

Mineralogical Society of the District of Columbia



MINERAL MINUTES

The Mineral Minutes is the bulletin of The Mineralogical Society of the District of Columbia, Inc.

The purpose of this Society is to promote interest in mineralogy, geology, and related earth sciences and to encourage mineral collecting. An annual scholarship is awarded to a deserving student in the related field.

The Mineralogical Society of the District of Columbia is one of the founding Societies of the Eastern Federation of Mineralogical and Lapidary Societies.

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HAPPY NEW YEAR!

Cathodoluminescence and What It Can Tell Us About Pegmatite Processes



(photo: B. Thompson)



(photo: Smithsonian website)

MSDC couldn't start the New Year out with a better speaker than Michael A. Wise, Ph. D, who, as many of us know, works as a geologist in the Division of Mineralogy, for The Smithsonian National Museum of Natural History.

In terms of research, Dr. Wise's is interested in pegmatites and the processes that generate them. Since elements are used in various technological applications, pegmatites are important sources of rare-elements. We know that you will enjoy this informative presentation.

"The cathodoluminescence (CL) laboratory of the Department of Mineral Sciences is equipped for cathodoluminescent imaging and spectroscopy of geologic materials. The lab is equipped with an ELM-3R Luminoscope and MacPherson .2meter scanning monochromator with Macpherson 789A controller.

Images are captured using an Olympus Magnafire CCD camera. Recently, a vibration isolation table has been added for improved high magnification imaging."

(<http://mineralsciences.si.edu/facilities/cl.htm> & Natural History Museum website)

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January 2013

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THE PREZ SAYS...

By Stephen Johnson



So, Tom Tucker started his last column with “as another year of activities with the MSDC comes to a close”, so I guess I’d like to start mine with...

As a brand new year of activities with the MSDC begins, I’d like to thank all the out-going officers for their great work and efforts over the past year. Although Mother Nature had me down for the Holiday Party at Susan and Ed Fisher’s, I understand it was a great success and a very memorable evening. Thank you, Susan and Ed, for putting that together. Andy has done a great job lining up several speakers and I’m glad to see he’s still assisting Rick as he assumes the role of Vice President. I’m really looking forward to several of the upcoming speakers, plus I have a few ideas of my own that I will discuss with Rick and Andy.

Field Trips Reminders

As Tom pointed out last month, on February 23, 2012, we have been invited to the annual pilgrimage to the mineralogical labs at James Madison University. Dr. Lance Kerns has been a great host in the past, so if you have any known unknowns and want to make them known knowns bring them with

you. Also, bring a little spending money. Dr. Kerns usually has specimens extra to the department that he has out for sale/donation.

Based on a request from a few of our members, I checked with Dr. Brent Owens down at the College of William & Mary about making a visit to the Geology Department to see the new world-class, Dimitri B. Georgiadis Mineral Collection. Brent replied that he’d be happy to show us the mineral collection. Now we just need to decide on a timeframe where folks that are interested can attend. Given that we have our trip down to JMU in February, my initial thoughts are that I will try to set up a day with Brent sometime in March. Besides, the weather should be warming up by then and folks could also enjoy being tourists around the College and Colonial Williamsburg. The Georgiadis Collection ranges from some of the more common minerals to gemstones to specimens with unique crystal shapes. The minerals in the collection come from places all over the globe, including Brazil, Romania, South Africa, Italy, Switzerland, Madagascar and Mount Kilimanjaro. Some notable minerals in the collection include rhodochrosites, rubies, emeralds and a watermelon tourmaline. Also included are aqua-marine, quartz, beryl, tanzanite and topaz.



World-class collection

Geologist Brent Owens holds a specimen from the Dimitri B. Georgiadis Mineral Collection. (Photo by Allan Herman)

I guess that’s it for right now, especially since our dutiful and talented editor, Sheryl, keeps asking me when I’ll be finished with my section. I remember now why I majored in Geology – I didn’t have to do that much writing!

Introducing Our 2013 Officers and Board Members



*(left to right: Steve Johnson, Rick Reiber, Patricia Flavin, Rebecca Siegal, Dave Hennessey, Dave Nanney, Andy Thompson, & Sheryl Sims)
(photos provided by B. Thompson, A. Cameron Siegal, & S. Sims)*

Newly elected club president, **Steve Johnson**, earned his undergraduate degree in Geology from William & Mary. Currently, he is a Lieutenant Colonel in the Army, and hasn't really had much of an opportunity to use his degree in the military except for collecting/buying things during his travels such as fossils from a demolition range in Germany, fossils from Saudi Arabia and minerals in Afghanistan. As a member of MSDC and other mineral clubs, Steve Johnson has demonstrated more than a willingness to serve. He has shared his time, knowledge and remarkable collection of minerals from Afghanistan during several of our meetings, in addition to agreeing to serve as the MSDC President. We look forward to supporting him during his term as club President.

It all adds up that after numerous terms of service as MSDC Treasurer for our club as well as another mineral club, **Rick Reiber** was happy to volunteer to take a turn serving as MSDC Vice President when the nominating committee came knocking. He is excited about finding interesting speakers for our monthly meetings. We know that Rick will do a great job as Vice President, just as he did while serving as MSDC Treasurer. — *"I'm looking forward to continuing the seventy year old tradition of bringing interesting speakers in on geology and related topics. As I am new to this role, I am open to any suggestions and contacts that you may have. I'd also like to thank Rebecca Siegal for volunteering to take over as Treasurer."* [Rick]

A loyal member of MSDC and other mineral clubs, **Patricia Flavin**, has graciously agreed to serve another term of MSDC Secretary. She is as serious about note-taking as she is about fossil-hunting. Patricia is an enthusiastic club member who pitches in whenever and wherever needed.

Rebecca Siegal has been a member of MSDC since before she was in high school. Now, as a recent college graduate with a degree in anthropological sciences, she is gaining valuable practical experience working in the lab at Alexandria Archaeology and through her internship with the Smithsonian's osteo-prep lab in Suitland, where she helps prepare animal bones for future displays. Rebecca is detail-oriented and looks forward to learning new skills as the club's treasurer.

A government contractor, currently working for the Navy, **Dave Hennessey** caught the mineral collecting bug in the 2nd grade. He readily admits that this disease continues to afflict him to this day, and that there is no known cure. Very committed to MSDC, Dave continues to generously give of his time and serve as one of the club's Directors.

