



PGS Newsletter

(Watch for our new website address)

Vol. LV, No.9

Mike Keeliher, Editor

September 2002

Wednesday, September 18, 2002

Igneous Rocks in West Virginia– Unheard of?

Ronald R. McDowell, Katharine Lee Avary and David L. Matchen, West Virginia Geological and Economic Survey

Yes, you read the first part of the title correctly. While not well known, igneous rocks do occur in eastern West Virginia and adjacent Virginia. First described in the late 1800's in a USGS Folio, these rocks have been the subject of several thesis projects, field trips, work by the USGS, university professors, and most recently, the West Virginia Geological and Economic Survey (WVGES).

Beginning in 1997 with support from the USGS/WVGES STATEMAP cooperative geologic mapping program, the WVGES Pendleton County team began mapping at the 1:24,000 scale and collecting samples for geochemical analysis to better understand these unusual rocks.

Until the 1970's, conventional wisdom held that these intrusives were Mesozoic in age, comparable to Triassic diabases intruded into the Piedmont and Triassic basins during continental rifting and the opening of the Atlantic Ocean. However, radiometric and paleomagnetic dating gives a middle Eocene age for these rocks.

West Virginia's Eocene igneous rocks range in composition from basaltic to rhyolitic. Although these rocks are intrusive in nature, all have fine-grained textures normally associated with extrusive volcanic rocks. It is believed that igneous material was emplaced close to the surface within the structurally deformed country rock of the Appalachian Valley and Ridge province. Rapid cooling resulted in the aphanitic textures. There appear to be two areas of activity, one centered on Trimble Knob near Monterey, Virginia and a second at Ugly Mountain in extreme southeastern Pendleton County, West Virginia.

The origin of these rocks is not completely understood. A recent theory suggests that, during the Eocene, the North American Plate overrode the subducting Farallon Plate, producing "bursts" of igneous activity across the continent. As the hinge in the Farallon plate passed under the eastern margin of North America, a deep-seated magma was generated that intruded pre-existing faults and fractures in the overlying crust. Seismic investigations suggest that the remnants of the Farallon Plate lie within the mantle off the east coast of North America.

Social hour - 6:00 p.m.

Dinner - 7:00 p.m.

Program - 8:00 p.m.

Dinner will cost \$20.00/person, students \$5.00; checks preferred. Reservations should be phoned in to Steve McGuire at (412) 809-6723 or faxed to (412) 809-6711 or e-mail McGuireS@USFilter.com by **noon Monday, September 16, 2002. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

Pittsburgh Geological Society

About our Speakers

Ronald R. McDowell is a Senior Research Geologist at the West Virginia Geological and Economic Survey. He received a BS in Electrical Engineering from the University of Wisconsin-Madison, an MS in Geology from Kansas University, and a PhD in Geology from Colorado School of Mines.

Katharine Lee Avary is a Petroleum Geologist and Head of the Oil and Gas Section at the WVGES. She received a BS in Geology from Emory University, Atlanta, GA and an MS In Geology from the University of North Carolina-Chapel Hill

David L. Matchen is a Geologist 3 in the Oil and Gas Section at the WVGES. He received a BS in Geology from Juniata College, an MS in Geology from West Virginia University and is a current PhD candidate in Geology at West Virginia University.

Message from the President

Welcome back to all returning members for the 2002-2003 PGS season! As a Board, we are interested not only in providing good speakers and a timely newsletter, but also in keeping the Society healthy and vital by continually adding new members and new ideas that we think may be of interest to members. For this, we need you. If you have an idea for speakers, field trips, and projects or anything else worth doing, please contact someone on the Board or even better - join a committee of your choice. The Board of Directors and Committee members are listed for your information.

Our slate of scheduled speakers is nearly completed for the year and will be posted in next month's newsletter along with any upcoming activities. You can also find news on the PGS website although it is currently being moved to a new location. It should be up and running again soon.

Stay tuned for another good year!

Judy Neelan

Reprinting THE GEOLOGY OF PENNSYLVANIA

In May 2002 the Society sent \$20,000 to the Pennsylvania Department of Conservation and Natural Resources to support the reprinting of The Geology of Pennsylvania. According to State Geologist Jay Parrish, the volume is being printed in late August. This second printing will be of the same magnitude as the first, about 4,000 books. Following reprinting, the book must be bound. Jay estimates that it should be available for purchasing from the State Book Store in October or November of this year. The price has yet to be firmly set. It probably will be in the \$30-40 range.

The Society has elected not sell copies at the meeting (too many strained backs).

Please Remember to Renew your Membership

This month's issue has a copy of the membership form. Please fill it out and bring it to the meeting or send it to John Harper at PGS, PO Box 58172, Pittsburgh, PA 15209. This year's fee is \$20.00 for full members and \$5.00 for students. Forms may also be downloaded from our website.

Carnegie Gem and Mineral Show

This year the show will show will be held on November 22 through 24. The show will feature new booth locations and focus on school groups and education, with increased Institute and Museum support. The show will also feature a party for volunteers on the 21st with the theme of the Emerald City.

Sandra Chmelovsky is handling ads in the program. Contact her at (412) 487-2661, or sandicats@aol.com. Margaret Robertson & Terry Oeler will handle exhibits. If you or a your club are interested, contact them-724-265-1446, farmwest@aol.com

Fall Gas Up

Mark your calendars for Fall Gas Up at the Drake Well, Saturday, Sept. 21, 2002, from 9 AM to 5 PM. Features include restored antique oilfield engines and 2nd day cover celebration of the new Ida Tarbell commemorative postage stamp. For more info call 814-827-2797

GEOLOGIC SURVEY ISSUES

UPDATED BOOKLETS

The Pennsylvania Geological Survey recently released revised editions of two of its popular Educational Series booklets. ES7, *Coal in Pennsylvania*, by William E. Edmunds, formerly a geologist with the Survey, is a moderate revision of the original booklet published in 1968 by Edmunds and the late Edward F. Koppe. It explains the wheres, whys, and hows of coal and coal mining in Pennsylvania in easy to read format, complete with numerous illustrations. ES8, *Oil and Gas in Pennsylvania*, originally published in 1969 by Walter R. Wagner and William S. Lytle, has been completely rewritten and re-illustrated by former Survey geologist Kathy J. Flaherty, now with Abarta Oil and Gas Company, and Thomas Flaherty III, an oil and gas geologist with the Pennsylvania DEP. This booklet explains the facts about oil and gas from their origin as organic material through how they are produced to what they are used for. The reader gets to follow the antics of “Spud”, an oil-barrel cartoon character, as he helps explain various aspects of the petroleum industry. Copies of these new booklets are available for free upon request from the Pennsylvania Geological Survey. To order a free copy, contact the Survey’s Pittsburgh office at 412-442-4235 or the Middletown office at 717-702-2017.

THE FIELD CONFERENCE IS COMING

The 67th Annual Field Conference of Pennsylvania Geologists will be held in Susquehanna County (northeastern Pennsylvania) on October 3-5, 2002. Attendees will get to examine a variety of glacial, bedrock, and historical sites, including aggregate quarries, the old and new Starrucca Viaducts and the Nicholson Viaduct, the Endless Mountains area, Salt Spring State Park, and various landscape features carved by glaciers and glacial meltwaters. In addition to the two-day field trip, there will be three pre-conference trips to the Wyalusing-French Azilum area, sites related to Glacial Lake Great Bend, and Nicholson Viaduct and Tunnels. Announcement and registration forms have been available since late July on the Field Conference web site, www.paonline.com/gfleeger/fcogp. Some slots might still be available as of this announcement. For further details, or to receive a hard copy of the registration form, contact John

Harper at 412-442-4230.

NEW CONSULTANTS LIST BEING PREPARED

For many years the Pittsburgh office of the Pennsylvania Geological Survey has kept a list of geological and geotechnical consultants that is made available to the general public when such services are required. It has been a couple of years since the list was updated, and it is time to revise it. If you or your company has been included in the list in the past, you will be receiving a call or letter asking if you wish to remain on the list, and if the current information is correct. If you are a consultant, or a company that does consulting work in western Pennsylvania, and wish to be included, please send a business card or short letter to John Harper, Pennsylvania Geological Survey, 400 Waterfront Drive, Pittsburgh PA 15222-4745, or email jharper@state.pa.us with the information. Please include the name of a contact person and list the kind or kinds of geological/geotechnical work you do (Coal, Computers/GIS, Environmental, General, Geotechnical, Mapping, Oil and Gas, etc.) – you can be listed more than once.

DID YOU KNOW . . . ?

- The north magnetic pole has moved over 800 miles northwest at an average speed of 25 miles per year since James Clark Ross first reached it in 1831. By 2050 it should be Siberia.
- During the Pleistocene, the repeated glaciations induced sea-level fluctuations with amplitudes up to 490 feet, and as rapidly as four inches every year.
- Landsliding is the chief agent of mass wasting in uplands in humid-temperate climates, and it helps regulate sediment yield in drainage basins with steep hillsides.
- The Eocene may have been warmer than you realized. Redwood forest flourished high in the Canadian Arctic 50 million years ago.
- Tracks of an arthropod discovered in approximately 500 million-year-old sandstone near Kingston, Ontario represent the oldest known footprints on land.
- Of the “big five” mass extinction in earth history, only two – the end Permian and end Cretaceous – actually altered the shape of the marine biosphere.
- Many of the nation’s geological collections, and

much of the data crucial for coping with natural disasters and managing the nation's natural resources, need immediate action to improve preservation efforts, according to the National Research Council.

- The magnitude 7.7 earthquake that hit western India on January 26, 2002 claimed more than 20,000 lives, injured about 167,000 people, and damaged or destroyed one million homes.
- There is still a great deal of controversy about the origin of the Mississippian Loyalhanna Formation of southwestern Pennsylvania: some say it formed in the marine environment and others say it formed as wind-blown sand dunes.
- A team of American and Chinese researchers have found and described a small Early Cretaceous dinosaur from China that has well preserved pinnate feathers, with a rachis and barbs like modern birds.
- During the fall and winter of 2001-2002, although ground conditions were suitable for infiltration of precipitation, the drought that hit much of the eastern US was responsible for a large decrease in groundwater storage in Pennsylvania.

WEBSITE OF THE MONTH:

<http://www.mineralsweb.com> (thanks to Joe Tedeski).

Call for Papers For A One-day Symposium on Groundwater and Surface Water Supply Investigation, Production, Protection.

Wednesday, March 5, 2003, Buffalo, New York
Sponsored By: Buffalo Association of Professional Geologists and New York State Council of Professional Geologists.

