

# Bulletin

of the Eastern Section of the National Association of Geoscience Teachers

Volume 69, Issue 3: Summer 2019

Saturday field trip participants in front of a bed of mud-cracked Silurian tidal flat carbonates, near Baker, WV.



A huge thank you to Wendy Bohon who spoke to the group on the opening evening about the use of social media to spread the word on earth science. Wendy is a dynamic speaker from what used to be known as I.R.I.S (Incorporated Research Institutions for Seismology). Wendy also held one of the workshops Friday morning introducing the group to all that is available for educators. A great big thanks to Karen Kortz, our keynote speaker for Saturday's awards dinner. Karen led a discussion on the many misconceptions students and the public have regarding earth science and how we as earth science educators should work to dispel these misconceptions.

## Wrap up of the 2019 NAGT-ES meeting

by **Mike O'Donnell**

*Blue Ridge Community & Technical College  
NAGT Eastern Section President*

Greetings to everyone in the Eastern Section. I want to personally thank several folks that helped to plan and implement this year's annual meeting. First, co-conspirator Callan Bentley. Callan is the guy that secured the phenomenal speakers we had. Second, Renee Aubrey, Steve Lindeburg, out-going president Jason Petula, Martin Schmidt and past president David Ludwikoski. They provided guidance to me through out the planning year whenever I reached out to them. Thank you all.

IRIS's Wendy Bohon, our opening keynote speaker:



In addition to the above speakers, Mike Passow led a discussion Friday morning on the use of oceanographic data collected by the JOIDES Resolution. This data is available from this organization's web site for educators to use as supplemental material in their classes. Russ Kohrs led a discussion on the use of Virtual Field Experiences (VFE) in the earth sciences. And Callan Bentley led a demonstration/hands on clinic of geological drawing.



Though only 25 members were in attendance, all seemed to enjoy the discussions at the morning sessions. Friday afternoon saw the group split with the majority learning from Beth Doyle (Northern Virginia Community College) about the geology of the Harpers Ferry National Historical Park. A smaller group took a look at the geology below Harpers Ferry while enjoying a paddle on the Potomac River. [I would insert a picture here except that I'm technologically illiterate and lost them while trying to transfer them to my computer (apologies from me).]



Outgoing president Jason Petula passes the pick to new president Mike O'Donnell.



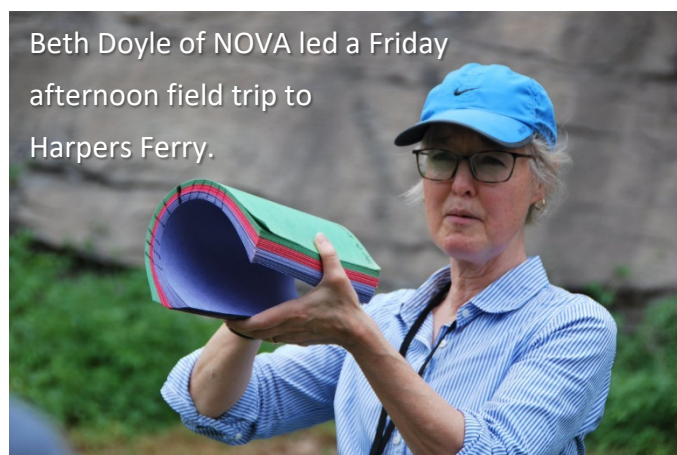
Awards ceremony keynote speaker  
Karen Kortz of the Community College of  
Rhode Island.

I have one major goal for this upcoming year: determine why we struggle with attendance at our annual meeting. I am in the process of developing a simple survey that I will send out to the membership. What are the dates best suited so that more members will attend? What are the topics that will draw us to attendance? What should I as president do to increase attendance? These are some of the questions I am trying to answer. I have always enjoyed attending our annual meeting since joining several years ago and find it hard to understand why participation is low. If you have ideas, don't hesitate to let me know! Reach out to me or other members and let your voice be heard. I can easily be reached at [modonnel@blueridgectc.edu](mailto:modonnel@blueridgectc.edu).

Saturday saw our band of merry geoscience educators once again splitting for field excursions. Half of the group went with Callan Bentley (also of Northern Virginia Community College) to see the excellent road cuts of Corridor H as they trekked westward into the Panhandle of West Virginia. The other half went south into the Shenandoah Valley and discovered the intricacies of Karst topography and the impact on our lives. This trip was led by Dan Doctor, karst specialist with the USGS.



Anthodites in Skyline Caverns




Beth Doyle of NOVA led a Friday  
afternoon field trip to  
Harpers Ferry.