Dave Nanney is the first to admit that within MSDC, are the nicest, most sharing, friendly people that he and his wife, Leslie, have ever met. As a result, their knowledge, collection, and friends have expanded dramatically. He stated that because they were new, they had a lot of interests to which MSDC responded by tailoring speakers to meet their expressed interests. Dave said that it was only fair that when he was asked to be a Director, he agreed so that he could continue to influence the club.

As a former MSDC President and recent Vice President for Programs, **Andy Thompson** shared that it has been a pleasure to work with MSDC members and speakers. Andy has, like our other officers, graciously given of his time and energy for the betterment of MSDC. He expressed that he would happily continue serving on the board of directors and working to expand MSDC's outreach to promote education in geology and minerals.

Despite possessing little knowledge of minerals and geology, I have an enthusiastic interest in both. Serving as the MSDC editor provides me with a creative avenue in which I may serve the club and give back, in a small way, for all of the information, camaraderie, and experiences that I've received as a member. I am happy to continue serving as MSDC's bulletin editor. **Sheryl Sims**

Thin Section Field Trip

By John Weidner



Would you like to spend an afternoon looking at thin sections? Northern Virginia Community College would be glad to open up its geology lab on a Saturday afternoon, set up our polarizing microscopes, and show-off what we have. We will

provide an introduction to using polarizing microscopes, assuming nothing—then bring out our thin section collection and show it off. If you have never looked at a 30-micron-thick section of a rock, we can hold your hand and guide you through the basics, as we were guided not so long ago. If you are already an expert, join us in holding hands

with the beginners, or find something of interest in our collection of almost 1200 thin sections.

The Annandale Campus of Northern Virginia Community College is located just outside the Beltway on Little River Turnpike. [8333 Little River Turnpike, Annandale, VA 22003-3796.] For more information, contact John Weidner at: jfweidner42@gmail.com or come to our next mineral club meeting. If there is sufficient interest, we will set a date and time.

OFFICERS & BOARD MEMBERS CONTACT INFORMATION

*President: Steve Johnson - StevikJ@gmail.com; Vice President: Rick Reiber - Mathfun34@yahoo.com
 Secretary: Patricia Flavin - patriciarehill@gmail.com; Treasurer: Rebecca Siegal – dcmineralclub@gmail.com
 Directors: Dave Hennessey - dhennessey@spa.com; Dave Nanney - DNanney@cox.net;
 Andy Thompson - thompson01@starpower.net; Editor: Sheryl Sims - sesims4@cox.net*

MINERAL QUIZ: Approximately how many minerals are known to exist? A) 300 B) 3,000 C) 4,000 D) 5,000 (See the answer on page 5.)

Upcoming Events

Feb. 16: 23rd Annual Mineral, Jewelry & Fossil Show sponsored by the So. MD Rock & Mineral Club. The Show Place, Marlboro, MD

May 31 - Jun. 1-2: (EFMLS Mtg. May 31.) EFMLS Convention & Show. Hosts: The Island Rockhounds & Suffolk Gem & Mineral Club, Plainview, NY.

Linked-in: Close but no cigar -- Asteroids Near-Miss. http://www.washingtonpost.com/blogs/capital-weather-gang/post/newly-discovered-small-asteroid-just-misses-colliding-with-earth-next-up-is-much-bigger-121212-asteroid/2012/12/11/51048aae-43a4-11e2-9648-a2c323a991d6_blog.html?tid=pm_local_pop [Dave Nanney]

Federation News: Remember to visit these websites for complete **Federation, Safety, and Wildacres** information: www.amfed.org and www.amfed.org/efmls for more federation news!

ROCKHOUND OF THE YEAR AWARD

By Tom Tucker

The Mineralogical Society of the District of Columbia honors **Sheryl Sims** as our **2012 Rockhound of the Year**. Sheryl is an enthusiastic go-getter full of ideas and energy; and, is always ready to step up to meet the needs of the club. She has served on the club’s nominating committee, filled in as secretary when needed, helped to maintain the club’s Facebook page, and provided the club with an informative written report after attending her first Eastern Federation conference. Sheryl attends club fieldtrips, suggests speakers, and keeps club members informed as to matters relating to EFMLS and AFMS.



She solicited mineral donations from club members and helped organize the mineral education boxes for a local school. When the need for a bulletin editor emerged, Sheryl promptly volunteered and has provided a high-quality and informative newsletter. Many of the newsletters include her photographs as well as her articles. She has won many EFMLS awards for her articles and also won an AFMS award for the production of a club year book (for another local club) that AFMS recognized with an All American Award Silver Medal. She is currently working with the club historical archives (70 years of material) to produce a scrapbook for our club. We are pleased to recognize Sheryl as our **Rockhound of The Year!**





Secretary's Report

By Patricia Flavin

Date: November 7, 2012

Meeting Place: Cathy Kerby Rm., The Smithsonian Institution National Museum of Natural History

Attendees: 23

Agenda: Club President Tom Tucker. Recognized past presidents, Cynthia Payne, Ed Fisher, Andy Thompson

Minutes Approved: October 2012

Visitors: Mike Kaas, Dave and Linda Foley

Treasurer's report: Rick Reiber accounted for the club funds and mentioned the EFMLS insurance has been paid.

Old Business: The holiday Christmas Party will be Dec. 1st, 5:30 pm at The Fisher's house in Centreville, VA. Note that no meeting will be held on Wednesday December 5th. Please contribute food dishes for the party. We will be honoring the club's 70th year anniversary. Bring a rock to exchange at the party. NVMC Rock and Gem Show is November 17th and 18th at George Mason University.

New Business: Nominating committee members, Dave Hennessey, Sheryl Sims and Dave Nanney have discussed nominations for the 2013 officers: President-Steve Johnson, Vice President-Rick Reiber, Secretary-Patricia Flavin, Treasurer- open, Board Member-Andy Thompson. This slate was voted upon and confirmed. Subsequently, Rebecca Siegal has volunteered for Treasurer. Steve Johnson has set up our club's Facebook page. Please sign up as a member and contribute to it.

Announcements: A new planet has been discovered that is 2 times the size of earth and made of diamonds. Look for another meteor shower on November 17th.

