FRIENDS OF MINERALOGY NATIONAL NEWSLETTER

Volume 45, No. 3 July 2015

to promote, support, protect and expand the collection of mineral specimens and to further the recognition of the scientific, economic and aesthetic value of minerals and collecting mineral specimens.

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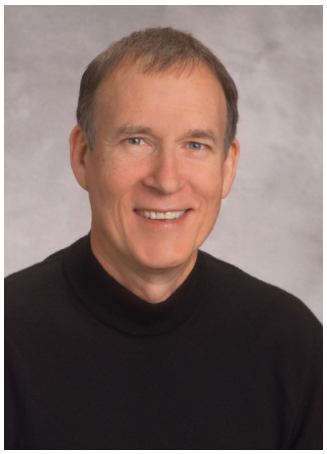
Chalcopyrite (twin), El Cobre mine, Concepciandel Oro, Zacatecas, Mexico, 2.2 x 2.1 x 1.6 cm, Alex Schauss Collection.



President's Message
By Alex Schauss

At the invitation of the Ministry of Land and Resources of China, I joined two Americans known to the mineralogy community, Dr. Gene Meieran and Dr. Peter Megaw, to give a series of presentations at a Summit and Education Forum in late May 2015 that ran concurrent to the 3rd China Gem and Mineral Show (CGMS) held in Chenzhou, China. The turnout for CGMS was historic as it had the largest attendance for a gem and mineral show ever held in the world. Final figures reported that over *380,000* people attended the 4-day show! If we hadn't seen the crowds first hand we wouldn't have believed it.

Silver, Hongda mine, Lingquin County, Shanxi Province, China, 3.2x2.2x1.0 cm Schauss Collection, Jeff Scovil photo.

In this issue we continue with the recently added symposium and show calendar, along with information on new books related to minerals, mineralogy, and geology.

This issue starts a new column, one that recognizes notable contributors to the mineralogy community. You might be surprised by who was picked, but once you see what he has contributed to mineralogy and mineral publications that you read, you'll appreciate why he was selected for this honor. In the future we hope to have each chapter submit candidates worthy of recognition in their state or region.

Also introduced with this issue is a new column that features what was known about specific minerals according to experts writing about mineral species over 100 years ago. The source document will be the Holy Grail of all encyclopedias, the 11th Edition of the *Encyclopedia Britannica* (1911). You will find some interesting information on the author of the article on azurite and subsequent mineral species we will be covering in forthcoming issues, as he is the noted British geologist, petrologist, and mineralogist, Leonard James Spencer (no relation to our vice President, Clyde Spencer). If any member has a photo of specimens associated with L. J. Spencer or one of his labels, we'd like to include it in the next issue.

(continued on page 4)

NATIONAL OFFICERS

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VICE PRESIDENT: Clyde Spencer; c_spencer123@att.net
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NEWLETTER EDITOR: Beth Heesacker, 4145 NW Heesacker Rd., Forest Grove 97116, heesacker@coho.net

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Virgil Lueth; vwlueth@nmt.edu
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Term expires 2017:
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Deadline for the next FM Newsletter is

September 28, 2015

Give particular attention in this issue to the opportunity to obtain a new book published on minerals in Germany, as well as, an exceptional paper very recently written about azurite that one can obtain, authored by Malcolm Southwood, a prolific author on mineral species.

We had a number of requests for more information on the gem, mineral, and fossil show held in Lwowek, Poland mentioned in the last issue, in time to learn more about this show that attracts 65,000 attendees before it begins next month. With the exchange rate between the dollar and Euro moving toward parity ($1.08 = EUR 1), anyone able to visit Europe in early August might not only find some mineral treasures, but experience a lot of fun just being there. If you do attend the show, we'd appreciate receiving a show report.

We updated the ad for Friends of Mineralogy that appears in various mineral publications and magazines. Thanks are given to Wendell Wilson, Editor of the *Mineralogical Record*, for including the new ad in the May-June issue (2015; Vol. 46, issue 3) that you will find on page 372.

Since joining the board of Friends of Mineralogy, Jim Houran, has been helping me update and upgrade our membership brochure. A draft of the tri-fold has been circulating among board members. The new membership tri-fold will be one page printed front and back that can be folded into an 8 ½ x 3 ½ brochure suitable for distribution and/or digital electronic transmission. We want to be sure the benefits of joining a chapter are clearly made, as the cost of membership in a chapter is greater than it is for someone choosing to join as a national member. National Friends of Mineralogy does not organize field trips and similar social activities, including regional symposiums, but instead focuses on recognizing achievements in the field, such as the annual juried awards given to authors publishing exceptional papers in major mineral journals, awarding educational and institutional cases exhibited at the Denver and Tucson gem and mineral shows, etc. These activities, in addition to financial contributions made to symposiums and other activities that are in keeping with our mission, differentiate state and regional chapter activities from the national organization.

As an update to my discussion at the annual membership meeting in February in Tucson, we've made good strides in dealing with some mining issues that have been going on in the Western states which have attracted the attention of the Department of Labor that oversees the Mining and Health Safety Administration (MSHA). But there is much more to achieve. As progress can be discussed publicly, so as not to disturb the discussions between mines and MSHA, we'll bring that information to our member's attention.
Since Friends of Mineralogy has a number of affiliate members, it seems only appropriate to members who aren't familiar with who they are and what they do to provide some information on each. We'll begin in this issue with the Mineralogical Association of Canada (MAC), which contributes to the fields of geology and mineralogy globally.

Thanks is given again to our new newsletter Editor, Beth Heesacker, who has been a pleasure to work with on bringing out our newsletter on a quarterly basis, and with considerably more content.

I hope everyone is having a very pleasant summer and finding as many opportunities as possible to get outdoors, enjoy nature and find time to do some collecting.

Gahnite, Franklin mine, Sussex County, New Jersey, 2.1 x 2.2 x 2.1 cm, Alex Schauss Collection.

Ericaite, Boulby Potash mine, Loftus, Cleveland, North Yorkshire, England, 3.2 x 2.0 x 0.7 cm, Alex Schauss Collection.

The 11th Edition (1910-11) of the Encyclopedia Britannica

What Was Known About Minerals in 1910?

Alexander Schauss, PhD

The 11th edition of the *Encyclopedia Britannica* is considered the Holy Grail edition of the *Britannica*, now out of copyright, which gives us an opportunity to re-print what was written about various mineral species over 100 years ago in this well-known reference work.

Published in 1910-1911 in 29 leather-bound volumes that include tens of thousands of pages on virtually every subject of interest at the time, the 11th edition also had a 30th volume, which provides an index that included not only a listing of all subjects covered but the names of contributing authors and their background.

What makes this particular edition of the *Britannica* so special is that the editors set a very high bar in covering so many subjects and selecting experts to write on every subject covered. Authors had to be acknowledged experts on the subject they wrote about. It was also the first time since the first edition of the *Britannica* was published in three volumes in 1768-1771 that women were included as authors. (Just three, but it was a beginning, which would grow with each succeeding edition.)

The 11th Edition was followed by three supplements that appeared through 1922 that added to or revised information until a new 12th edition appeared. Instead of relying on experts only, starting with the 1922 edition the *Britannica* hired staff to author or supplement articles.

A complete set of the 11th edition of the *Encyclopedia Britannica* can run several thousand dollars, particularly if it includes the original wood frame furniture built to hold it.

If you ever come across the 11th edition, it is well worth finding a quiet place to read on whatever subject is of interest to you. But be prepared to spend many months if not years getting through all 29 volumes and the 30th index volume.

One person I know who actually did read all 29 volumes of the 11th edition is Dr. Linus Pauling (1901-1994), whom I had the honor to meet in the early 1970's. Dr. Pauling received two unshared Nobel Prizes, one in Chemistry (1954), the other for Peace (1962).

What was remarkable about Dr. Pauling was that he read the entire 11th edition when only 12 years of age. Possessing an eidetic memory, he had the ability to recall images in a few seconds, particularly anything that was printed that he could read. He used this ability to his advantage whenever he met anyone or got involved in a discussion. He could recall visual information, such as pages from books, magazines, etc., in great detail despite only having had brief

exposure to it. Mention that you were born in an obscure village in Vermont, he not only knew where it was, but could tell you some things about the town you might not have known. Realizing that having an eidetic memory didn't mean that he had a perfect memory, he was always careful to not believe that everything he read was accurate or even truthful. Children with eidetic memory never have anything close to perfect recall, although some think they do.

The combination of possessing an eidetic memory combined with a high intelligence, led him to a life-long interest in mineralogy and identifying mineral specimens. During a visit some years ago to the Linus Pauling Library on the campus of Oregon State University (OSU) in Corvallis, a former close associate of Dr. Pauling told me his knowledge of minerals was uncanny. (OSU was the school Dr. Pauling graduated from in 1922, although he always referred to it when it was known as Oregon Agricultural College. After earning his undergraduate degree, he went on to earn his PhD in 1925 in physical chemistry and mathematical chemistry and physics, *summa cum laude*, at California Institute of Technology (Caltech).

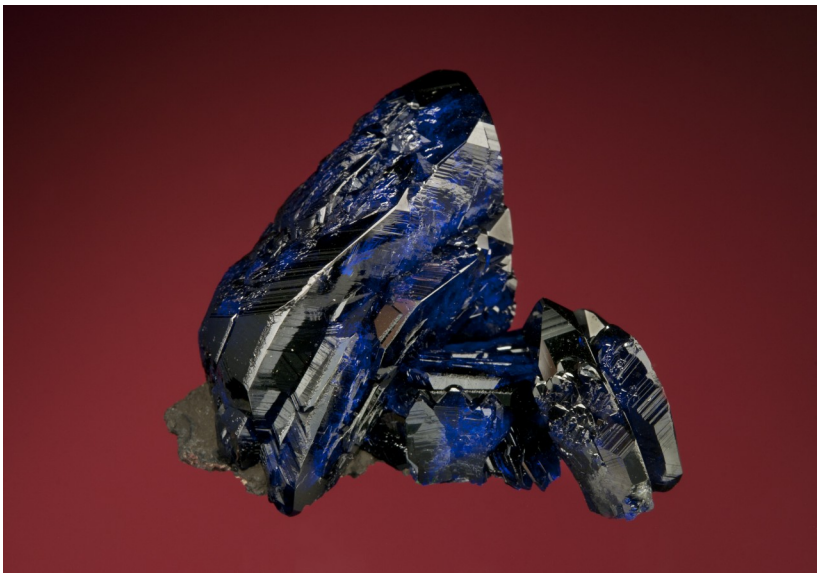
Every once in a while Dr. Pauling's staff would challenge him to identify a mineral specimen. I'm told he always correctly identified the specimen, which often left them dumbfounded.

