Ohio Section
American Institute of Professional Geologists

Chartered 1965 September 2022 Newsletter

AIPG Ohio Section Fall Meeting

Legacy Lead In Urban Soils: An Ongoing Source of Exposure

Presenter: **Dr. David Singer, Associated Professor**
Department of Earth Sciences
Kent State University

Date: Thursday, September 15, 2022

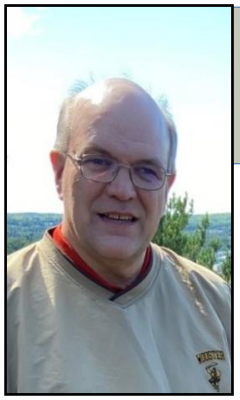
Location: Chateau Michele
2231 44th Street NW, Canton, Ohio 44709

Schedule: Social hour begins at 5:00 pm followed by Dinner at 6:00 and Presentation at 7:00

Event Registration Payment: https://www.aipg-ohio.org/eventdetails.php

See Page 19 for event details

Also In This Issue:



Message from the President

Robert E. Andrews, CPG-11975

Greetings Fellow AIPG Ohio Section Members,

Since my last report to you in April, I have been quite busy with Ohio Section activities.

On May 15th, I had the privilege of presenting Ms. MacKenzie Rutherford, a graduating senior from Miami University of Ohio with an AIPG National Undergraduate Scholarship Award. She was selected by AIPG's Education Committee based on her academic record, faculty recommendation, and the content and creativity of a required essay entitled "Why I Want to be a Geologist." My presentation of her $1,500 award was done as a surprise at her graduation party at her family's home in Eaton, OH. Her essay can be found in the July/August/September issue of AIPG's The Professional Geologist.

On June 10th, the Ohio Section once again held its Annual Charity Golf Scramble at Chapel Hill Golf Course in Mt. Vernon. This event was well attended and raised over $3,100 to support our student chapters. An article on this event can be found on page 8 of this newsletter.

Last month, I attended AIPG's 59th Annual National Conference in Marquette, MI as a delegate of the Ohio Section. It was wonderful to connect with other geologist from across the nation, learn about the geology of the Upper Peninsula of Michigan, and see how National is continuing to create programs to mentor young geologists and provide educational opportunities of other professional geologists. Dave Follett, your 2023 President-Elect also attended the meeting along with me. An excellent summary of this experience in Marquette can be found on page 14 of this newsletter.

Now to upcoming events, I am excited to announce that the Ohio Section will hold its Fall Quarterly Dinner Meeting in person on September 15th. Our speaker will be Dr. David Singer, Associated Professor in the Department of Earth Science at Kent State University. He will be speaking on the concentration of lead in urban soils. This meeting will be held at Chateau Michele in Canton, OH. More details on this meeting can be found on page 19 of this newsletter.

I hope each of you reading this message and newsletter have also had an enjoyable summer and are looking forward to autumn. I hope to see each of you at our dinner meeting next month in Canton. If you have any questions or concerns about activities of the Ohio Section, please feel free to contact me at reandrews@earthlink.net.

Robert E. Andrews, CPG-11975
2022 AIPG Ohio Section President

Ohio Section 2022 Spring Meeting Recap

Feature Presentation: Current Organization, Projects, and Research at the Ohio Geological Survey

Presented By: D. Mark Jones, State Geologist and Division Chief
Ohio Geological Survey

By Hugh Downer, CPG-11815

The Ohio Section held its Spring 2022 meeting and dinner presentation The Boat House at Confluence Park in Columbus, Ohio on Thursday, April 21st. The event was sponsored by Alpha Analytical, ALS Environmental, Buckeye Elm Contracting, Environmental Remediation Contractors, ERIS – Environmental Risk Information Services, Ohio Soil Recycling, and White Oak Environmental.

The event began with a lively social hour backdropped by spectacular views of the confluence of the Olentangy and Scioto Rivers and downtown Columbus. Ohio Section President-Elect Dave Follett welcomed attendees and provided opening remarks on Ohio Section activities and upcoming events, including the 2022 national meeting in Marquette, Michigan. Ohio Section National AIPG Representative, Brent Smith gave a brief update on activities at the national level and preparations for the 60th Anniversary National Meeting in Covington, Kentucky next year, 2023. To that end, Kentucky Section President-Elect Donnie Lumm was in attendance and briefly discussed the challenges of the national meeting but also the huge opportunities on offer to Ohio, Kentucky, and Indiana sections.

