Bulletin

of the Eastern Section of the National Association of Geoscience Teachers

Volume 69, Issue 2: Spring 2019

IT'S NOT TOO LATE!
JUNE NAGT-ES SECTION MEETING INFO & REGISTRATION IN THIS ISSUE!

Informal Education Efforts

by Jason Petula, *Millersville University of Pennsylvania*, NAGT-ES President

My year of service as the President of the National Association of Geoscience Teachers – Eastern Section (NAGT-ES) is quickly coming to an end. Below are the results of offering geoscience-themed merit badges during my term of service:

Geology (n = 67): The Geology merit badge was offered at serval merit badge colleges. The Pennsylvania Geology Survey donated old paper geologic maps, as newer maps may only be accessed digitally.

Astronomy (n = 24): The Astronomy merit badge was offered in the dead of winter, as it is easier to observe constellations due to the Sun setting in the late afternoon. Technology that added value to the experience was Stellarium (http://stellarium.org/), a freeware planetarium for computers, and Google Sky Map.

Nuclear Science (n = 23): The Nuclear Science merit badge was not taught by me, but rather middle level science candidates, as I was working in Sweden. The candidates used lots of models to help the Scouts learn about the nature of atoms.

Weather (n = 24): The Weather merit badge was complimented by a video conference from a local news channel meteorologist. The GLOBE program (https://www.globe.gov/) allowed access to real weather data.

Oceanography (n = 24): The Oceanography merit badge was complimented with a game of Jeopardy; this was to help with the acquisition of scientific terminology (e.g., guyot). The Scouts also made clay models to describe the Darwinian theory of coral reef formation.

The last two merit badge offerings included girls, as scouting in the United States now includes all genders. What I learned interacting with the Scouts is how little high-quality science programming is available – especially at the elementary level. High-stakes testing continues to reinforce the traditional sequence of science programming – Biology, Chemistry, and Physics. Perhaps, informal education efforts can be an effective strategy to expose youths to non-traditional topics.

Different merit badge pamphlets may provide classroom teachers with ideas to compliment the curriculum. Another resource is the STEM Nova Awards program (https://www.scouting.org/stem-nova-awards/), which I am collaborating with colleagues from Polar Educators International (https://polareducator.org/) to propose a new module titled STEM/Nova Freeze!, so youths may learn about research in the Polar Regions.

I hear a great deal of interest from youth about many geoscience issues (e.g., climate change). They express frustration that urgent topics are not taught in school. Yet, these topics will have profound implication for their future. Hence my next goal is to propose a new merit badge related to climate change. I am following the model the Explorer's Club used to get the Exploration merit badge approved. Please let me know if you are interested in collaborating with me on the project.

Geology and the Oldest City in America

by Dave Ludwikoski,
Community College of Baltimore County
NAGT-ES Past President

Over Spring Break in April my wife and I had the opportunity to visit with some friends in Florida. We visited St. Augustine (circa 1565) for a couple of days. I had visited there as a kid many years ago and had wanted to return for quite some time. One of the interesting highlights was the Castillo de San Marcos. I distinctly remembered that it was constructed entirely of local coquina, and I wanted to see it again up close as a geologist. Not only were the walls of the fort composed of it, but so were many of the walls and buildings in the old section of the city. Another interesting historical note related to geology was discovered while climbing the local lighthouse. It was present when the 1886 earthquake struck Charleston, SC, causing the tower to sway for 40 seconds! We definitely plan to return in the not too distant future, since there were more things to see that we did not have time for. I highly recommend it as a neat place to visit if you want to avoid all of the crowds in Orlando.

Photos: Above: coquina used as a building stone. Top right: a tower in the corner of the fort. Bottom right: the view outward from the fort.