Abstracts to Be Submitted by: November 19, 2002

Abstracts Submitted To: Buffalo Association of Professional Geologists, c/o Lea Cervi, Ecology & Environment, Inc. 368 Pleasant View Drive, Lancaster, NY 14086, Fax No.: 716/684-0844
E-mail: lcervi@ene.com

Topics of Interest:

Water Quality Investigation
Regulatory Measures and Water Quality Standards
Watershed Management
Water Supply Protection
Well-head Protection
Aquifer Testing
Water Quality Sampling and Testing
Technology Advancements (Modeling, Geophysics, Treatment, etc.)
Well Design, Drilling, and Construction
Drought effects
Great Lakes Water Exportation
Case Studies
Other (Drillers Licensing, Earthquake Effects on Water Levels, etc.)

Abstract submittals should indicate topic of interest. Presentations shall be limited to 45 minutes including a 5-minute question/answer session.

The Capitol Steps at ASCE's anniversary

In October, ASCE is holding a 150th anniversary celebration and we are bringing the Capitol Steps to Pittsburgh. The function serves 2 purposes; to celebrate ASCE's 150 years with a very nice social event with top notch entertainment (we're trying to entice spouses to attend) and to raise money for our Student Award Foundation which distributes thousands of dollars each year to academic high performers in Civil Engineering programs.

We would like to invite PGS and AEG members to attend the event. Additional information can be obtained from: Arthur G. Hoffmann, P.E., Vice President, Geotechnical Manager, Gannett Fleming, Inc. Pittsburgh, PA Phone: (412) 922-5575 Fax: (412) 922-3717

If you have any information you would like to have included in the PGS Newsletter, please submit it to Mike Keeliher at 4590 Dutch Ridge Road, Beaver, PA 15009 or e-mail: keeliher@bellatlantic.net

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Memberships: For information about memberships, please write PGS Membership Chair, PO Box 58172, Pittsburgh PA 15209, or call John Harper at (412) 442-4230, or e-mail jharper@state.pa.us. Membership information can also be found at our new website. **PGS phone line** (412) 928-2255 **PGS web address:** (to be announced)

PITTSBURGH GEOLOGICAL SOCIETY

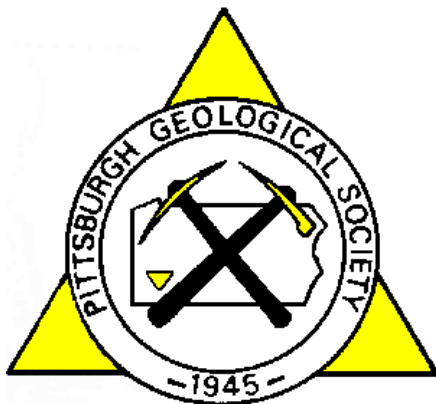
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PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LV, No.2

Mike Keeliher, Editor

October 2002

Wednesday, October 16, 2002

Dinosaur Tracksites

by

Charles E. Miller, Jr., D.Ed., P.G.

Purgatoire River Dinosaur Tracksite

Little-known exposures of the Upper Jurassic Morrison Formation from the Purgatoire Valley of southeastern Colorado have yielded the world's largest continuously mapped assemblage of dinosaur trackways. Over 1300 footprints and more than 100 trackways have been identified. *Apatosaurus* (*Brontosaurus*) and *Allosaurus* footprints dominate the trackways. The sauropod tracks represent the first ever discovered in North America.

Known mostly for its prolific dinosaur bones, as at Dinosaur National Monument, here the Morrison Formation is dominated by dinosaur footprints. Dinosaur trackways, particularly those at the Purgatoire site, demonstrate the usefulness of footprints in the paleoenvironmental interpretation of shoreline configurations and paleowater tables, as well as in the taphonomic process (dinoturbation).

Discovered in 1935, early on the site received limited attention. In 1938 it was visited by Roland T. Bird of the American Museum of Natural History who, later, became best known for his description of the Paluxy River dinosaur tracks near Glen Rose, Texas. The site was rediscovered in the 1980s.

Significant discoveries from the Purgatoire tracksite include: the world's first report of *Apatosaurus* (*Brontosaurus*) tracks; evidence of herding or social behavior; evidence that brontosaurus trampled clams and extensively disturbed the soils and substrates beneath their feet; and the tracksite represents a lake shoreline environment.

Purgatoire theropod speed estimates range 6-10 km/hr. (~4-6 mph), indicating a brisk walk, but not a run. Brontosaurus speed estimates here range 3-6 km/hr. (2-4 mph). (*Continued, Page 2*)

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Dinner - 7:00 p.m.

Program - 8:00 p.m.

Dinner will cost \$20.00/person, students \$5.00; checks preferred. Reservations should be phoned in to Steve McGuire at (412) 809-6723 or faxed to (412) 809-6711 or e-mail McGuireS@USFilter.com by **noon Monday, October 14, 2002. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

Pittsburgh Geological Society

(Continued from page 1)

Dinosaur Ridge (Alameda Avenue) Dinosaur Tracksite

The Dinosaur Ridge area (Alameda Avenue) is one of the world's most famous dinosaur fossil localities. Both dinosaur bones and footprints have been found here in strata ranging from Late Jurassic to Late Cretaceous in age.

Also known as the Dakota Hogback, Dinosaur Ridge is situated in the Front Range foothills west of Denver and is famous for discoveries in the Morrison Formation of dinosaur bones in 1877. These include *Apatosaurus* (*Brontosaurus*), *Diplodocus*, *Stegosaurus*, and *Allosaurus* of the Late Jurassic (150 mya). In the 1930s dinosaur tracks were discovered during road construction on the east side of Dinosaur Ridge in the Late Cretaceous (100 mya) Dakota Group. The tracks are those of *Iguanodon*-like dinosaurs and ostrich-sized carnivorous dinosaurs. Recent research has revealed that these tracks represent only a small part of the extensive track-bearing beds, also known as the "Dinosaur Freeway," that can be traced along the Colorado Front Range.

In 1992, excavations adjacent to the main tracksite revealed additional tracks and trackways. At least 335 tracks and 37 trackways have now been mapped. There are ten different layers of strata at Dinosaur Ridge with at least 78 dinosaurs represented by their tracks. The abundance of these tracks aids in discussions about dinosaur morphology, locomotion, behavior, and distribution.

About our Speaker

Dr. Miller presently conducts hydrogeological investigations and reviews surface mining permits for the Pennsylvania Department of Environmental Protection. He has been employed as a petroleum geologist, a lecturer, earth science teacher and a consultant. He has published articles on limestone fossils and lectured on a wide range of topics, including fossils, rock collecting, caves and astrophotography.

A Meeting With Stephen J. Gould

(from an e-mail sent by Wendell Barner shortly after Dr. Gould's death this summer)

As many of you probably already know, Stephen Jay Gould passed away yesterday. Here is his obituary from the New York Times. I had the fortunate opportunity to meet Stephen at the Bahamian Field Conference (San Salvador island) in 1996. This conference turned out to be an intimate group (about 30 individuals) of scientists invited to present their recent research or investigations relating to island hydrogeology, biology, paleontology, and oceanography. If it wasn't for Stephen's stature in the scientific community, you would never guess it by his

demeanor or appearance. He was less intimidating and more approachable than others in the group and fit in as one of the gang.

We all sleep in dormitories with no air conditioning, had our meals together in a cafeteria and drank beer at the local bar where we all walked a mile to get there (this was no luxury conference hotel location, no car rental, but you basic "field" conference).

While the conference activities and discussions focused on the topics mentioned above, after hour discussions over a beer (or the local variety of rum) always included his other passions, particularly baseball.

Probably the most memorable event took place on one of the field trips. While observing the geology, Stephen was always in search of his beloved Cerion (land snail), and whereby reaching for sample bags from his seasoned field pouch, he pulls out this aviator-looking action figure he dubbed Captain Cerion (I have pictures to proof it!). This proclaimed scientist/scholar/author/recipient of numerous awards and honors found carrying around a toy action figure just blew us all away.

The last I saw Stephen was when he gave a lecture at the Carnegie Music Hall a year or so after attending the Bahamian Field Conference. I brought in one of his books I had for his autograph. If it wasn't for Captain Cerion, I would have been just one of the crowd.

Hail to Captain Cerion!

Reprinting THE GEOLOGY OF PENNSYLVANIA

In our most recent communication with Jay Parish, the Director of the PA Geologic and Topographic Survey, the Geology of Pennsylvania is being printed at several different locations and may be bound and ready to give as a Christmas present this year.

North American Coalbed Methane Forum.

The upcoming Fall Session of the North American Coalbed Methane Forum will be held on October 29-30, 2002 at the Lakeview Resort in Morgantown, West Virginia. A short course entitled "Fundamentals of Coalbed Methane Reservoir Engineering" will be offered in conjunction with the Forum on October 29th. For more information contact Kathy Aminian at (304) 293-7682 ex 3406 or e-mail at kaminian@mix.wvu.edu.

GEOLOGICAL SURVEY ISSUES COAL-BED METHANE REPORT

The Pennsylvania Geological Survey has released "Reconnaissance of the Coal-Bed Methane Resources in Pennsylvania" by Antonette K. Markowski. This long-awaited publication provides a wealth of information on coal-bed methane resources in Pennsylvania, including history, chemistry, reservoir characteristics, geologic framework, and lots of data. It also includes 18 figures, 9 tables, 4 appendices, and a glossary of terminology. This 134-page report has been released as Pennsylvania Geological Survey Mineral Resource Report 95. To order a copy, send a check or money order, made payable to Commonwealth of Pennsylvania, in the amount of \$14.60 (\$10.00 plus \$4.00 mailing charge and 6% sales tax) to State Book Store, Commonwealth

Keystone Building, 400 North Street, Harrisburg, PA 17120-0053. When ordering multiple copies, add \$0.50 for each additional copy. Or, you can order by telephone at (717) 787-5109 using VISA or MasterCard.

AAPG EASTERN SECTION IN PITTSBURGH NEXT YEAR

PGS's sister society PAPG is cosponsoring the 2003 Eastern Section AAPG meeting with the Society of Petroleum Engineers (SPE) at the Hilton Hotel in downtown Pittsburgh on September 6-10, 2003. Besides talks on oil and gas and petroleum engineering, the meeting will also have sessions on other energy minerals (e.g. coal) and environmental geoscience, and poster sessions on a variety of subjects. This is a good opportunity for college students to present their senior or graduate research to a profession audience. If you are either a college professor supervising students in their research or an interested student, you might want to keep this in mind. Abstract and registration information will be forthcoming. Stay tuned to future issues of the PGS newsletter for more information.