At the conclusion of dinner, President-Elect Follett introduced the evenings featured speaker, D. Mark Jones, State Geologist and Division Chief of Ohio Geological Survey. Mark's presentation was entitled Current Organization, Projects, and Research at the Ohio Geological Survey.

D. Mark Jones presenting to the audience.

Mark began by thanking the AIPG Ohio Section for the opportunity to give his debut presentation as the State Geologist. He remarked on his "unimaginable" journey from a young intern to State Geologist and Division Chief.

Then followed a high-altitude overview of survey organization including the Morse Road headquarters which houses mapping, energy, groundwater, publications and outreach, library and archives, fiscal, in addition to the administration departments, and the Collins Laboratory which houses the Core Lab and Repository, the Ohio Seismic network, and Lake Erie Geology departments.

Mark then described some of the current projects including one area 'close to his heart'; Lake Erie. A new research vessel promises to help deliver improved coastal and lakebed mapping capabilities including sub-bottom profiling, sand volume and location, and basin bathymetry. Another area of focus for the Lake Erie group is coastal mapping of erosion which continues to impact and threaten property and infrastructure along the Ohio coastline.

Another of the current project areas is re-investing in the Ohio seismic network. The existing network was initiated on a voluntary basis and largely included installations in sub-optimal locations such as schools and colleges that were vulnerable to background interference noise. As the older seismometers have failed, the survey has been investing in replacing them with borehole installations, which have proven to be some of the quietest in the country with regard to background noise and made the data eligible to be included in the national earthquake monitoring network.

The mapping group is the largest and busiest of the survey's groups and is responsible for bedrock, karst, and geohazard maps, among others. Areas of current focus include updating the Quaternary geology map for Pickaway County which is a geologically complex area that has been unmapped since the 1950s. Other projects include Teays Valley characterization which is being re-evaluated using passive seismic data to reveal that the valley is narrower, straighter, and deeper than previously thought. The group is also working on improving the availability of derivative maps such as potentially mineable bedrock, and sand and gravel deposits.

Mark detailed the activities of the groundwater group who are working on new groundwater vulnerability maps including net recharge, hydraulic conductivity and DRASTIC model data. The group is particularly focused on vulnerability of groundwater resources to pesticides and nitrates.

The energy group is currently focused on carbon capture, utilization and storage (CCUS) and providing geological data to enable Ohio to seek primacy for Class 6 injection wells sequestering carbon dioxide.

Mark described the activities of the publications and outreach group who are encouraging survey participation in events at schools, shows, fairs and hikes.

Current miscellaneous projects at the survey include improvements to its physical spaces at Morse Road and the H.R. Collins Lab, in addition to improving and maintaining the Kelley's Island glacial grooves location. The planned work includes improvements to railings, signage and vegetation removal.

Mark concluded his presentation with his visions for his tenure as Chief including upgrading and modernizing the states core archive by making the approximate 360,000 linear feet of core available to view digitally and bringing awareness and recognition to Ohio's geoheritage.

After a short question and answer period, Section President-Elect Follett presented D. Mark Jones with a decorative plaque emblazoned with the Ohio state fossil, Isotellus, as a token of appreciation for his informative talk.

Section President-Elect Follett presented D. Mark Jones with a plaque emblazoned with the Ohio state fossil, Isotellus.

The Executive Committee would like to extend thanks Alpha Analytical, ALS Environmental, Buckeye Elm Contracting, Environmental Remediation Contractors, ERIS – Environmental Risk Information Services, Ohio Soil Recycling, and White Oak Environmental for sponsoring the event. Their support is necessary for the section to be able to continue to help underwrite the costs of these events.

AIPG Ohio Section Fourth Annual Charity Golf Scramble

By: **Robert Andrews, CPG-11975**

Once again, the Ohio Section of AIPG hosted a charity golf scramble to benefit the student chapters of the Ohio Section. This year's event was held on June 10th at the Chapel Hill Golf Course located in Mt. Vernon, OH. Thirty-four golfers comprising 9 teams played the 18 holes of a course designed by Barry Serifin and ranked number 9 in Ohio for 2022. After registering for the 9 am tee time, each golfer was given a swag bag of golf balls and tees provided by White Oak Environmental. At the conclusion of the scramble, golfers were treated to a late lunch provided by Chapel Hill. Following the lunch, golfers participated in a raffle of donated items and each received a bottle of wine donated by Alpha Analytical Laboratories. This year's event raised over $3,100 for our student chapters.