Cares and Concerns: Best regards for Leslie Nanney as she recovers from surgery.

Program: "*Chromite In Maryland & Pennsylvania-A History*" by Johnny Johnsson, geologist and mining historian. In this evening's lively program, Johnny Johnsson portrayed, and spoke as, Mr. James Tyson, son of wealthy Quaker mine owner, Isaac Tyson, Jr., whose claims spanned several states: Maryland, Pennsylvania, Virginia & areas in New England from the early 1800's until his death in 1861. The Johnssons were costumed in antique "high society", clothing. Dawn Johnsson portrayed James Tyson's wife, Elizabeth. Mr. Isaac Tyson, Jr., was a "Pioneer Baltimore Industrialist", founder of the Chromium Industry. Chrome Ore was the major mineral mined within these claims, which produced: Chromite, Chromium, Chrome Oxide Green, Magnasite. Patents were received for Potassium Chromite & Bichromate, Copperas, etc. Mines included, Bare Hills, Soldiers Delight in Baltimore County 1808, the Choate Mine 1830's, Chrome Valley Mill, and Wood Mine in Pennsylvania. In 1845, Isaac Tyson patented a process for manufacturing potassium bichromate and founded the Baltimore Chrome Works, a plant that continued in production until 1985, a span of 140 years.

Refreshments: Thanks for all those who contributed. Please volunteer to bring refreshments.

Meeting Adjourned: The business meeting concluded at 9:45 pm.

[Answer to MINERAL QUIZ: C. There are more than 4,300 known minerals, and approximately 50 new ones are discovered each year. Some minerals, such as quartz and feldspar, are abundant in the earth's crust; others are so rare that they are known from only one locality or even one specimen. (From "What do You Know About Rocks, Minerals, And Gems" Knowledge Cards Quiz Deck" – Smithsonian Institution)

Meeting Date: December 1, 2012

Annual Holiday Party and the 70th Anniversary Celebration 1942-2012

Meeting Place: The Fisher's Residence, Centreville, VA.

Attendees: Approximately 35.

Agenda: Outgoing, Club President Tom Tucker offered his appreciation to the officers and club members for 2012. Recognized past presidents, Cynthia Payne, Ed Fisher, Andy Thompson, Erich Grundel.

Minutes Approved: November 2012 earlier in the week.

Visitors: Carla Turnage, guest of Sheryl Sims.

Treasurer's report: None.

Old Business: None.

New Business: Nominating committee member, Dave Hennessey, announced the roster of officers for 2013: President-Steve Johnson, Vice President-Rick Reiber, Secretary-Patricia Flavin, Treasurer-Rebecca Siegal, Board Member-Andy Thompson.

Rockhound of the Year Award was presented to: Sheryl Sims, Club Bulletin Editor. Sheryl's response was "Rock On!" Thanks for such great contributions to the club, Sheryl!

Cares and Concerns: Steve Johnson, our new president, was ill and could not attend. Get well soon, Steve.

Tonight's Program: "MSDC 70th Year Anniversary, A Historical Perspective" by Tom Tucker, Outgoing President.

Tom answered the question, "Why Are We Here?" Tom gave a retrospective of the club's beginnings in 1942. He remarked that the club still meets at the very same place. His historical perspective revealed details such as club dues being only \$1 back then. By 1943, there were 30 members, which increased to 111 members by the end of the year. In 1944, the gem cutters club was incorporated. Cynthia Payne, current member and a past president, joined the club in 1958. Tom enumerated the many famous speakers, teachers, and professionals who were members. He listed the mines that were visited and that they even took the trolley to Cabin John, Maryland to pan for gold! Party favors included a handmade bookmark, which featured 2 minerals/gem stones: a sapphire, and piece of granite, from two Montana mines.

The party continued until late night with a fantastic feast of great dishes brought by club members. The Fishers were great hosts and their 1st class mineral collection was excellent!

Here's wishing all club members a Happy Healthy New Year!

**70th ANNIVERSARY
& 2012 HOLIDAY PARTY**



(Holiday party photos by Betty Thompson, Dave Nanney & Sheryl Sims)



2012 HOLIDAY PARTY (cont.)



Treasurer's Note: Treasurer, Rebecca Siegal



2013 Dues! \$20 for single memberships. \$25 for family memberships. Why not invite your friends and family to join MSDC?

Please welcome **Rebecca Siegal** as the new MSDC

Treasurer. Please send all treasurer-related emails to: dcm mineralclub@gmail.com

MORE REFRESHMENTS, PLEASE! Please contact Susan and Ed Fisher, or Betty Thompson, if you are able to bring refreshments to our monthly meetings. Susan, Ed, and Betty, along with a few other committed members, are

the sources of the tasty treats that we enjoy at each of our meetings. If you are able to help, please seek out the friendly faces below and coordinate with them. Your contribution will be greatly appreciated!



(photos provided by B. Thompson)

WELCOME! WELCOME! WELCOME! Guests are always welcome to attend MSDC meetings. Please continue to invite your friends!

**2012 Speaker Flash Back:
It's Been a Great Year!**



(Microsoft Clipart)

- January 2012: Dr. Cari Corrigan gave a wonderful presentation on Meteorites in Antarctica.
- February 2012: Tom Tucker, MSDC President, gave an informative presentation on his mineral travels in Vietnam.
- March 2012: Alan Cutler (author and geology professor at Montgomery College) spoke on the geological and mineralogical vision of Nicolas Steno (1638-1686).
- April 2012: Joe Marx (Adjunct Professor of Geology, NVCC) discussed Bowen's Reaction Series.

- May 2012: Dr. Cari Corrigan gave an informative presentation on the Lorton Meteorites.
- June 2012: Ray Stanford shared information on dinosaur tracks in Maryland and brought in wonderful fossils for us to examine and enjoy.
- July 2012: No meeting.
- August 2012: No meeting.
- September 2012: Bob Simonoff gave an informative presentation on The Ste. Marie Aux Mines Mineral Show.
- October 2012: Susan Fisher presented information on Fluorites – "A Mineral for All Seasons."
- November 2012: Geologist, Johnny Johnsson (& his wife, Dawn), shared their passion about the history of chromite mining in MD and PA.
- December 2012: Holiday Party.

Thank You to all who donated door prizes last year, provided refreshments, took photos, brought guests, shared mineral news, and made our club a great one by attending our meetings!