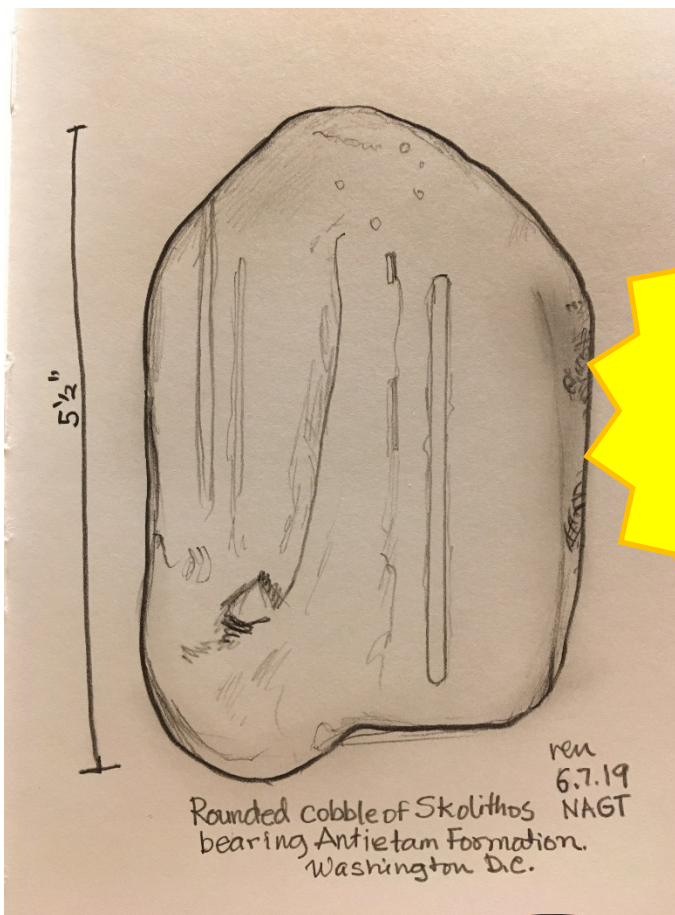
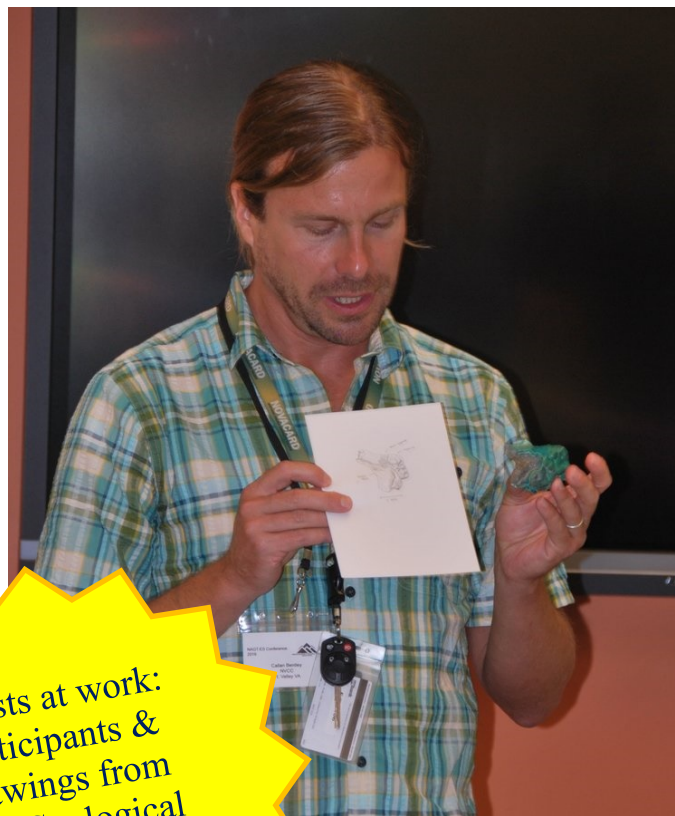


A giant eurypterid at the  
GeoAuction!

Thanks for  
your time  
and I look  
forward to  
serving you.

-Mike 





Artists at work:  
participants &  
drawings from  
the "Geological  
Drawing"  
workshop



Alas, poor  
Skolithos. I knew  
him well... **because**  
**I drew him!**



# 2019 OEST winners

compiled by **Christopher Roemmele**  
*West Chester University*

Eastern Section – and Virginia OEST –  
**Christopher Bowring**, Rockbridge County HS,  
Lexington, VA



Quotes from his students –

“Mr. B has a level of enthusiasm and innovation in teaching and combines it with a high level of knowledge that is very rare.”

“He would draw scenes on the board and start a creative writing story with a few lines, which we could learn from and expand upon to explain either a particular theory, or geological process, or feature.”

Christopher is well known for his ability to integrate art in his classroom presentation and story-writing, and reaching a wider range of students with the ability to understand and remember geological and earth science concepts. He takes his students on longer-term field excursions not just locally but even to the Rocky Mountains and other western park areas. He developed an informational video on flooding in the Great Valley of Virginia for the Rockbridge Area Conservation Council. Consulting on local geology, mentoring student research and travel projects, volunteer tutoring for non-traditional GED students also occupy Christopher’s time.

New Jersey OEST – **Matthew Fichter**, Hillside Middle School, Cranford, NJ



Matthew’s passion for earth science teaching is evidenced in programs which he developed like his “Scientists Skype Series” to introduce his students to working scientists in the field, and “Sustainability Shark Tank” where students develop

sustainable alternative to everyday products. His use of gaming, including STEMed (a science version of *Chopped*) excites and motivates his students about scientific phenomena. Matthew also coaches the Environmental Club and has received grants for bringing in portable planetariums and for supplies for the student-driven sustainability projects, one of which is the school rain garden.

New York OEST – **Christine Scavone**, School by the Sea, Far Rockaway, NY

Christine is known in her school to infuse science and social studies lessons and as well as gaming, seminars, and community partnerships. She works with the Rockaway Waterfront Alliance and developed the



student run Marine Debris Plastics program to reduce plastic waste in our water bodies. She received the Jane Goodall Grant, and has had her classes partner with classes at NYU and various national and state parks.

The *Bulletin* is edited by Callan Bentley, Northern Virginia Community College. Get in touch with your ideas & feedback at [cbentley@nvcc.edu](mailto:cbentley@nvcc.edu).



Pennsylvania OEST – **Andrea Mangold**, Holland School, Council Rock School District, Newtown, PA



Andrea is a NASA-JPL Solar System Ambassador, CASIS Space Station Ambassador, and Space Foundation Teacher Liaison. She developed curriculum for the International Space Station and Curiosity

STEM programs, and National Park Service park ranger collaboration program. A member of GSA and NAGT, she regularly attends workshops to continue to feed her knowledge on earth and space science and develop curriculum for special needs students.