AN INTERESTING QUOTE

"A stupid argument brings shame to any scholarly effort; but no dishonor attends an erroneous claim – especially in science, lest we all become psychological basket cases, because the vast majority of novel hypotheses turn out to be dead wrong." Stephen Jay Gould, 2002.

DID YOU KNOW . . . ?

- Based on what is currently known from the fossil record, the Late Triassic mass extinction must have been a gradual event extended over time, rather than a geologically "instantaneous" event, such as an impact catastrophe.
- The Allegheny and Monongahela Rivers drain more than 19,000 square miles of Pennsylvania, West Virginia, New York, and Maryland.
- If you're interested in oil and gas issues, Oil and Gas Radio.com has launched a 24-hour internet radio station that broadcasts industry news, weather, and a variety of musical formats. The address is <http://www.iogr.com>.
- Translational and rotational landslide movement occurs as a result of either deformation within a shear zone or sliding on a preexisting surface.
- Kimberlites, such as those found in dikes in

Fayette and Indiana Counties, are significant in that they originated in the upper mantle and thus can serve as indicators of the chemistry, petrology, and mineralogy of the upper mantle.

- The Environmental Protection Agency recently found that there is no “persuasive evidence” that drinking water wells are being contaminated by hydraulic fracturing in coal-bed methane wells.
- Ropy flow structures similar to pahoehoe lava structures occur in dikes and sills, and so can be used to indicate internal magma flow orientations.
- Upper Devonian turbidites of the Brallier Formation, which occur throughout the central Appalachians in a regressive sequence of siltstones, mudstones, claystones, and shales, represent one of the rare and well-documented examples of turbidites of deltaic, rather than submarine fan, origin.
- According to a recent poll, more than 80 percent of Americans want Congress to pass comprehensive energy legislation in order to ensure stable energy supplies and strengthen national security.
- Pesticide compounds detected in ground water from wells in both valley-fill aquifers and fractured bedrock aquifers in western Pennsylvania are similar to those most frequently detected in aquifers nationwide.
- The US Department of Energy has been funding research exploring ways to permanently capture CO₂, a significant greenhouse gas, and remove it from the atmosphere – called carbon sequestration.

WEBSITE OF THE MONTH:

<http://www.dmns.org/ad/landscapes.html> (*thanks to Pete Briggs*).

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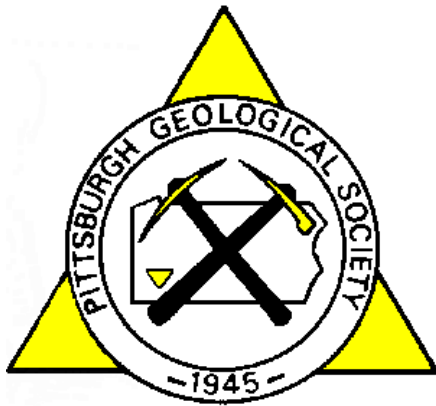
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PGS Newsletter

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Vol. LV, No.3

Mike Keeliher, Editor

November 2002

Wednesday, November 20, 2002

A Joint Meeting with the Association of Engineering Geologists and the American Society of Civil Engineers, Geotechnical Engineering Group

Transmissivity Anisotropy

Perry H. Rahn, PhD.

Winner of The Richard H. Jahns Distinguished Lecturer in Engineering Geology Award

Geologic mapping and an understanding of geology are required to effectively study ground water. Sound geologic input is the limiting factor in most ground water models. Directional permeability is shown to have effects on ground-water pumping and contaminant transport. Surficial and bedrock aquifers in South Dakota and Connecticut are used as examples.

The Richard H. Jahns Distinguished Lecturer in Engineering Geology Award was established in 1988 by the Association of Engineering Geologists in co-sponsorship with the Engineering Geology Division of the Geological Society of America. The purpose is to provide funding annually for a distinguished engineering geologist to present a lecture at a number of academic institutions to increase awareness of students about careers in engineering geology. The Distinguished Lectureship is in honor of Richard H. Jahns (1915-1983), an engineering geologist who had a diverse and distinguished career in academia, consulting, and government. Perry H. Rahn was designated as the 2002 recipient of this award.

Perry H. Rahn was born in 1936 in Allentown, Pennsylvania. In 1959 he received a BS in civil engineering and a BA in geology from Lafayette College, Easton, Pennsylvania. From 1959 to 1961 he was employed as an engineering geologist by the California Department of Water Resources in Oroville, California. In 1965 he received a PhD in geology from The Pennsylvania State University. From 1965 to 1968 he was an assistant professor at the University of Connecticut. In 1968 he began teaching at the South Dakota School of Mines and Technology in Rapid City, South Dakota, becoming a full professor in 1979. In 1997 he retired and became a professor emeritus. Dr. Rahn is a Professional Engineer and is a member of the various professional organizations including the Geological Society of America, the Association of Engineering Geologists, The American Institute of Professional Geologists, and the National Society of Professional Engineers. His research and publications deal with engineering geology, hydrogeology, and geomorphology. He is the author of "Engineering Geology, an Environmental Approach". For this book he received the Claire P. Holdredge award by the Association of Engineering Geologists in 1987, and the E.B. Burwell award by the Engineering Geology Division of the Geological Association of America in 1990.

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Program - 8:00 p.m.

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STUDENT WORKSHOP

PGS is hosting the second "So You Want to Be a Geologist" Student Workshop for the year. The first one, held in February was well received. PGS members Ed Girard, Ray Follador, Frank Benacquista, and Brian Greene will again be the presenters and will speak to students about the profession of geology. The agenda is as follows:

- I. Introduction -Judy Neelan
- II. Choosing Geology - Ray Follador will discuss career choices and opportunities for geology majors.
- III. The Prepared Student - Brian Greene will discuss academic issues, degrees, beneficial courses, field camps, GRE's, internships and co-ops, advanced degrees, etc.
- IV. The Candidate -Ed Girard will discuss resumes, cover letters, interviewing, and other issues relevant to job-hunting success.
- V. The Professional Geologist- Frank Benacquista will discuss licensing, legalities, ethics, and professional behaviors necessary for success.
- VI. The Employers Speak - Judy Neelan will discuss results of an employer questionnaire.

The Workshop is scheduled for November 16 and is filling fast. Call 412 442-5802 for reservations by November 10. More information can be found at the PGS website, www.pittsburghgeologicalsociety.org.

HOLIDAY RAFFLE TO BENEFIT STUDENT ATTENDANCE

Stressing the need to get PGS's message out to a larger audience, the Board of Directors voted to take a chance and place an advertisement in the program booklet for the Pittsburgh Concert Chorale, a local arts organization based in the North Hills. The ad will be run in the program for all six of the Chorale's performances, which typically attract between 400 and 1,000 concertgoers each. In return, the Chorale has reserved a pair of tickets, each worth \$16, for its Sunday, December 15

Christmas concert with the River City Brass Band at West Allegheny High School. PGS is holding a raffle, with the winner, chosen at random at the end of the November meeting, receiving the tickets by mail. Chances are \$1.00 each, with no restrictions on the number of chances anyone may purchase, and all the proceeds from the raffle will go to help defray the cost of student participation at future PGS meetings. You can buy your chances at the meeting on November 20 or order them in advance by contacting John Harper at 412-442-4230 or jharper@state.pa.us. The winner need not be present at the drawing. However, we MUST have the money for the raffle in hand before the drawing in order for the winner to collect.

PGS PUBLICATIONS FOR SALE – REALLY CHEAP!!!

That's right, PGS is having a publications sale to help reduce inventory (and help clean out John Harper's basement!). All available publications (see list below) will be sold dirt cheap throughout November, December, and January. All \$4 and \$5 publications will be on sale for only \$0.50, the Rose Run study (normally \$10) for only \$1.50, and the Gas Atlas (normally \$75) for only \$15. This will be a great opportunity, especially for students with cash-flow problems, to get some great bargains and beef up your libraries with some really good geology texts and guidebooks. You can order these books by contacting John Harper at 412-442-4230 or jharper@state.pa.us. All items must be picked up at the November, December, and January meetings or by stopping in at the Pittsburgh office of the Pennsylvania Geological Survey on Washington's Landing before Friday, January 31. No books will be mailed during this sale (exceptions can be made for out of town buyers). You do not have to be a PGS member to take advantage of this sale. However, some titles are of limited quantity, so **first come-first served**. Currently available publications include:

- *The History And Geology Of The Allegheny Portage Railroad, Blair And Cambria Counties, Pennsylvania* (2002) - \$0.50
- *Rocks, Oil, Gravel, Iron: The Bedrock, Surficial, And Economic Geology Of Venango County, Pennsylvania* (1999) \$0.50

- *Atlas Of Major Appalachian Gas Plays* (1996) \$15.00
- *Measuring And Predicting Reservoir Heterogeneity In Complex Deposystems:*
- *The Late Cambrian Rose Run Sandstone Of Eastern Ohio And Western Pennsylvania* (1993) \$1.50
- *Subway, Tunnels And Scenery* (1991) \$0.50
- *Fossil Collecting In The Pittsburgh Area* (1990) \$0.50
- *"Lots" Of Danger - Property Buyers Guide To Land Hazards Of Southwestern Pennsylvania* (1977) \$0.50
- *Environmental Geology In The Pittsburgh Area* (1971) \$0.50
- *Field Guidebook Of Appalachian Geology* (1955) \$0.50

HAVE YOU PAID YOUR DUES YET?

We're closing in on the end of the year. That means we are getting close to the time when membership dues for regular (\$20) and student (\$5) members must be paid or your membership will be in arrears.

If your newsletter address label has "2002" highlighted in yellow next to your name, we have not received your dues. You can download the membership form from website or fill a form out at the meeting.

PTTC WORKSHOP ON FRACTURED RESERVOIRS

The Petroleum Technology Transfer Council (PTTC) is sponsoring a one-day workshop on naturally fractured reservoirs, to be held December 3, 2002 at the Holiday Inn in Washington, PA. The course will cover the basic elements needed in the evaluation of fractured petroleum reservoirs from both an exploration and development point of view. Emphasis will be given to fault-related fracture systems such as those associated with the Trenton/Black River play in the northeastern US. A general sequence of study will be presented, as well as the data types needed to complete the study. Techniques presented will emphasize outcrop and subsurface rock data, petrophysical data, rock mechanic principles, and reservoir performance data. A multidisciplinary approach to the study of these reservoirs will be stressed. Anyone interested in attending, or in receiving more information about

the workshop, should contact Lee Avary at the West Virginia Geological Survey at 304-594-2331 or avary@geosrv.wvnet.edu

NEWSLETTER CHANGE COMING IN JANUARY

Because of the increases in printing and mailing charges, as of January 2003, the PGS newsletter will be sent via email to those who have a valid email address on record with the membership chair. Newsletters will be printed and mailed ONLY to those with no email access, and those who have a valid reason (such as having trouble receiving and/or opening email attachments). If you have email but absolutely cannot, or do not want to receive your newsletter by email, please contact John Harper at 412-442-4230 or jharper@state.pa.us. If he doesn't hear from you, you will be receiving your newsletter by email from now on.