Since the theme of the 2016 Tucson Gem & Mineral Show is "Blue Minerals", a good start for this new column would be to look at what was written over 100 years ago in the classic 11th Edition *Encyclopedia Britannica* about numerous well-known minerals, starting with a classic blue mineral, namely, azurite.

But first, some background on the "expert" selected by the *Britannica* to write about azurite and many other minerals written for the 11th edition.

The author is Leonard James Spencer, CBE, FRS (1870-1959) the noted British geologist. In the alphabetical list of contributors that appears in volume 30, the index, his areas of expertise are described as:

> *Crystallography, Mineralogy, Goniometer; Apatite; Bronzite; Calcite; Chromite, Ilmenite, Muscovite; Petalite; Quartz; Thorite; and articles on other mineral species.*



4 cm, Electric Blue Pocket, Milpillas Mine, Sonora, Mexico, Tony Potucek specimen, Jeff Scovil photo.

Spencer, a qualified petrologist and mineralogist, studied at the Dublin Royal College of Science before going on to Cambridge, followed by three months in Munich, Germany to study crystallography in Professor Paul Groth's laboratory. He went on to become an honorary member of the Royal Geological Society of Cornwall, the second oldest geological society in the world, founded in 1814. (The first one was the Geological Society of London, founded in 1807.)

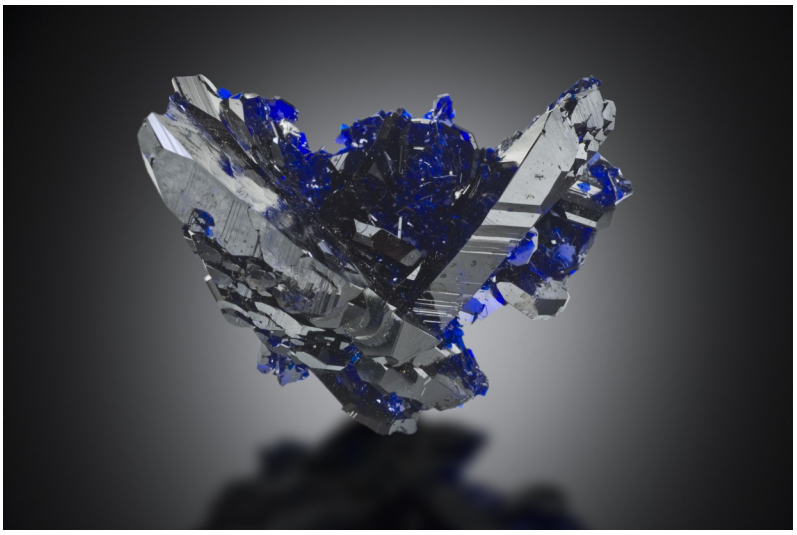
The recipient of the Bolitho Medal, for notable achievement in geology, Spencer's other achievements included: the Keeper of Minerals at the British Museum (Natural History) from 1927 to 1935; and the President of the Mineralogical Society of Great Britain and Ireland from 1936 to 1939. He described a number of new minerals, including miersite (Ag,CU)I, and later, parahopeite ($Zn_3(PO_4)_2.4H_20$) and tarbuttite ($Zn_2(PO_4)(OH)$) (from the Broken Hill mine, North-Western Rhodesia), and chloromanganokalite (K,Mn,Cl)(from Veuvius, Italy).

A prolific author, he contributed scores of papers and such well known works at the time as *The Student's Index to the Collection of Minerals*, and later the *History of Collections*, first published in 1904, besides editing the *Mineralogical Magazine* for years, along with the founding of *Mineralogical Abstracts* that first appeared in 1920.

Among his trips to Canada and the United States, one of the most prolific occurred in 1924, when he visited 5 mining localities in Quebec, eleven in Ontario, three localities in Pennsylvania, all principal museums in North America, including 4 in Canada and 8 in the U.S. In addition, he viewed twelve private collections. While in Rochester, New York, he selected 189 specimens for the British Museum, from Ward's and G.L. English's stocks of minerals, and made a number of with exchanges with the Philadelphia Academy of Natural Sciences and the Royal Ontario Museum. These trips are just a small sample of the many trips he made annually around the world and throughout Great Britain to visit mine sites, see collections, and meet with fellow geologists and mineralogists.

Of particular interest was the first public exhibit he organized in 1928 of fluorescent minerals. Spencer described the contents of that exhibit in a paper that appeared the same year in *The Natural History Magazine*. That exhibit and article stimulated numerous exhibits of fluorescent minerals in many natural history museums and private collections around the world, particularly in the United States.

One would have to agree with the editors of the *Encyclopedia Britannica* who selected him to write about minerals for the 11th edition, that he met the qualification of an expert in mineralogy.



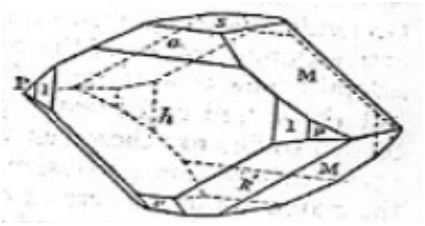
6 cm, Gem Pocket, Milpillas Mine, Sonora, Mexico, Unique Minerals specimen, Jeff Scovil photo.

Here is what Malcolm Spencer wrote about azurite in the 11th edition of the *Britannica* published in 1911:

> **Azurite,** of Chessylite, a mineral which is a basic copper carbonate, $2CuCO_3{\cdot}Cu(OH)_2$. In its vivid blue colour it contrasts strikingly with the emerald-green malachite, also a basic copper carbonate, but containing rather more water

and less carbon dioxide.

It was known to Pliny under the name caeruleum, and the modern name azurite (given by F.S. Beudant in 1824) also has reference to the azure-blue colour; the name chessylite, also in common use, is of later date (1852), and is from the locality, Chessy near Lyons, which has supplied the best crystallized specimens of the mineral. Crystals of azurite belong to the monoclinic system; they have a vitreous lustre and are translucent. The streak is blue, but lighter than the colour of the mineral in mass. Hardness 3 ½ - 4; sp. gr. 3.8.



Azurite occurs with malachite in the upper portions of deposits of copper ore, and owes its origin to the alteration of the sulphide or of native copper by water containing carbon dioxide and oxygen. It is thus a common mineral in all copper mines, and sometimes occurs in large masses, as in Arizona and in the South Australia, where it has been worked as an ore of copper mines, of which element it contains 55%. Being less hydrated than malachite it is itself liable to alteration into this mineral, and pseudomorphs of malachite after azurite are not uncommon. Occasionally the massive material is cut and polished for decorative purposes, though the application in this direction is far less extensive than that of malachite. (L.J.S.)

If any Friends of Mineralogy member has a photo of a mineral specimen with a Malcolm Spencer label, we'd be delighted to include it in a subsequent issue of the newsletter, as we continued our discussion about other minerals covered in the *Britannica* over 100 years ago.

Colorado Mineral Specimen of the Month:
A Jesse S. Randall smoky quartz specimen from Crystal Peak, Colorado. Collected circa 1882, possibly by Abram J. Randall, Jesse's father and sold in 1893 to the Colorado School of Mines Geology Museum. CSM number 210:15:2, 5 x 3 inches crystal. Original Randall label and specimen number glued on specimen. (Photo by Mark Jacobson)

Photo from the Colorado Chapter Newsletter, May 2015.

Tsumeb Azurites: A Concise Guide

Malcolm Southwood, who lives in Melbourne, Australia, recently released a fascinating article on azurites from Tsumeb, Namibia.

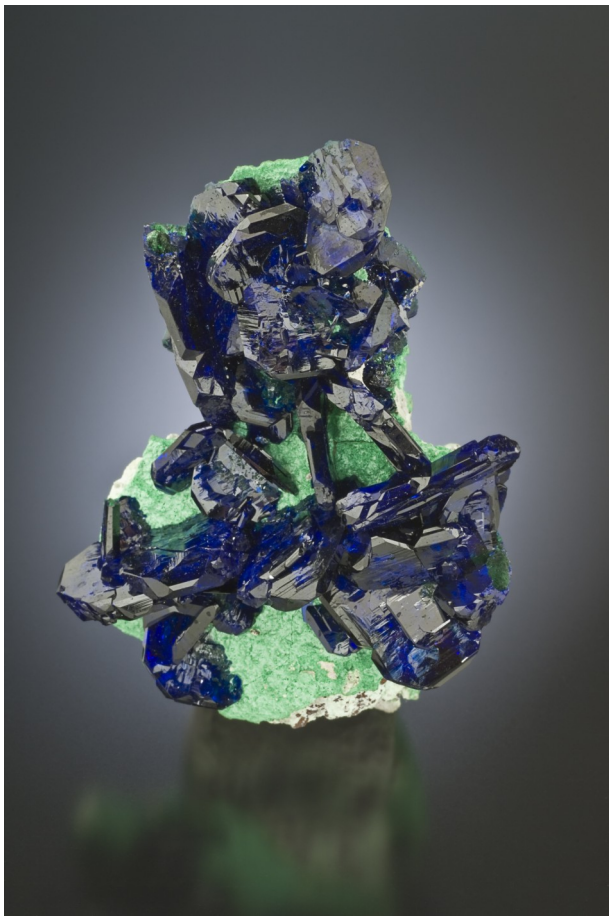
In 1973, Richard Bideaux said that azurite "must be considered a cornerstone mineral of any collection." With the recent discovery of some of the finest azurites found in the world in the Milpillas mine, Cuitaca, Mun. de Santa Cruz, Sonora, Mexico, it would be well worth comparing them to Tsumeb's, which in 1977 were described by William Pinch and Wendel Wilson as "easily the finest examples of azurites in the world."

