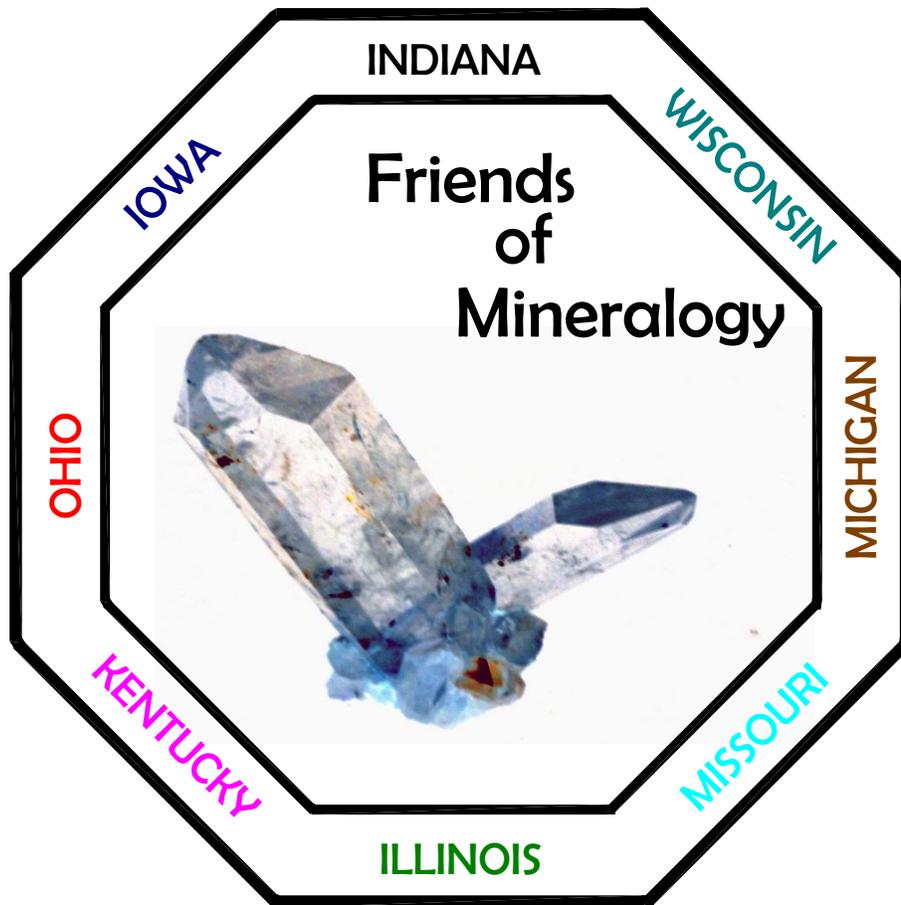


# Friends of Mineralogy

Midwest Chapter Newsletter for

May – June 2014



## Affiliations:

THE MINERALOGICAL RECORD

THE MINERALOGICAL SOCIETY OF AMERICA

AMERICAN GEOLOGICAL INSTITUTE

ROCKS & MINERALS MAGAZINE

Our purpose is to organize and promote interest in and knowledge of mineralogy; to advance mineralogical education; to protect and preserve mineral specimens and promote conservation of mineral localities; to further cooperation between amateur and professional and encourage collection of minerals for educational value; and to support publications about mineralogy and about the programs of kindred organizations.

## 2014 Officers

**President** - Clyde Spencer, 1858 Robin Hood Dr., Fairborn, Ohio 45324  
(937)878-9988 c\_spencer123@att.net

**Vice President Programs** –Randy Marsh, 6152 Old Stone Ct.,  
Hamilton, Ohio 45011  
(513)515-7890 marsh.rg@pg.com.

**Vice President Field Trips** - Reggie Rose, 4287 Parkmead Dr.  
Grove City, Ohio 43123  
(614)875-2675 captaino@core.com

**Secretary** – Vacant

**Treasurer** - Jeff Spencer, 4948 Beachwood Dr., Cincinnati, Ohio 45244  
(513)248-0533 jspencer@jsite.com

**Liaison Officer** – Nelson Shaffer, Ph. D., Indiana Geological Survey  
611 N. Walnut Grove Ave., Bloomington, IN 47405  
Phone: 812-855-2687 shaffern@indiana.edu

**Fund Raising (Committee Chair)** - Vacant

**Newsletter (Committee Chair)** Tom Bolka, 2275 Capestrano Dr.  
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Newsletter published bi-monthly in January, March, May, July, September and November. Please submit all information for publication in the newsletter by the 15<sup>th</sup> of the previous month.

