **Grand River**, which is the longest river in Michigan that runs through the cities of Jackson, Eaton Rapids, Lansing, Grand Ledge, Portland, Lowell, Grand Rapids, and Grand Haven was found to have <u>glacial gold deposits</u>, particularly in the river's portion in the county seat of Ionia, and in the Portland State Game Area south of Portland from Charlotte Highway in Ionia County. Another river with numerous placer gold deposit occurrences is the **Mapre River**.

The 17-mile long **Rapid River** in Kalkaska County in northern Michigan produced gold in its gravel bars.

Gravel bars along Ada Creek were reported to contain placer gold. It is also important to note that the area of the northern portion of Lowell Township in Lowell City have glacial moraines that possessed gold and can be retrieved through panning.

Placer gold can be found in the area stream gravels around the township of Solon. North of Solon, placer gold can also be found in the gravels along the shore and stream tributaries of **Leelanau Lake**.

There are several placer gold deposits along the **Little Sable River** and in the low water gravel bars in the **Manistee River**, all in Manistee County.

In the Greenville City area, placer gold can be found by panning in gravels of all regional streams. Placer gold is also found in the area streams of Howard City.

The 230-mile **Muskegon River** runs all de diagonally across Newaygo County, and has placer gold in all the exposed gravel deposits.

All the creek and stream gravels in the Birmingham area contained placer gold.

Some placer deposits that contained gold were reportedly found along the **White River**, from Montague City in Muskegon County to the town of Hesperia in the township of Newfield in Oceana County, as well as numerous other creeks in Oceana County. In the Whitehall Township area, most of its streams contained some gold.

There are many areas that produce placer gold along the **Flat River**. The Victoria Copper Mine, situated in Rockland Township, has promising gold showings with occasional nuggets of native gold.

The area stream gravels around Grand Haven contained placer gold Gold was said to be contained in the area stream gravels around the village of Burr Oak in Burr Oak Township. Around the town of Marcellus, in the boundary of Cass and St. Joseph Counties, all the streams contained placer gold. From the internet raregoldnuggetts.com 7/23/14

Amber Fossils Reveal Dinosaurs and Beetles Had Symbiotic Relationship



Moult remains of feather-feeding beetle larvae intimately associated with downy feather portions from an unidentified theropod dinosaur in Early Cretaceous amber of Spain. Insets show the head with powerful mandibles of one of the larval moults (top) and the pigmentation pattern of feather second order branches (bottom), with the main stem of one feather at the right of the amber fragment. Image credit: CN IGME-CSIC

Beetles may have eaten dinosaur feathers and lived in their nests. Remains preserved in amber from 105 million years ago are the oldest evidence of a mutually beneficial relationship between dinosaurs and arthropods

Battered feathers and prehistoric beetle larvae encased in amber have revealed a relationship between dinosaurs and insects that stretches back more than 105 million years – the oldest example of symbiosis between dinosaurs and arthropods.

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New fossils in amber have revealed that beetles fed on the feathers of dinosaurs about 105 million years ago, showing a symbiotic relationship of one-sided or mutual benefit, according to an article published in *Proceedings of the National Academy of Sciences of the United States of America today.*

The main amber fragments studied, from the Spanish locality of San Just (Teruel), contain larval moults of small beetle larvae tightly surrounded by portions of downy feathers. The feathers belonged to an unknown theropod dinosaur, either avian (a term referring to "birds" in wide sense) or non-avian, as both types of theropods lived during the Early Cretaceous and shared often indistinguishable feather types. However, the studied feathers did not belong to modern birds since the group appeared about 30 million years later in the fossil record, during the Late Cretaceous.

When looking at modern ecosystems, we see how ticks infest cattle, frogs capture insects with acrobatic tongues, or some barnacles grow on the skin of whales. These are just a few of the diverse and complex ecological relationships between vertebrates and arthropods, which have coexisted for more than 500 million years. The way that these two groups have interacted throughout deep time is thought to have critically shaped their evolutionary history, leading to coevolution. Nevertheless, evidence of arthropod-vertebrate relationships is extremely rare in the fossil record.

The larval moults preserved in the amber were identified as related to modern skin beetles, or dermestids. Dermestid beetles are infamous pests of stored products or dried museum collections, feeding on organic materials that are hard for other organisms to decay such as natural fibres. However, dermestids also play a key role in the recycling of organic matter in the natural environment, commonly inhabiting nests of birds and mammals, where feathers, hair, or skin accumulate.

"In our samples, some of the feather portions and other remains – including minute fossil faeces, or coprolites – are in intimate contact with the moults attributed to dermestid beetles and show occasional damage and/or signs of decay.

This is hard evidence that the fossil beetles almost certainly fed on the feathers and that these were detached from its host," explains Dr Enrique Peñalver, from the Geological and Mining Institute of Spain of the Spanish National Research Council (CN IGME-CSIC) and lead author of the study.