Certainly among his finest work on a mineral species or locality, Southwood has created a marvelous and insightful report on Tsumeb azurites, that is well worth reading. Given the gestation period needed by the author to complete his superbly educational and illustrated article, the article could serve as a prime tutorial for years not just on Tsumeb azurites but on the subject of azurite. Fortunately, the topic selected by the author is most timely in that Tsumeb azurites not only grace countless collections around the world, but are locality specimens highly sought by collectors, particularly since the closing of the mines in and around Tsumeb.

The appendix section, illustrating a dozen simplified and idealized drawings of Tsumeb azurite crystal habits based on the classification of Palache and Lewis created nearly a hundred years ago, demonstrates the effort made by the author to research the subject.

The article is 2.29 MB and can be downloaded either into a zip file or your Dropbox® folder. To obtain the link to the article, send a request to the author at mal.southwood@bigpond.com.

We'll be looking at other articles on selected minerals in future issues of our newsletter with the author's permission.



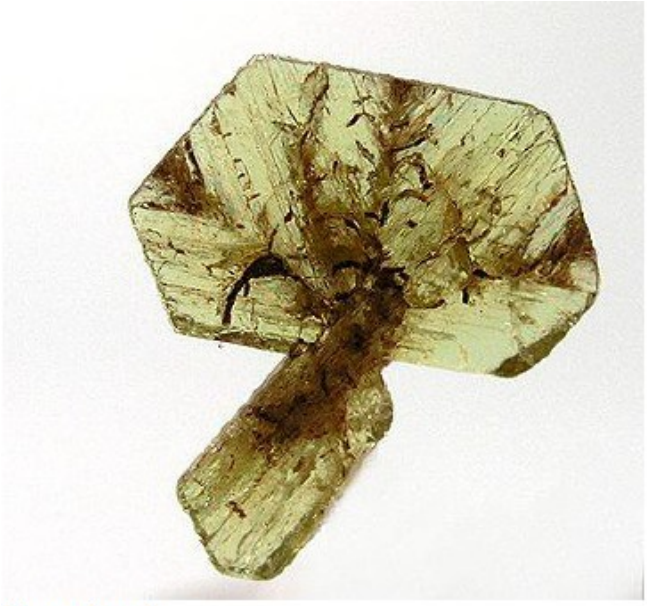
7 cm, Milpillas Mine, Sonora, Mexico,
Unique Minerals specimen, Jeff Scovil photo

Azurite photo courtesy of Evan Jones,
Phoenix, AZ.

Chrysoberyl
Minas Gerais, Brazil
Field of view: 8 mm
Photo by Yaiba Sakaguchi – PD, via Wikimedia Commons

Chrysoberyl
Itaguacu, Espírito Santo, Southeast Region, Brazil
Size: 2.5 x 2.3 x 1.7 cm
Photo by Rob Lavinsky, iRocks.com – CC-BY-SA_3.0, via Wikimedia Commons

Chrysoberyl
Minas Gerais, Southeast Region, Brazil
Size: 2.5 x 2.0 x 0.4 cm
Photo by Rob Lavinsky, iRocks.com – CC-BY-SA_3.0, via Wikimedia Commons



Chrysoberyl
Fort Dauphin, Madagascar
Size: 1.6 x 1.5 x 0.1 cm
Photo by Rob Lavinsky, iRocks.com – CC-BY-SA_3.0, via Wikimedia Commons

Photos courtesy of the Arizona Leaverite News, June 2015

Notable Contemporary Contributors to Mineralogy—A Series

William W. Besse, M.S.

If the objective of a map is to help you locate where something is, few people are as skilled in producing maps to identify where a mineral or mine is located than William ("Bill") Besse.

An avid collector who became interested in mineral collecting in 1971, Bill was fortunate to have worked for the noted collector, chemist and world traveler, Rock H. Currier, owner of Jewel Tunnel Imports, as his company's manager for twenty years. As his mentor, Rock influenced his collection, and the importance of properly identifying foreign localities. As part of the job, Bill went overseas on buying trips, which needless to say required the need to look at maps. He also found time to earn his Master of Science degree in Geology at California State University at Los Angeles in 1981.

In 2010, Bill moved to the Tucson area which gave him the opportunity to focus more time on preparing illustrations and maps of mineral localities to assist collectors, exhibitors, and mineral publications, including the *Mineralogical Record* and *Rocks & Minerals*. At the latter, he is its Associate Cartographer, while for Lithographie (Denver, Colorado), publisher of the Mineral Monograph series, he creates illustrations as well as maps.

His initial interest in cartography, the science or practice of drawing maps, began while earning his bachelor's degree in geography at California State University at Los Angeles, at which time he published his first map. While earning that degree he began in earnest his interest in geology that led to pursuing and successfully earning his graduate degree in geology.

His second published map appeared in the mid-1980s, done in pen and ink, now referred to as the "old school" method. Thinking it was time to adopt new technologies for creating maps, in 1989 he purchased the first version of Adobe Illustrator® software"…This was Illustrator for Windows ® version 1, which was actually version 2 as there was a previous Mac version.

To this day he continues to use Adobe Illustrator® and use the latest upgrade, along with Photoshop® and other software tools. In 1996, he published his first digital map in *Rocks & Minerals* magazine that showed Uruguay and its location in South America. The following year he became Associate Cartographer for *Rocks & Minerals*.

Unlike today, when digital maps are transferred over the Internet in an email, or storage box, years ago it had to be sent by mail or fax. Over time, as the technology changed, the process of creating maps became truly digital in nature from creation to production to publication.

Anyone who has appealed to Bill to produce a map or illustration of a crystal, for example, experiences his enthusiasm for creating them to support the collecting community.

Four of his maps are shown, including Figure 1., a color map of the state of Nevada that was created for Lithographie's 2013 *Nevada* issue of Mineral Monographs. The Nevada map was included as a pocket map insert titled "Nevada Mineral Localities" that measured 46 x 41 cm (18 x 16 in.). On the backside of the map was an index of Nevada collecting/mining mineral localities, mining districts, and mountain ranges, along with information on latitude, longitude, and degrees, minutes, and seconds of each location, as seen in Figure 2, also created by Besse.

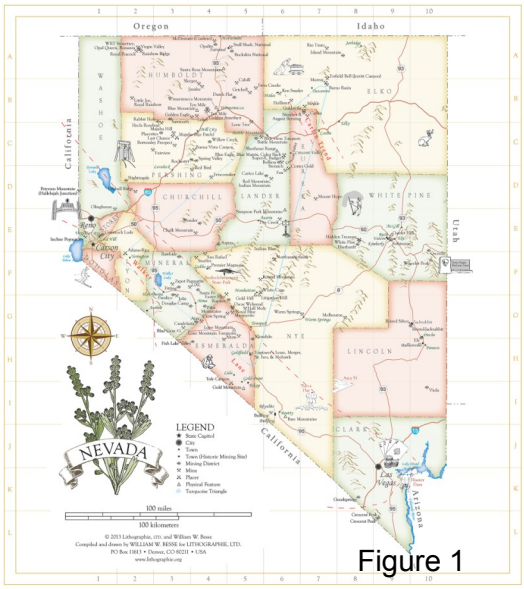


Figure 1

Figure 2

Figure 3, shows the black and white locality map of Uruguay that he produced for *Rocks & Minerals* in 1969, his first published map in a mineralogical publication.

Another example of Besse's craft is seen in Figure 4, a map of the geology of Cave-in-Rock, Hardin County, in southern Illinois, located near the bank of the Ohio River.

Figure 3

The next time you see a map or illustration and the caption attributes William W. Besse, you'll know who he is and why his cartographer skills is contributing to the mineral collecting, as well as, geological and mineralogical community. That's why he deserves to be recognized as a "notable contributor to mineralogy." (A.G.S.)

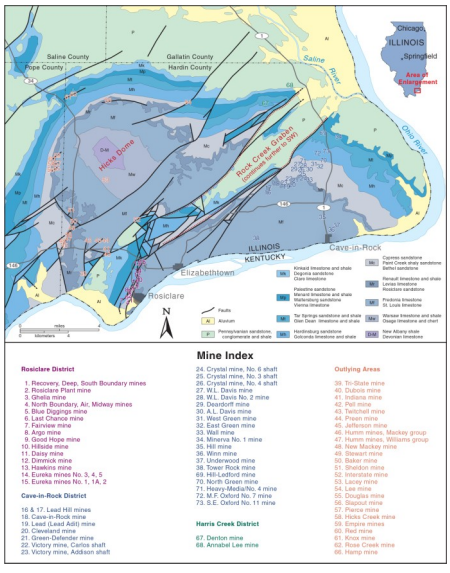


Figure 4

Lwowek Slaski the Quartzsite of Europe—An Update

We had such a positive response to the article in the March 2015 issue on the little known but well attended (65,000) summer mineral and gem show in Lwowek Slaski, Poland, known as “Crystal Days”, that more information was requested about the event.

This three-day festival includes the typical mineral/geology related events — gem cutting, lectures, museum-quality exhibitions, and, of course, mineral, gem, and fossil dealers.

However, this event is a rollicking celebration of the region’s geologic heritage and mines that also ties into music concerts, competitions, tons of food, fermented beverages, and booths selling just about anything imaginable! Sound like Quartzsite? The southwestern Polish town of Lwówek Śląski (population of about 10,000; Quartzsite about 4,000) takes on an almost amusement park atmosphere welcoming around 65,000 visitors during the festivities.

Be prepared for everything and anything. Bungee jumping? Yes … and lots of parties. The historic town of Lwówek Śląski organizes this annual event in what was originally a walled city erected in the 13th and 14th century. Its original stone towers are still visible. From the traditional opening ceremonies, which include the “Bread Ceremony” with attendants in full period costume, a special loaf of bread is presented to the mayor of the town along with speeches and pageantry.

In addition, each year Lwówek’s Town Hall hosts a large, extraordinary Main Exhibition that is always mineral related, to encourage an interest in and passion related to minerals, mineral collecting, and the earth sciences. This exhibition remains open to the public for three months after the Crystal Days festivities concludes and is a popular field trip destination for locals and tourists alike. To learn more about this show go to: http://www.lla.lwowekslaski.pl/web/

Message from Your Editor

I want to thank those who have made comments on the last edition of this newsletter, my first one. As your editor, I hope to provide you with a newsletter that serves your needs. Please email me and let me know what improvements you would like to see, areas in which you would like to see more coverage, etc. My email is heesacker@coho.net.