**Cincinnati  
GeoFair® 2014**  
49<sup>th</sup> Annual  
Gem, Mineral, Fossil & Jewelry  
Show of Greater Cincinnati  
[www.geofair.com](http://www.geofair.com)

**May 3**  
Saturday  
10 am to 6 pm

**May 4**  
Sunday  
11 am to 5 pm

Featuring:  
**Minerals and Fossils**  
from  
**Ohio, Indiana & Kentucky**



See upcoming events in the travel guide – page 10

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**The next FM meeting will be on Saturday, May 3rd at 4:00pm. This is in conjunction with Cincinnati Geofair 2014. It is located at the Cincinnati Gardens, 2250 E. Seymour Avenue.**



“Fluorite, Barite and Calcite from Marblehead – John Davis”

## Treasurer's Report

So far in 2014, we have 99 members signed up and paid. This brings \$1980 into the treasury. Of that 99, 80 are returning members from 2013 and 19 are new members.

The remaining t-shirts were sold at the Marblehead field trip. That resulted in a \$124.60 net profit for Tom Bolka's project!

Members have donated \$400 and the chapter will donate another \$250.00 for the Ohio Minerals Bulletin 69 production costs in memory of Dr. Ernie Carlson. The Ohio Dept. of Natural Resources intends to get the printing done later this year.

The total amount in the treasury as of April 13<sup>th</sup> is \$3369.00. Clyde Spencer was able to get the 'terrorism' coverage premium removed from our insurance which saves us \$25.00. Our 2014 insurance payment of \$650.00 and National dues of \$396.00 will be paid this month.

Please send me any questions or concerns that you have.

Jeff Spencer

Treasurer - Friends of Mineralogy Inc. Midwest Chapter

[jspencer@j-site.com](mailto:jspencer@j-site.com)



Geographic locations of FM members as of April 2014

## President's Message

Friends,

We are still in need of a recording secretary for our meetings. For the last two meetings, our 1<sup>st</sup> Vice President, Randy Marsh, has served as Secretary *Pro Tempore*. I personally feel badly that Randy is working so hard when the rest of you are coasting. However, it is important that an accurate record exist of our corporation's meetings and resolutions. This organization can only be what the members are willing to make it. Would someone please volunteer to serve as the secretary for the chapter!



I solicited input from members on whether or not we should implement some sort of teleconferencing for our meetings. Out of our current membership of 94, 85 with email addresses were solicited; 19 responded and 13 were in favor of the idea. Not really a resounding endorsement since the number of positive responses was just a little more than the number of attendees we get at a physical meeting, and there was some duplication of regular attendees and those responding positively. Whether or not teleconferencing is implemented will depend largely on the efforts of Jeff Spencer and Randy Marsh, both of whom are already going above and beyond the call of duty to make this chapter exceptional.

Our constitution stipulates that all members are to be supplied with a current membership roster. However, people are more concerned about issues of privacy and identity theft than they were in 2001, when the constitution was written. There have been other things that I felt were more important to deal with; therefore, I have been dragging my feet on complying with this requirement. I'd like feedback from members on how best to deal with this requirement. Please let me know what your preferences are, particularly if you do not want to have your contact information shared with other members.

There has been discussion amongst the executive board members about problems that unwanted publicity might create for quarry operations. As Nelson Shaffer put it, "Quarries are often concerned about publicity. They are in business to crush rock and provide a valuable commodity to society. Companies work under strict safety rules and also have to meet corporate and insurers' constraints." There are situations where management has turned a blind eye to employees doing some collecting. But, when someone selling specimens provides the amount of detail that the foreman knows who was working at that level, and broadcasts it to the world through the internet, it becomes more difficult to overlook. Specimens advertised on the internet, with details about the locality, has resulted in management being inundated with phone calls that interrupts their work schedule. Locality information is important to many if not most collectors. Therefore, I'd like to make a suggestion: if you are selling material to the public, only provide the state and county in the advertising, with the promise of providing more detail if they actually buy the specimen. Friends of Mineralogy has no control over commercial dealers, indeed not even individual members. However, I would hope that anyone selling specimens will see that it is in their best long-term interests to not do anything to upset those gracious enough to allow us to collect on their sites.

The second annual mini-symposium held at Miami University (arranged and coordinated by Randy Marsh) was a success and was enjoyed by those who attended. If you didn't make it, you missed out on very interesting presentations. For more details and a taste of what you missed out on, see the article by Randy on page 7.