Thank you to former club president, Tom Tucker, who called my attention to Ray Lynch’s excellent article in the Hot Springs Geology Club’s bulletin. In addition to being the author, Ray is the editor of The Hot Springs Geology Club’s bulletin. He was kind enough to grant me permission to use it in this month’s bulletin. Below is a blurb from the HSGC Bulletin referencing my request. (See Ray’s article on p. 10.)

Sheryl Sims, Editor **Thank you to Andy and Betty Thompson for graciously helping me proofread the Mineral Minutes!**

FROM THE DESK OF THE HSGC BULLETIN EDITOR - Ray Lynch

HSGC—THE HOT SPRINGS GEOLOGY CLUB—Nov-Dec 2012

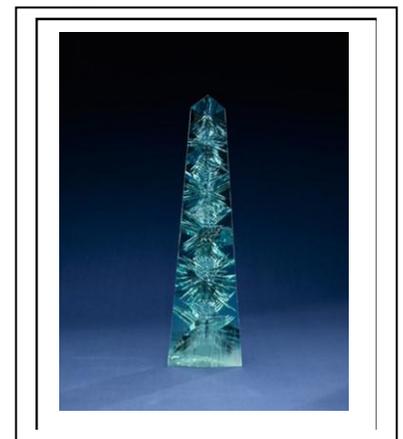
*I received a surprise request and compliment from the bulletin editor of the Mineralogical Society of the District of Columbia Club located in Washington D.C. The editor, Sheryl Sims, was requesting permission to use the Phosphate Minerals of Arkansas, the Manganese from Arkansas and the Hot Springs Sentinel articles that appeared in our October issue of the Hot Springs Bulletin in her club bulletin the “MINERAL MINUTES”. In Sheryl’s words: *I appreciate having access to substantive articles like yours for our members. The MSDC editor sent me copies of their bulletin and I will utilize articles and ideas from that source.**

Please continue to support our club bulletin by sending me your mineral-related news, articles, photos and/or links. The *Mineral Minutes* newsletter deadline is the 15th of each month. You may email your submissions to me at <sesims4 at cox.net>. Thank you!
(Note: The Editor reserves the right to edit all submissions as necessary.)

MINERALS IN THE NEWS: According to the *The Washington Post*, dated 12-7-12, a strong earthquake shook northeastern Japan, resulting in a warning for a possible tsunami. The Japanese Meteorological Agency stated that the earthquake had a magnitude of 7.3.

In what was said to be one of the best meteor showers ever, the Geminid meteor shower zipped across a cloudless sky in the area on the night of Dec. 13 and early the next morning. At least 20 to 30 meteors per hour and a few fireballs were spotted. (The Washington Post, dated 12-14-12).

Also in The Washington Post, dated 12-7-12, it was reported that the world’s largest cut aquamarine was unveiled at the Smithsonian’s National Museum of Natural History. It is the obelisk-shaped Dom Pedro gem. Mined in Brazil during the late 1980s, the blue-green crystal will be on display, long-term, and is named for Brazil’s first two emperors. Standing at 14 inches tall and weighing almost 5 lbs., the Dom Pedro was cut and designed by Bernd Munsteiner. According to Jeffrey Post, the National Gem Curator, the color of this remarkable gem will be a big draw for museum visitors.



“As a piece, there’s nothing like it, so how do you really know what the value of something like that is?” Post said, noting it will never be sent to auction. “I have no doubt it’s going to become one of the iconic pieces of the collection.”
[Don Hurlbert, Smithsonian Institution/Associated Press - The Washington Post, dated 12-7-12]

HSGC

THE HOT SPRINGS GEOLOGY CLUB

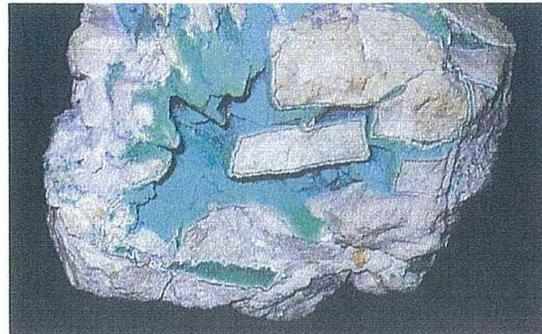
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Phosphate Minerals of Arkansas

Edited By Raymond Lynch

Phosphate minerals were first mentioned in 1877 in a written description, when specimens, apparently from Montgomery County were recognized as being the same as variscite (Chester, 1877, 1878). Wavellite from an unnamed Arkansas locality was described as early as 1883 (Kunz, 1883). Variscite occurrences were reported “from the region around Hot Springs” (Harvey, 1886).

The first mention of an iron phosphate mineral from Arkansas is of “eleonorite” now known as beraunite from Sevier County, Arkansas (Koenig, 1888). No specific locality was given and there are presently no known occurrences in Sevier County. It is quite possible that Koenig used an earlier map from the 1840’s in which Sevier County encompassed virtually all of west-central Arkansas from Fort Smith to Texarkana and include most of what is now Polk and Montgomery Counties. Both counties have notable occurrences of iron and aluminum phosphates. By the 1890s several locations for variscite, wavellite and iron phosphates had been discovered and reported (Comstock, 1888, 1892).



Variscite, Arkansas, fracture fillings in Big Fork Chert, Newsom Collection AGS, photo by Lynch

During early prospecting for manganese, occurrences of dufrenite (not differentiated from rockbridgeite) were noted in western Arkansas (Miser, 1918). Numerous iron and aluminum phosphate localities were discovered immediately before and during World War II as exploration for manganese by WPA and government agencies intensified in western Arkansas. Most of the known localities were detailed in county mineral reports in the early 1940s. Beraunite from the North Mountain Mine was featured in an advertisement for Ward’s Natural Science Establishment on the back cover of a 1945 Rocks & Minerals Magazine.



Wavellite, Arkansas, fracture fillings in Big Fork Chert, Newsom Collection, AGC, photo by Lynch

As of 1949 the separate identity of rockbridgeite and dufrenite had been noted and the mineral laubmannite (name now discredited) was described (Fronzel, 1949). Uranium investigations led to the discovery of gorceixite in Arkansas (Young, 1958). A landmark study by Erickson and Blade (1963) of the Magnet Cove Complex reported on wavellite from drill cores in the central part of the carbonatite, but this may have actually been radially fibrous apatite. A Bureau of Mines summary of mineral resources in Arkansas reports most of the then known locations of phosphate minerals (Stroud et al., 1969). Several unusual phosphate minerals have been discovered in Arkansas-kingite, kolbeckite, schoderite and kidwellite.