Student Membership in AAPG

The American Association of Petroleum Geologists has recently begun a "Corporate Sponsorship Program" to attract student members of AAPG. University students can now join AAPG **FREE!!** Benefits for AAPG student members include: Internet access to the AAPG Bulletin, two 6-month CD-ROMs of the AAPG Bulletin, monthly subscriptions to the AAPG Explorer, book discounts, student rates on AAPG meetings and short courses and access to posting and searching the student internet database.

For the AAPG Student Membership form, go to: www.aapg.org/member/forms/student_application.pdf

For information on AAPG student membership and chapters, go to: www.aapg.org/member/student/index.html

If you like more information please contact Dan Billman (PGS's AAPG Delegate): danaret@fyi.net

The Eastern Section of AAPG is also in the process of organizing an AAPG Student Expo, to be held in conjunction with the ES-AAPG meeting in Pittsburgh, September 2003. Students will be able to present research to prospective employers at the

meeting

ASCE Honorary Member

PGS Past President, Richard E. Gray, has been elected to Honorary Membership by the American Society of Civil Engineers. Since 1853, only 513 members of this 125, 000 member organization have been recognized. Dick is the 1994 recipient of the Walt Skinner Award."

PGS donates to AAPG Foundation Scholarship Fund

The Eastern Section of the American Association of Petroleum Geologists has begun funding a Grants-In-Aid Endowment through the AAPG Foundation. The Richard W. Beardsley Grant is being formed in honor of Dick Beardsley, who was named the inaugural AAPG Outstanding Explorer, honoring his career dedicated to hydrocarbon exploration and exploitation in the Appalachian Basin.

PGS, along with numerous other local AAPG affiliated societies in the Eastern Section, is donating to the fund. PGS will be donating \$500 from the Galley Fund to the Richard W. Beardsley Grant.

The AAPG Grants-In-Aid program is designed to provide financial assistance for Masters and Doctorate level research. The Richard W. Beardsley Grant will be specifically awarded to students at universities within the Eastern Section region whose research is applicable to the petroleum exploration of the Appalachian Basin. Once totally funded, the AAPG Foundation will award a \$500 grant yearly to a deserving student.

President Bush's Earth Science Week Message

I send greetings to those celebrating Earth Science Week, 2002, sponsored by the American Geological Institute.

The earth science industry is helping to improve the lives of Americans and people throughout the world. Dedicated and highly skilled geologists, geophysicists, and other earth and environmental scientists are working to protect and preserve our natural resources and environment. Their efforts are also keeping us safe from natural disasters and promoting our appreciation for the beauty and

grandeur of nature.

During Earth Science Week, I encourage all Americans to recognize the vital role of the earth sciences in our lives, and to renew our commitment to good stewardship of the land. This year's theme, "Water Is All Around You," focuses on the importance of our natural resources and how they affect our health, our economy, and our National security.

I applaud those students interested in earth science for your hard work and dedication to this important field of study. I also commend science teachers, parents, and everyone involved for inspiring young Americans, and all our citizens, to acquire knowledge that will help shape our lives for decades to come. Your work strengthens our Nation and points the way to a brighter future for all.

Laura joins me in sending our best wishes for a successful week.

George W. Bush

Geology of Pennsylvania Update

The Society has been informed that the Geology of Pennsylvania has now been reprinted and bound and will be available shortly from the State Bookstore. Hopefully, we can announce the price of the book during the November meeting. We understand the quality of the photographs has improved in this second printing.

The society will not be selling the books at the meetings or taking orders. Our past repository has been John Harper's basement and we are having a sale on books this month just to allow him to reclaim part of that which he is rightfully due and pays taxes on.

DID YOU KNOW . . . ?

- Scientists are speculating that, because the early Earth was bombarded by hoards of meteorites that threw clouds of dust and rock high into the primitive atmosphere, and that the Moon had a much closer orbit than it does today, we might be able to find piece of Earth on the Moon.
- A new 550-million year old multicellular fossil organism of, as yet, unknown affinity found in Namibia indicates that both large, hard-bodied organisms and complex reef structures existed

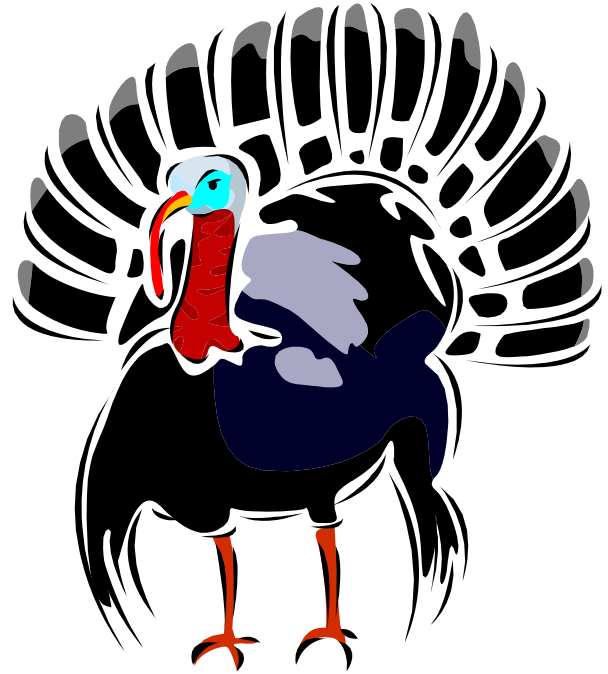
at least 15 million years earlier than previously thought.

- British petroleum geologists have discovered a possible 12.5-mile wide, circular, multi-ringed impact structure in the North Sea off Great Britain that is, so far, unique on Earth. Similar, but much larger, structures occur on two of Jupiter's moons.
- As if the threat of nuclear waste weren't enough in and of itself, now a group of researchers looking at the Yucca Mountain site in Nevada thinks a potential magmatic intrusion in the area could be channeled along the storage tunnels where the waste is to be stored, increasing the likelihood of serious environmental and health problems.
- Trace amounts of tungsten have been found in 3.8 billion year old sedimentary rocks in Greenland, indicating that the rocks may contain material derived from meteorites.
- The Voyager 1 spacecraft is about 7.9 billion miles from Earth, while Voyager 2 is about 6.3 billion miles out, and both are still transmitting data back to NASA. For more information, check out the Website of the Month below.
- "Brown hematite" iron ores are very abundant in the Cambrian and Ordovician carbonates of central Pennsylvania where they were extensively mined during the 1800s.
- Heat generated by the decay of radioactive elements such as potassium, uranium, and thorium in the crystalline basement is believed to be trapped in the crust beneath an insulating layer of Phanerozoic sediments.
- According to NASA scientists, Earth is suffering from obesity – it has gotten wider by a few millimeters over the last 25 years, but they're not sure if it's the result of internal or external forces.
- At least 20, and possibly more, altered volcanic ash beds called K-bentonites occur throughout the Trenton and, especially, Black River limestones (Late Ordovician) in the Appalachians, providing excellent marker beds that can be traced even in the subsurface.
- Erosion influences mountain building by changing the landscape and, hence, the thickness of the deforming orogen. This, in turn, modifies the gravitational force relative to the force driving the tectonism.

WEBSITE OF THE MONTH:

<http://voyager.jpl.nasa.gov>

Please accept our wishes for a peaceful and safe Thanksgiving



If you have any information you would like to have included in the PGS Newsletter, please submit it to Mike Keeliher at 4590 Dutch Ridge Road, Beaver, PA 15009 or e-mail: keeliher@bellatlantic.net

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Membership information can also be found at our website: www.pittsburghgeologicalsociety.org

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PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LV, No.4

Mike Keeliher, Editor

December 2002

Wednesday, December 18, 2002

Annual Spouse's Night

A Field Trip to the World Famous Las Choyas Geode Deposit, Chihuahua, Mexico

By

Jeff Smith, PG

In 1960, several cowboys noticed some perfectly round rocks lying on the ground as they were herding their cattle in the northern Mexican desert. They did not know it at the time, but they had just discovered one of the world's most famous geode deposits on the Trinidad Carrillo's Mesteno Ranch. Now known as the Las Choyas deposit, it has produced beautiful amethyst specimens for over 40 years.

In November 2001 and 2002, Jeff Smith and his wife Sue flew to El Paso, Texas and were hosted by Hector and Jeannette Carrillo for two days at the family's ranch in Chihuahua, Mexico. Situated on 25,000 acres, the cattle ranch includes a geode mine and a shrimp farm.

Jeff has documented the entire mining process at Las Choyas, even mining a couple of geodes for himself. Jeff will discuss the geology of area, the theory of geode formation and the mineralogy. He will describe what it was like to be in a foreign country, 2000 miles from home, 4 hours from the nearest town, 125 feet beneath the desert floor with people he met only once before.

Social hour - 6:00 p.m.

Dinner - 7:00 p.m.

Program - 8:00 p.m.

Dinner will cost \$20.00/person, students \$5.00; checks preferred. Reservations should be phoned in to Steve McGuire at (412) 809-6723 or faxed to (412) 809-6711 or e-mail McGuireS@USFilter.com by **noon Monday, November 18, 2002. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

About our Speaker

Jeff has been a geologist with the Department of Environmental Protection for 12 years and currently works in the Bureau of Waste Management. He has a BS in Geology from Waynesburg College, a BS in Education from California University and an MS in Geology from WVU. Jeff has been ardently collecting geodes for over 25 years

SHADES OF JOHN D. ROCKEFELLER

Shell Oil Co., a wholly owned subsidiary of Royal Dutch/Shell Group of Companies, received permission from the Federal Trade Commission to acquire Pennzoil-Quaker State Co. for about \$1.8 billion. Pennzoil and Quaker State, of course, are former Pennsylvania oil companies. Pennzoil began life in 1889 as the South Penn Oil Company, a unit of John D. Rockefeller's Standard Oil Company, which was formed in Pittsburgh in 1868. The name "Pennzoil" originated as a trademark in 1916 for oil produced by the Pennsylvania Refining Company, and in 1963 became the corporate name of the company formed by the merger of South Penn, STETCO Petroleum Corporation and Zapata Offshore Oil Company. Meanwhile, Chicago entrepreneur Charles Pape formed Quaker State Oil Refining Corporation in Oil City in 1913 from 19 small oil companies. In 1914 it brought forth the first high-performance motor oil, refined from Penn Grade crude oil, for the Franklin Automobile Company. The car company was so impressed with Quaker State's new motor oil that every Franklin leaving the factory was fitted with a five-quart can under the front seat. Now the third largest oil company in the world owns both companies, as of October 1, 2002. The irony here is that the same federal government that broke up Standard Oil, the original parent company of Pennzoil, has just allowed an even larger company to gobble it up and swallow it whole. I guess you're not a monopoly in violation of antitrust laws if you're only the third largest oil company!