NAGT Eastern Section 2019 conference details

by Mike O'Donnell
Blue Ridge Community & Technical College
NAGT-ES Vice President

The 2019 National Association of Geoscience Teachers – Eastern Section (NAGT-ES) meeting will be held in Martinsburg, WV and the eastern panhandle of West Virginia June 6, 7, and 8. Though some of the program has not been ratchetted down as of right now, I can say that what is scheduled should meet various interests of all that attend. All registration needs to be completed ahead of time either sending the form through snail mail or registering online once that is set up. Below is an outline of what to expect in June.

June 6, 2019, Thursday:
4 PM on hotel check-in, Holiday Inn, Martinsburg (information below)
7 PM Social hour at the hotel with opening keynote by Dr. Wendy Bohon, (*IRIS*) on "Science Communication: from the chatroom to the classroom"

June 7, 2019, Friday:
9 AM to 11 AM morning workshops on the campus of Blue Ridge Community & Technical College.

- Wendy Bohon (*IRIS*) on IRIS teaching tools
- Russ Kohrs (*Lord Fairfax Community College, Massanutten Regional Governor's School*) on virtual field experiences (in class and as homework)
- Callan Bentley (*Northern Virginia Community College*) on geological drawing
- Mark Uhen (*George Mason University*) on teaching with the Paleobiological Database
- Tim Farris (*Blue Ridge Community & Technical College*) with a drone demo.

11 AM to noon business lunch. Indicate if you will attend in the registration (place TBD). In the afternoon, there is a choice of 2 different field trips:

Trip A: 1 PM to 5 PM Geology of Harpers Ferry led by Beth Doyle (*Northern Virginia Community College*

Trip B: 1 PM to 4 PM Geology from the waterline: Paddle / float trip on the Potomac River below Harpers Ferry (+$25 fee/person)

5 PM to 7 PM dinner on your own
7 PM the GeoAuction! And social hour at the Holiday Inn.

June 8, 2019, Saturday
Choice of two field trips:

Trip A: 8 AM to 3 PM Geology of Corridor H, Wardensville to the Alleghany front led by Callan Bentley (*Northern Virginia Community College*), boxed lunch

Trip B: 8 AM to 3 PM Karst geology and hydrology of the Shenandoah Valley led by Dr. Dan Doctor (*USGS*), boxed lunch (+$25 fee per person for cave entrance fee)

6:30 PM Awards banquet and keynote address from Dr. Karen Kortz (*Community College of Rhode Island*) on student misconceptions in the geological sciences

Syncline/Anticline pair on the Paterson Creek Mountain Anticlinorium, Corridor H

Registration Form

National Association of Geoscience Teachers Eastern Section 2019 meeting
June 6, 7, 8, and 9, 2019 – Martinsburg, WV

Each participant must submit a registration form via US mail. Lodging is the responsibility of the individual. Hotel accommodations are listed on the next page. The conference hotel will be the Holiday Inn, Martinsburg.

A block of rooms is available until May 16, 2019. Mail registration form along with a check made out to NAGT-ES to: **Michael O'Donnell, 13650 Apple Harvest Dr., Martinsburg, WV 25403**

Name (as you want it to appear on the nametag):
Institutional affiliation (school or organization):
Email:
Mailing Address:
Phone: Cellular: Home/Work:

2018 OEST Award winners attend free! Indicate if you are last year's winner on your form.
Please **circle** the appropriate selection(s) below:

Full Conference Registration *(includes Friday afternoon & Saturday field trips)*	
NAGT member (prior to May 15, 2019	*$110*
NAGT member (after May 15, 2019)	*$125* *$90*
Spouse/Significant other	
Student	*$80*
Non-member	*$125*
Friday Business Luncheon	$0
Printed program	$20

Saturday Box Lunch Choices: **(circle one)**

Roast Beef
Turkey
Ham
Veggie

Boxed lunches include wrap of your choice (above), bottled water, chips, and a cookie.