West Virginia OEST – **Angela McKeen**, Notre Dame HS, Clarksburg, WV



Dr. McKeen teaches Earth and Space Science, AP Environmental, physics and a hands-on STEM course, and adjuncts as Fairmount State. Using argumentation, high-level

critical thinking, reciprocal teaching, and note sharing in her classes is a regular occurrence. Field trips and interactions with professional working scientists are also a part of her teaching routines. Active in NAGT and WV Science Teachers Association, Dr. McKeen continues to lead – and attend – workshops to share her knowledge and

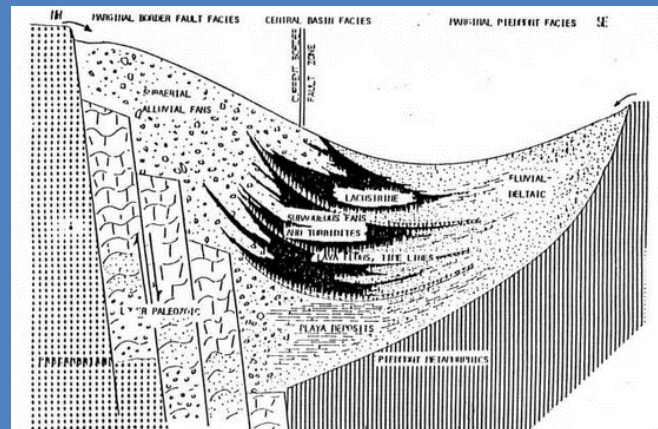
passion for teaching and teaching earth science, evidenced by her curriculum development for the WV Geological Survey education program, and leading and judging local, state, and regional science fairs.



## New archived field guide online

by **Randy Newcomer**  
*Randy's Books*

In April of 1989 the Eastern Section of NAGT met in Washington, DC at the University of the District of Columbia with host James O'Connor.



Participants had six different field trips to choose from:

- General Geology of the Central Maryland Piedmont, Loretta Molitor & Jonathan Edwards
- The Cliffs of Calvert, David Bohaska & Raymond Rye
- Northern Virginia's Mesozoic Rift Basin, Richard Gottfried
- Structure and Historical Geology of the Appalachians Near Hancock Maryland, Barbara Levinson & Wallace White
- The Falls Stretch of the Potomac River - A Geomorphic "Cross-Section" of the Fall Line on the Western Edge of the Atlantic Coastal Plain, B. B. Tormey
- Urban Geology of the District of Columbia, James O'Connor

The field guide is now online on the Internet Archive free to read or download at <https://archive.org/details/NAGTES1989>.

# NAGT-ES Special Meeting Proposal

by Jason Petula,

Millersville University of Pennsylvania

The 2019 NAGT-ES Section Meeting was another wonderful gathering of our membership. The idea of holding a Special Meeting, in the future, was discussed by several members; i.e., an international meeting. The remainder of this proposal will provide the reasoning behind the idea and the next steps to turn the idea into reality.

One half of my faculty responsibilities at Millersville University is serving as the faculty coordinator for the Office of International Programs and Services (IPS). The role with IPS means I spend a lot of time thinking of ways to internationalize our campus. I also get lots of practice planning and leading study abroad trips.

The planning and preparation for a trip abroad requires a significant amount of time and there are many variables to consider. Hence, I am using a tentative trans-Atlantic cruise as a scenario (see map below). Imagine our section meeting starting aboard a ship sailing past the Statue of Liberty.

Days at sea may be spent relaxing and attending thematic seminars by talent from our section. Port days may be spent on topical tours and other professional development offerings. In short, such a scenario would allow us to learn together and play together.

The trans-Atlantic trip I highlight above is departing this August and lasts 14 days. There is no guarantee the same itinerary would be offered in the



future when we might hold a special meeting (i.e., 2021 or beyond). Plus, such a special meeting would cost much more than our regular section meetings. Hence, it is necessary to determine how much interest there is in our membership hosting a proposed special meeting.

We need to have enough interest in our membership to commit to the special meeting. Then, we can market the Special Meeting to a national audience of stakeholders in geoscience education.

Eliminating third-party providers, we may be able to raise funds for our section, thus allowing us to continue offering world-class professional development for our members.

Please let me know your interest and thoughts by completing a 2-minute survey at <https://forms.gle/Z55Xkn7uvcT2jbwS6>. The survey will **close on July 21**, so please respond as soon as possible. I will use the survey to create a trip proposal that best matches the results from the survey. The proposal may be a trans-Atlantic cruise, a week in Stockholm, or nothing at all. The section is only as strong as your voice, so take the survey and let me know your thoughts.





# Pair-Wise Comparisons for Mineral and Rock Samples

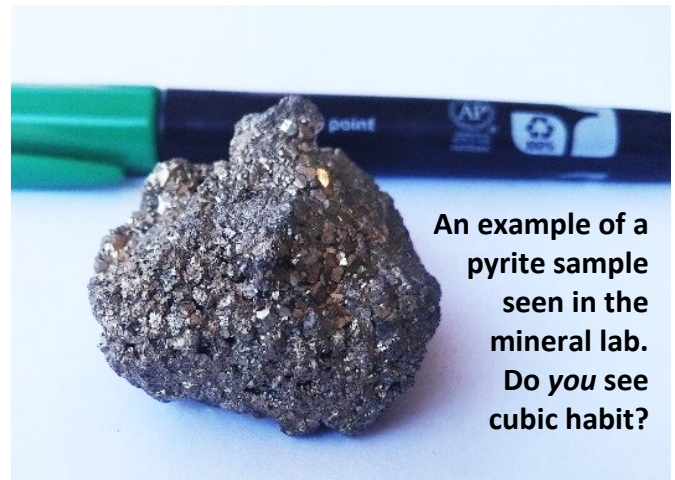
by Tracey Centorbi

*University of Maryland, College Park*

How do you teach a 100-level class of college students mineral and rock identification? The traditional method has been to assemble an assortment of hand samples, label them as unknowns, and set them out for students to look at one at a time while referring to supporting material that identifies the features of the minerals or rocks. Students typically have a table with spaces in a grid to fill out attributes such as shape/habit, hardness, and color for minerals or texture and composition for rocks. The samples are often carefully chosen to show the distinctive attributes of the mineral or rock. We recognize that samples rarely look this uncomplicated in the field, but this is the way we introduce the identification techniques.