## Minutes for Midwest Chapter Meeting at Miami University

03/15/2014

President Clyde Spencer declared a quorum and called meeting to order at 11:07

Old business:

- Asked if there were any corrections to minutes in last newsletter
- No corrections – minutes accepted by acclamation

Announcement

- o At January meeting, Dan Hall had agreed to audit our finances for 2013
- o Treasurer, Jeff Spencer, will hand off materials to Dan at end of meeting to have records verified

Guests

- o Chuck Salmons and Tom Serenko, Mike Engel, Mark Jones, Mark Wolf from Ohio Geological Survey
- Presentation by Chuck Salmons on status of Bulletin 69, second edition, Minerals of Ohio
- o Passed out two handouts – includes a list of FAQs
  - o Challenges to publication – book's author (Dr. Carlson) passed away
    - Nelson Shaffer stepped up to be first peer reviewer and content contributor
    - Terry Huizing helped getting high-res photos to update everything
  - o Book will be full color
  - o Over 620 localities in 79 counties
  - o Additional meteorites have been added
  - o Request for folks to let Chuck Salmons know if any minerals are missing
  - o ODNR would like to make it hard cover book
  - o Want to get out for bids by November with editing completed by end of September
  - o Copies should be available for purchase in December, prior to the holidays
  - o Currently about 1/3<sup>rd</sup> of the way to the \$16,000 goal for funding
    - This would allow 1000 copies in hard cover
  - o Opened up for questions:
    - Price point for book? Around \$30.
    - Terry Huizing suggested setting a higher price and make wholesale price at cost recovery level; thinks 1000 a little light in terms of copies, \$50 would be reasonable for market price. Organizations could buy copies at wholesale and then sell at \$50 to assist with funding for the mineral societies.
  - o Deadline for receiving funding... preferable by end of summer.
  - o Clyde Spencer mentioned that we have \$400 of anonymous pledges, executive board has agreed to spend \$250 of treasury, FM National agreed to give us check for \$500. Cincinnati Mineralogical Society will also provide substantial donation.
  - o Will include pages that identify all the contributors to the effort

## Minutes for Midwest Chapter Meeting (Continued)

- Clyde asked members to donate via the Chapter so we can get our name in the book

### New business:

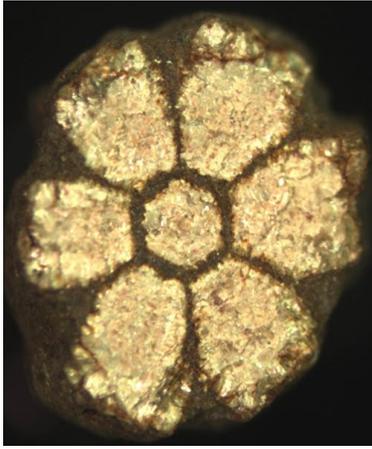
- Jeff Spencer gave treasurer's report
  - Provided handout to the group
  - 83 members currently
  - Projected 2014 ending balance of \$1,522
  - Have more finances available to better fulfill our mission
- Randy Marsh gave a quick summary of coming events
  - Nothing else formal scheduled yet for this year; talking with Wittenberg University
  - Requested people send what they would like to see for events
  - John Rakovan offered to provide Miami facilities each year for a symposium for FM
- Reggie Rose shared field trips status
  - Mentioned that Clyde created a document to outline why it is important for quarries to respond early; seems to be helping to get responses
  - May have a field trip in 3 weeks – Marblehead (OH); wants to maximize the number of members who can enjoy Marble Head April 5<sup>th</sup> (tentative)
  - Auglaize: May 10
  - June – Mitchell Indiana (Heidelberg Quarry)
  - No response yet from Clay Center
  - Open for September
  - Mentioned that trips generally have attendees from specific regions – many of our folks are centrally located
- Terry Huizing shared the following:
  - Project for collectors in mid-west
  - Supplements for mineralogical record
  - Terry will coordinate similar project for Midwest collectors –
  - Opportunity for anyone who has a mineral collection to be featured – requires paying
  - Minimum of 2 pages, multiples of 2 pages; per page cost of \$435.
  - All images must be digital – slides can be converted at \$75 an image
  - Would like to hear from anyone who is interested
  - Clyde asked Terry to summarize info and that we would send out to our entire group
- Clyde asked if any other business? No response
- Gave a T-shirt to John Rakovan in appreciation for his support of the Chapter
- Membership application forms provided on the counter
- Motion to adjourn; seconded – adjourned at 11:57