The Ohio Section appreciates the generosity of the following that supported this year's event. Team Sponsors included Alpha Analytical Laboratories, ALS, Buckeye Elm, Civil & Environmental Consultants (CEC), Eagon & Associates, and Engineering Consulting Services (ECS). Hole Sponsors included EnviroCore, Environmental Remediation Contractors (ERC), Pace Analytical, Rockwater Drilling, SME, U.S.T. Environmental Contractors, and SME. Lunch Sponsors include Blue River Environmental & Restoration, EnviroCore, ERC, ERIS, Robin Roth, and U.S.T. Environmental. White Oak Environmental was an Award/Raffle Sponsor as well as an exhibitor.

This year's raffle items were donated by Air Seven Heating and Cooling, Alpha Analytical, Blue River Environmental & Restoration, Buckeye Elm, Chapel Hill Golf Course, ECS, ERC, ERIS, Rockwater Drilling and White Oak Environmental

2022 AIPG Ohio Section Charity Golf Scramble Results

Team	*Score*
Team CEC 2	65
Team Freeman	65
Team Buckeye Elm 2	66
Team Buckeye Elm 1	67
Team ECS	67
Team CEC 1	68
Team Alpha	69
Team Eagon	69
Team ALS	70

While both Team CEC 2 and Team Freeman finished with score of 65, Team CEC 2 was the first-place winner because it had the lowest handicap score. Team Freeman placed second. Team CEC 2, consisting of Andy, McCorkle, Kim Magovac, and Brent Smith, graciously donated their winnings back to the Section to support our student chapters. The players on Team Freeman were Nickolas Freeman, Doug Watson, Trey Hedrick, and Mike Deskin.

Third place for this year's event was claimed by Team Buckeye Elm 2, with a score of 66. The team members were Allison DePage and Bruce Markey.

Both Team Buckeye Elm 1 and Team ECS finished with score of 67, two strokes behind the winning team. The players on Team Buckeye Elm 1 were Mike Akins, Joel Miller, Brandon Markey, and Kyle Shrader. Team ECS consisted of Doug Darrah, Jason Schnur, and Kara Stokes, and Ed Greenlee.

Team CEC 1 (Brad Bashore, Bill Foster, Johnny Nutt, and Dave Follett) finished with a score of 68.

Both Team Alpha and Team Eagon finished with a score of 69, four strokes behind the winning team. The players on Team Alpha were Dave Mustafaga, Doug Stuart, Steve Grose, and Ben Dressman. Team Eagon consisted of Tom Jenkins, Joe Montello, Nelson Novak, and Andy Graham.

Placing ninth was Team ALS with a score of 70. The players on Team ALS were Dave Walker, Ben Chenoweth, Josh McKinney, and Andy Shipley.

Kara Stokes won our longest drive contest and Tom Jenkins won our closet to pin contest.

An event like this could not have occurred without the support of our special golf outing committee who consisted of Dave Follett, Nelson Novak, Robert Andrews, and Tom Jenkins. Chapel Hill Golf Course staff were incredibly helpful during the entire process and made everything run smoothly on the day of the event

Overall, the Ohio Section's fourth charity golf scramble was a rousing success and an enjoyable event for all who attended. The Section appreciates of all participants who attended and the sponsors that contributed to the outing. The Executive Committee looks forward to using the over $3,100 for student scholarships and for student chapter activities. Thanks again to all participants and sponsors. We look forward to seeing you again in 2023!

2022 AIPG National Meeting

By: **Dave Follett, CPG-12034**

This August, I was given the privilege as the 2023 President-Elect by the Executive Committee to represent the Ohio Section at AIPG's 59th Annual National Conference held at the Northern Center on the campus of Northern Michigan University in Marquette, Michigan.