For highly motivated students, this method can work very well. For less motivated students, a lab set up like this often starts out well but devolves once they have identified a few samples. It becomes an exercise in process of elimination rather than mineral or rock identification. For example, if the mineral sample is a massive intergrown pyrite, they recognize the metallic luster, note that there are only two metallic luster minerals in the exercise and fill the attributes from their reference material into the lab tables. They may write down cubic habit, even though the sample does not clearly show its crystal shape. They have certainly demonstrated the skill of deduction, but have they learned how to identify pyrite? Do they truly know how to identify the attributes of a mineral?

For me, it became quite apparent when students arrived in my upper level Mineralogy class. Their mineral identification skills were weak and with a much larger list of minerals to choose from, they struggled. They needed to be reminded that mineral identification is not about looking for one



An example of a pyrite sample seen in the mineral lab. Do you see cubic habit?

distinctive feature or matching a sample to a picture on a webpage or in a book, but rather using several attributes together to compare with minerals that they already know. To encourage their skills, my teaching assistant and I selected six minerals that were nonmetallic and white- *e.g.*, milky quartz, calcite, albite, *etc.* - which eliminated the urge to determine the identification based on look or color. The students first took a single sample and characterized as many properties and attributes as possible without trying to identify the name of the sample. Then, we assembled groups of six students to compare and contrast their individual samples. Together, the group decided the identities of all the unknown white minerals, and we were quite pleased with the lively and engaged discussions. This exercise seemed to better their mineral identification skills, so we continued to do versions of it in subsequent labs.



Most students can identify the quartz crystal to the left due to its distinctive shape. Without good identification skills, can they identify the quartz pebble on the right?

Given the success of this exercise in my upper-level course, I tried it in my introductory course. It was an utter failure. One or two stronger students tended to dominate the groups and everyone else just wrote down the information the leading student had decided upon. It seemed that the introductory students simply didn't have the background to really engage in this exercise. One of the comments a student made was that they were worried that if they got the name of the mineral wrong, they would lose all the points so they 'followed the leader'. How could the exercise be adapted to give them a little more focus and confidence?

I realized that if we wanted the students to identify the mineral features, we had to change how the exercise was structured. If I want them to focus on what they *see*, perhaps it would be best to take away the pressure to give the mineral the right name. This led to the idea that rather than looking at each individual sample by itself, it would be better to do pair-wise comparisons of named minerals. They were asked to compare and contrast the samples. For example, when we pair crystals of calcite with halite, students see minerals with similar luster, color, transparency, hardness, and cleavage. It is when we ask how the samples differ that they look closer at the shape and must note the difference in the angles between the cleavage faces. Pairing talc with albite can highlight the differences in mineral hardness. Pairing magnetite with hematite allows them to focus on the importance of streak. Pairing biotite with muscovite emphasizes that differences in formula can yield very different colors. To test their skills, we included three unknown samples that were minerals they had already seen in the pair-wise comparisons but were massive or weathered samples rather than relatively pristine crystals. They were asked to justify *why* they identified the unknown sample with that mineral name. In practice, this format seemed to yield stronger mineral identification skills and more engaged discussions during lab.

Given the success with the redesigned mineral lab, I decided to apply the same pair-wise technique to the rock labs. Each rock lab now has 8-10 pairwise comparisons and three unknown samples. In the Igneous rock lab, gabbro pairs with basalt to highlight grain size, diorite pairs with granite to



**With basalt and granite side by side, the differences in composition and texture are unmistakable.**

highlight compositional variations, and porphyritic andesite pairs with pyroclastic rhyolite to highlight texture and environment of formation. One of the unknowns is a twenty-pound chunk of pegmatitic granite with 10-centimeter-long feldspar crystals. Students identify the minerals, composition, and texture of the unknown before attempting to give it a proper rock name. For a Sedimentary rock lab, we pair conglomerate with breccia, coquina with chalk, or coal with shale to highlight texture, composition, or environment of formation. One of our unknowns is a ten-pound hunk of fossiliferous limestone. For a metamorphic rock lab, we pair shale with phyllite, marble with quartzite, or schist with gneiss to highlight foliation, composition, metamorphic grade or protolith.

In a pilot study of these reformatted labs in a small class over the summer, I was quite pleased with the results. The discussions between students were animated and their ability to accurately identify the unknown samples was very encouraging. We will be introducing the new labs to the larger classes in the Fall 2019 semester. I hope that this simple rearrangement and refocusing of the rock labs yields a deeper understanding of rock texture and composition in our students. It is an easy modification that doesn't require additional samples or supplies, just a change of focus. It opens up many possible options for how to apply this teaching technique in different geology labs.



### **You can contribute to the Bulletin!**

Consider writing up your recent teaching triumphs, field trip locations, geoscience-themed travels, or essays on past experiences. This issue offers a wealth of excellent examples you might emulate for future editions of **our** newsletter.



The NAGT Teacher Education Division (TED) is sponsoring a technical session at the 2020 NE/SE GSA meeting in Reston, Virginia. This session, entitled *Reimagining Earth Science Teacher Education: Reworking Veteran Approaches for Innovations in Preparing Geoscience Teachers* will be accepting presentations when they open up in the fall. If you think you might like to present a talk or poster, please contact session chair Christopher Roemmele at West Chester University at [croemmele@wcupa.edu](mailto:croemmele@wcupa.edu).