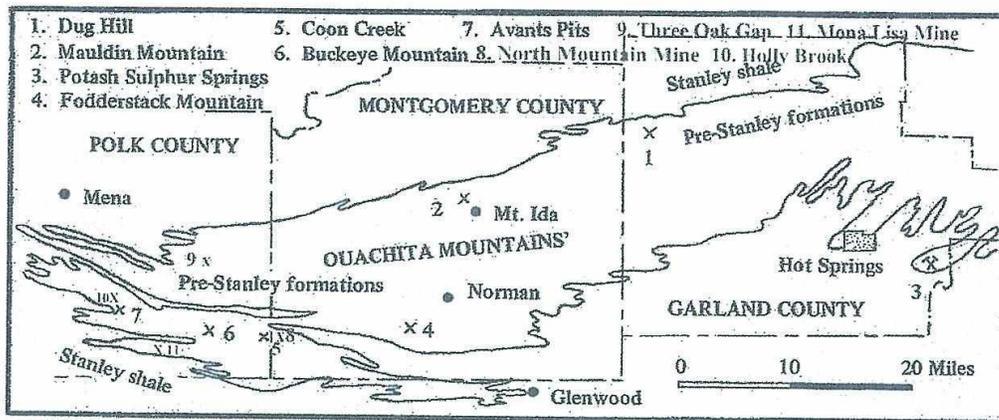
Numerous articles have described the occurrences of both iron and aluminum phosphates in the Ouachita Mountains. A number of noteworthy papers are available for additional information. The original description of cacoxenite from Arkansas is from the Isom Avants location in Polk County (Fisher, 1966). The most comprehensive report on the iron phosphate minerals is a paper in the Ouachita Mountain Symposium’s publication (Kidwell, 1977). Descriptions of known aluminum phosphate locations have also been summarized (Kidwell, 1981; Smith, 1985, 1987, 1988) and a comprehensive mineralogy of Arkansas listing all the currently known species (Howard, 1987) has been published.

Phosphate Minerals of Arkansas cont:

Iron Phosphate Minerals

Iron phosphates occur in the Arkansas Novaculite Formation, generally in the lower novaculite. Their phosphate source likely occurs in phosphatic zones of the overlying Stanley Shale. Long abandoned iron and manganese mines in the western part of the Ouachita Mountains, particularly in Polk and Montgomery Counties provide most known collecting areas. Most occurrences consist of veins and aggregates of rockbridgeite, dufrenite, laubmannite (name now discredited) and kidwellite in fractured and brecciated novaculite. Open spaces within these earlier-formed phosphates typically contain beraunite, strengite, phosphosiderite and cacoxenite.

Notable locations (see map modified from Kidwell) of phosphate occurrences for iron phosphates are prospect pits on Fodderstack Mountain and the North Mountain mine in Montgomery County; Buckeye Mountain, the Coon Creek Mine, the Holly Brook area, Isom Avants prospects and the Three Oaks Gap area in Polk County (Smith, 1988).



Description of the Iron Phosphates

Beraunite, $Fe^{2+}Fe_5^{3+}(PO_4)_4(OH)_5 \cdot 4H_2O$

The oxidized variety of beraunite occurs as red crystalline crusts and radial prismatic crystals at Coon Creek and Three Oaks Gap. Specimens are known from the North Mountain mine, Buckeye Mountain and Isom Avants locations. See picture at right.

Cacoxenite, $(Fe^{3+}, Al)_{25}(PO_4)_{17}O_6(OH)_{12} \cdot 17H_2O$

Yellow fibers of cacoxenite are known from virtually all the iron-phosphate localities. Specimens were also abundant at Potash Sulfur Springs, minute amounts have been found at a Magnet Cove Rutile Company mine and in goethite at the Avant wavellite locality. Unusually large amounts of cacoxenite as vein fillings were once common at both the Coon Creek mine and at Three Oaks Gap. Distinct short, prismatic, hexagonal crystals of cacoxenite are rarely found; they make superb micromounts. See pictures on cover and pages 11-12.

Diadochite, $Fe^{3+}(PO_4)(SO_4)(OH)5H_2O$. Red to brownish red blebs. Have been reported from most of the iron phosphate occurrences.



Beraunite (brown) and Kidwellite (green) Coon Creek Mine, Shady, Polk County, Arkansas. Rob Lavinsky.

HSGC

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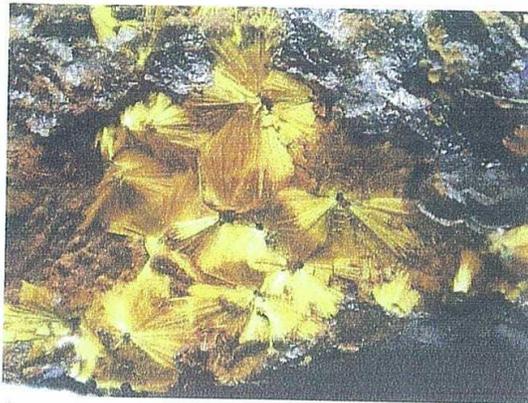
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Phosphate Minerals of Arkansas cont:

October 2012

Dufrenite, $Fe^{2+}Fe_4^{3+}(PO_4)_3(OH)_5 \cdot 2H_2O$

Veins of dark green, black and brown dufrenite are found at Coon Creek, Three Oaks Gaps and Buckeye Mountain. Some layers of unusual bright green dufrenite interlayered with rockbridgeite and laubmannite occur at Coon Creek. A small prospect pit at Buckeye Mountain yielded sharp, black dufrenite crystals.



Cacoenite, yellow radial sprays, Coon Creek Mine, Polk County, Arkansas. Antonio Borrelli.

Kidwellite, $NaFe_9^{3+}(PO_4)_6(OH)_{10} \cdot 5H_2O$

Fodderstack Mountain, Montgomery County, Arkansas is the type locality for Kidwellite. Fibrous radial crusts and globules crusts of yellow-green Kidwellite are abundant at Coon Creek mine and common at Three Oaks Gap. Small amounts of kidwellite are commonly found as an alteration product of dufrenite, rockbridgeite and laubmannite. See pictures page 12.