Day One

I began my conference experience on August 6th. The first day of the conference consisted of attending National's Executive Committee and Advisory Board meetings. During the morning Executive Committee meeting, members discussed the status of the organization on the National level which included the financial status of the organization and desires to get younger professional geologists (aka Early Career Professionals) and students involved in the organization. During this meeting, Advisory Board Member Brent Smith (CPG-11130), who represents the Ohio Section, reported on the work he had been doing to support and attract new members. Additionally, affiliated societies were granted the opportunity to discuss the statuses of their respective organizations. This included remarks by President Mark Komac from the European Federation of Geologists and Jon Arthur, Executive Director for the American Geoscience Institute. The board also heard remarks given by Adam Wygant, State Geologist for Michigan and John Yellich, Director of the Michigan Geological Survey.

AIPG National Executive Committee Meeting
Photo Credit: Wendy Davis

The afternoon on this day consisted of participating in a separate Advisory Board Meeting lead by AIPG's 2022 President Elect Dawn Garcia, where state sections reported on their 2022 activities. AIPG Ohio Section's 2022 President Robert Andrews (CPG-11975) reported on the Ohio Section's activities. At the conclusion of this meeting, delegates from each section elected four Advisory Board representatives for 2023. I am happy to announce that Robert Andrews was elected to National's Advisory Board for 2023. Robert takes Brent Smith's place on the Advisory Board where Brent served for the past two years. The evening was concluded with a Student/Early Career Professionals (ECP) networking event.

Day Two

I began Day two (August 7th) of the conference by attending the "Mineral & Falling Water Falls" field trip around the Marquette area led by members of the AIPG Michigan Section. The field trip's primary focus was on the geology of the abundant Precambrian iron deposits and associated mineralization as well as some of the freshwater resources of the Upper Peninsula (UP) of Michigan. It should be noted that upwards of 300 waterfalls are present in the UP, 70 of which are located within the greater Marquette area. Due to the occurrence of extensive Precambrian iron deposits, Marquette has a rich mining history that began in the 1840s. The geology of the Marquette area is complex with bedrock formations that range in age from the Archean/Lower Precambrian (2 to 3 billion years old) to the Late Precambrian. Structurally, Marquette is located on the east end of the Marquette Syncline which is an assemblage of middle Precambrian sedimentary and metasedimentary rocks of the Marquette Range Supergroup.

Stop One

The first stop on the field trip began at the Dead River Gorge which is just outside of Marquette's city limits. The field trip leaders took our group on a hike through the Dead River Gorge where numerous waterfalls and exposed lower Precambrian bedrock (Archean Era) of metavolcanic Mona Schist is present. The Mona Schist is the second oldest bedrock exposed in the Marquette area and is composed of greenstone that includes both mafic and felsic schist and tends to be strongly foliated. The mafic schist is basaltic to andesitic in origin. The Mona Schist along the gorge was described as greenish gray to black metabasalts and schists. During the hike, it was pointed out that large veins of younger felsic rock as well as dark gray to black diabase dikes intrude the Mona Schist parallel to foliation. The strong foliations observed are likely a result of localized shearing within the Mona Schist.

View of Dead Pool Falls, Dead River Gorge

View of Remnant Pillow Basalt Outcrop at Mouth of Whetstone

Stop Two

The second stop on the field trip took place within Marquette city limits at Whetstone Falls. Located within walking distance along a bicycle trail just behind the recently constructed Fairfield Inn, the geology of this small waterfall is rather interesting as it is considered to be the lower Member of the Mona Schist. Just before the bicycle path crosses Whetstone Brook, there is an excellent exposure of rounded gray and tan/brown remnant pillow basalt structures. A short hike downstream along Whetstone Brook will lead you to Whetstone Falls and to exposed remnant pillow basalt outcrops at the mouth of the Brook along Lake Superior. This outcrop contains extremely well defined ellipsoidal tops of pillow basalts. These pillow basalts are the result of ancient underwater extrusion of basaltic lava. It should be noted that from this outcrop, if you look to the north, you will see the old inactive ore dock that was displayed on the front cover of the July/August/September edition of the TPG.