I want to thank our President Alex Schauss for all his contributions and his encouragement. Also thanks to the Chapters that have placed me on their newsletter email lists so I can include some of their articles for your enjoyment and education. Please email me any articles that you have written that you think might be of interest to the membership. We can discuss how best to include them in future issues. Thank you in advance.

New Books About Minerals/Mineralogy

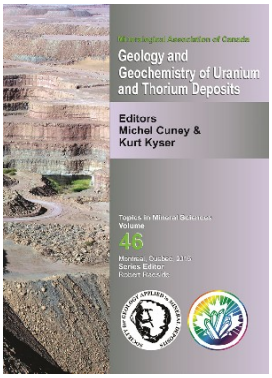
Mineral Collecting & Identifying
By Guanghua Liu

This new book was released at the 3rd Annual Gem and Mineral Show held in Chenzhou, Hunan Province, China, on May 22, 2015. Copies are limited as only 5,000 copies were printed according to the author, the Founder and Curator of the Wuxi Science and View Stone Park in Wuxi, China, west of Shanghai, adjacent to Taihu Lake, in southern Jiangsu province.

You may be familiar with the author as Dr. Liu, a noted geologist and mineralogist in China, contributed to numerous chapters in *Crystalline Treasures: The Mineral Heritage of China* (2013) published by the *Mineralogical Record* as a special supplement. Among Dr. Liu's contributions to *Crystalline Treasures* were the following sections: Chapter 4, the introduction to China minerals, with co-author Robert Lavinsky; Chapter 5 on the geology of China; Chapter 6 with co-author Wendell Wilson, on the mining history of China; Chapter 7 on minerals and rocks of China; and Chapter 8, with co-author Thomas Moore, on how Western eyes, museums, and collectors judge mineral specimens.

The new softbound 404-page book is heavily illustrated with numerous photos of minerals from around the world. Published by Natur Verlag, Frankfurt, Germany. ISBN: 978-3-00-049570-0. Price depends on shipping. Before copies run out, I suggest that you contact the author at: ghliu@aaamineral.com

Geology and Geochemistry of Uranium and Thorium Deposits
By Michael Cunsey and Kurt Kyser

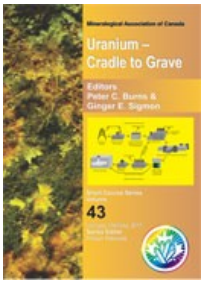


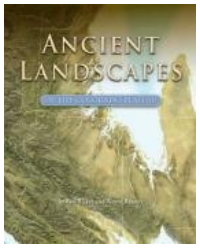
If you have uranium or thorium mineral specimens in your collection, you may be interested in a new volume planned for release by the Mineralogical Association of Canada's (MAC) Topics in Mineral Sciences series. MAC is an affiliate member of Friends of Mineralogy.

The new volume highlights research that integrates information on refining exploration strategies for uranium and discusses new developments in thorium deposits as future energy resources, an important by-product of rare earth elements (REE) mining.

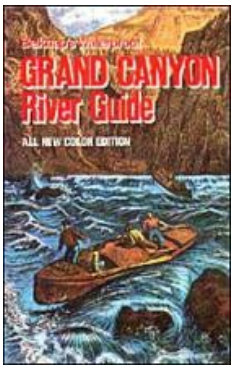
The price for the forthcoming book on uranium and thorium has not been announced at press time. Availability can be determined by visiting MAC's website at: http://www.mineralogicalassociation.ca/index.php?p=1
MAC members renewing their membership get a 20% discount when ordering a book online. Joining MAC or renewing membership is at:
http://www.mineralogicalassociation.ca/devOnline/index.php

Most of the 45 volumes in the Topics in Mineral Sciences series are still available. If uranium is of interest, MAC published the book, Uranium: Cradle to Grave, volume 43, in 2013, which provides a short course on many aspects of uranium, including mineralogy, geochemistry, ore deposits, nuclear waste challenges and solutions, etc., which is still available.





Ancient Landscapes of the Colorado Plateau
By Ron Blakey and Wayne Ranney



Belknap's Waterproof Grand Canyon River Guide,
All New Edition
By Jodi Parry Pelknap and Loie Belnap Evans

If you have been one of the 4 million annual visitors to Grand Canyon National Park to view the effect the Colorado River has had the last six million years carving through the canyon to expose 1.9 billion years of Earth's changing crust in northern Arizona, you will want the above book, *Ancient Landscapes of the Colorado Plateau.*

The Colorado Plateau is one of the world's great showplaces of sedimentary, igneous, and metamorphic rock. The book uses remarkable colored maps to show the reader how the varied landscape of the earth looked over hundreds of millions of years of Earth history. The maps, created by Ron Blakey of Northern Arizona University, is accompanied by text written by Wayne Ranney, geologists and award-winning author of Carving Grand Canyon. The collaboration of the two brings the past alive like never before, in 100 full-color photographs, diagrams, and illustrations.

Published by the non-profit Grand Canyon Association in association with the Grand Canyon National Park in 2008, softbound, 156 pages, $34.95, 29 x 23.5 cm. ISBN: 978-10934656-03-7 To order: https://www.grandcanyon.org/shop/online-store/ancient-landscapes-colorado-plateau-ron-blakey-and-wayne-ranney Members of the Association receive a discount.

If you have any plans to join one of the 27,000 people fortunate enough to be able to raft, boat or kayak through the Grand Canyon's icy and turbulent waters, watch out for the rapids at Lava Falls, rated a 8-10 on a scale of 1-10 near the 180 mile mark, you'll definitely want a waterproof copy of the new Belkap's Waterproof Grand Canyon River Guide, All New Edition (2015), by Jodi Parry Pelknap and Loie Belnap Evans, available from the Grand Canyon Association, softbound, $22.95, 14 x 21.5 cm, ISBN: 978-0-916370-16-9.

Our Affiliates— A Series

The Mineralogical Association of Canada (MAC)

Mineralogical Association of Canada

http://www.mineralogicalassociation.ca/index.php?p=1

MAC was formed in 1955 as a non-profit scientific organization to promote and advance the knowledge of mineralogy and the allied disciplines of crystallography, petrology, geochemistry and mineral deposits. The Association is based in Quebec.

Among MAC's publications are the publication, *Elements* magazine, and *The Canadian Mineralogist*. *The Canadian Mineralogist* is known for its thematic issues, published on average once a year. A complete list is found at this link:
http://www.mineralogicalassociation.ca/index.php?p=24

Recent issues have included granitic pegmatites, pegmatitic phosphates, sulfosalts, and tourmaline.

The magazine, *Elements*, is an international magazine of mineralogy, geochemistry, and petrology, of a wide range of mineralogical and geoscience organizations and associations, including: the Mineralogical Society of America, the Mineralogical Society of Great Britain and Ireland, the Geochemical Society, the Mineralogical Association of Canada, The Clay Minerals Society, the International Association of GeoChemistry, the European Association of Geochemistry, the Société Française de Minéralogie et de Cristallographie, the Association of Applied Geochemists, the Deutsche Mineralogische Gesellschaft, the International Association of Geoanalysts, the Società Italiana di Mineralogia e Petrologia, the Polskie Towarzystwo Mineralogiczne (Mineralogical Society of Poland), the Sociedad Española de Mineralogía (Spanish Mineralogical Society), the Swiss Society of Mineralogy and Petrology, The Meteoritical Society, and the Japan Association of Mineralogical Sciences.

A free downloadable sample issue of the April 2013 issue of *Elements* is available and its articles and papers at : http://elements.geoscienceworld.org/content/9/2.toc

For those more technically inclined, MAC provides a calendar of current web listing links to a wide assortment of mineralogy and petrology scientific meetings:
http://homepages.udayton.edu/~koziolam/meetings.html

Upcoming Symposia

East Coast Gem, Mineral & Fossil Show
August 7-9, 2015, West Springfield, Massachusetts

This year over 200 dealers from around North America and abroad will be attending. The show features, guest speakers, museum exhibits, educational cases, and invited individual cases, including a Special Exhibit of The Martin Zinn Mineral Collection. If you don't know Martin Zinn, rumor is he has one of the finest mineral collections around. If you know him, you'll know the rumor is true. He also has been organizing satellite and main mineral shows around the country through Martin Zinn Enterprises for many years.

For a list of the 140 retail and 60 wholesale dealers attending the Denver show, go to: http://www.mzexpos.com/east_coast_dealer_list.html

Getting There By Train (AMTRAK)

Website: http://www.amtrak.com

(1) There is a train to Springfield, Massachusetts that departs from Penn Station on 34th Street in Manhattan.

(2) I suggest you take the train that departs at about 7:00 AM. (The departure times are slightly different each day of the week!) You change trains in New Haven about 90 minutes later (8:30ish) and arrive in Springfield, MA at about 10:00 AM, about the time the show opens to the public.

(3) The round trip cost (NYC-Springfield, Springfield-NYC) is about $68 (I think).

(4) When you get to Springfield, you then need to take a cab (they will be available at the train station there) to the Better Living Center at the Eastern States Exposition, 1305 Memorial Ave., West Springfield, Massachusetts which is across the river there. The cab will cost about $10.

NOTE: Remember to get a card with the telephone number of the cab company. You will need to make arrangements later to get BACK to the train station to get home. Do this in advance (at 3:00 PM?) with a big enough time cushion!!! This is not NYC where there are cabs everywhere at all places and at all times!

(4) Get back to the train station in Springfield via cab. It will again cost about $10.

(5) On SATURDAY there is a return train that departs Springfield at 5:25 PM and, after changing trains in New Haven at about 7:00 PM, will get you back to Penn Station about 9:00 PM. **NOTE: The return train schedule is different on both Friday and Sunday. Please check the specific schedules!**

Getting There By Bus (Greyhound or Peter Pan)

Website: https://www.greyhound.com

(1) There is a bus to Springfield, Massachusetts that departs from Port Authority on 42nd Street in Manhattan.