Laubmannite, $Fe_3^{2+}Fe_6^{3+}(PO_4)_4(OH)_{12}$ (discredited).

The type locality for laubmannite is Buckeye Mountain where it occurs as radial, dark green to brown masses intergrown with dufrenite and rockbridgeite. Similar, although not as spectacular, specimens are found at Fodderstack Mountain, Coon Creek, and the Isom Avants area. Laubmannite is almost always intergrown with dufrenite and rockbridgeite.

Lipscombite, $(Fe^{2+}, Mn) Fe_2^{3+}(PO_4)_2(OH)_2$

A color-banded crust of basic iron phosphates from Fodderstack Mountain was identified as containing layers of blue-green lipscombite (Moore, 1970).

Phosphosiderite, $Fe^{3+}PO_4 \cdot 2H_2O$. A very few rose-pink blocky prisms of phosphosiderite have been found at Coon Creek mine and Fodderstack Mountain.

Rockbridgeite, $(Fe^{2+}, Mn) Fe_4^{3+}(PO_4)_3(OH)_5$

Black to brown rockbridgeite is intergrown with dufrenite and laubmannite at Coon Creek. See picture at right.

Right: Laubmannite, Rockbridgeite, Dufrenite. Coon Creek Mine, Polk County, Arkansas. Art Smith specimen.



Above left and close-up center: Lavender Strengite (3mm spheres), yellow Cacoenite, Coon Creek, Polk Co., Ar. Al Kidwell Collection.

Upper far right: Rose Strengite 6.3X, Three Oaks Gap, Polk Co., Ar., Milton Speckles.

Right: Purple Strengite, Coon Creek, Polk Co, Arkansas. Henry delinde scanned image.

Left: Lavender Strengite spray, 8mm, Three Oaks Gap, Polk Co., Arkansas, Al Kidwell.



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Phosphate Minerals of Arkansas cont:

Strengite, $Fe^{3+} PO_4 \cdot 2H_2O$

Pink to purple to rose-red crystals and spheres of strengite are found sparingly at most of the iron phosphate localities. The best specimens are from Isom Avants prospects, Three Oaks Gap and Coon Creek mine. A few very large crusts of almost purple crystals have been found at Coon Creek mine.

Vivianite, $Fe^{2+} (PO_4)_2 \cdot 8H_2O$

Dark blue crystalline vein fillings of vivianite occur in limonitic, altered fenite at Potash Sulfur Springs (Wilson Springs), Arkansas.



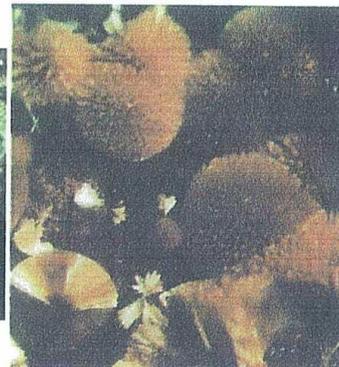
Cacoenite, 2-3 mm fov (field of view), Coon Creek mine, Polk County, Arkansas, Glen Carlson specimens and photos.



Cacoenite on Beraunite, 3mm fov, Coon Creek Mine, Polk Co., Ar., Glen Carlson specimen and photo.



Kidwellite, 2-3mm fov, Coon Creek Mine Polk Co., Ar., Glen Carlson specimen and photo.



Cacoenite, Union Carbide Vanadium Mine, (Stratcor), Potash Sulfur Springs, Garland Co. Ar.



Cacoenite, Strengite, Kidwellite 3mm fov, Three Oaks Gap, Ar.



Kidwellite, 4mm fov, Fodderstack Mountain, Montgomery Co., Ar.



Strengite, Coon Creek Mine, 3mm fov, Polk Co., Ar.

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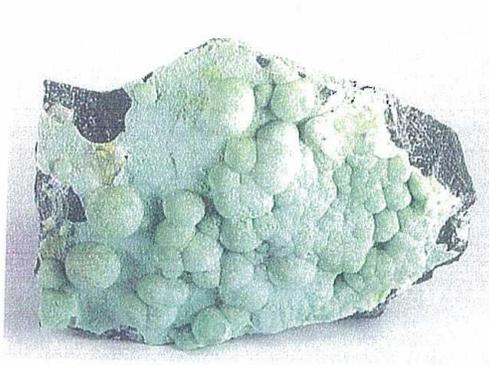
MINERAL MINUTES

October 2012

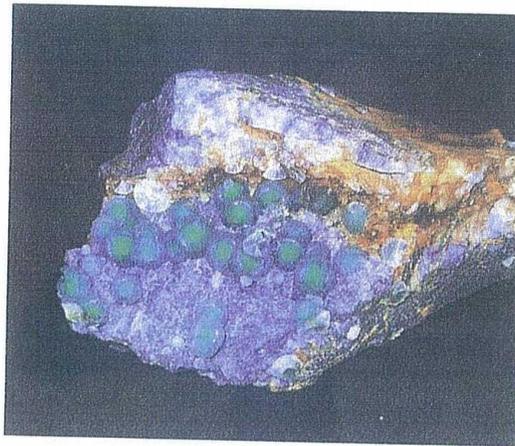
Aluminum Phosphate Minerals

To a large extent all of the known occurrences (see map of phosphate occurrences) of aluminum phosphates, consisting of wavellite, variscite and to a lesser extent members of the crandallite group and the turquoise group are found in brecciated Big Fork Chert. The larger and deeper-colored specimens of wavellite appear to be found in the thicker beds of chert within the Big Fork.