Friday Only Registration	
NAGT member	*$70*
Student	*$50*
Non-member	*$80*
Trip A – Harpers Ferry	$0
Trip B – Paddle on the Potomac	$25

Everyone should pick one

Saturday only registration	
NAGT member	*$60*
Student	*$40*
Trip A – Corridor H	$0
Trip B – Karst of Shenandoah Valley	$20
Saturday awards banquet	$30

Everyone should pick one

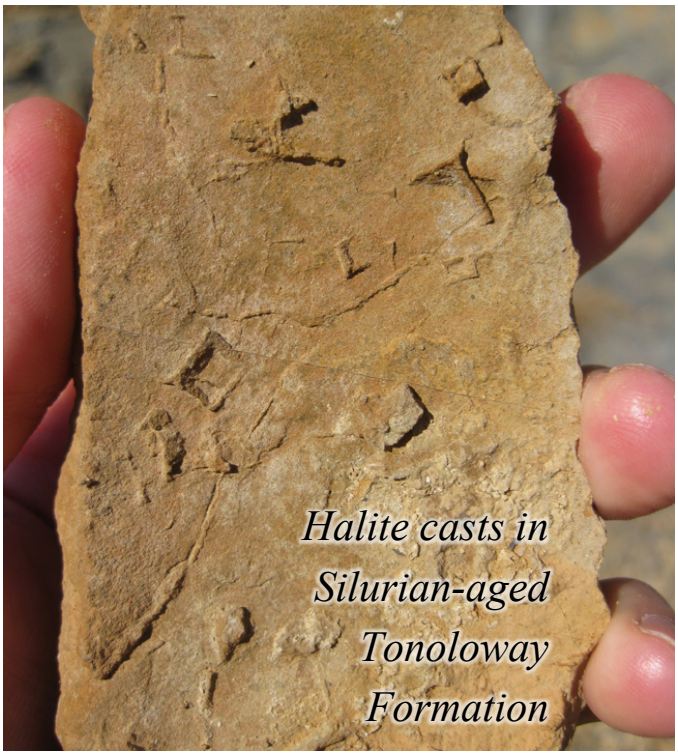
Total enclosed	

Hotel accommodation options:

Holiday Inn Martinsburg
(Banquet location and conference headquarters)

Holiday Inn does not serve a continental breakfast as there is an onsite restaurant.

301 Foxcroft Avenue
Martinsburg, West Virginia
25401
Phone: 304-267-5500
Rooms will be available to conference attendees at the rate of $104.00 per night plus tax. Members are responsible for their individual reservation. Holiday Inn, Martinsburg will hold a block of rooms for registrants until May 16, 2019. After that date, room rates will revert to the current charge of the hotel. Reservations are made calling the hotel directly at the above number and referencing the National Assn. of Geoscience Teachers Eastern Section.



Hampton Inn Martinsburg Foxcroft

975 Foxcroft Avenue, Martinsburg, WV, 25401, US

Phone: 866-238-4218

Fairfield Inn & Suites by Marriott Martinsburg

451 Foxcroft Ave, Martinsburg, WV 25401
Phone: (304) 901-3003

Falling Springs Falls tufa deposit near Covington, Virginia (photo by Dan Doctor):

PRESENTATION PROPOSAL FORM
NAGT-ES Section 2018 Annual Meeting
Submission Deadline: May 16, 2019

Return completed form to: Michael O'Donnell, modonnel@blueridgectc.edu
Or at the above address.

_____ **Workshop** - A workshop is 1.5 hour hands-on/minds-on that engages participants in 21st century geoscience experiences. Proposals that highlight 21st century technologies are encouraged.