PGS PUBLICATIONS – REALLY CHEAP BUT GOING FAST!!!

The PGS publications sale is still going strong, but we've run out of some of the more popular titles, such as *Fossil Collecting in the Pittsburgh Area* and *The History and Geology of the Allegheny Portage Railroad*. However, John Harper found a box of the 1963 guidebook (number 2 below) thought to be out of print. These are also now for sale. All available publications (see list below) are still dirt-cheap and will be on sale through January. You can order copies of the remaining books by contacting John Harper at 412-442-4230 or jharper@state.pa.us. All items must be picked up at the December and January meetings or by stopping in at the Pittsburgh office of the Pennsylvania Geological Survey on Washington's Landing before Friday, January 31. Books will be mailed during this sale only to out-of-town buyers. You do not have to be a PGS member to take advantage of this sale. **First come-first served.** Currently available publications include:

1. *Field Guidebook Of Appalachian Geology* (1955) – a 109-page guidebook for a 2-day AAPG field trip through Pennsylvania and New Jersey summarizing the geology of the area. About 50 copies still available at only \$0.50.
2. *Tectonics and Cambrian-Ordovician Stratigraphy, Central Appalachians of Pennsylvania* (1963) – a 129-page guidebook for a 3-day PGS field trip to look at the Cambro-Ordovician stratigraphy and structural geology of central Pennsylvania. About 100 copies available at only \$0.50.
3. *Environmental Geology In The Pittsburgh Area* (1971) – a 47-page guidebook for a GSA field trip that illustrates the problems and proposed solutions associated with waste disposal and landfill sites, areas affected by mine subsidence, and road and bridge problems associated with unstable claystone, unstable foundations, and other problems. Still plenty of copies available at only \$0.50.
4. *"Lots" Of Danger - Property Buyers Guide To Land Hazards Of Southwestern Pennsylvania* (1977) – an 85-page book for the lay person that discusses mine subsidence, foundation performance, groundwater supply, flooding,

waste disposal, landsliding, and other geologic hazards in non-technical language. It is a suitable supplementary text in environmental earth sciences at the undergraduate level. LOTS of copies still available at only \$0.50.

5. *Measuring And Predicting Reservoir Heterogeneity In Complex Deposystems: The Late Cambrian Rose Run Sandstone Of Eastern Ohio And Western Pennsylvania* (1993) – a comprehensive 257-page report, including global perspectives on Late Cambrian and Early Ordovician plate tectonics, paleogeography, provenance, stratigraphy, structural geology, depositional environments, petrography and petrology of cores and outcrop samples, and case studies of producing fields. Published at \$10.00, for a limited time only \$1.50.
6. *Atlas Of Major Appalachian Gas Plays* (1996) – a large format (~24 X 36”) 201-page book detailing the stratigraphy, structural geology, reservoir characteristics, production history, and potential future of 30 important natural gas plays ranging from Pennsylvanian to Cambrian in 8 states of the Appalachian basin. Published at \$75.00, for a limited time only \$15.00

NEW HONORARY MEMBERS

The Society has two new members, named by the Board of Directors at the November meeting. They are Bruce M. Camlin and Nadine M. Obermiller. Congratulations to both for being recognized as vital members of PGS and the local geological community.

By the way, Bruce retired on December 6th, putting down his rock hammer and picking up some garden tools. From the way some of his friends and relatives described his plot, he will still need the rock hammer.

Board members and GOP editors meet with DCNR Secretary Oliver

PGS board members and GOP editors, Pete Briggs and Dr. Chuck Shultz had lunch with DCNR Secretary John Oliver. Secretary Oliver wanted to express Pennsylvania’s appreciation for the effort and support provided by PGS in completing and publishing the *Geology of Pennsylvania*. He felt that the book, in its second printing, was Pennsylvania’s all time best seller. Secretary Oliver

also expressed that this effort was a model demonstration of cooperation between the State and a private organization.

John Oliver has served as the Secretary of the Department of Conservation and Natural Resources during the Ridge administration and will likely step down when the new administration takes office in January 2003.

GOP now available in the State Bookstore

The *Geology of Pennsylvania* is in its second printing at the State Bookstore for the attractive price of \$23.00 plus postage and handling. The State printed 4000 copies, so you should be able to get a copy if you order within a reasonable time. For reasons, mostly concerning the sheer weight of the book, the Society will not be handling book sales.

It was reported that the book had been seen on EBAY selling for as much as \$125

HAVE YOU PAID YOUR DUES YET?

We’re closing in on the end of the year. That means we are getting close to the time when membership dues for regular (\$20) and student (\$5) members must be paid or your membership will be in arrears. The newsletter-mailing label with 2002 highlighted in pink indicates that you are not paid up (based on our records as of 12/2/02).

POEM OF THE MONTH:

If lowland study is too much work
Climb up and see a glacial cirque,
And never from your search refrain –
You may at least find a moraine.
(By the late German geomorphologist, Julius Büdel)

DID YOU KNOW . . . ?

- A team of Dutch and British scientists has discovered the first known occurrence of *in situ* subduction-related microdiamonds. They occur in a garnet-rich peridotite associated with a major continental plate collision zone in western Norway.
- The Cambrian System in the subsurface of western Pennsylvania consists predominantly of carbonates containing three prominent sandstone units, the basal Potsdam Sandstone,

and the Lower Sandy and Upper Sandy members of the upper Gatesburg Formation.

- The Witwatersrand Basin of South Africa produced over 35 percent of all the gold ever mined in the world.
- Because a global magnetic field requires core convection that releases heat to the mantle, the lack of a magnetic field on Venus might be related to its lack of plate tectonics.
- Scientists studying the results of the Chicxulub bolide impact at the Cretaceous/Tertiary boundary have shown that much of the material expelled high into the atmosphere was hot enough when it fell to deliver about 12.5 kilowatts of energy per square meter.
- Strontium (Sr) resides a long time in seawater, so that $^{87}\text{Sr}/^{86}\text{Sr}$ values in waters of normal marine salinity are uniform worldwide, providing an excellent tool for stratigraphic correlation.
- A new fossil amphibian found in the Catskill Formation at Red Hill in Clinton County, PA, *Densignathus rowei*, helps provide a wonderful view of the Late Devonian when tetrapods first evolved. For more information, check out the Website of the Month below.
- Oil might be the energy source of choice in the developed western countries like the United States, but in many of the poor countries of the world the principal source of energy is still wood.
- The Gates-Adah kimberlite dike intruding Pennsylvanian rocks in Greene and Fayette Counties is porphyritic in texture with phenocrysts of magnesium-rich olivine, phlogopite, titanium-rich ilmenite, magnetite, pyrite garnet, perovskite, and rare apatite in an aphanitic carbonate groundmass.
- A magnetic lineament, such as the Pittsburgh-Washington lineament in southwestern Pennsylvania, indicates the presence of adjacent basement blocks having contrasting magnetic susceptibilities brought into juxtaposition by faulting.

Mike Keeliher at 4590 Dutch Ridge Road, Beaver, PA 15009 or e-mail: keeliher@bellatlantic.net

Please accept our wishes
for a warm and peaceful
Holiday Season



WEBSITE OF THE MONTH:

<http://www.mdgekko.com/devonian>

If you have any information you would like to have included in the PGS Newsletter, please submit it to

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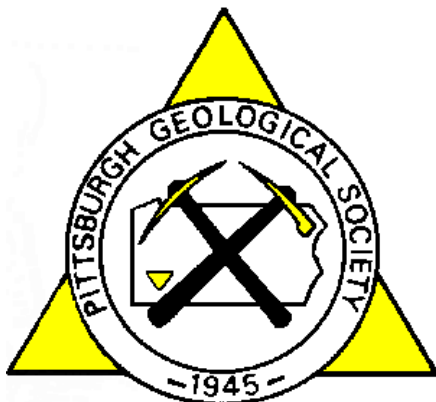
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PGS Newsletter

<http://www.pittsburghgeologicalsociety.org/>

Vol. LV, No.5

Mike Keeliher, Editor

January 2003

Wednesday, January 15, 2002

Social hour - 6:00 p.m.

Dinner - 7:00 p.m.

Program - 8:00 p.m.

Joint meeting with the Association of Engineering Geologists and the Geotechnical Group of the American Society of Civil Engineers.

ENVIRONMENTAL PROCESS FOR PA HIGH-SPEED MAGLEV PROJECT

The Pennsylvania High-speed Maglev Project is a public/private partnership between the Port Authority of Allegheny County, MAGLEV, Inc., and the PA Department of Transportation in cooperation with the Federal Railroad Administration. The project involves environmental clearance for the design and construction of a high-speed magnetic levitation system between the Pittsburgh International Airport in Allegheny County and the City of Greensburg in Westmoreland County. The system includes fixed guideway alignments and MAGport stations where passengers would access the transportation system. MAGport stations are proposed at four general locations: Pittsburgh International Airport, Downtown Pittsburgh, Monroeville area, and Greensburg.

In the fall of 2001, MSM Group, Inc. initiated the Environmental Impact Statement (EIS) for the project. The EIS evaluates alternative alignments and MAGport locations with respect to various categories of impact, including aquatic resources, land use (e.g., agricultural, parks/recreational facilities, unique geological features, hazardous/residual waste sites), wildlife, cultural resources, air quality, noise, and socioeconomic factors along with engineering factors. MSM Group, Inc. is a joint venture partnership between Maguire Group, Skelly and Loy, and McCormick Taylor Associates. Throughout the EIS process, public input is sought through public meetings, meetings with local officials, plans displays, and other methods.