(2) I suggest you take the bus that departs at 5:30 AM on Saturday. It arrives in Springfield at 9:20 AM, a little before the show opens. (There is also an 8:00 AM that will arrive at about Noon but the show will have already been open for 2 hours.) **Check for possible schedule differences if you go on either Friday or Sunday!**

(3) The round trip cost (NYC-Springfield, Springfield-NYC) is about $44 (I think).

(4) When you get to Springfield, you then need to take a cab (they will be available at the bus station there) to the Better Living Center at the Eastern States Exposition, 1305 Memorial Ave., West Springfield, Massachusetts which is across the river there. The cab will cost about $10.

NOTE: Remember to get a card with the telephone number of the cab company. You will need to make arrangements later to get BACK to the train station to get home. Do this in advance (at 3:00 PM?) with a big enough time cushion!!! This is not NYC where there are cabs everywhere at all places and at all times!

(4) Get back to the bus station in Springfield via cab. It will again cost about $10.

(5) On SATURDAY there is a return bus that departs Springfield at 5:45 PM and will get you back to Port Authority about 9:00 PM. The next bus leaves at 7:15 PM and will get you back to Port Authority by 10:30 PM. **NOTE: The bus schedule is possibly different on both Friday and Sunday. Please check the specific schedules!**

Travel information courtesy of the New York Mineralogica's Club monthly *Bulle-*

4th Annual Dallas Mineral Collecting Symposium
August 22, 2015, in Dallas, Texas.

Friends of Mineralogy is excited to announce we're officially a co-sponsor of the Dallas Mineral Collecting Symposium, held annually in August. As a co-sponsor alongside The Arkenstone, Heritage Auctions, Gem-A, and the Mineralogical Association of Dallas, we are building upon the Dallas Symposium's tradition of presenting world-class speakers and exciting social events to encourage a love of fine minerals.

The Dallas Symposium started unofficially at the opening of The Arkenstone's new gallery location in 2010 when several invited guests offered to give educational lectures, including Gene Meieran and Harrison "Jack" Schmidt, the last person to walk on the moon. After seeing the enthusiastic response from attendees, the Dallas Symposium was formally launched in 2011. Since then, the weekend has grown exponentially, both in the number of attendees and in the socializing opportunities !

Previous guests might be familiar with Southern Methodist University's lecture hall, which has generously hosted the Dallas Symposium for several years, but due to (or thanks to) increasing attendance, the lecture series outgrew SMU's 250-person venue and will be moving the Saturday lectures to the Eisemann Performing Arts Center to allow for greater attendance starting this year.

An evening banquet on Saturday night will provide guests ample opportunity to meet guest speakers, discuss favorite talks, and connect with other collectors who share a love and passion for these beautiful works of natural art.

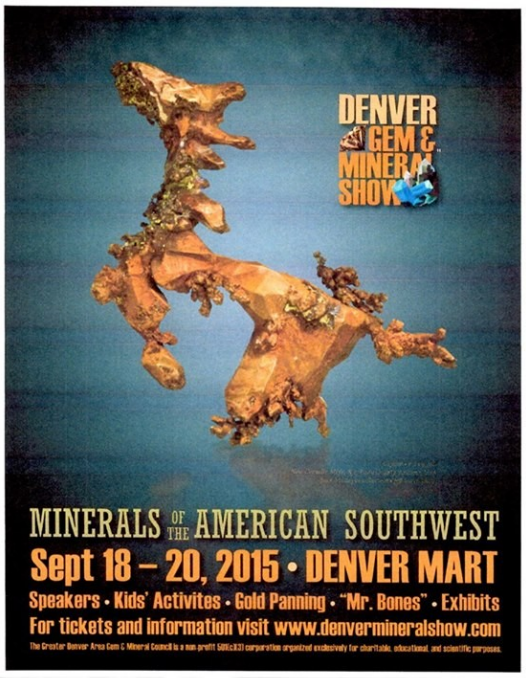
This year's speakers from around the world will include:

Brice Gobin. Tanzanite: From Mine to Market
Dr. Robert Bowell. Tsumeb: A Mineralogical Paradise!
Dr. Frederico Pezzotta. Adventures in Madagascar
Tom Gressman. Mineralogical Record: History and Significance
Dr. Bruce Cairncross. The Kalahari Manganese Field: Discovery, Development and Divine Minerals
Tomek Prazkier. Adventures in Morocco
Dr. Bruce Cairncross and Dr. Robert Bowell. Darkest Copper: Classic and Contemporary Copper Minerals of Note from Africa

48th Annual Denver Gem & Mineral Show
September 18-20, 2015, Denver, Colorado

This show is considered one of the top three mineral shows in the world. This year's show theme is "Minerals of the American Southwest." The show is hosted by the non-profit Greater Denver Area Gem and Mineral Council, which is a collaboration of eight area gem, mineral, lapidary, and paleontology clubs and associations. The show opens at 9 am on Friday, September 18th, and runs through Sunday afternoon. Information on show hours, admission, and location (at the Denver Mart Expo Hall) is found at: http://www.denvermineralshow.com

The Denver Gem & Mineral Show is considered one of the premier shows for mineral collectors. It brings mineral dealers from around the world. A list of the dealers attending the 2015 show is found at: http://www.denvermineralshow.com/dealers.php



One of the special treats in attending the Denver show each year are the museum, institutional, and individual, club, commercial, and competitive exhibits. For a list of this year's exhibitors, go to: http://www.denvermineralshow.com/exhibitors.php

You will note that among the exhibitors listed is the University of Wollongong in New South Wales, Australia. Their exhibit and many other outstanding mineral and natural history museum exhibits by leading institutions from around the United States is always one of the highlights of the show.

As was the case last year, Friends of Mineralogy will be giving awards to the best educational and institutional exhibits at the show, during the Awards Banquet held Saturday evening.

On September 13th through the 20th, the Colorado Mineral & Fossil Show is also held in Denver, hosting dealers from North America around the world at the Ramada Plaza Hotel, not far from the Denver Mart. There are other satellite shows before and during the Denver main show, so it's worth doing some research to find which one appeals to your collecting and educational interest.

The Munich Show (Mineralientage München), World of Minerals, Gems, Jewellery & Fossils
October 30 – November 1, 2015, Munich, Germany

What began 52 years ago as a small mineral exchange platform has turned into one of the most important minerals, fossils, and gemstones show in the world, ranked second in attendance on an annual basis.

While visitors can discover the latest minerals to be discovered during the spring and summer months around the world, the Munich Show - Mineralientage München offers collectors a unique experience. The show is separated into three pavilions and two international pavilions that cater to collectors of minerals (Mineralworld), fossils (Fossilworld), gemstones (Gemworld), jewelry, and a "stoneworld" (Stoneworld).

For overseas visitors to the Munich show it is highly recommend that you register in advance. This might provide you VIP status to visit the show floor before the show opens. Only registered buyers are allowed on the show floor on October 30th when the floor opens to guests and dealers at 9 am.

To learn more about this international show, go to: https://munichshow.com/en/the-munich-show/

41st PNWFM Annual Symposium, Northeast USA and Fluorescent Minerals October 9-10, 2015, Kelso, WA

Contact Bruce Kelley, bruce.kelley@gmail.com.
There is more information at
http://www.pnwfm.org/symposium.html

The Pacific Northwest Chapter of the Friends of Mineralogy
and
The Fluorescent Mineral Society
will co-host the

41st Annual Symposium and Mineral Show

October 9-11, 2015
Red Lion Inn, Kelso, Washington

Symposium Theme: Minerals of the Northeast United States and Fluorescent Minerals

-- Featured Speakers --

Jeff Post: *Highlights and Stories from the Smithsonian Gem and Mineral Collection*
Fluorescence in Gemstones

Richard Bostwick: *Minerals and Mines of Franklin and Sterling Hill, Sussex County, New Jersey*
Franklin and Sterling Hill: The Fluorescent Mineral Capital of the World

Tom Moore: *Classic Mineral Localities of Southeastern Pennsylvania*
The Phoenixville and French Creek Localities, Chester County, Pennsylvania

Albert Liebetrau: *Common Minerals, Exceptional Fluorescence*

2015 AFMS/SCFMS Convention and Show October 23rd - 25th, 2015

Convention Location:
Doubletree Inn, 6505 North Interstate Highway 35, Austin, TX 78752
Show Location:
Palmer Events Center, 900 Barton Springs Road, Austin, TX 78704-1169
For more information: http://www.amfed.org/show2015.htm

Pennsylvania Annual Symposium November 7-8, 2015

Franklin & Marshall College
Lancaster, Pa.

The 36th Annual New Mexico Mineral Symposium November 14-15, 2015, Socorro, New Mexico

Bob Eveleth, with the New Mexico Bureau of Mines & Minerals invites you to join them for the forthcoming 2015 symposium

This year's symposium will be held at the New Mexico Institute of Mining & Technology, sponsored by five mineral and geology societies, Friends of Mineralogy, and the City of Socorro. The 2015 symposium will consist of a day and a half of formal papers presented in 30-minute time blocks. Papers will focus on mineral occurrences from New Mexico and adjacent states, as well as Mexico. A few selected papers may be presented from other parts of the world.

An informal pre-symposium social and tailgating session will be held at local motels beginning on Friday, November 13, 2015 and will last through the weekend. No formal field trips are planned.

The symposium allows all to share their cumulative knowledge of mineral occurrences and provides stimulus for mineralogical studies and new mineral discoveries.
In addition, the informal atmosphere allows for intimate discussions among all interested in mineralogy and associated fields. A list of presentations given in 2014 is found at: https://geoinfo.nmt.edu/museum/minsymp/abstracts/home.cfml

Registration for the symposium is highly recommended and will become available once speakers and their topics have been firmed up.

FM Chapter Reports

AUGLAIZE 2015: I WANNA BE LIKE MIKE

In February 1991, Gatorade worked out a deal with the then 28 year old Michael Jordan to have him in what turned out to be the most iconic sports advertisement in history. The deal for Jordan worked out to $13.5 million for ten years. The catch phrase in the Jordan Gatorade commercial was "I wanna be like Mike."

What does Michael Jordan and his Gatorade commercial have to do with collecting minerals at Auglaize Quarry? Keep reading.