Respectfully submitted,

Randy Marsh, Secretary *Pro Tempore*

# HIGHLIGHTS OF THE PSEUDOMORPHISM SYMPOSIUM

March 15, 2014

		
<p>Hematite after Marcasite from Farafra Oasis, Egypt – Terry Huising</p>	<p>Cherry Blossom Stones (Sakura Ishi) from Kameoka, Japan -- John Rakovan</p>	<p>Copper after Aragonite from Bolivia – Alfredo Petrov <i>Photo by Rob Lavinsky (<a href="http://www.irocks.com">http://www.irocks.com</a>)</i></p>

	
<p>Hematite after Pyrite from Graves Mountain, Georgia – John Medici</p>	<p>Reticulated Rutile from Watertown, Connecticut – Pete Richards</p>

Friends of Mineralogy Midwest Chapter held a mini-symposium on pseudomorphism at Miami University on March 15, 2014. The event was made possible by sponsorship from the Karl E. Limper Geology Museum and John Rakovan.

Overall there were between 25-30 participants throughout the day.

Dan Hall kicked things off with his talk Pseudomorphs – The Ghosts of Minerals Past, providing a helpful background on what pseudomorphs are and the different kinds that exist. Wladek Betkowski providing an entertaining and insightful presentation on mechanisms whereby pseudomorphs can be formed, with a focus on mineral replacement by coupled dissolution-precipitation. Terry Huising then beguiled us with beautiful pictures of various kinds of highly





*Some of John Davis and Everett Harrington's finds*

## Quarry Travel Guide for May and June

**Field Trip Locality:** Dolomite Products Inc.

**Address:** 746 Whalen Road, Penfield, NY 14526

**County:** Monroe

**Date of Trip:** Saturday May 03, 2014

**Time of Field Trip:** 7:00 am – 12:00 pm (check-in is from 6:30 am to 7 am)

**Travel Distance:** (from Grove City, OH; exit 100 on I 71):

**From Grove City, OH:** via toll roads: 411 miles; without toll roads 459 miles

**Travel Time:** From Grove City, OH; exit 100 on I 71: via toll roads: 6:09;  
without toll roads: 6:55

**Age of Rock:** Lower Devonian- the rock here is 410 million years old  
(Devonian 415-355 mya)

**Rock Units Exposed:** Lockport Dolomite

**Training Required:** On-site

**Specimens Present:** calcite, dolomite, fluorite, selenite, sphalerite

**Special Considerations:** FM will be one of several clubs at this open house. Be there early to get checked in since the group will be large. Power equipment including saws, is allowed.

**Quarry Location:** Penfield is about 21 minutes east of Rochester, NY. From I-490 E take exit 23, Linden Avenue. At the top of the exit ramp, turn left onto 441 E. Take 441 E for 2.5 miles where you will enter the town of Penfield. 0.1 miles later from 441 E (Penfield Road) turn left onto Five Mile Line Road (Co Hwy 18). 0.9 mile later turn left on Whalen Road (Co. Hwy 13), follow Whalen Road for 2.1 miles. The quarry road will be on the right.

### Cincinnati GeoFair® 2014

Cincinnati Gardens, 2250 E. Seymour Avenue  
May 3<sup>rd</sup> (10 to 6 ) & May 4<sup>th</sup> (11 to 5)

### DIRECTIONS FROM I-75

**Southbound:** Take Exit 9 (Paddock Road / Seymour Avenue). Turn left at the stoplight. The second light is Seymour Avenue; turn left. Cincinnati Gardens is approximately two miles on the left.

**Northbound:** Take Exit 9 (Paddock Road / Seymour Avenue). Turn right at the yield sign. The first light is Seymour Avenue; turn left. Cincinnati Gardens is approximately two miles on the left.

### DIRECTIONS FROM I-71

**Southbound:** Take Exit 7 (Ohio Route 562 / Norwood). Take the first exit and follow directions below.

**Northbound:** Take Exit 8B (Ohio Route 562 / Norwood). Take the first exit (Ohio 561 / Norwood). At the stop sign turn left onto Norwood Road. Turn right onto Montgomery Road at the traffic signal. At the next traffic signal, turn left onto Carthage Avenue. Follow Carthage Avenue (Ohio Route 561) about one mile. Cincinnati Gardens is on the right at the junction with Seymour Avenue.