_____ **Poster** - The poster session is a 30 minute social to highlight geoscience and education scholarship.

Name: _____

E-mail: _____

Affiliation: _____

Address: _____

Phone: _____

Presentation Title: _____

Description (max. 100 words):
_____
_____
_____
_____
_____

Presentation equipment needed:
_____

Other facilities needed? (subject to availability): _____

“FROM THE ARCHIVES” Spring 2019 edition

by Steve Lindberg
University of Pennsylvania at Johnstown
NAGT-ES Archivist

The spring issue of “From The Archives” is taken from the 1980 eastern section meeting held in Pittsburgh, PA. The featured field trip focused on the geologic hazards of the Pittsburgh region and can be summed up as a tour of “slumps, slides, rockfalls and subsidence”. Attendees traveled the Pittsburgh and Allegheny County area examining the effects of these hazards on residential and commercial properties. Included in the field trip were opportunities at stops to collect invertebrate and plant fossils from the local stratigraphic units. Here is the section of the field trip guidebook describing some of the fossils of Pennsylvania; which includes several that can be found within the Allegheny County region and western Pennsylvania.

INVERTEBRATE AND PLANT FOSSILS

by

W. R. Wagner

(From: Geology of the Pittsburgh Area, Pennsylvania Geological Survey Report G59, 1970)

The rocks of Allegheny County contain a variety of fossils. One may collect in abundance the shells of marine invertebrates that lived in the area when it was dominated by the open water environment. A collector may find numerous carbonized plant fragments that were preserved in the stream and delta environment. Also, but less common, are vertebrate remains, such as fish bones and scales and amphibian and reptile bones that occur in strata deposited in lake and delta environments.

Outcrops of the thin, marine Ames, Woods Run, Pine Creek and Brush Creek limestones commonly contain a multitude of shell fragments of marine invertebrates. Figures 9 to 12 show many of the shells that can be extracted from these limestones.

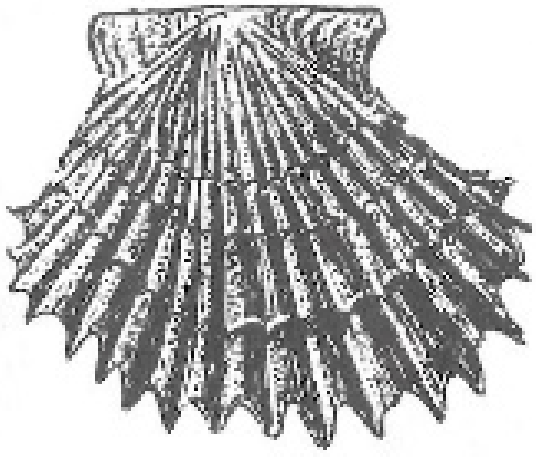
The best collecting occurs in the more shaly parts of the limestone where the calcite shells, being more resistant than the clayey matrix, weather out of the crumbling rock. In purer carbonate layers the rock is as resistant as the shells, and the shells commonly break when one attempts to remove them from the rock.

Usually, shell fragments are easy to find; more diligent searching is required to locate the whole or almost complete specimens illustrated in the figures. The most common invertebrates are brachiopods (lampshells), crinoid columns (Figure 9), and the coelenterate, Lophophyllidium (a coral on Figure 10). Bryozoans are plentiful in the Pine Creek limestone.

For further information on the classification and habitat of these invertebrates, the reader is referred to Bulletin G40 of the Pennsylvania Geological Survey, *Fossil Collecting in Pennsylvania*.

With the invertebrate fossils only the shells are preserved as evidence of their former existence, but with plants, the roots, the trunk and branches, and the leaves may survive. The problem of the paleontologist is to associate the leaves with the correct trunk and roots because the various parts become scattered among the sediments during deposition. Figure 13 pictures the branches and leaves of the fossil bush, *Sphenophyllum* Figures 13 and 14 show the roots, branches and leaves of some of the Pennsylvanian trees. The leaves of the ferns and fern-like plants are illustrated in Figure 16 .

Black, filmy carbonized impressions of leaves may commonly be found in the platy shales above coal seams and in the dark shales of floodplain and lake deposits where the leaves fell into water and were buried in mud. Trunks and roots may be observed as impressions in stream and channel sandstones.