Environmental Assessment Company assisted MSM Group in evaluating land use with respect to potential for hazardous and residual waste sites along alternative alignments and MAGport locations. Along each of the alignments, particularly within the City of Pittsburgh limits, there are numerous commercial and industrial facilities where the potential for past releases of petroleum products or hazardous waste exists. From an environmental and engineering standpoint, the "Gascola Slag Site" located in Penn Hills and Monroeville poses one of the most interesting challenges. At the suggestion of community leaders, this site is under consideration for development into the Thompson Run MAGport station. The Gascola Slag Site is approximately 250 acres owned by the United States Steel Corporation. The site was used for disposal of slag and other steel production wastes from the 1930s through the 1970s. The wastes were placed into old strip mine cuts. A stream, Thompson Run, flows along the eastern side of the property. Currently, slag on a portion of the property is being reclaimed under a mining permit. Similar to other slag disposal sites in the Pittsburgh area, this site is considered to be a suitable candidate for redevelopment under the PA Land Recycling Program.

Dinner will cost \$20.00/person, students \$5.00; checks preferred. Reservations should be phoned in to Steve McGuire at (412) 809-6723 or faxed to (412) 809-6711 or e-mail McGuireS@USFilter.com by **noon Monday, January 13th. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

Pittsburgh Geological Society

About our Speaker

Ms. Duerring is a graduate of the University of Pittsburgh with degrees in geology and chemistry. She has 25 years of experience, including previous employment with the Michael Baker Corporation, Earth Sciences Consultants, and Gulf Oil Research & Development. In 1994, she formed Environmental Assessment Company, which specializes in Phase I Environmental Site Assessments (ESAs) of commercial and industrial properties. The client base includes private and public clients, and typically, services are requested in conjunction with real estate transfers or redevelopment efforts. Transportation projects have included Phase I ESAs of highway corridors, bridge approaches, park and rides, and light rail transit systems. Ms. Duerring is a past President of the Pittsburgh Geological Society, 1993-1994 term.

The Society has two new members, named by the Board of Directors at the November meeting. They are Bruce M. Camlin and Nadine M. Obermiller. Congratulations to both for being recognized as vital members of PGS and the local geological community.

IN MEMORIUM: JESSE L. CRAFT

Jesse Craft, a long-time PGS member and geological icon in the Pittsburgh area, died on December 17, 2002 after a battle with esophageal cancer. He was 72. After getting his PhD at the University of Western Ontario and teaching at Carleton and Brock Universities, Jesse joined the staff of the Pittsburgh office of the Pennsylvania Geological Survey as the Environmental Geologist. Over the next seven years, he established himself as an expert on geologic hazards and as an advocate for homeowners and small businesses affected by landslides and mine subsidence. He also spent time with his avocation, the glacial geology in northwestern Pennsylvania, as well as testing river and terrace gravels for aggregate quality. Upon retiring from the Survey, Jesse taught for a year at Kent State University, then moved on to the US Bureau of Mines in Bruceton. His section eventually became part of the Office of Surface Mining in Green Tree where he spent his remaining professional years. Jesse attained some international standing when Mexico

City was hit with a major earthquake in 1985. He took a team from OSM to Mexico to deploy a down-hole camera in the search for survivors buried beneath collapsed buildings. The efforts of his team helped save many lives, spurring the Mexican government to honor him with an award of National Gratitude. Jesse was an accomplished teacher, an enthusiastic flyer, and was active in dog-show competitions. His family requests that any memorial contributions be made to the American Cancer Society.

LAST CALL FOR REALLY CHEAP PGS PUBLICATIONS

The PGS publications sale is still going strong. All available publications (see list below) are still dirt cheap, and will be on sale through January. You can order copies by contacting John Harper at 412-442-4230 or jharper@state.pa.us. All items must be picked up at the January PGS meeting or by stopping in at the Pittsburgh office of the Pennsylvania Geological Survey on Washington's Landing before Friday, January 31. Books will be mailed during this sale only to out-of-town buyers. You do not have to be a PGS member to take advantage of this sale. **First come-first served.** Currently available publications include:

1. Field Guidebook Of Appalachian Geology (1955) – a 109-page guidebook for a 2-day AAPG field trip through Pennsylvania and New Jersey summarizing the geology of the area. About 100 copies still available at only \$0.50.
2. Tectonics and Cambrian-Ordovician Stratigraphy, Central Appalachians of Pennsylvania (1963) – a 129-page guidebook for a 3-day PGS field trip to look at the Cambro-Ordovician stratigraphy and structural geology of central Pennsylvania. About 100 copies available at only \$0.50.
3. Environmental Geology In The Pittsburgh Area (1971) – a 47-page guidebook for a GSA field trip that illustrates the problems and proposed solutions associated with waste disposal and landfill sites, areas affected by mine subsidence, and road and bridge problems associated with unstable claystone, unstable foundations, and other problems. Still plenty of copies available at only \$0.50.
4. "Lots" Of Danger - Property Buyers Guide To Land Hazards Of Southwestern Pennsylvania

(1977) – an 85-page book for the lay person that discusses mine subsidence, foundation performance, groundwater supply, flooding, waste disposal, landsliding, and other geologic hazards in non-technical language. It is a suitable supplementary text in environmental earth sciences at the undergraduate level. LOTS of copies still available at only \$0.50.

5. Measuring And Predicting Reservoir Heterogeneity In Complex Deposystems: The Late Cambrian Rose Run Sandstone Of Eastern Ohio And Western Pennsylvania (1993) – a comprehensive 257-page report, including global perspectives on Late Cambrian and Early Ordovician plate tectonics, paleogeography, provenance, stratigraphy, structural geology, depositional environments, petrography and petrology of cores and outcrop samples, and case studies of producing fields. Published at \$10.00, for a limited time only \$1.50.
6. Atlas Of Major Appalachian Gas Plays (1996) – a large format (~24 X 36”) 201-page book detailing the stratigraphy, structural geology, reservoir characteristics, production history, and potential future of 30 important natural gas plays ranging from Pennsylvanian to Cambrian in 8 states of the Appalachian basin. Published at \$75.00, for a limited time only \$15.00

HAVE YOU PAID YOUR DUES YET?

If you have not yet renewed your membership in the Pittsburgh Geological Society, you are in arrears. Anyone who has not renewed by the January meeting will be dropped from the membership rolls. If you are receiving the mailed version of the newsletter, your current status is marked on the address label.

DID YOU KNOW . . . ?

- Canadian scientists have dated a series of volcanic and sedimentary rocks from the Inukjuak area on Hudson Bay, northern Quebec, at 3.825 billion years – so far the oldest on record.
- The Casselman River cut a 700-foot gorge through the Negro Mountain, exposing much of the Pennsylvanian System along the Allegheny Highlands Trail in Somerset County, Pennsylvania.
- Scientists are now speculating that iron-

oxidizing bacteria created the Precambrian banded iron formations, found in such places as the Mesabi Range in Minnesota, by precipitating an amorphous iron oxyhydroxide and silica on their bodies.

- British and Canadian geologists examining the geochemistry of the Late Triassic extinction event found that carbon and nitrogen isotopes suggest oceanic stagnation and increased nitrogen-fixing blue-green algae growth, resulting in nutrient-starved conditions in bottom-dwelling organisms.
- Since the construction of flood and navigation control dams on the Allegheny, Monongahela, and Ohio rivers, the movement of coarse sediment (sand and gravel) downstream has decreased dramatically and reduced the availability of a prime local aggregate source.
- Oceanic tectonic plates move toward subduction zones roughly 3½ times faster than continental tectonic plates.
- Worldwide methane hydrate sources have been estimated to contain the methane equivalent of 137.5 trillion barrels of crude oil.
- Uplift of the Allegheny and Ouachita Mountains in equatorial Pangea during the Late Pennsylvanian and Early Permian profoundly disrupted the westerly flow patterns in the atmosphere, creating a rain shadow on the lee side of the mountains.
- Analyses of gneisses and other metamorphic rocks exposed in orogenic middle crust often record temperatures and pressures that indicate a history of heating and burial, followed by decompression.
- The presence of the rare soil mineral berthierine (which only forms in low oxygen conditions) in Late Permian paleosols suggests that the end-Permian extinction may have been due to lack of sufficient oxygen to sustain plant life; without plants, the food chain would break down, and soil erosion and sedimentation would have reduced oxygen concentrations in aquatic environments, leading to mass extinction on both land and in the oceans.

WEBSITE OF THE MONTH:

<http://www.dggs.dnr.state.ak.us/earthquake.html>
(Thanks to Helen Delano).

If you have any information you would like to have included in the PGS Newsletter, please submit it to

Mike Keeliher at 4590 Dutch Ridge Road, Beaver,

PA 15009 or e-mail: keeliher@bellatlantic.net

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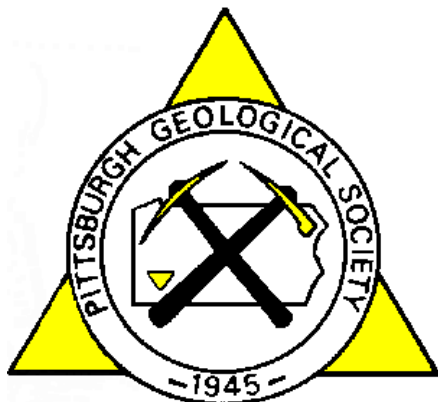
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<http://www.pittsburghgeologicalsociety.org/>

Vol. LV, No.6

Mike Keeliher, Editor

February 2003

Thursday, February 27 2002

Social hour - 5:00 p.m. (cash bar)

Dinner - 6:00 p.m.

Program - 7:00 p.m.

Joint meeting with the Pittsburgh Association of Petroleum Geologists



2002-2003 AAPG Distinguished Lecture

JOHN B. ANDERSON

Rice University
Houston, TX

Funded by the AAPG Foundation through the Haas-Pratt Endowment

Antarctica's Contribution to Eustasy



Antarctica has controlled glacial eustasy throughout most of the Neogene. This talk will provide a review of the evidence for Antarctic glaciation in the Cenozoic and a discussion of the glacial eustatic control on global stratigraphic architecture. The most recent glacial eustatic cycle, which is by far the best documented, is used to understand those factors that regulate ice sheet expansion and decay. In summary, future changes in the volume of the ice sheet and its potential impact on civilization by coastal flooding are discussed.

John B. Anderson

Education:

1968 University of South Alabama; B.S.,
Geology
1970 University of New Mexico; M.S., Geology
1972 Florida State University; Ph.D., Geology

Experience:

1972-75 Hope College, Holland, Michigan; Assistant
Professor
1975-Present Rice University, Houston, Texas:
1992-99, Department Chairman

2002-Present, Maurice Ewing Professor of
Oceanography

Professional Interests and Awards:

1992 GCAGS Outstanding Educator Award
1996 Rice University Graduate Teaching Award
1997 NSF Oversight Panel for Polar Programs
Antarctic Marine Geology - 21 scientific expeditions to
Antarctica/Quaternary Evolution of the Northern Gulf of
Mexico Basin.
AAS-Polar Research Board
Associate Editor for Geology, AGU-Antarctic Research
Series, AAPG, Sedimentology, and Marine Geology

President-elect for the Society for Sedimentary Geology
(SEPM)

Publications:

Authored and co-authored 120 publications and three books.