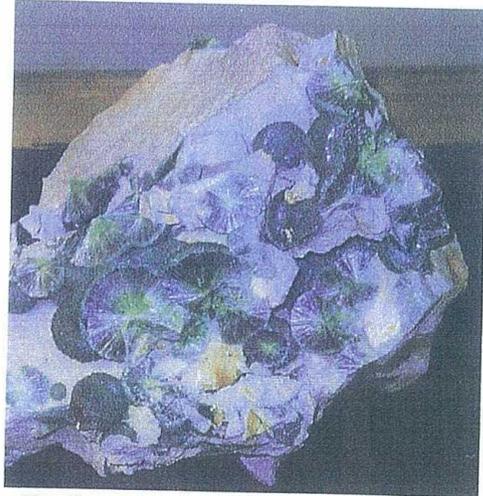
Veins of turquoise-group minerals are present in the novaculite and have been commercially mined at Porter Mountain at the Mona Lisa mine. Occurrences of wavellite and variscite are known from the Avant area, Hot Springs waterworks and Mountain Pine in Garland County; Mauldin Mountain and Plata in Montgomery County; Big Fork and Porter Mountain in Polk County. Members of the crandallite group have been collected from the Avant area. Members of the turquoise group of minerals have been found at Mauldin Mountain and North Mountain mine in Montgomery County; Buckeye Mountain, Coon Creek mine, Holly Brook area, Isom Avants prospect, and Porter Mountain in Polk County; and the Big Bear Mine in Pulaski County (Smith, 1988).



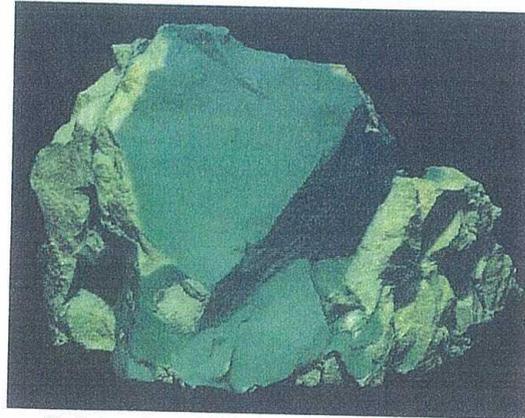
Variscite coating wavellite, source unknown, Arkansas.



Wavellite spheres, Mauldin Mountain(?), Montgomery Co., Ar. Gene Newsom Collection, Arkansas Geological Survey.



Wavellite, Mauldin Mountain, Montgomery County, Gene Newsom collection on display at the AGS.



Variscite, 8 in. deLinde No. 3 Mine, Dug Hill, Avant, Garland Co., Ar. Henry deLinde specimen, scan.

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Phosphate Minerals of Arkansas cont:

Description of the Aluminum Phosphates

Crandallite group – Crandallite, $\text{CaAl}_3(\text{PO}_4)_2(\text{OH})_5 \cdot \text{H}_2\text{O}$ White
 Gorceixite, $\text{BaAl}_3(\text{PO}_4)_2(\text{PO}_3\text{OH})(\text{OH})_6$ White
 Goyazite, $\text{SrAl}_3(\text{PO}_4)_2(\text{OH})_5 \cdot \text{H}_2\text{O}$
 Florencite-(Ce), $\text{CeAl}_3(\text{PO}_4)_2(\text{OH})_6$

Members of the crandallite group have been reported from several localities in both the Big Fork Chert and the Arkansas novaculite. Gorceixite was reported from the Chandler uranium prospect (Young, 1958). Similar but smaller occurrences of gorceixite from whetstone and Tripoli mines are known; most occurrences, are actually crandallite.

Kingite, $\text{Al}_3(\text{PO}_4)_2(\text{OH},\text{F})_3 \cdot 9\text{H}_2\text{O}$
 Botryoidal white to bluish green crusts on novaculite at Potash Sulfur Springs.

Metavariscite, $\text{AlPO}_4 \cdot 2\text{H}_2\text{O}$
 Reported from Mauldin Mountain west of Mount Ida, but no separately identifiable specimens are known (Smith, 1985).

Schoderite, $\text{Al}_2(\text{PO}_4)(\text{VO}_4) \cdot 8\text{H}_2\text{O}$ Microscopic orange-yellow crystals were discovered at Potash Sulfur Springs.

Turquoise group-Turquoise, $\text{CuAl}_6(\text{PO}_4)_4(\text{OH})_8 \cdot 5\text{H}_2\text{O}$
Planerite, $\text{Al}_6(\text{PO}_4)_2(\text{PO}_3\text{OH})_2(\text{OH})_8 \cdot 4\text{H}_2\text{O}$
 Both blue-green, planerite and turquoise occur at Porter Mountain and Coon Creek. Planerite appears to be the only species present at Mauldin Mountain.

Variscite, $\text{AlPO}_4 \cdot 2\text{H}_2\text{O}$
 Some of the largest and best variscite crystals are also found with wavellite. The best localities are Avant and Mauldin Mountain. The variscite is colored green by vanadium.



Turquoise, Mona Lisa Mine, Porter Mountain, Polk Co., Ar., Ray Lynch specimen and photo. Formerly H. deLinde specimen.



Above: Variscite on Big Fork Chert, deLinde Mine, Avant, Garland Co. Ar. Ray Lynch specimen and photo.

Right: Wavellite, Mauldin Mountain (?), Montgomery Co. Ar. Gene Newsom specimen at the AGS, Lynch photo.

Wavellite, $\text{Al}_3(\text{PO}_4)_2(\text{OH},\text{F})_3 \cdot 5\text{H}_2\text{O}$
 The most important mineral for the collector is wavellite. The magnificent green crystalline veins and hemispheres of wavellite from Arkansas localities have ranked among the world's best, if not the best, for more than a century. Numerous pits in the Avant area and the Montgomery



County quarry at Mauldin Mountain are the likely sources of most high quality specimens. The color of the wavellite ranges from a distinct yellow, yellow-green, emerald-green of surprising intensity to a beautiful bluish-green.