### Admission

*Adults.....\$9      Two day pass.....\$12  
Children....\$3      Uniformed Scouts free  
Scout leaders pay adult rates  
Teachers free with ID and paid companion*

**Field Trip Locality:** Stoneco - Auglaize - Junction, OH

**Address:** 13762 Road 179, Oakwood (Junction), OH 45873

**Date of Trip:** Saturday May 10, 2014

**Time of Field Trip:** 7:00 am – 11:30 am

**Travel Time from Designated Point:** 2:30 from central Ohio

**Age of Rock:** Middle Devonian

**Rock Units:** The Detroit River Group

**Specimens Present:** Auglaize Quarry is best known for its crystals of iridescent brown fluorite, along with sphalerite, calcite, pyrite, quartz, and hydrocarbons. The minerals are found in pockets and fractures of quarry dolostones.

**Training Required:** MSHA

**Quarry Location:** The Shelly – Stoneco Auglaize Quarry is in Paulding County, Ohio. Take route 111 SW from Defiance about 8 miles to Ohio State Route 637, just east of Junction. Go east a short distance across the Auglaize River, and turn south on Paulding County Road 179. The Quarry office on the east (left) side of the road.

From the south, Take I - 75 N to exit 130 (Bluelick Road). Take Bluelick Road 3.5 miles west to route 65. Take route 65 N/R for 1.6 miles where you will bear left onto route 115 N – take this route 7 miles into Kalida and continue in 115 N for 19.5 miles until its junction with route 15. Go W/L on route 15 for 0.5 miles to route 613. Go W/L on Route 613 for 9 miles passing through Continental, Hartsburg & Oakwood. At the junction of 613W and route 66 west of Oakwood, take Route 66 N/R, 5 miles later, take route 166 L/W. 2.6 miles down the road turn right (N) onto County Rd 179. Take 179 N for 1.3 miles. The quarry entrance is on your right.

**Lawrence County 49th Annual Rick Mineral and Fossil Show (Bedford, IN)**

Show Dates and Times:

Fri June 27 10 am – 6:30 pm; Sat June 28 9 am – 6:30 pm, Sun June 29 10 am - 4 pm

**Location:** Lawrence County Fairgrounds, 11265 US Hwy. 50 West Bedford, IN 47421.

For questions call: 812-295-3463

**Directions:** From the Junction of Hwy 37 & Hwy 50 southwest of Bedford, go west on Hwy 50 for 0.6 mile, turn right into the Lawrence County Fairgrounds. This is less than 15 minutes from the Heidelberg Quarry.

**Field Trip Locality:** Rogers Group, Inc. – Mitchell Quarry

**Address:** 3020 State Route 60 W

**Date of Trip:** Friday June 27, 2014

**Time of Field Trip:** 10:30 am – 3:00 pm (check in from 10:30 – 11:00 am)

**Travel Distance:** and time: (from Grove City, OH; exit 100 on I 71):

(1) Via I71S to I275 W (the Cincinnati outerbelt) and Indiana SR 50W; 227 miles, 4:07 (2) Via I-70W in Ohio and Indiana to I-465 S (the Indianapolis outerbelt) and SR 37S in Indiana: 260 miles; 4:09. The preceding times and distances are to the intersection of routes 60 and 37 in Mitchell, Indiana. Route 1 & 2 are of a similar driving time but dissimilar distances. However, the southern route via SR 50 is all two lane, and if there is any road construction on route 50 there can be long delays.

**County:** Lawrence

**Age of Rock:** Middle Mississippian; The Mississippian geological time period was from 355 to 325 mya.

**Rock Units Exposed:** Units exposed in this quarry are the Paoli Limestone on the bottom to the Mansfield Formation at the top of the quarry. Formations in order from the bottom to the surface include Paoli Limestone, Bethel Formation, Beaver Bend Limestone, Sample Formation, Reelsville Limestone, Elwren Formation, and Mansfield Formation

**Training Required:** MSHA

**Specimens Present:** pyrite (cubes up to ¾" on a side, calcite, dolomite, gypsum – varieties satinspar and selenite (with

selenite plates up to 1 foot long); Credit for the listing of specimens goes to FM Program VP emeritus Peggy Fisherkeller, and most especially to FM President emeritus Bob Harman.

**Quarry Location:** from the Junction of Indiana Routes 60 and 37, turn west on Route 60. Proceed West on Route 60 for 5.8 miles; the Rogers Group Quarry is on the south (left) side of the road. Travel distance and time from the Junction of Routes 60 & 37: 5.8 miles, t = 6:30.