Memberships:

American Association of Petroleum Geologists
American Geophysical Union
Geological Society of America (Fellow)
Society for Sedimentary Geology

This lecture is being hosted by PAPG at the Radisson in Greentree. If you make a reservation and cannot attend, please cancel prior to the Monday February 24, otherwise you will be billed for the cost of the meal.

All reservations (PAPG as well as PGS) for the Feb meeting be made to Barbara Purks by Monday, February 24 by phone at (412) 787-5403, fax at (412) 787-2906 or e-mail at purks@pittsburgh.oilfield.slb.com Dinner will cost \$25.00/person, \$10.00 for students.

NEW DIGITAL SHADED RELIEF MAP OF OHIO

The Ohio Department of Natural Resources (ODNR), Division of Geological Survey, has made available a new, 1:500,000-scale, digital shaded relief map of Ohio. The full-color, wall-size map depicts the topographic relief of Ohio's landscape using color to represent elevation intervals. The colored topography has been digitally shaded to give the appearance of a three-dimensional surface. Some of the landscape features that can be seen include: the southern boundary of the glaciers; chains of small, irregular hills deposited by the last glacier as it retreated; a portion of the ancient Teays River valley in south-central Ohio; and the former lake levels of Lake Erie. The map is available in two color schemes – one using bold colors to emphasize contrast, and the other using earth-tone hues to create a map that is very natural in appearance. Copies may be ordered (specify "spectral" or "earth-tone coloration" preference) for \$10.00 plus \$3.08 tax and mailing (add \$1.50 for mailing a rolled copy) from ODNR Division of Geological Survey, 4383 Fountain Square Drive, Columbus, OH 43224-1362, telephone: 614-265-6576. A PDF file of the map is available on CD-ROM for \$10.00 plus \$3.08 tax and mailing. Additional digital representations of this data will be released in the near future, including an ESRI ArcGIS grid and standard digital elevation model (DEM) files. Anyone wishing to view these outstanding maps prior to ordering can access a

PDF file from the Survey's web site at <http://www.ohiodnr.com/geosurvey/new/new.htm>.

15-MINUTE TOPO MAPS NOW ONLINE

If anyone has an interest in the old USGS 15-minute topographic map series, the maps can be found online at the following address:

<http://historical.maptech.com/quadlist.cfm?stateabr=PA>

NORTH AMERICAN COALBED METHANE FORUM SPRING SESSION

The North American Coalbed Methane Forum, Inc. will hold its Spring Session on April 15-16, 2003 at the Holiday Inn in Meadow Lands, near Washington, PA. For information please contact Ihor Havryluk at (412) 798-1391 or Dr. Kashi Aminian at (304) 293-7682 ext. 3406.

ORIGINS OF WESTERN PA PLACE

NAMES: Kittanning derives from the Delaware Indian words "kit" meaning great, "hanne" meaning stream, and "ing" meaning at the. Hence, the county seat of Armstrong County means "at the great stream" (the Allegheny River, which the Native Americans recognized as extending from Potter County to the Gulf of Mexico)

Call for Papers Issued for AAPG-SPE 2003 Eastern Meeting

Mike Canich and Paul Dudenas, Technical Program Co-Chairmen for the combined AAPG-SPE meeting to be held in Pittsburgh, September 6-10, 2003, have released the Call for Papers for this historic meeting. Papers are being sought in nine technical areas: Gas Technology and Storage, which could cover storage performance, horizontal well applications, field development and optimization; Coal-Bed Methane, including discussions of resource identification, drilling, completion, stimulation and production; Horizontal Well Technologies, including short- and long-radius techniques and regional applications; Reservoir Characterization, including well testing, core analysis, seismic methods, NMR applications, production logging and coal-bed methane formation evaluation; Case Histories, a key session on field development strategies, pilot projects, projects of regional interest and utilization of 3-D seismic; Stimulation/Production Enhancement, covering formation damage assessment, stimulation treatment design, low-pressure liquids removal and stripper well enhancement; Formation Evaluation, including coring, NMR applications, production logging and new mud logging techniques; Drilling and Completion, including horizontal wellbores, slimhole drilling, coiled tubing applications and air drilling advancements; and Economic Evaluation, including reserve analysis and risk management.

Abstracts are due March 10, 2003, and may be submitted to either AAPG or SPE by paper, by e-mail or by mailing a floppy disk. For more information, go to <http://www.aapg-spe-2003.org>.

Abstracts that are selected for presentation will be printed in the Program and Abstracts volume for the meeting. In addition, abstracts selected by SPE will require that a paper be submitted in advance of the meeting. All papers will be included in the Proceedings volume.

Papers Needed for "Appalachian Case Histories" Session

The Appalachian Region of the Petroleum Technology Transfer Council (PTTC) will co-host the special session on Appalachian Case Histories at the upcoming AAPG-SPE 2003 Eastern Meeting. PTTC decided to do this because of the importance placed on case histories and field studies by participants at our various PTTC Focused Technology Workshops. PTTC's role in this session will be to recruit high-quality case histories from operators. Ideally, talks should integrate both geology and engineering and discuss the successful application of a new or different technology. These technologies could range from a specific field application to reservoir characterization that was used to determine a successful plan of action.

Oil and gas operators in the basin are encouraged to submit appropriate abstracts prior to the March 10 deadline. This session is expected to be the most popular of all sessions at the combined meeting, so a large room capable of seating up to 400 registrants has been reserved. You should want to be part of this session.

Attention Students and Employers! "Student Job Quest" is coming to the Basin

The Steering Committee for the AAPG-SPE 2003 Eastern Meeting has announced that the first ever AAPG-hosted Student Job Quest will be held in conjunction with the September 6-10 meeting in Pittsburgh. This year's event, which will be a slight variation of the highly- successful Student Expos held in Houston and Oklahoma, will be open to all students, both geologists and engineers. Chuck Noll, former AAPG national Secretary, will chair the event.

The Student Job Quest will begin on Saturday night with a reception in the Hilton Hotel for students and potential employers from the oil and gas and environmental industries. On Sunday morning, students who wish to participate can put up posters of their research work in the exhibit area. Industry participants will have adequate time to examine these posters and then schedule

interviews with the students. Each student will be allowed a 4' x 8' poster area.

Students who wish to participate will need to submit abstracts well in advance of the meeting, so they need to begin planning now. These abstracts will be included in the Program and Abstracts volume for the meeting. In addition, all posters will be judged for the best student poster award that is given annually by the AAPG Eastern Section.

Geologists Honor Trenton-Black River Pioneer with Grant Endowment

The Eastern Section of the American Association of Petroleum Geologists (ES-AAPG) has announced that they have established an endowed grant in the AAPG Foundation named in honor of Richard W. (Dick) Beardsley. The new Beardsley Grant will be bestowed annually on a graduate student to support study and research of petroleum, energy minerals and related environmental geology in eastern North America.

Beardsley, of Charleston, West Virginia, was honored in 2001 as AAPG's first recipient of their Outstanding Explorer Award for his discovery and definition of hydrocarbon production from the Lower Paleozoic Trenton-Black River interval, which redefined geologic understanding of the Appalachian basin. Beardsley is credited with locating the discovery wells that kicked off this play in New York and West Virginia.

Beardsley first identified the deep potential of the Appalachian basin in 1974 when he began assimilating data and exploring for gas in units ranging from the Middle Devonian Onondaga reef play down through the Ordovician carbonate section. Redefining and mapping the Middle and Lower Ordovician section of the basin became a life-long project.

In 1989, he was elected Vice President of Geology and Geophysics for Columbia Natural Resources, where he implemented an agenda of exploration and mapping of the Appalachian basin. His prediction of the prolific nature of the Lower Paleozoic rocks was proven by Columbia in the

1990s. He retired from Columbia in March 2001 and became an officer of Triana Energy, where he continues to explore new targets in the Appalachian basin.

The Eastern Section founded the Richard W. Beardsley Grant with a \$5500 contribution, which hopefully will be matched by societies affiliated with the Eastern Section. However, individuals and companies also can contribute to this fund through the AAPG Foundation, a 501(c)(3) public foundation which is qualified to receive tax-free contributions in support of worthwhile educational and scientific programs or projects related to the geosciences. Individuals, companies and geological societies who are interested in contributing may do so through the AAPG Foundation, Beardsley Grant, P.O. Box 979, Tulsa, OK 74101.

First consideration for receipt of the grant will be given to a deserving geoscience graduate student whose thesis or dissertation is related to petroleum exploration in the region of the Eastern Section of AAPG (Appalachian, Illinois and Michigan basins). If no qualified applicant is nominated under these criteria, consideration will be given to any deserving geoscience student enrolled in a college or university, public or private, located within the geographic boundaries of the Eastern Section, which includes the eastern Canadian provinces.

The grant will be awarded for the first time in the Spring of 2003.

For further information on how to contribute or how to nominate a student for this award, contact Pete McKenzie, petemack@earthlink.net, or 614-781-3271. PTTC thanks Pete McKenzie for contributing the information for this article.

DID YOU KNOW . . . ?

- Our polar regions contain almost 1/5 of the earth's land area, 2/3 of its fresh water and nearly of its ice.
- A team of British and American paleontologists has identified the world's first complete protein sequence from fossils. The

molecular information came from 55K year old bison bones found in the permafrost in Alaska and Siberia. Next up: Jurassic Park.

- English Heritage Ancient Monuments Laboratory has confirmed that approximately 4.7 tons of white limestone forming the backfill in the bottom half of the Heelstone Ditch at Stonehenge is Early Carboniferous (Tournasian) High Tor Limestone from South Wales (local bedrock at Stonehenge is Late Cretaceous white chalk).
- The early days of oil in Pennsylvania found towns with names as absurd as anything from tales of the old west - towns with names like Short Stop, Standoff City, Alamagoozleum, Calaboose Run, Pithole, Red Hot, Tip Top, Fagundus, Dead Beat, Strychnine, and Two Thieves.
- The Atlantic Ocean encompasses 29.6 million square miles of the earth's surface, including the Baltic Sea, Black Sea, Caribbean Sea, Davis Strait, Denmark Strait, part of the Drake Passage, Gulf of Mexico, Mediterranean Sea, North Sea, Norwegian Sea, almost all of the Scotia Sea, and other tributary water bodies
- Before the Civil War, chromite was used mainly for paint pigment; most of the world's supply at that time came from serpentinite deposits in Lancaster County where one mine alone produced more than 96,000 tons.
- During 2000, the US extracted 4.1 billion cubic feet of helium from natural gas produced in Colorado, Kansas, Oklahoma, Texas, Utah, and Wyoming. The USGS estimates 212 billion cubic feet of nitrogen remain in reserves.
- Monazite, a rare igneous mineral present in granite, occurs in West Virginia coals as sub-micron-size detrital grains – it was probably introduced into the Pennsylvanian coal swamps as dust or volcanic ash. Recent work on the reasons whales beach themselves seems to point toward the use of high-energy sound waves in both military exercises sonar and seismic surveying.
- While Dinosaur National Monument is losing paleontologists, John Day Fossil Beds National Monument in Kimberly, OR is maintaining an

active paleontology program with four full-time permanent paleontology positions.