"The beetle larvae lived –feeding, defecating, moulting – in accumulated feathers on or close to a resin-producing tree, probably in a nest setting. A flow of resin serendipitously captured that association and preserved it for millions of years."

"Three additional amber pieces each containing an isolated beetle moult of a different maturity stage but assigned to the same species were also studied, allowing a better understanding of these minute insects than what is usually possible in palaeontology," says Dr David Peris, from the Botanical Institute of Barcelona (CSIC-Barcelona City Council) and co-author of the study. The most impressive, complete specimen was found in the amber deposit of Rábago/El Soplao in the northern Spain, roughly of the same age as San Just

"It is unclear whether the feathered theropod host also benefitted from the beetle larvae feeding on its detached feathers in this plausible nest setting," says Dr Ricardo Pérez-de la Fuente, from Oxford University Museum of Natural History and co-lead author of the study. "However, the theropod was most likely unharmed by the activity of the larvae since our data show these did not feed on living plumage and lacked defensive structures which among modern dermestids can irritate the skin of nest hosts, even killing them."

The above story is based on Materials provided by University of Oxford. "It is unclear whether the feathered theropod host also benefitted from the beetle larvae feeding on its detached feathers in this plausible nest setting," says Dr Ricardo Pérez-de la Fuente, from Oxford University Museum of Natural History and co-lead author of the study. "However, the theropod was most likely unharmed by the activity of the larvae since our data show these did not feed on living plumage and lacked defensive structures which among modern dermestids can irritate the skin of nest hosts, even killing them."

The above story is based on Materials provided by University of Oxford.

From the internet GeologyIn

See ya all in September the Rockpile Staff

THE MIDWEST MINERALOGICAL AND LAPIDARY SOCIETY (MMLS) is an educational non-profit organization founded in 1956. The Society now has more than 100 members and is affiliated with the Midwest Federation of Mineralogical Societies and the American Federation of Mineralogical Societies. Significantly, MMLS has been recognized numerous times by the Midwest and American Federations with first place (gold level) awards in the annual All American Club Awards Program.

PURPOSE: The purpose of The MMLS shall be (I) to promote interest in and increase knowledge in the fields of mineralogy, geology, and paleontology, including lapidary and related arts; (2) to publish articles and information pertaining to these fields; (3) to encourage collections and to display specimens in these fields; and (4) to arrange field trips in support of the interests and activities specified.

GENERAL MEETINGS: the third Tuesday of each month, September through June, 7:30 p.m. at the Democratic Club of Taylor, 23400 Wick Rd., Taylor, MI 48180 **<u>GUESTS ARE ALWAYS WELCOME.</u>**

MEMBERSHIP: Applications for membership can be obtained at any general meeting or from any MMLS member. DUES: Entrance fee - \$3.00; annual dues - \$20.00 (adult), \$2.00 (junior) on a year basis. Membership expires each Dec. 31.

ANNUAL EVENTS:

March - Spring Rock Swap and Sale, Banquet Fall- 2 Day SuperSwap and Sale November Annual Auction Yearly Picnic

STUDY GROUPS: Special-interest study groups meet monthly, September though June. Currently the following groups are active: Bead Study, Mineralogy, Wire Study is conducted on individual basis.

FIELD TRIPS: Several one day field trips and one longer (one to two weeks) field trips are conducted each year. Mostly, these field trips focus on the collecting of mineral and fossil specimens at quarries, mines, and other known collecting sites in the United States and Canada. Field trips are restricted to MMLS members.

SCHOLARSHIP FUND: MMLS has established a scholarship Endowment Fund which provides scholarships to qualified students enrolled in an accredited college or university in southeastern Michigan who have completed at least their junior year and have a major in geology, mineralogy, paleontology or lapidary and related arts.

SEAMAN MINERAL MUSEUM: MMLS has designated the A.E. SEAMAN Mineral Museum, Houghton, Michigan, as it's "adoptive" museum, pledging to support it with gifts to the museum's endowment fund and the donation of mineral specimens and services.

INTERNET WEB SITES OF INTEREST:

Midwest Federation: <u>www.amfed.org/mw1lindex.html</u> American Lands Access Association: http://amlands.org

American Federation: <u>www.amfed.org</u>

The Rockhound's 10 Commandments:

Thou shall not touch thy neighbor's minerals unless he places them in thy hands.

Thou shall not test the strength of crystals by pushing, squeezing or biting.

Thou shall not drop thy neighbor's fossils, for many do not bounce properly.

Thou shall not place thy neighbor's specimens in thine own pocket.

Thou shall not collect at a neighbor's land unless unless thy neighbor knowst he's there.

Thou shall not argue names of minerals too violently; for sometimes thou couldst be wrong.

Thou shall not climb above thy neighbor's head when on a field trip, lest thou art willing to spend the rest of the day digging him out.

Thou shall protect thine eyes, hands & feet, so that they mayst enjoy many future field trips.

Thou shall not encroach upon thy neighbor's diggin's, lest thy neighbor's hammer be dropped upon thee.

Thou shall not break uncollectable specimens.