**Post Field Trip Fun:** Ft. Ritner or:

We are looking for any FM member to direct or lead the field trip group to a new geode collection site from about 4 pm to 7 pm. If that site is secluded near a stream without high walls or police, that would be even better. If geode collecting does not materialize, you can go to the Lawrence County 49th Annual Rick Mineral and Fossil Show. See the show times and dates above.

**Field Trip Locality:** [Lehigh Heidelberg Cement Company](#)

**Address:** 180 North Meridian Road, Mitchell, IN 47446

**Date of Trip:** Saturday June 28, 2014

**Time of Field Trip:** 8:00 am – 12:00 pm

**Travel Distance:** and time: (from Grove City, OH; exit 100 on I 71):

(1) Via I71S to I275 W (the Cincinnati outerbelt) and Indiana SR 50W; 227 miles, 4:07 (2) Via I-70W in Ohio and Indiana to I-465 S (the Indianapolis outerbelt) and SR 37S in Indiana: 260 miles; 4:09. The preceding times and distances are to the intersection of routes 60 and 37 in Mitchell, Indiana. Route 1 & 2 are of a similar driving time but dissimilar distances. However, the southern route via SR 50 is all two lane, and if there is any road construction on route 50 there can be long delays.

**County:** Lawrence

**Age of Rock:** The age of the limestones in the quarry is early Mississippian. The Mississippian geological time period was from 355 to 325 mya.

**Rock Units Exposed:** The Lehigh Quarry is a limestone quarry in the Salem & St. Louis Limestones (bottom to top). The old part of the quarry, now underwater produced between 1901 and 1960. The new part of the quarry where we will collect has been active from 1960 to the present.

**Training Required:** MSHA

**Specimens Present:** calcite, celestine, gypsum, gypsum, var. selenite, marcasite, quartz. The celestine here can be clear or yellow colored; occasionally, a crystal may be zoned into both colors. (See Chris Stefano's 2007 mindat.org photo).

**Quarry Location:** From the intersection of Indiana Routes 60 & 37, the west entry to Mitchell, drive east on Route 60 into downtown Mitchell. This is West Main Street; West Main Street ends 1.4 miles later at 1st Street. At the end of the street, make a quick left and right turn. Go past the first (abandoned office) to the second office building, 0.1 mile later. Travel distance and time from the Junction of Routes 37 and 60E (West Main Street) : d = 1.8 miles; t = 6 minutes.

# Mineralogy Reformation

By  
Clyde Spencer

*(Before I get up on my soap box, I should dispel any thoughts that what I'm saying is endorsed by FM National or this chapter. These are my own opinions, albeit shared by some friends.)*

In an email exchange with one of our members, Chris Stefano, I lost my innocence. I was looking for an isotropic, opaque mineral with a nominal reflectance of about 35%. After checking several references, bravoite seemed to fit the requirements. Chris informed me that the name bravoite has been discredited by the International Mineralogical Association (IMA) and it is now properly called nickeloan pyrite. I've taken my eye off the orb for a few years and, to my dismay, mineralogists have been revising mineralogical terminology quite extensively! Unfortunately, it isn't just a situation of some spellings, like changing celestite to celestine and niccolite to nickeline. While I have found the spelling changes to be problematic, I can live with them, albeit uncomfortably. (I find myself sometimes lapsing back to what I first learned.) There is potential merit to a rational, uniform naming schema. However, the practice of 'grandfathering' names compromises any such attempt at taxonomic uniformity! To quote George Bernard Shaw, "Hell is paved with good intentions."

I was aware that there had been some changes in the mineralogical nomenclature such as invalidating some species that were found to be redundant, or misidentified because of poor analyses; these sorts of changes are necessary and appropriate. However, there have been wholesale changes, including removal of 'valid' species with historically significant names that have been in use for decades. The IMA inquisition has tortured the names, demanding that they recant upon pain of death; many of them have subsequently perished! A mineralogist friend confided that he thinks the greatest sin is re-naming species that had been named in honor of someone, thereby dishonoring the person.

The word "plagioclase" has been expunged from my 2008 edition of Fleischer's Glossary of Mineral Species! The formal excommunication of "plagioclase," which formerly implied an isomorphic series with similar properties, including a propensity for polysynthetic twinning that is only possible with triclinic feldspars, speaks loudly to the excesses of the current reformation. The proverbial intermediate species between the solid-solution end-members, albite and anorthite, are nowhere to be found, even in the group listing of feldspars in the back of the glossary. If we were to use the renaming of bravoite as a guideline, then we should at least have albite, calcic albite, sodic anorthite and anorthite. However, I'm not sure that would be an improvement. As it is, we only have the two hypothetical end-members as recognized species. I suppose the boundary between them is at 50%, but that isn't stated explicitly. A 50% boundary would only be justified if the physical and optical properties changed linearly.