Acanthopecten x 2

FROM THE ARCHIVES

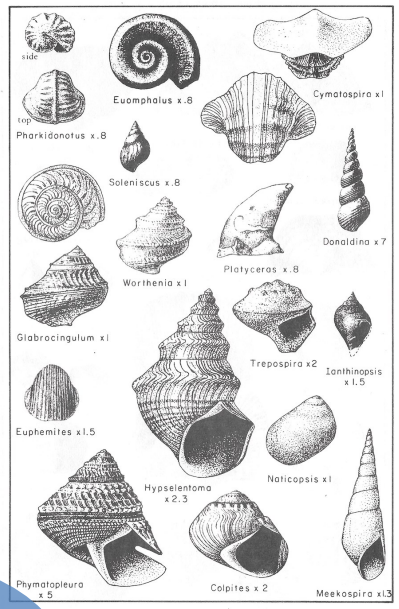


Figure 11 Gastropods (snails).

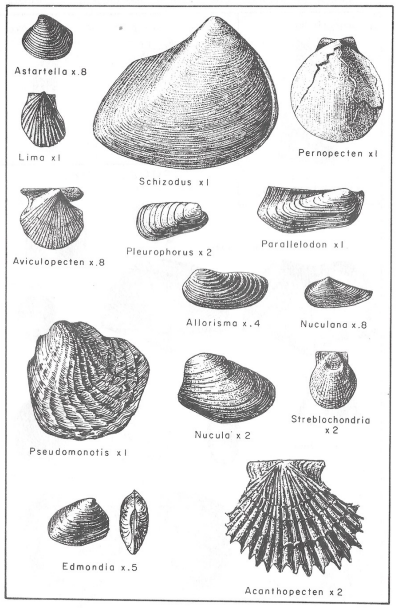


Figure 12 Pelecypods (clams).

Figure 9 Brachiopods (lamp-shells).

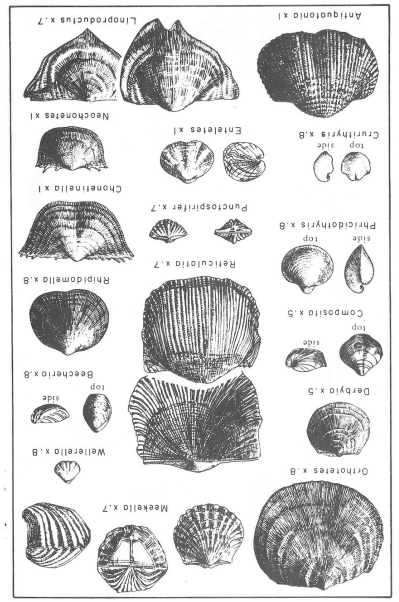
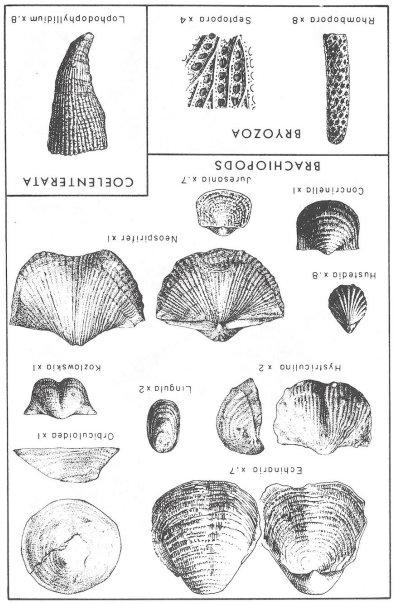
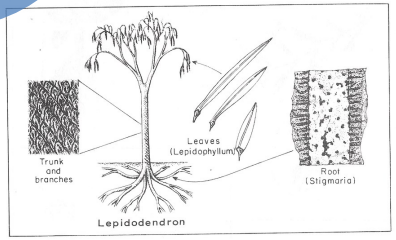


Figure 10 Brachiopods, Bryozoa, and Coelenterata (corals).