# A few geophotos from Newfoundland

by Callan Bentley

*Northern Virginia Community College*

My family and I are traveling this summer in Newfoundland, in far eastern Canada. It's been great! Here are a few of the cool things we've seen:

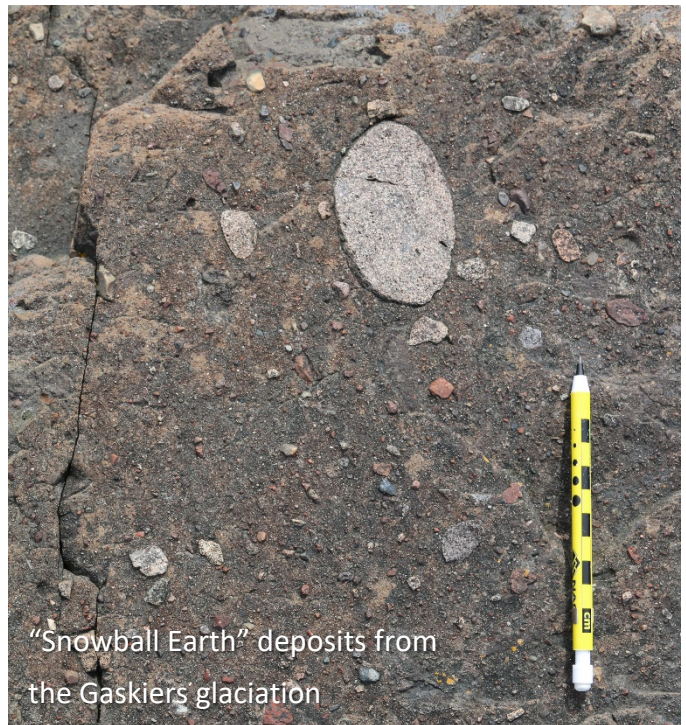
**The Cambrian-Ordovician stratotype at Green Point, Gros Morne National Park:**



**Fossil Ediacara at Mistaken Point:**



**Puffins galore!**



**Icebergs from Greenland:**





# Antarctica:

## Myth, Discovery, Exploration and Science

by **Tony Meunier**  
*Earth Space Sciences Org*

Antarctica has not always been a continent for science.

The Greeks in the 6<sup>th</sup> Century B.C. were aware of the spherical shape of the Earth as well as bilateral symmetry in themselves and in nature, leading Pythagoras to use his background in geometry to develop the concept of a *Harmony of Spheres* (Debus, 1968, p.1384). To maintain the equilibrium of the spherical Earth, the existence of masses of land in the then unexplored Southern Hemisphere was postulated by his followers as necessary to harmoniously and symmetrically offset the known northern landmasses (Lewis, 1965, p. 3-5). This southern landmass was given the Greek name *Antarktikos*, meaning (the antipode of the cold region lying under the northern constellation *Arkos* ("The Bear")): Hence the name for Antarctica in English.

The modern view of Antarctica began to develop when competitive voyages of trade and discovery in the southern oceans pushed the known boundaries of this southern continent further and further south. During centuries of colonial expansion, an A.D. 1739 voyage into the South Atlantic by Lozier-Bovet (Debus, 1968, p.221 and Meunier, 1979, p.A1) encountered tabular, fresh water icebergs floating north, leading to a remarkable inference by DeBosses in 1756 that there must be a land mass to the south from which these icebergs calved into the ocean.

For centuries, sailors, including Columbus in 1492, could get precise determination of latitude using the

North Star. Latitude was simply the angular measurement in degrees from the horizon to the North Star. (Star navigation methods later were supplemented with magnetic lodestones and eventually magnetic needles to provide ships with a fixed, magnetic-north reference point). Longitude, on the other hand, was the missing link needed to create accurate maps using the latitude and longitude coordinate system. At the time, there were very crude, inaccurate techniques to determine an east-west longitudinal position which however proved useless for mapping purposes.

On a spheroidal Earth, the determination of their location as latitude and longitude by ships at sea out of sight of land required the development of accurate clocks for use at sea. This also required accurate clocks on land, such as the clock at the Greenwich Astronomical Observatory in England with standardized time (i.e. Greenwich Mean Time), for setting ships' clocks at departure. Hence one of the most important technical tasks during the Industrial revolution was the effort to develop an accurate mechanical time piece for use on ships at sea.

A new Age of exploration of the earth began with the invention of the Harrison Chronometer in 1761 (Debus, 1968, p. 759). This mechanical, spring wound clock, which took Harrison a lifetime to perfect, allowed the English Captain James Cook, during his Pacific voyages, to determine accurately his ship's longitude anywhere on the Earth. Much of Captain Cook's success on his long voyages can be attributed to his newly acquired ability to precisely determine the heretofore elusive longitude needed to make accurate navigational charts, to map previously unexplored lands and to know his position on the Earth.

The author, reporting on location:



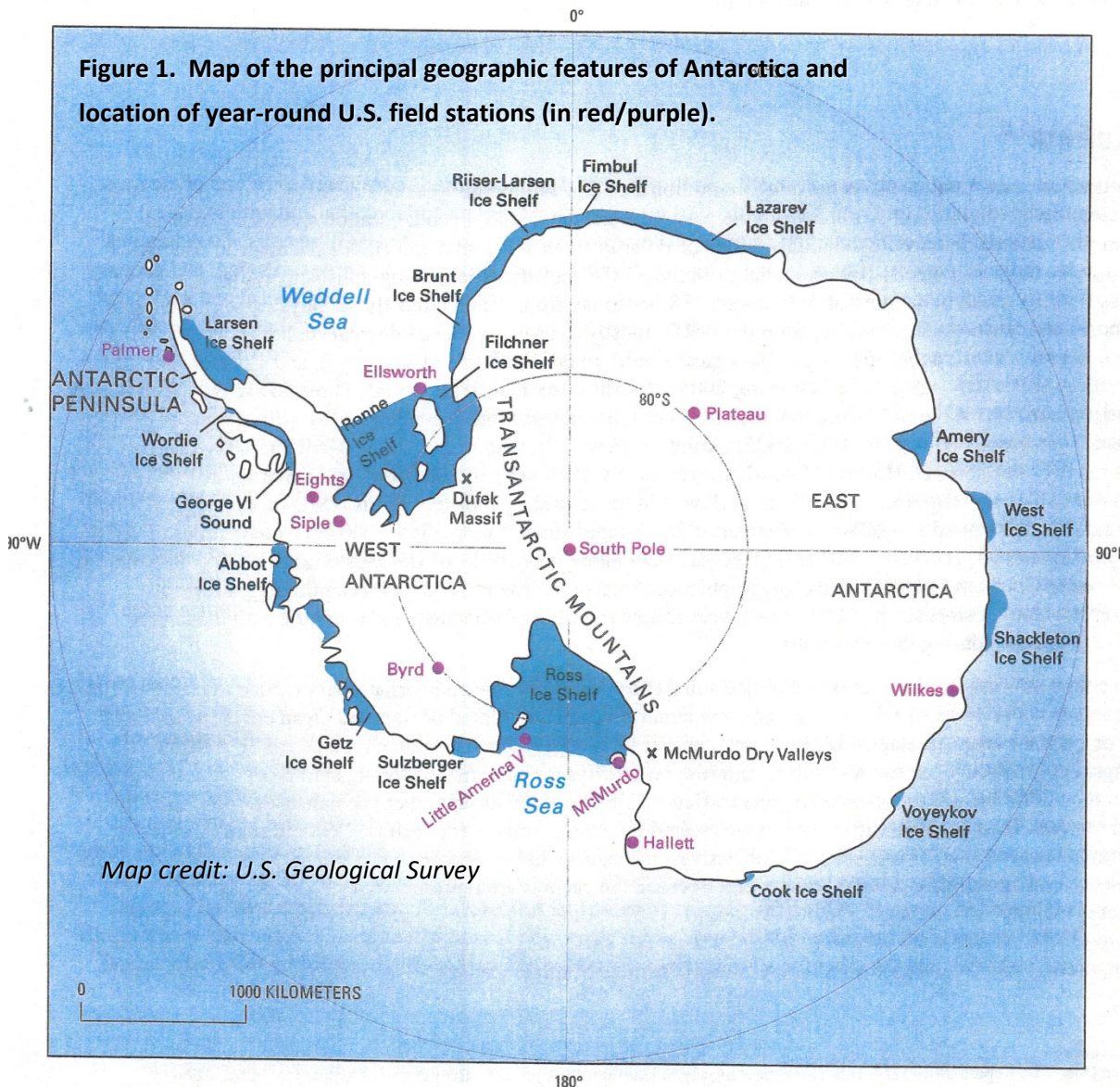


Colonialization and commerce were driving factors in early exploration, including the effort to find Antarctica. Cook's southern probe around Antarctica (1772-1775) and his sighting of nothing but icy seas effectively put an end to efforts by the colonial powers to find a habitable southern continent. However, Captain Cook's report of sighting an abundance of fur seals on South Georgia Island in the South Atlantic Ocean led to the establishment of the sealing industry in southern waters (Meunier, 1979).

other commercial shipping, often sustained losses from encounters with uncharted shores, shoals and reefs. Nation states began sending voyages of exploration to the uncharted territories to create navigational maps to provide for safer passage to their commercial ships.

On many of these voyages of mapping and exploration, scientists and naturalists (i.e. American geologist James Eights in 1829 and English naturalist Charles Darwin on H.M.S. Beagle in the 1830's are two prominent examples) were included.

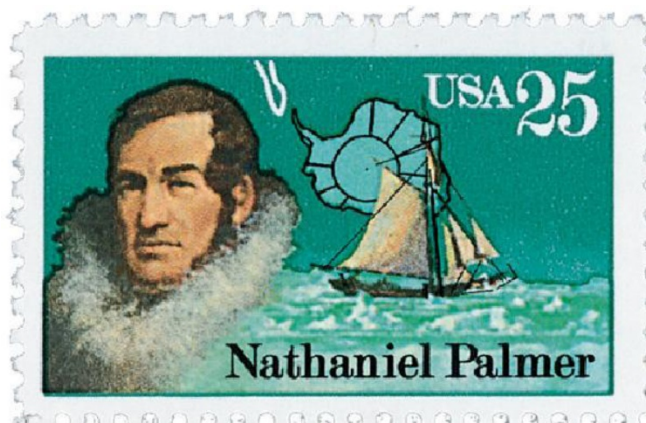
The Wilkes (United States, 1839-1844) and Ross (United Kingdom 1840-41) expeditions had the stated scientific goal of locating the South Magnetic Pole, in addition to their primary goals of charting the southern oceans. During the search for the South Magnetic Pole, under brutal conditions, Wilkes crew may have encountered the edge of the Antarctic Continent near what is now called Wilkes Land. During Ross's search for the South Magnetic Pole,



It was the pursuit of seal and whale trade (for fur and oil, respectively) that led to the discovery of the Antarctic (Palmer) Peninsula in 1820 by a Connecticut sealing crew led by Nathaniel Palmer (Bertrand, 1971, p. 60-88). The sealers and whalers who descended on the whaling and sealing areas of the southern oceans, as well as crews engaged in

sailing from New Zealand in a southeasterly direction, he discovered open water (now known as the Ross Sea) allowing his thick hulled ships, the Erebus and the Terror, to sail 500 miles further south. This discovery allowed his expedition to follow the edge of the Continent along the Transantarctic Mountains to the northernmost

terminus of the Ross Ice Shelf. This is the furthest south, at the Bay of Whales, that a ship could travel into the interior of Antarctica and it became the route of almost all subsequent expeditions to Antarctica, even to the present day. The United States' main logistical and research facility, McMurdo Station, is located on Ross Island, at the edge of the Ross Ice Shelf.