I wonder what petrologists think of this revisionism? The plagioclase composition has genetic and nomenclature implications for igneous rocks. Future generations of geologists and petrologists will no longer make the obvious connection between andesite (rock) and andesine (mineral), because they will not be taught that andesine is an intermediate member of the plagioclase series, and a common constituent of andesite. I can see it in my mind's eye now: The field petrologist pulls out their hand lens, scans the hand specimen, and pronounces, "I see abundant albite-anorthite series minerals in this, along with quartz and minor biotite-like mica, so it is probably an annite-phlogopite series granodiorite." What good is it for an optical mineralogist to recognize 'birds-eye' extinction between crossed polarizers as a diagnostic characteristic when biotite is no longer a valid mineral? It is at best an "incompletely investigated," trioctahedral group of dark micas. Most of the new group and series listings seem to have little in common other than the crystal system and a formula template. The notable exception to that is the Feldspar Group, which lumps **all** the crystal systems that feldspars crystallize in into a single group. Like most dogmas, there are obvious logical inconsistencies that one is supposed to pretend don't exist.

There are numerous examples of solid-solution series where the intermediate members historically have been given unique names. Olivine (AKA peridot) immediately comes to mind. Peridot is a former name from which the rock name peridotite was derived. "Olivine" has been relegated to a group name instead of an intermediate species. The

group name is derived from olivine being the former name of the common intermediate, but unspecified (Mg, Fe)SiO<sub>4</sub> composition. It isn't clear to me whether the boundary between fayalite and forsterite is now 50%, or if one should talk about ferroan forsterite and magnesian fayalite. In any event, pure end-members (except forsterite in marbles) are rare and it becomes ambiguous how one should succinctly refer to the more common hybrids of fayalite-forsterite; that was what olivine was formerly used for. Which is more reasonable, to have a mineral name for typical mineral compositions, or to only have names for the hypothetical end-members? In petrologic use, it would be inaccurate to refer to "olivine" (e.g. olivine basalt) because the group now includes more than the traditional Fe-Mg orthosilicates; it is unnecessarily verbose to refer to "fayalite-forsterite series!"

Trigonal carbonates of theoretically only a single species of cation are listed under the Calcite Group; that is, calcite (Ca), magnesite (Mg), and siderite (Fe). However, dolomite (Ca & Mg), and ankerite (Ca, Mg, & Fe) are listed as trigonal carbonates under the Dolomite Group. How or why is it that these intermediate-composition members are retained when the plagioclase and olivine intermediate members have been excommunicated? It seems to me that the Pharisees of Mineralogy are lacking a unifying vision of how to achieve salvation with this reformation.

One of the things that is dear to my heart is the extensive nomenclature on platinum group minerals (PGMs), which had been developed by Cabri and others. PGMs have been pretty much condensed down to iridium, platinum, ruthenium, and osmium. This is despite the fact that there appear to be immiscibility gaps in the ternary composition diagrams that suggest unique, natural boundaries for various compositions. Why is there a rutheniridosmine, but no longer an iridosmine?

My personal research on the complex refractive index (CRI) of opaque minerals shows that there are distinct CRI groupings for sulfides, arsenides, and most tellurides. Yet, the new Pyrite Group includes "cubic sulphides,(sic) selenides, tellurides, arsenides, and antimonides." I don't think that it is at all useful to create a catchall of opaque, cubic minerals and ignoring Dana's classical classifications.

The venerable hornblende is not in my 2008 Fleischer's. Amphiboles have long been called the "mineralogical wastebasket" because of their complex and highly variable chemical composition. Modern analytical procedures have given us greater ability to refine the chemical compositions. But to what end? Does it make it easier to identify rocks? Does it give us greater insight on the origin of the amphiboles themselves? What assurance do we have that additional refinements won't lead to further splitting of the names? Of what utility are the new names to anyone without ready access to expensive, modern analytical instrumentation? I think that there is still a need for a 'mineral' that can be identified by physical properties without counting the atoms in it.