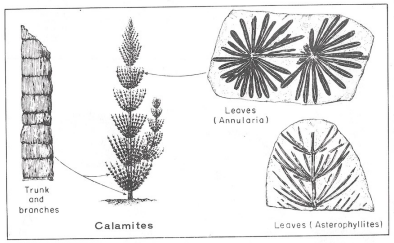


Figure 15 Fossil trees showing characteristics of trunks, roots, and leaves. From Edmunds and Koppe, 1968.

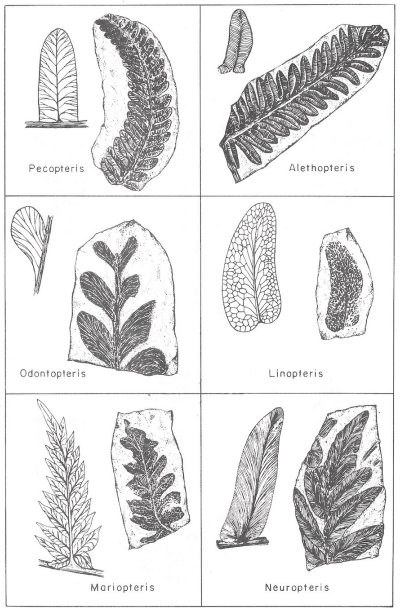


Figure 16 Fern and fern-like leaves. From Edmunds and Koppe, 1968.

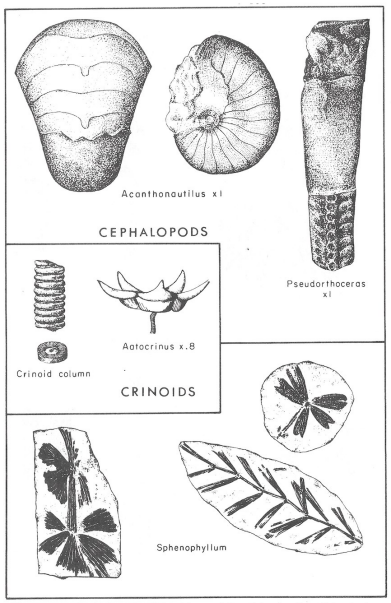
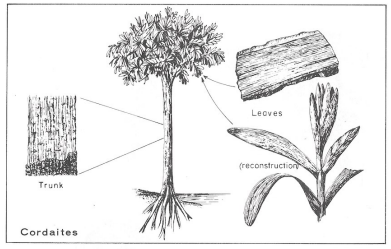


Figure 13 Cephalopods, Crinoids, and fossil bush (fossil bush from Edmunds and Koppe, 1968).



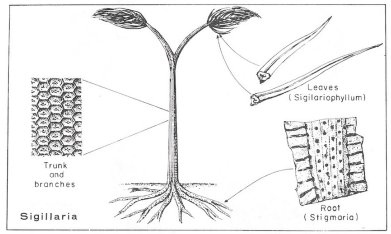


Figure 14 Fossil trees showing characteristics of trunks, roots, and leaves. From Edmunds and Koppe, 1968.

EASTERN SECTION NAGT

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Treasurer: Renee Aubry, 1179 Glen Rd., Shrub Oak, NY 10588; email <raubry@otunet.com>.

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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**>.

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

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

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

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Don Duggan-Haas, Paleontological Research Institution, 1259 Trumansburg Rd., Ithaca, NY 14850; 607-821-0910; email <dugganhaas@museumoftheearth.org> [13-16].

Ontario

No Councilors at present; volunteers welcome.

Pennsylvania

Randy Newcomer, Randy's Books, PO Box 214, Akron, PA 17501; 717- 823-0579 (C); email <randy@randysbooks.com>; <www.pageology.info> [13-16].

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Eric J. Pyle, Department of Geology and Environmental Science, James Madison University, MSC 7703, 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) 304-288-1419; email <amckeen71@gmail.com>. [13-16].

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