The Heroic Age of Antarctic Exploration beginning at the end of the 19<sup>th</sup> Century was the result of the scientific effort to study the earth's geography and geophysical properties. The South Polar Region was labeled as one of the least known areas on earth, so a number of countries (notably the United Kingdom, Belgium, Norway, France, Japan, Germany, and Sweden) sponsored expeditions to explore Antarctica. In addition, commercial Norwegian whalers (led by Christensen, Larsen, and Kristensen) traversed and further explored the Atlantic and Indian Ocean side of the Antarctic coast while whaling. One of the major scientific goals during this Heroic Age was to reach the Geographic South Pole at the location of the Earth's axis of spin at 90 degrees South Latitude. Though science and geographic discoveries were the nominal reason for funding these expeditions (including those of Gerlache, Borchgrevink, Nordenskjöld, Charcot, Scott, Shackleton, Bruce, Amundsen, Mawson and Filchner), the fame and glory of being the first to set foot on the ice at the South Pole (as Amundsen did) was actually the primary motivator for these explorers. The spirit of exploration, coupled with the significant danger of these expeditions, made this period truly an Heroic Age, not really a Scientific Age of Exploration. The Norwegian, Amundsen won the race to be the first to reach the South Pole in December 1911 because his expedition primary concerns concentrated on the logistical required of the expedition not scientific

observations. The Scott expedition, by contrast, was supported, including funding, by the scientific community. They reached the South Pole a month later in January 1912 when temperatures of the approaching winter were becoming more frigid and in March 1912 his team tragically died during the return to their ship. In this Heroic Age of Antarctic Exploration, all of these explorers were regarded as heroes in their respective countries and by their colleagues.

Private expeditions (including those of Byrd, Wilkins, Ellsworth, Mawson, Rymill, the Discovery Expeditions, Ronne, etc.) with their respective countries' support and encouragement, continued Antarctic ventures and explorations into the Modern Age during the last half of the 20<sup>th</sup> Century. These efforts laid the foundation for our current Scientific Age of Exploration by introducing the use of long, complicated supply lines and costly transport with support involving multiple ships, planes, and various types of mechanical vehicles and equipment. The post-World War II U.S. Operation Highjump (1946-47), under the command of Admiral Richard Byrd, set the standard for all current and future successful expeditions by staging the largest logistical venture ever sent to the South Polar Region. The U.S. innovations and discoveries (Meunier, 1979) during Highjump include:

- First use of helicopters and large aircraft with combined ski/wheel landing gear from an aircraft carrier;
- Mapping photography of 60% of Antarctic coast and the interior (1.5 million sq. mi.) with 25% first sightings;
- First sighting of 18 major mountain ranges including and use of radar to detect peaks;
- Delineation of Wilkes Land Coast;
- Use of Amphibious tractors on extended traverses;
- First continent wide networks of weather observations for synoptic weather forecasting;
- Use of airborne magnetometer to study underlying rock;
- The discovery of the existence of numerous oasis-type geomorphic features.

Geophysicists organized an International Geophysical Year (IGY 1957-1958) that can be



traced to the International Polar Years held in 1882–1883, then in 1932–1933<sup>1</sup> with a heavy concentration on eleven Earth-science disciplines, especially in the South Polar Region. Thirteen nations set up year-round bases on the continent during IGY.<sup>2</sup> The U.S. built permanently occupied research facilities at McMurdo, Hallett, South Pole, Little America V, Byrd, Ellsworth and Wilkes Stations for the IGY programs adding Eights, Palmer, Plateau and Siple Stations later. Contrary to previous effort before IGY, science was the primary purposes for the establishment of these stations. This began what I have characterized as a Scientific Age of Exploration (Meunier, 1979). To maximize the huge expense of money and time expended on this very successful IGY effort, each nation decided to continue the scientific programs indefinitely by establishing a Treaty to making these programs permanent. Ratification of the Antarctic Treaty by the various governments occurred on 23 June 1961.

The Antarctic Treaty's commitment to maintaining Antarctica as a continent for science has resulted in the inclusion of most scientific disciplines in their national research programs in the South Polar Region. Over the years, the original 11 Earth-science areas of study have expanded to include whatever disciplines are needed to pursue any proposed research project that survives the rigorous selection process for taxpayer funding. If a discipline's title ends in an OLOGY, it is most likely among the scientific research projects being conducted in Antarctica. Stay tuned!<sup>3</sup>

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<http://pubs.usgs.gov/of/2006/1116/pdf/2006-1116.pdf>

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<sup>1</sup> The first International Polar Year (IPY) was held in 1882–1883, then in 1932–1933. The third International Polar Year(s) was from March 2007 to March 2009.

<sup>2</sup> There were 55 stations in operation in the South Polar Regions during IGY. In addition, 67 countries worldwide participated in IGY scientific activities. The eleven emphasized disciplines for IGY were molten core, gravity, seismology, glaciology, geomagnetism, cosmic rays, auroras, airglow, sunspots, weather and magnetic field. (Meunier, 1979)

<sup>3</sup> NAGT Eastern Section *Bulletin* for the Winter 2019 issue will feature another article in this Antarctic series by Tony Meunier. The Antarctica, Part II will tell of the life and times at the original IGY South Pole Station (1956-1975) as observed first hand during Tony's yearlong stay as a member of the last winter-over crew in the old station at 90 degrees south latitude before moving operations at the beginning of the 1974-75 season to the newly built Geodesic Dome.

# New award nominations, please!

by **Christopher Roemmele**  
*West Chester University*

Greetings to all educators of geology and earth science. I am Christopher Roemmele, your Awards Chair for NAGT-ES. I teach at West Chester University in West Chester, Pennsylvania, and taught high school/middle school earth science for 15 years in New Jersey. I know how hard we all work as teachers and getting a proverbial pat on the back and thank you is nicely motivating. Perhaps you work with or know someone whom you feel deserves this recognition. In that case, I strongly urge you to nominate this person for one of our Eastern Section awards, or one of the National NAGT awards. The Eastern Section meeting is a wonderful time to heap praise upon those individuals who have excelled in the work and promoted geoscience education.

Information about all our Eastern Section awards can be found on our section website. Please note [the deadline is being/has been changed to September 30!](#) So start thinking and get those forms filled out **now!** Completed nomination forms should be sent to me at [croemmele@wcupa.edu](mailto:croemmele@wcupa.edu). However, you must place your nomination via the online forms found on the National NAGT web site at <http://nagt.org/nagt/programs/oest.html>

Here is a list of our awards. Perhaps there is one with your (or a colleague's) name on it!