The Sentinel-Record

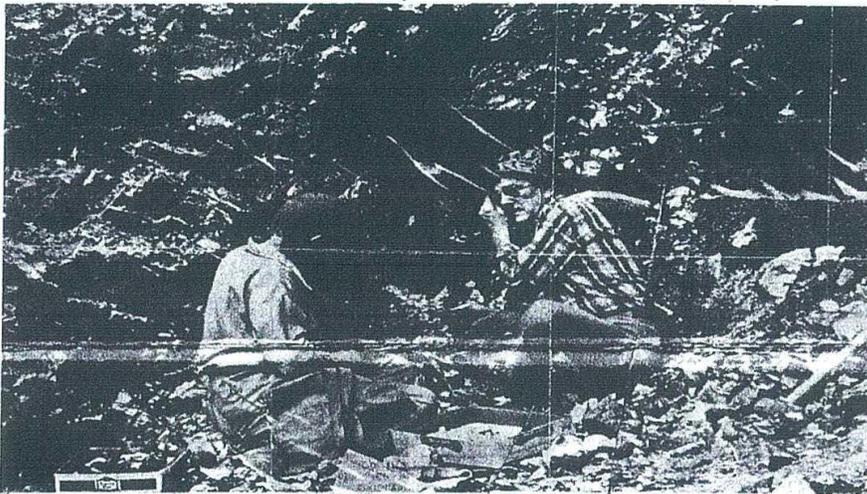
VOLUME 97 - NUMBER 310

HOT SPRINGS NATIONAL PARK, ARKANSAS 71901 FRIDAY, NOVEMBER 4, 1983

24 PAGES

25 CENTS

Collectors choose rocky road for minerals



Kidwell, left, and Henry deLinde of Mabelvale. (Photo by Jack Hartman)

By JACK HARTMAN
S-R Staff Writer

IN THE WOODS SOUTHEAST OF MENA - There might not be much gold in them thar hills, but there sure is some johnsonvulcanite.

There's also kidwellite, cacoxenite, rockbridgite, strengite and laumontite, to name a few.

These rare minerals, normally seen only in tiny samples, bring gleam to the eyes of "mineral-collectors" - 14 of whom are scouring the Ouachita Mountains and their environs in Co.

Mineral-collectors, so-called because the rocks they seek are so small as to require a microscope to really examine them, are guests and members of the loosely-knit Coon Creek Association.

Their goal, according to members, is not to discover the mother lode and mine it, but instead to find these rare minerals, identify them, and then tuck them safely into collections or trade them for other prize rocks.

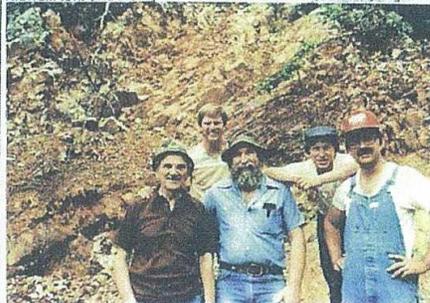
Most of the minerals these men seek, called phosphates, are from the Devonian Period which took place 350-360 million years ago.

Gary Sick, forest geologist for the Ouachita National Forest, headquartered in Hot Springs, described the annual event as part reunion and part treasure hunt.

The treasures the men seek appear as colorful streaks or sashes on common rock.

While the friendly banter and camaraderie give the event the air of a picnic, there's no question

See ROCKS on Page 8



Above: Do you know these guys? Three Oaks phosphate locality. L-R: Henry deLinde, Steve deLinde, Don Owens, Steve Clore and Mike Howard. August 1983.

these guys are serious about their rocks.

Many of them are professional geologists, mineralogists and tademicians. Those who ply their trades in non-mineral fields can trace their geological interests back 20-30 years.

To see their dedication is easy. What other group would of men of all ages would walk a mile into through the Arkansas hills for the joy of carrying out a backpack full of rocks?

CCA member Meredith York, of Stephens, a professional geologist, expounded on that point.

The group, he said, is responsible for most of the "new" minerals discovered recently in Arkansas.

One of the founding fathers of the CCA, Al Kidwell, a research geologist for the Exxon Production and Research Co., in Houston, Texas, said "The man who first realized in 1948 the mineral had been confused with others.

Some group members are currently involved in the lengthy process of having a "new" mineral identified and named, he added.

Simply put, there're no pickers in this group. They come from around the country and several from overseas to examine the Ouachitas for a variety of reasons.

The Ouachitas have a "unique composition" of minerals that make it ripe for exploration, according to Kidwell.

Charles T. Stewart, mine superintendent and geologist for the Malvern Minerals Camp, in Hot Springs, said the hunting's good here because the Ouachita Mountains are among the oldest in the world.

The rock has been "crossed" because of the "series of" he

Lourens Wals, of Belgium, said he came because his native land is boring. Geologists he's meeting, and to visit the Ouachitas is to be like a kid in a candy shop.

Other CCA members, some of whom will be arriving today, come from Washington, D.C.; Denver; Lakeland, Fla.; and a variety of towns in Arkansas.

Despite the diversity of home towns and occupations, the rock hunters display an array of common characteristics.

They're all generous, gregarious, talkative about their work and full of enthusiasm.

They're also all convinced that they and their fellow rock-busters are playing with a short deck.

"Can you believe we do this for fun?" quipped one. "They make people do this for punishment... making little ones out of big ones."

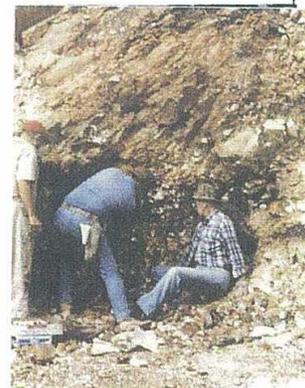
Right: Al Kidwell, Don Owens and Henry deLinde at Three Oaks Gap, Polk County, Arkansas. August 1983.

Left: Don Owens, Mike Howard and Steve deLinde using a drill at Three Oaks Gap.

Newspaper article and photos courtesy of Henry deLinde.

Sources:

Barwood, H. L., and deLinde, H., 1989 Arkansas Phosphate Minerals, Rocks and Minerals magazine 64:4 294-299.



MINERAL MINUTES

Pre-Meeting Dinner: Join us for dinner at the Pier 7 Restaurant at 6:00 PM for dinner before the club meeting.
650 Water St SW, (at S L St), Washington, DC 20024, (202) 554-2500, www.pier7restaurant.com/Menu.

Please call Susan Fisher at 703-830-9733 to make a reservation if you wish to attend.

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Meeting Dates, Time, and Location: The first Wednesday of each month. (No meeting in July and August.) The National Museum of Natural History, Smithsonian Institution, 10th Street and Constitution Ave, Washington D.C. We will gather at the Constitution Avenue entrance at 7:45 PM to meet our guard who will escort us to the Cathy Kirby Room. Street parking: **THERE ARE NOW PARKING FEES, PAYABLE AT THE KIOSKS, AND ENFORCEMENT UNTIL 10 PM.**

MINERAL MINUTES



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