View of the Jacobsville Sandstone Outcrop at Presque Isle Park

Stop Three

The third stop on the field trip took place at Presque Isle Park also located within Marquette city limits. After a quick picnic lunch within the park, the group hiked a short distance towards the Presque Isle Harbor Breakwater Lighthouse and the shores of Lake Superior to examine the late Precambrian Jacobsville Sandstone. The Jacobsville Sandstone is red/brown with light-color streaks and spots that was quarried throughout the UP in the late 1800's and early 1900's. The Jacobsville Sandstone was primarily used as architectural building stone which is very evident in Marquette, Michigan as a vast majority of the historic buildings standing in the downtown area are composed of the Jacobsville. Further examination of the outcrop at this stop yielded significant cross bedding along with some gravel to cobble sized clasts of

green stone.

Stop Four

During the approximate 30-mile journey along U.S. Route 41 to our next stop, our tour leader pointed out numerous road cuts of remnant pillow basalts to pass the time. The group arrived at the Champion Mine located approximately 30 miles west of Marquette for our fourth stop. Arriving at the Champion Mine entrance, the group immediately stepped off of the tour bus and onto "sparkly" soils (natural glitter) that contained specular hematite.

The Champion Mine was a former underground mine that penetrated 2,000 feet into the Negaunee Iron Formation and operated from 1867 to 1910 and 1949 to 1967. Over its life span, the mine produced over 7 million tons of iron ore. The ore body is composed of magnetite interbedded with iron rich slate. It was suggested that Negaunee Iron Formation which is the primary host rock for ore deposits within the Marquette Iron Range, was deposited as iron rich carbonate sediment that was subjected to folding from the Penokean orogeny. Numerous igneous intrusions into the formation produced 75 different minerals at the mine that include molybdenite, pyrite, chalcopyrite and gold.

Specular Hematite from the Champion Mine

A short hike down to some of the old tailings piles, provided an opportunity for our group to examine and pick over large chucks of specular hematite.

Stop Five

View of Jasper Knob, Ishpeming, Michigan

Our fifth and final stop was at Jasper Knob located just outside of Ishpeming Michigan. A moderate hike uphill led to a clearing in the trees at the top of the hill to reveal a Jaspillite banded iron formation of fine alternating bands of dark specular hematite with bright red cherty quartzite. This banded iron formation is located in the central portion of the Marquette syncline. Extensive folding of varying sizes are present throughout the outcrop.
At the conclusion of the field trip, the group returned to Northern Michigan University for an AIPG Welcome Reception and Silent Auction that evening.

Day Three

Day three (August 8th) of the conference began by attending the Section Delegate Meeting followed by the day's technical sessions. During the sessions, I attended seven different presentations ranging from topics such as carbon sequestration in basaltic rocks, PFAS impacted landfill leachate and the geological challenges associated with offshore tunneling under the Mackinac Straight to relocate a major petroleum pipeline that currently resides along the bottom of the Straight.

Some of my favorite presentations of the day were put together by Ohio Section members Brent Huntsman (CPG- 04620) and Curtis Coe (CPG- 06240). The presentations were led off by Curtis Coe's presentation, "Hydrogeology of Flowing Artesian Wells in Northwest Ohio" which described some of the artesian conditions observed along a 4-mile wide band of wells located in Defiance, Williams and Fulton Counties in northwest Ohio. Due to concern about the protection of the sand and

gravel aquifer, an investigation by Ohio Department of Natural Resources, Division of Geological Survey was developed to map this artesian aquifer and to determine the cause of the increased hydrostatic head observed.

Curtis detailed the geology of the region describing the Antirm and Coldwater Shales which form the lower confining unit. Overlying the lower confining unit is unconsolidated glacial and lacustrine sediments that include sand, gravel and clay deposits. As you move east, the sand and gravel deposits begin to pinch out against bedrock which is the western limb Cincinnati Arch. Glacial and lakebed deposits composed of impermeable clay act as an upper confining layer that induces artisan conditions.

Brent Huntsman's presentation, "Maintaining Sustainable Groundwater Supplies for Wells, Wellfields and Aquifers", discussed the various definitions of groundwater "sustainability" in managing groundwater supplies. Brent described some of the challenges with maintaining groundwater sustainability such as production well interference, aquifer hydraulic characteristic, well field storage, recharge and barrier boundaries, all of which create issues for sustainability. Brent emphasized the need for the development of numerical groundwater models due to the increasing demand for groundwater where multiple well fields are constructed in close proximity thus putting a strain on groundwater sustainability.