## **OUTSTANDING EARTH SCIENCE TEACHER**

The OEST Awards program was adopted by NAGT in 1971. Its purpose to honor pre-college teachers of earth science, their excellence and commitment to teaching and teaching earth science

## **DIGMAN AWARD FOR EXCELLENCE IN GEOSCIENCE EDUCATION**

The Digman Award is designed to recognize an individual who works to bring geoscience to the general public. We look for individuals who are not teachers, but work in a capacity that educates the general public in areas of the geosciences. Museum directors, curators and assistants, state survey employees, mine and quarry public relations people would all qualify for this award. The nomination information for this award is also on our section website.

## **JAMES O'CONNOR MEMORIAL FIELD CAMP SCHOLARSHIP**

The James O'Connor scholarship is given to a college geology or earth science major who is attending a geologic field camp course (typically over the summer) as part of their college degree program. The \$500 scholarship assists the student in covering the expenses of their field camp. Nominate a student currently enrolled in your geology program. Nomination information appears on the section website.

## **DISTINGUISHED SERVICE AWARD FOR THE EASTERN SECTION**

The Distinguished Service Award is given to a member of the Eastern Section (still actively teaching or retired) who has, over the years, contributed to the growth and activities of the Eastern Section. This person should have a history of continued service to the Eastern Section. Nomination information appears on our website.

## **JOHN MOSS AWARD FOR OUTSTANDING COLLEGE TEACHING**

The John Moss award is reserved for instructors and professors who, at the college level, model and promote outstanding teaching in the geosciences. Nomination information appears on section website.





# EASTERN SECTION NAGT

## Officers

**President:** Mike O'Donnell, Blue Ridge Community and Technical College, 13650 Apple Harvest Dr, Martinsburg, WV 25403;

<MODONNEL@blueridgectc.edu or modonnell@lfcc.edu>

**Vice-President:** Christopher Roemmele; Department of Earth and Space Sciences, 225 Merion Science Center, West Chester University, West Chester, PA 19383610-436-2108; <CROEMMELE@wcupa.edu>.

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**Secretary:** Rosemarie Sanders, 914-721-0948; email <Rose.Sanders@me.com>.

**Publicity Chairperson:** Vacant; volunteers welcome.

**NAGT Geo2YC Division Representative:** Rich Gottfried; Dept. of Science, Frederick Community College, 7932 Opossumtown Pike, Frederick, MD 21702; 301-846-2581(W), 540-822-5561(H); email <RGottfried@frederick.edu>.

### Award Chairperson

All awards currently handled by Christopher Roemmele; 610-436-2108; email <CROEMMELE@wcupa.edu>.

### Awards listing:

- Distinguished Service Award
- John Moss Award
- Outstanding Earth Science Teacher Award
- Ralph Digman Award
- James O'Connor Memorial Geology Field Course Scholarship

### Eastern Section NAGT web site addresses:

<<http://sites.google.com/site/nagtes>>

or just <[www.nagtes.org](http://www.nagtes.org)>.

State Councilors' years of office are in brackets; terms begin and end at the spring section meeting.

## State Councilors

### Delaware

**Lawrence Matson**, Dept of Natural Resources & Environmental Control, 88 Kings Highway, Dover, DE 19901; 302-739-9403; email <Lawrence.Matson@state.de.us> [14-17]

### Maryland

**Martin F. Schmidt, Jr.**, 2718 Appleshed Rd., Finksburg, MD 21048; (H) 410-526-6083; (W) 443-544-7483; Fax: 410-581-7038; email <mschmidt@umbc.edu> [15-18].

**Rich Gottfried**; contact info in Geo2YC Representative listing above [13-16].

### New Jersey

**Margaret (Missy) Holzer**, Chatham High School, 255 Lafayette Ave., Chatham, NJ 07928; (W) 732-625-9075; (H) 732-868-0901; email <mholzer@monmouth.com> [15-18].

**Michael Passow**, 296 Central Ave., Englewood, NJ 07631-1658; 201-871-0846 (H); 201-519-1071 (C); email <michael@earth2class.org> [14-17]

### New York

**Renee Aubry**, Port Chester HS, Port Chester, NY 10573; 914-934-7952(W), 914-245-9651(H); email <raubry@portchesterschools.org> or <raubry@otunet.com> [15-18].

**Don Duggan-Haas**, Paleontological Research Institution, 1259 Trumansburg Rd., Ithaca, NY 14850; 607-821-0910; email <dugganhaas@museumoftheearth.org> [14-16]

### Ontario

No Councilors at present; volunteers welcome.

### Pennsylvania

**Randy Newcomer**, Randy's Books, PO Box 2111, Akron, PA 17501; 717- 823-0579 (C); email <randy@randysbooks.com>; <[www.ppageology.info](http://www.ppageology.info)> [13-16].

**Jason Petula**, Millersville University, 221 Stayer Hall, 51 Lyte Street, Millersville, PA 17551 (C) 814-872-3422; <jpetula@millersville.edu> [14-17].

### Virginia

**Callan Bentley**, Northern Virginia Community College, 8333 Little River Turnpike, Annandale, VA 22003; (W)703-323-3276; email <cbentley@nvcc.edu> [15-18].

**Eric J. Pyle**, Department of Geology and Environmental Science, James Madison University, MS 11703, Harrisonburg, VA 22807; 540-568-7115(W); email <pyleej@jmu.edu> [15-18].

### West Virginia

**Angela A. McKeen**, St. Mary's Catholic School, Clarksburg, WV 26301; (C) 304-288-4419; email <amckeen71@gmail.com>. [13-16].

**Deb Hemler**; contact info in 2nd Vice President listing above [15-18].

ALL THESE NEED TO BE UPDATED: CONTACT PRESIDENT MIKE O'DONNELL WITH YOUR WILLINGNESS TO SERVE.