Something the IMA apparently hasn't considered is the confusion created by eliminating names that have been used for generations, an example being bravoite → nickeloan pyrite. Before the IMA crucified the name, the cubic (Fe,Ni,Co) sulfide solid-solution series was called the Bravoite Series. From my reading of the literature it appears that pyrite will commonly contain up to 6% nickel; I think that it might be justifiable to refer to that as nickeloan pyrite. However, with compositions of 20% nickel and more, and suggestions of a nickel immiscibility gap, it would seem that another name would be justified. What isn't easily answered is for what compositions are the new names appropriate; when does pyrite become nickeloan pyrite, and when does it become ferroan vaesite? I would question the utility of any mineral name that includes such a broad range in physical properties that no definitive identification can be made based on its physical properties.

There is value in brevity that is being overlooked, examples being plagioclase and biotite. There is also value in retaining names such as olivine and peridot; the implication is that the varietal name peridot implies qualities of color and transparency that give it value in the lapidary industry, which common olivine typically does not have. Sometimes using a single word in place of a sentence is worth the (lesser) effort. That is precisely why there are so many words in the English language. I generally support the idea of improving consistency in names, but I think that the IMA has been overzealous. However, one might argue that using a modifier such as "nickeloan" is not simplifying the names in the same way as only recognizing the end-member names would, so what is the advantage of using minor-element modifiers over just using a separate name? As I recently discovered, the new columbite-tantalite series similarly

recognizes minor-element modifiers, but apparently does not specify the boundaries for "manganoan" versus "ferroan." What is the utility in having a name where one doesn't have guidelines as to when to apply the modifier?

One of the consequences of this wholesale revision of the nomenclature that had been written in stone is that older references will be of less value because new Earth scientists won't be familiar with the old names and, even if they were to bother to read old journal articles with Hey's Mineral Index alongside, it would be tedious to get through the older material and they will probably absorb less. To give you a sense of what I'm talking about, consider this paragraph from "An Introduction to Ore Geology," (Evans, 1987), where I have replaced the mineral names that cannot be found in Fleischer's Glossary with ellipses, to simulate how a future reader might react to unfamiliar mineral names:

"(d) *Propylitic zone*. This outermost zone is never absent. ... is the most common mineral. Pyrite, calcite and epidote are associated with it. Primary mafic minerals (... and ...) are altered partially or wholly to ... and carbonate. ... may be unaffected. This zone fades into the surrounding rocks over several hundreds of metres (*sic*)."

There is an old adage that "The Devil is in the details." Ten Commandments that I think IMA mineralogists should follow are:

1. What is the end-purpose of the changes that have been wrought?
2. Has the nomenclature been simplified in a way that makes it easier for students to learn?
3. Have the number of words that have to be written in a journal article been reduced?
4. Do the changes enhance communication amongst other than mineralogists with niche specialties?
5. Has a more useful tool for petrologists to identify rocks been created?
6. Has anything been done to solidify the substantial contributions to mineralogy by polarized light microscopy?
7. Has greater insight into the kinds of minerals that are commonly formed been provided?
8. Has a new name, based on chemical composition, resulted in a species that has insignificant differences, such as physical properties, from minerals with similar chemical composition?
9. Conversely, has invalidating some species names resulted in intermediate members not being similar to the exemplar end-member of the series (*e.g.* pyrite/bravoite)?
10. Or, has this all been an academic exercise to demonstrate the greater precision with which minerals can be distinguished instrumentally, based on minor chemical variations? In other words, a splitter's dream!

This is part of the old controversy between 'splitters' and 'lumpers.' It would seem that the splitters got to name the amphiboles and the lumpers lost the toss and got to name the feldspars and cubic opaque minerals.

I can't help but believe that as these revisions spill over into other disciplines, like petrography and economic geology, that there will be some push back against what appears to be parochial decisions made without concern for the impact outside of instrumental mineralogy.

To come full circle, my 2008 edition of Fleischer's neither lists bravoite, nor even any nickel/iron-bearing sulfides in the Pyrite Group. Bravoite is a ghost mineral. Much of the data in older references can no longer be correlated with the new nomenclature. So the problems aren't just a matter of finding a new name to correspond to an old name. My 1980 edition of Fleischer's Glossary is getting badly tattered, but I find it more useful than the newer editions. Personally, I think that many of the old names deserve to be resurrected.

I have had mineralogists, who shall go nameless because they might not want to risk excommunication for being heretics, complain that they aren't happy with the new tourmaline, plagioclase, amphibole, or columbite-tantalite nomenclature. It seems that there is something in the revised dogma to offend everyone. It looks to me like modern mineralogy nomenclature is totally FUBAR!