On Saturday May 30, 2015, a full complement of 36 FM collectors journeyed to Auglaize to try their luck. As it turned out, the usual suspects, calcite, fluorite and sphalerite were present. Jay Medici showed us a neat brown, iridescent fluorite and a pretty nice single black sphalerite crystal about the size of your little fingernail. I did also see a smaller amber colored one. Jay also showed us small oval fluorite vugs about the diameter of your finger, some filled with purple fluorite, and some with brown iridescent fluorite. Calcite was common, most of it was rhombohedral, although a few scalenohedrons were seen. Most of what I saw collected was small but pretty, and although the day started out hazy, it became a warm, sunny, pleasant spring day, ideal for collecting.

Hmmm. . . . still the analogy to MJ is not yet drawn. Keep reading.

We have a lot of highly skilled collectors in our FM chapter, but on what was a warm day for most of us, it was a little warmer for a couple of our guys that you all know really well. This warm day at Auglaize was a good day if your name was Mike. Mike who, may you ask? Well, Mike Royal and Mike Scaglione. Surprised? Probably not. Although Auglaize did not yield the whopper fluorites of the past, Mike & Mike found some purple. Last year Mike S. cranked out a piece which had several purple fluorites on it over ½" on a side (I just hope it makes this newsletter edition so you can all drool over this find).

Mike Royal

If I am lacking photos for field trip report I can always go to Mike & Mike, and quite often they come to me. They recognize that it is important to share with others what they find. Because they volunteer to have their specimens photographed, it seems like they get more press than most of us.

Back to Mike and Mike. More often than not, it is good to be them on any given field trip. Though their skill is not unique, (quite a few of you are highly-skilled collectors) it is special. Not only do Mike and Mike see more than the average collector, they also possess the skill and are willing to do the hard work to extract the special pieces they see. On this day at Auglaize, Mike Royal came up with a fluorite specimen with a cube nearly 3/8" on a side. So did Make Scaglione. Although he found it last year, (he recently finished prepping it and I hope it makes this edition) he showed us a specimen with purple fluorites over ½" on a side. Mike Scaglione's 2014 Auglaize fluorite could have made the cover of Dr. Carlson's Minerals of Ohio book.

Mike Scaglione

Either of the Mike's can probably give you pointers on how to extract a specimen from a boulder. Extracting specimens is a learned skill and they have learned that very well. But their eye to spot top specimens is innate, not developed. They have a great eye – unfortunately, I do not think that a great eye can be taught. If it can, please someone teach us how this is done at one of our symposiums.

What does this have to do with Michael Jordan? Well, if you look at Mike and Mike's specimens over time, you too will "wanna be like Mike".

Postscript: this is to all members on trips. Tom Bolka, our newsletter editor is happy fellow when he can feature your specimens from one of our trips. We have an outstanding newsletter. Part of what makes it outstanding is photos of what you collect on trips. Though you may not become rich and famous from submitting photos of what you collect, you will be exposing your fellow members to the beauty of minerals. So if there's time inside the quarry, please show me what you have found. If we are too busy inside the quarry, let's meet outside the gate after the field trip and take some pictures. Our newsletter is strong because our collectors (you guys and gals) fill it with your finds. You blessed my camera with a lot of nice images last year – let's see if we can do the same this year.

Mike Scaglione – Auglaize 2014

3rd Annual Friends of Mineralogy Midwest Chapter Mineralogical Symposium at Miami University

Copper Crystals from Michigan	Single Gold Crystal from Venezuela	Silver Crystals on Copper from Michigan

Friends of Mineralogy Midwest Chapter held its annual symposium on Saturday, March 14. This year's theme was Native Metals. Our thanks go to John Rakovan for being our host, to John Jaszczak for traveling from Michigan Technological University to give the keynote lecture, and to Terry Huizing from the Cincinnati Mineral Society for sharing in the travel expenses associated with the keynote speaker.

The event was well attended with roughly 50-60 members and students in attendance throughout the day. John Jaszczak started things off with a lively talk on the *Many Facets of Copper Crystals*. No respectable symposium on native metals could leave out gold, so we enjoyed two presentations on this captivating metal, the first from Pete Richards on *The Bizarre Habits of Crystallized Gold: Examples from the Keith Proctor Collector*, and the second from John Rakovan on *Magnificent Gold Crystals from Venezuela*. We were then treated to a working session on Scanning Electron Microscopy and Energy Dispersive X-Ray Spectroscopy (SEM-EDS) by Sean Kelly. Michele Burke then gave a presentation on *Native Metal Investigations using Electron Microscopy*, followed by Josh Silverstein talking about *Morphological Evidence of Authigenic Gold Deposition in Lateritic Placer Deposits from the Guyana Shield in Venezuela*. To cap off the day, our own Clyde Spencer showed us the ropes on *Prospecting for PGMs in Northern California*.

Plenty of conversation and camaraderie was enjoyed by all. It was very encouraging to see the increase in attendance this year, and I sincerely hope that this trend continues. Rumor has it that next year's topic will having something to do with Midwest fluorite. Looking forward to seeing you there!

Randy

Randall Marsh, PhD
First Vice-President
Program Committee Chairman
Friends of Mineralogy Midwest Chapter

PENNSYLVANIA CHAPTER REPORT

Mineral Locality:

Texas, Pennsylvania. Where is Texas?

by
Ronald A. Sloto
West Chester University

I have studied and photographed many old mineral collections. Some mineral specimens from Lancaster County dating from the mid 1850s to the early 1900s are labeled with the locality "Texas, Pennsylvania," and some are labeled "Wood Mine, Texas, Pennsylvania." For example, figure 1 shows a label from the collection at West Chester University that reads "Williamsite, Texas, Pennsylvania." It is likely from the Wood Mine. However, the Wood mine is not in Texas. The USGS topographic maps of the area show that there is no town or village named Texas in Lancaster County.

Figure 1. Texas, Pa. label

There was a Texas in Lycoming County, and there is a Texas Township in Wayne County and an East Texas in Lower Macungie Township, Lehigh County. There also is a small village named New Texas in Fulton Township, Lancaster County, about 3.3 miles northwest of the Wood mine. However, there is no Texas in Lancaster County.

The Wood Mine was opened in 1828. The first reference to minerals from the Wood Mine appears to be in the third edition of James Dwight Dana's mineralogy published in 1850. The Wood mine is listed in his "Catalog of American Localities of Minerals" under Lancaster County:

> "LANCASTER CO. – Near Texas in the south part of the county, at Wood's Chrome Mine, emerald nickel, pennite, kamererite, baltimorite, williamsite, chromic iron, marmolite, picrolite, dolomite, cryst. magnesite, calcite, serpentine."

The previous version of Dana's Catalog of American Localities of Minerals in the second edition (1844) does not list the Wood Mine or Texas.

Individual township maps for Lancaster County were first published in 1864 by Bare and Bridgens. The 1864 map of Little Britain Township, where the Wood Mine is located, shows the villages of Kinseyville, Eastland, and Wrightsdale, which are much closer than New Texas, which is shown on the 1864 map of Fulton Township.

A county wall map for Lancaster County was published in 1842 by Joshua Scott. The map, part of which is pictured here (figure 2), shows a much larger Little Britain Township and the village of Texas, which was the closest village to the Wood mine in 1842. Therefore, Dana was correct in saying that the Wood Mine was near Texas. Everyone thereafter followed Dana's lead, often dropping the near and just using Texas as the location.

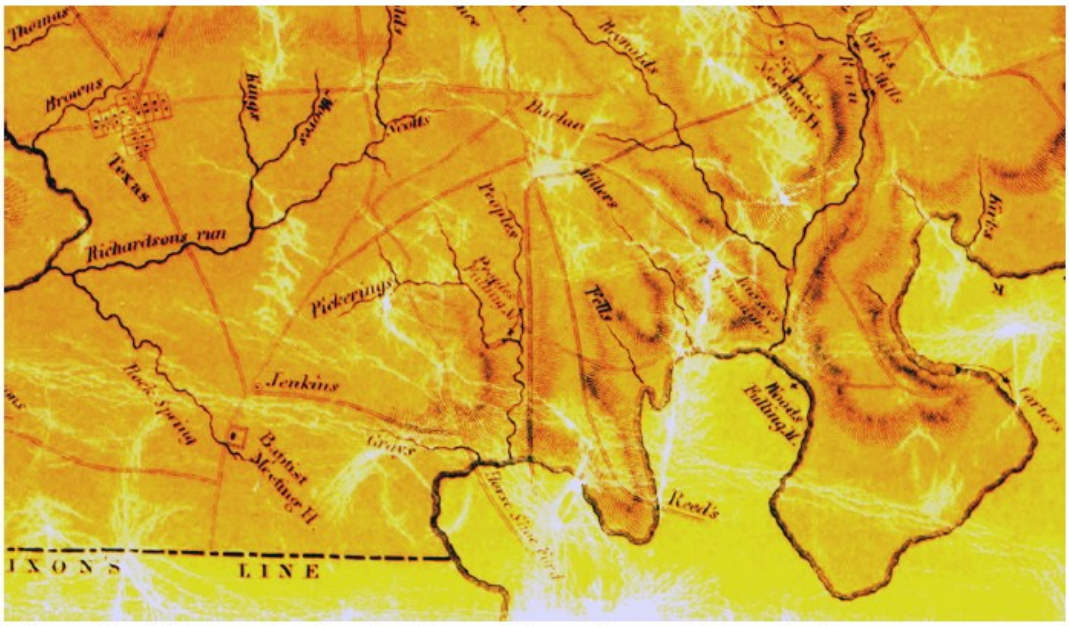


Figure 2. 1842 map showing the village of Texas, Lancaster County, Pa.