My final day concluded with the Annual Awards Banquet where members throughout the nation were recognized for their contribution to the organization and geologic profession as a whole. I would like to thank the AIPG Ohio Section with providing me the opportunity to attend the 2022 AIPG National meeting as well as the mild case of COVID-19 that I developed after the meeting.

SME

Ohio Section 2022 Fall Meeting

Feature Presentation: Legacy Lead (Pb) In Urban Soils: An Ongoing Source of Exposure

Presented By: Dr. David Singer, Associated Professor in Department of Earth Sciences at Kent State University

The Ohio Section of AIPG is pleased to host Dr. David Singer at the Section's Fall Meeting presentation, which will take place on Thursday, September 15, 2022 at Chateau Michele in Canton. Dr. Singer will be presenting: Legacy Lead In Urban Soils: An Ongoing Source Of Exposure. This event is sponsored by Alpha Analytical, ALS Laboratories, Buckeye Elm, Environmental Remediation Contractors (ERC), Ohio Soil Recycling, and White Oak Environmental.

The event begins at 5:00 pm with social hour, followed by dinner at 6:00, and the feature presentation at 7:00. The cost is $25 for members and guests or $15 for students. Please preregister and submit payment for the event via PayPal through the AIPG Ohio Section website https://www.aipg-ohio.org/payment.php. Registration closes at the end of business on September 12, 2022.

Abstract: Lead (Pb) is a highly toxic element that has been introduced into the environment through a variety of human activities. Despite strong decreases in Pb emissions to the environment in recent decades, elevated amounts of Pb are still found in blood of urban populations, most troubling among children. This is likely due to Pb from historic emissions being tightly bound to soil particles, resulting in continued exposure via inhalation or ingestion of soils and/or dust generated from soil. However, there are large gaps in our understanding of Pb chemical characteristics in soil and dust, the transport between them, and if the nature of Pb in dust is more toxic than in the soil it was derived from. Recent work has examined the speciation (i.e. chemical form) of Pb in soils over range of scales in the greater-Akron, Ohio area: (1) at the property scale, across a given property lawn adjacent to homes which had historic Pb paint use; (2) at the neighborhood-scale; and (3) at the city-scale. Soils were collected in part through a collaboration with Akron Public Schools to provide more than 500 samples from across the Akron area. The speciation of Pb was determined through a suite of mineralogical and geochemical approaches, with a focus on Pb that is potentially bioaccessible. Preliminary results indicate that this pool of Pb is distributed over a large geographic area, but that a combination of potential remediation approaches may reduce the risk of exposure. Future work aims to determine the speciation of Pb in air particles, and changes in speciation during downgradient dust transport.

Bio: Dr. Singer received his B.S. in Geological Sciences from the University of Michigan and Ph.D. in Geological and Environmental Science from Stanford University. This was followed by a joint post-doctoral research position in the Earth and Planetary Sciences Department at University of California, Berkeley and the Earth Sciences Division of Lawrence Berkeley National Laboratory. Dr. Singer joined the Kent State University faculty in 2012 in the Department of Earth Sciences. His research and teaching interests are in the areas of environmental mineralogy and geochemistry, and current projects are related to the fate and transport of toxic metals in the environment including areas impacted by historic coal mining in Appalachian Ohio, and lead (Pb) and other metals in urban soils in northeast Ohio.

Letters to the Editor and Editorial Submittal Guidelines

The Ohio Section welcomes and encourages membership discourse via the Section newsletter on relevant geopolitical and geological topics, in accordance with our chartered purpose. Contributing authors are requested to abide by the following guidelines to ensure civility and professionalism.

1. Scientific interpretations should include accurate and effective references.

2. Opinion pieces should be presented with reasoning. Fellow members may choose to comment or challenge a submittal with their own contribution.

3. Authors must abide by the AIPG Code of Ethics. Any author who violates this code will not be published. Authors must be respectful to fellow members, all political parties, officials and candidates.

4. Letters to the Editor should be under one page in 12 pt. Arial font.

5. Member authors should provide their name and certification number.

6. The Ohio Section also welcomes and will consider relevant articles from non-members, provided contributions abide by the above stated guidelines.

Contributions to the Ohio Section newsletter do not necessarily reflect the opinion of the Ohio Section or the editor. We reserve the right to edit for clarity and space considerations.
Please send submittals to the editor at nnovak@eagoninc.com.