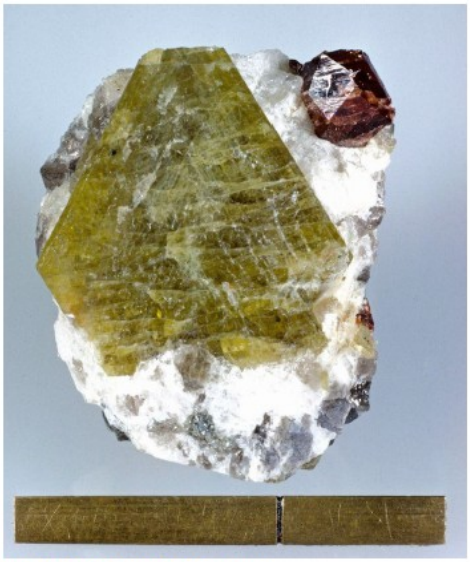
Sometime between 1842 and 1864, Little Britain Township was split into Fulton and Little Britain Townships, and Texas became New Texas. The usual reason for changing the name of a town or village in those days was the establishment of a post office. When the citizens of St. Marys in Chester County wanted to establish a post office, they could not because there was already an established post office with the name St. Marys; they changed the name of their village to Warwick. Likewise, nearby Blue Rock became Elverson in order to establish a post office. The Baldwin and Thomas "New and Complete Gazetteer of the United States" published in 1854 lists Texas as a small village 25 miles SSE from Lancaster and Texas as a post office in Lycoming County. When a post office was established in the Lancaster County village, the residents had to change the name from Texas to New Texas because there was already a post office with the name Texas in Pennsylvania.

You can download PDF copies of Dana's first through sixth editions of his System of Mineralogy, as well as many other historical publications, from the FM-Pa website. Visit http://rasloto.com/FM/ and click on the digital books tab.

Chrysoberyl
Governador Valadares, Doce Valley, Minas Gerais, Brazil
7.33 mm
D. Preite specimen
Photo by M. Chinellato – CC-BY-SA_3.0, via Wikimedia Commons

Chrysoberyl
Minas Gerais, Brazil
Scale at bottom is one inch with a rule at one cm
Photo by Rock Currier – CC-BY-SA_3.0, via Wikimedia Commons

Photos courtesy of the Arizona Leaverite News, June 2015



Chrysoberyl and Spessartine
Chrysoberyl locality, Haddam, Middlesex County, Connecticut
Scale at bottom is one inch with a rule at one cm
Photo by Rock Currier – CC-BY-SA_3.0, via Wikimedia Commons

SOUTHERN CALIFORNIA CHAPTER REPORT

Spring Symposium, March 21, 2015

The SCFM Spring Symposium was hosted by the Goodsprings Historical Society within the Goodsprings Mining District of southern Nevada, with field trips on Saturday and Sunday. Fifty seven attendees listened to five presentations about history, geology and mining in Nevada.

- History of Good Springs Mining District - Robert Spurlock
- Geologic History of Southern Nevada - Steve Scott
- Ore Emplacement and Oxidation along Thrust Faults in the Goodsprings District - Ty Schuiling
- Abandoned Mines Program in Goodsprings District - Bill Durbin
- Slide Show of Field Trip Minerals—Steve Scott

On Saturday morning, Goodsprings Historical Society members from Las Vegas and southern Nevada joined with SCFM members from California, Arizona and Nevada for a community center room filled to capacity. A Sandy Valley Taco Truck catered lunch in the parking lot before afternoon field trips to the Red Cloud and Yellow Pine mine collecting sites.

Image 1: Dr. Don Buchanan, SCFM President introduced Ty Schuiling's slide presentation. (Photo Shadrick).

Image 3: Scenic view of the Goodsprings Distirct. Paleozoic sediment, deformed, faulted, and intruded by Mesozoic sills and dikes, hosted limestone replacement deposits that are now deeply oxidized. (Photo Shadrick).

Image 4: Stop 1 at Red Cloud Mine off of Wilson Pass Road allowed nearly 40 mineral collectors to find orthoclase crystals, some with Carlsbad twins. (Photo Alcaraz).

Image 7: Stop 3 - Over 30 field trip attendees met at junction of Sandy Valley Road and Goodsprings Road Sunday morning to drive to Crystal Pass. The Group collected unaltered cream to orange-colored Carlsbad and Baveno twinned orthoclase crystals for which the site is famous. (Photo Buchanan).

COLORADO CHAPTER REPORT

Carbonatites and Weathered Carbonatites: What are they and why do we love them so?

by Mandi Hutchinson

Carbonatites are currently recognized as volcanic or plutonic rocks which contain greater than 50 modal percent carbonate minerals. Historically, the nomenclature used to describe carbonatites has been somewhat inconsistent and confusing; carbonatites are more recently classified by the International Union of Geological Sciences (IUGS) into subtypes, such as ferrocarbonatite or calciocarbonatite, based on mineralogy or geochemistry.

Carbonatites have recently gained more attention for their role in the formation of rare earth element (REE) deposits. The process of REE-enrichment required to form these deposits is one which involves the concentration of REE in an evolved carbonatitic magma through fractional crystallization and liquid immiscibility. Primary igneous REE-mineralization in carbonatites is rarely substantial enough to generate economic concentrations, an exception being Mountain Pass, USA. Rare earth element content is commonly enhanced by late- or post-magmatic hydrothermal reworking and/or weathering. Hydrothermal rare earth mineralization can produce disseminated and pseudomorphic replacements, most typically involving the rare earth minerals ancylite, bastnäsite, parisite, synchysite, and monazite. Weathering of carbonatites and hydrothermally reworked carbonatites can further increase the REE-concentration due to rock volume loss during weathering and also supergene rare earth mineralization, as is observed at the Mt. Weld, Australia; Araxá, Brasil; and Bear Lodge, USA deposit localities. Supergene rare earth minerals at these deposits include monazite, churchite, crandallite, goyazite, florencite, gorceixite, apatite cerianite, bastnäsite, and parisite.

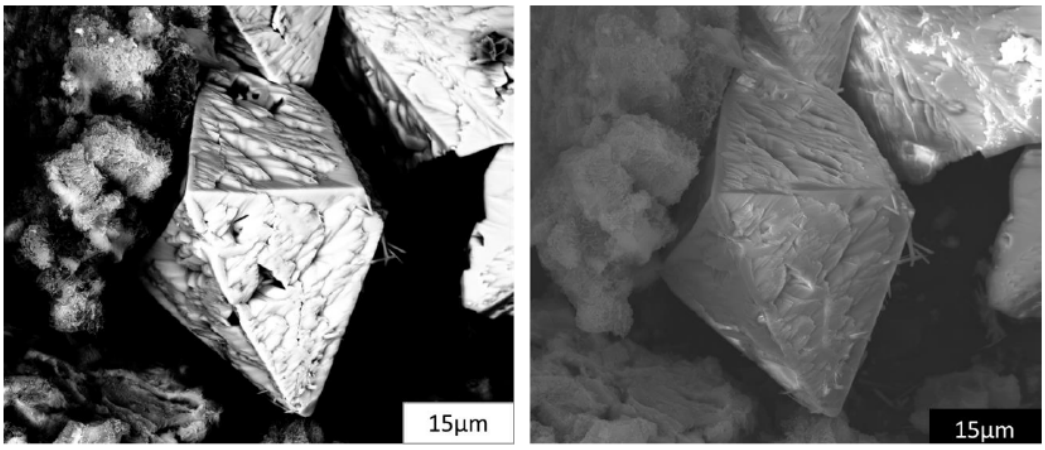


Figure 1. Scanning electron microscope images of hydrothermal ancylite (center of images) surrounded with feathery blades of supergene manganese oxides. Backscatter electron (*left*) and secondary electron (*right*) images are shown.

The REE-bearing minerals in carbonatite-hosted and weathered carbonatite deposits are often very small, sometimes occurring no larger than 1µm in size. While carbonatites are not a great source of minerals for the esteemed collector, the minerals found in carbonatites, hydrothermally reworked carbonatites, and

weathered carbonatites are fascinating and beautiful when viewed through the eyes of an electron microscope. Carbonatites can contain abundant fluorite and sulfide gangue minerals, which lend an aesthetic appearance. The REE-bearing minerals and gangue minerals in carbonatites can display fluorescence with shortwave and longwave UV lamps. Additionally, alkaline provinces containing carbonatites can produce interesting assemblages and fine quality minerals, such as those from Mt. Malosa in Malawi.

Figure 2. Fresh carbonatite from Bear Lodge, shown in ambient light (*left*) and in filtered shortwave UV light (*right*). Pink fluorescence of igneous manganoan calcite contrasts with the quenching of light displayed by rare earth pseudomorphs and sulfide minerals. Blue fluorescence may be secondary calcite.

Carbonatites can be elusive and volatile creatures, capable of generating mind-blowing questions in the thoughts of the amateur and the experienced alike. With further study, one can find himself wrapped up in the curious nature of their genesis and life-stories. This talk will provide a synthesis of global research on carbonatites and their weathering products, including not yet published extras from the author's thesis research from Bear Lodge.

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380,000 Attend Four-day 3rd Annual Gem & Mineral Show in Chenzhou, China

Alexander Schauss, PhD
Photos by Nora Chen

A record turnout of 380,000 attended the 3rd Annual China Gem and Mineral Show (CGMS), held in Chenzhou, Hunan, China, over a four-day period, from the 22nd to the 25th of May 2015. This is without a doubt the largest attendance by far of any gem and mineral show held in the world to date. The unique person attendance estimate was over 150,000 visitors.

Attending the show from the United States as guests of the Ministry of Land and Resources of Hunan People's (Provincial) Government, was Gene Meieran, Sc.D., Chair of the University of Arizona Mineral Museum Advisory Board, Peter Megaw, PhD, Show Chair of the Tucson Gem & Mineral Show (TGMS), and myself, representing Friends of Mineralogy. During our visit we made five presentations related to minerals, the evolution and history of major mineral shows around the world, and our mineralogical interests, at a two-day open Summit and Education Forum on Minerals, held in conjunction with the gem and mineral show.

Gene Meieran, Alex Schauss and Peter Megaw at the CGMS Show in China

A mountainous province, Hunan is located on the south bank of the Yangtze River, in southern China. It was the birth place and early home of Mao Zedong. Northwestern Hunan is distinguished by the Wulingyuan Scenic Area that consists of thousands of quartzite sandstone columns, the Langshan mountains, numerous caves and waterfalls, and 17 UNESCO World Heritage sites. Hunan province and the surrounding provinces of Guangdong, Guizhou, Hubei, Jiangxi, and Sichuan form China's most important geological zones of interest. For example, the tungsten-mining area of Yaogangxian in Chenzhou's Yizhang County where 308 different mineral species have been identified, some not found anywhere else in the world. This same area is China's largest producer of wolframite ($(Fe,Mn)(WO_4)$). The mines around the town of Shizhuyuan in Chenzhou Prefecture has had 143 minerals identified. The province is noted for its stibnite (Sb_2S_3) mines and specimens found in the center of the province in the Lengshuijiang area, noted for its rich deposits of antimony (Sb) that produce more than 50% of the world's production. The region's graphite crystals account for 70% of the world's reserves. Tin ore is mined in Xianghualing, Linwu County, tungsten ore in Yaogangxian, Yizhang County, and in Rucheng, Rucheng County.

Photo courtesy of Wikipedia,
https://en.wikipedia.org/wiki/Wulingyuan

Nearly 75 million Chinese live in Hunan Province, divided into 14 prefectures, 122 counties, and 2576 townships, whose provincial seat is Changsha to the north, with a population of over 7 million.

Beihu is the administrative seat of Chenzhou Prefecture. The province and mines around Chenzhou are well known by collectors of Chinese minerals, as the city sits in the middle of numerous mines that have yielded an extraordinary variety minerals for collectors, still actively producing specimens for collectors. Chenzhou with a population of nearly 5 million is literally surrounded by mines.

Alex Schauss pointing to location of Chenzhou on a map of China's provinces in the Baoshan National Mine Park in Guiyang County.

During our stay in the province we had the opportunity to visit the Baoshan ore field (Baoshan mine), a porphyry, skarn and vein-type polymetallic deposit, related to granodiorite intrusions, rich in antimony (Sb), bismuth (Bi), copper (Cu), fluorine (F), lead (Pb), magnesium (Mg), molybdenum (Mo), tungsten (W), and zinc (Zn), located near the ancient city of Guiyang, in Guiyang County, Chenzhou Prefecture. The CGMS Organizing Committee provided us and our translators a remarkable mine tour open to the public for a very nominal fee that takes visitors on an underground tour at the Baoshan National Mine Park, using old rail cars to see over 20 exhibits illustrating, in a Disneyland-style, methods that were used for the last 2,500 years beginning with the post-neolithic Xia (ca. 2100-1600 BCE), Shang (ca. 1600 o 1050 BCE), and Zhou (1046-256 CBE) dynasties, to extract ore from the mine. The mining technologies employed during the Han (206 BCE-220 CE), Sui (581-618 CE), Tang (618-906 CE), and Song and Yuan dynasties (960-1368 CE), were of particular interest as one could see how miners worked at the time to mine the ore and hoist it to the surface for processing.

As we left the underground mine museum we walked across the parking lot to see the Baoshan open pit mine, which in our opinion was as large as any open pit mine in Arizona, with the caveat that this open pit mine wasn't mined with machinery it was mined by hand over hundreds of years!

Afterwards we were taken to the Baoshan Mining and Mineral Museum, part of the National Mine Park, that utilizes advanced educational displays providing exhibits that cover virtually every method used in the recent past and present in mining. The three of us agreed we could have spent the entire day just in this part of the museum, which provided English and Chinese signage, before heading upstairs to see the mineral displays on the second floor. Unfortunately, we spent so much time in the underground mine and on then on the main floor of the museum that by the time we were ready to go upstairs to see minerals we had to return to Chenzhou to attend the CGMS.

When we arrived at the CGMS, the turnout was massive, or as Gene called it, “historic.” The photo below illustrates when it looked like when we arrived on day-2 back from the mine and museum tour.

Record turnout of over 80,000 show up on day-two (Saturday) of the four-day CGMS in Chenzhou, Hunan Province.

The shows theme was “The Greatest Mineral and Gem Exhibition in Asia”, organized by the Hunan provincial government, the Ministry of Land and Resources, the China (Chenzhou) Mineral and Gem Show, and its organizing committees. It was held in the Chenzhou Convention Center that provides 100,000 sq. meters of floor space that can accommodate 2,600 booths on two floors. Booth space toward the front of the entrance was provided for overseas exhibitors and dealers, some of which came from as far as South Africa, Pakistan, India and the United States, including The Arkenstone (Richardson, Texas) and Collector’s Edge Minerals (Golden, Colorado). There were also quite a few dealers from the United States walking the show floor, some of which had attended either the first or second or both CGMS shows

that had previously been held in Changsha, Hunan Province, and had been coming to China for years to acquire specimens for their customers.

Chenzhou Convention Center, Hunan Province, site of the China Gem and Mineral Show (CGMS).

To help traverse the show floor, and converse with Chinese booth holders, take photos of mineral exhibits, and talk to attendees, the organizing committee provided junior-college-level English translators from Xiangnan University (XNU) in Chenzhou. To assist foreigner English speaking guests, over 100 English translators volunteered to serve in this capacity studying English at XNU.

What surprised me was how many young children and their parents attended the show, not just to look but to purchase minerals for their children. It was fun watching the kids use their smart phones to take photos of their favorite specimens, and then haggle with the dealer on price.

Parents watch their youngest child's interest in minerals. Small minerals especially appeal to younger children.

The variety of minerals, particularly the size of many on exhibit or for sale which I called "folk lift specimens", was an eye opener wherever one turned near set-aside exhibits or in large dealer booths, as illustrated in the photos below.

Xiangnan University English translator (Nora Chen, photographer) next to “fork lift” size green fluorite crystals on calcite from Shangbao, Hunan Province, China.

Other specimens were more manageable and aesthetically appealing as illustrated by the following photos.

Purple fluorite (~10 cm) from Yaogangxian mine, Yaogangxian W-Sn ore field, Yizhang County, Chenzhou Prefecture, Hunan Province, China.

Babingtonite with prehnite and quartz (~15 cm), Qiaojia, Zhaotong Prefecture, Yuannan Province, China.

CGMS's historic attendance record was partially due to the support it received from the government. To encourage attendance, the city of Chenzhou declared a four-day holiday. Tickets to attend the show were free if registered in advance online. All tickets were numbered sequentially. Without a ticket, one had to pay 50 yuan (~US$8.00) on show days.

Upon entering the convention grounds, one presented their ticket to staff at the gate, and then went through a turn style, which also kept track of attendance numbers. This system of anticipating turnout provided time for organizers to determine what resources were needed to handle the crowds each day. Despite such planning the attendance proved to be overwhelming on Saturday when they had to stop people at the gate from coming into the show for much of the day as over 60,000 had entered the convention center by mid-day. After a while they opened the gates again, and another 20,000 added to the day's total. Both on Saturday and Sunday I saw lines that stretched over five long city blocks waiting to attend the show. Unlike crowds to many events I have witnessed over the years in China, the lines in Chenzhou were remarkably orderly, a credit to the community and its citizens.

What about next year's show? At this time no decision has been made whether to hold CGMS in Chenzhou or return it to Changsha, where it was held the first two years. Changsha has a sizeable regional airport and connects to major cities in China. To get to Chenzhou, one flies into either Guanghou Province or Chansha and then takes a bullet train which whisks you to Chenzhou from either location at 311 km/hr (~193 miles/hr). It's a very pleasant ride that allows one to see the countryside. Chenzhou does have an airport, however, it has not yet received permission to open. If it does, this would make it much easier for foreign visitors to reach Chenzhou. Until then, it will be up to the government to decide which city gets the 4th China Gem & Mineral Show venue. If it is in Chenzhou again, I'd highly recommend that if you attend, spend a few extra days before or after the show, or during the four-day show visiting one of five destinations near the city related to its geology and/or mining history.

One tip is to get to the city several days before the show. Houfu Rare Stone Street that has gem and mineral shops as well as stores that sell ornamental stones, known as "viewing stones", very popular in China. One viewing stone association in China has over 2.5 million members. Houfu Street is also where one can find Tongtian, Huanglong, and ink jade. If seeking fossils, be mindful that taking any fossil from China is strictly prohibited. An early visit provides a chance to see what's available before many shop keeper's head to the show to be in their booth or walk the floor.

The city also has three museums: the High-tech Zone International Nonferrous Metals Museum, the Chenzhou Geological Science Museum, and the Chenzhou Minerals and Gem Museum, along with four mine tourism sites, including: the Wanhuayan Karst Cave; Feitian Mountain Geological Museum; the mines of Peizhuyuan; and, Baoshan National Mine Park.

If the next CGMS brings you to Changsha, the Hunan Museum of Geology would be well worth visiting in the Tianxin District of the city.

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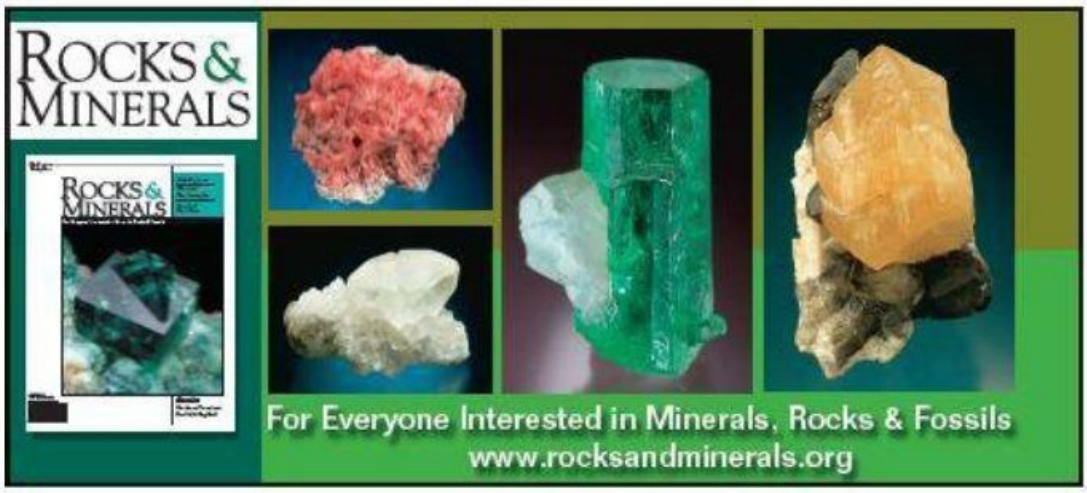

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