- Rockslides occur commonly in western Pennsylvania where dipping rock layers contain interbedded sandstones and shales or claystones, or where construction activity cuts steep slopes into such interbedded layers.
- Chinese and American researchers report that a mass of warm water associated with El Niño could be affecting the Earth's rotation rate, thereby altering the length of days.

WEBSITE OF THE MONTH:

<http://www.coolantarctica.com>

Student Night at PGS

The PGS, in association with AEG and ASCE will host a student night, on April 16, 2000. Three students selected by committee will present three, 20-minute papers on thesis topics. Other students are invited to attend and bring poster boards exhibiting their research.

“How old would you be if you didn't know how old you were?” *Satchel Paige*

If you have any information you would like to have included in the PGS Newsletter, please submit it to Mike Keeliher at 4590 Dutch Ridge Road, Beaver, PA 15009 or e-mail: keeliher@bellatlantic.net

We are brought down low when we learn that in the midst of concerns with strife and comfort, we have lost sight of and then lost our best and most giving. God speed, Astronauts.

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PGS Newsletter

<http://www.pittsburghgeologicalsociety.org/>

Vol. LV, No7

Mike Keeliher, Editor

March 2003

Social hour - 6:00 p.m.

Wednesday, March 19 2003

Dinner - 7:00 p.m.

Program - 8:00 p.m.

MONITORING, ASSESSMENT AND MITIGATION OF VOLCANIC HAZARDS USING DATA FROM SPACE AND THE FIELD

Michael S. Ramsey

Department of Geology and Planetary Science

University of Pittsburgh, Pittsburgh, PA, 15260, 412-624-8772, ramsey@ivis.eps.pitt.edu

The primary goal of most volcanologists is to mitigate the risks to the estimated 500 million people living in direct reach of volcanic activity. Working toward this goal while advancing the science of volcanology, researchers commonly travel to these dangerous volcanoes in order to perform critical field-based research. The need for such research becomes increasingly important with growing global populations and contracting science budgets. This research also brings with it an inordinately high level of risk. Although it is probably self-evident, these risks to researchers are staggering among the modern scientific disciplines. Certainly no other natural hazards are as dangerous to study -- astronomers, meteorologists, oceanographers, for example, are hardly ever in any significant work-related danger in quest of data.

One method that limits the risk is remote sensing, which is being used extensively to gather previously unavailable data at volcanoes. However, it becomes far too easy to use this tool ubiquitously without proper ground calibration. And lacking an accurate understanding of the processes ongoing at an active volcano, remote sensing scientists commonly are wrong in their assessments. The focus of this presentation is to provide a synoptic look at volcanology from the ground and from space assessing the dangers, drawbacks, and benefits of each data collection methodology. In particular, data from the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) instrument is being used to monitor approximately 1500 active volcanoes. Two volcanic eruptions have been examined in detail in the two years that ASTER has been operational: Bezymianny Volcano, Russia (2000-2001) and Soufriere Hills Volcano, Montserrat (2001-2002). The data sets highlight both the eruptive and non-eruptive thermal states of these volcanoes. Pre-, syn-, and post-eruption ASTER images were acquired and permitted the mapping of lava flow areal extent and estimates of thermal flux. Field campaigns are planned to both volcanoes this summer in order to validate the ASTER data and map the new eruptive deposits.

Dinner will cost \$20.00/person, students \$5.00; checks preferred. Reservations should be phoned in to Steve McGuire at (412) 809-6723 or faxed to (412) 809-6711 or e-mail McGuireS@USFilter.com by **noon Monday, March 17, 2003. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

Pittsburgh Geological Society

About our Speaker

Dr. Ramsey is currently an Assistant Professor within the Department of Geology and Planetary Science at the University of Pittsburgh. Dr. Ramsey earned his Ph.D. at Arizona State University and while there formed the Geological Remote Sensing Laboratory (GRSL). The lab was focused on earth-based remote sensing and performed numerous projects for university, state and nationally funded programs. Re Ramsey was also named an associate science team member of the NASA Advanced Spaceborne Thermal Emission and Reflectance Radiometer (ASTER) instrument and has full access to the new data being acquired daily for locations throughout the world. In addition he is co-coordinator of the Urban Environmental Monitoring, Global Volcanism, and Arid Land Monitoring ASTER global objectives. At the University of Pittsburgh, he formed the Image Visualization and Infrared Spectroscopy (IVIS) Laboratory, designed to operate as a state of the art image analysis, infrared spectroscopy and GPS lab, and will coordinate and store imagery for the aforementioned ASTER programs. He is co-director the new professional M.Sc. degree program in Geographical Information Systems (GIS) and Remote Sensing (RS) funded by the Sloan Foundation.

Searching for PGS Boardmembers

PGS will be voting in a new slate of board members and directors in May. Anyone interested in volunteering his or her time and effort may contact Ray Follador, Nominating and Elections Chairman or any board member. Requirements include an interest in geology, regular attendance at board meetings and some energy you need to dissipate.

PGS Spring Field Trip

This year the Society is sponsoring an overnight field trip to West Virginia to look at igneous rocks. The trip will begin on Friday, April 25th. The group will return on Saturday, April 26th. Please submit your reservations early so planners can

provide adequate transportation and motel arrangements. Overnight accommodations are expected to run less than \$40.00 per person. Details will follow in the next newsletter.

OIL AND GAS RESERVES ARE NOT REAL ESTATE

Pennsylvania's oil and gas industry has had its hands full for many years fighting counties that taxed reserves of oil and natural gas. In the late 1970s, several counties looking for new tax revenues began taxing oil and gas still in the ground. Pennsylvania does not allow taxation of produced oil and gas – there is no legal basis for a severance tax anywhere in the state. Counties got around the severance tax issue by taxing not-yet-produced oil and gas as a form of real estate. The Independent Oil and Gas Association of Pennsylvania (IOGA-PA) recently took Fayette County to the State Supreme Court to settle the issue. As a result, the State Supreme Court has ruled that there is no legislative authority to impose real estate taxes on oil and gas reserves.

ORIGINS OF WESTERN PA PLACE NAMES:

The name Connoquenessing, which is a town and creek in Butler County, and a Lower Pennsylvanian sandstone and formation, derives from the Native American Gunachquenesink. This word means “for a long way straight”.

DID YOU KNOW . . . ?

- Based on oxygen isotope data from a 4.4-billion year old zircon grain from Australia, it now appears that liquid water, and possibly early life, might have been present on earth hundreds of millions of years earlier than originally thought.
- Agglutinating foraminiferans, those microscopic one-celled animals that create shells by cementing sand grains together, have been helpful in providing information on the petrologic evolution of underwater volcanoes by incorporating glass fragments in their shells.
- The global stratotype section for the Mississippian/Pennsylvanian boundary is . . . no, it's not in southern West Virginia, but in Arrow Canyon, Nevada!!!

- Researchers from the University of Arkansas have found evidence for the surface expression of a fault associated with the New Madrid area in the Mississippi River embayment, the first definitely recognized in that area.
- The Late Paleozoic ice age lasted nearly 100 million years, from Middle Mississippian to Permian – undoubtedly one of the most severe in geologic history.
- Hummocky cross-stratification, an important sedimentary structure formed on the shoreface and shelf by waves, characterizes wave dominated sedimentary rock facies.
- Carbon isotope ratios in marine rocks have been shown to vary in response to geological events – if an event corresponds to a high proportion of organic carbon relative to carbonate, ^{13}C will be enriched in the carbonates (and vice versa).
- The oxidation and hydrolysis of pyrite in aqueous systems is a complex biogeochemical process involving several oxidation-reduction reactions and microbial catalysis.
- Sediment size in river beds becomes finer grained downstream because of a combination of grain erosion and the transportation and deposition of size-selected sediment grains.
- Because sediment-hosted ore deposits are a common feature of ancient rift basins, it has been proposed that these deposits are associated with the evolution of paleo-groundwater flow systems within extensional settings.
- Geochemists and planetary scientists have long used the soils and climatic conditions found in the Dry Valleys of Antarctica as analogs for chemical weathering conditions on Mars.

WEBSITE OF THE MONTH:

<http://mars.jpl.nasa.gov/mgs/>

Proposed Federal Funding for 2004

In the Bush Administration's proposed 2004 budget sent to Congress, there are 29 line-items having to do with science research. All increased except for four lines each of which decreased 1%. These four are the only ones having to do with geology or the environment. They are DOE

The PGS Board:

President: Judy Neelan

V. President: Mike Bikerman

(biol./environmental), NASA (earth science), EPA, and USGS.

Course on Landslide Recognition

Jim Hamel is offering a course on landslide recognition on March 22, at Foster Plaza Building 10. Registration includes continental breakfast, course notes, coffee break, box lunch, afternoon refreshments, and field trip transportation.

Western Pennsylvania has long been known for its landslide activity. This results from the geology and geologic history of the area. Flat lying, interbedded, strong and weak sedimentary rocks have been acted upon by erosion, stress relief, weathering, creep and sliding processes to produce masses of marginally stable colluvial soil and rock on many of the steep hillsides in the area.

The purpose for this seminar is to provide the basics for landslide identification and recognition, both in the classroom and by field visits to sites where significant landslides have occurred. The classroom session will be held in the morning. The field trip will be in the afternoon.

For additional information, contact Terry Downs:

Phone: 412-922-5575

Fax: 412-922-3717

Email: [tdowns@gfnet.com](mailto:t downs@gfnet.com)

Improving the PGS Web Page

Our communications committee is meeting weekly and tweaking our web page. The page offers links to our sponsors, upcoming lectures, and links to related websites. Take advantage of our "Contact Us" button and give us your suggestions and comments. E-mails to board members can be forwarded.

If you have any information you would like to have included in the PGS Newsletter, please submit it to Mike Keeliher at 4590 Dutch Ridge Road, Beaver, PA 15009 or e-mail: keeliher@bellatlantic.net

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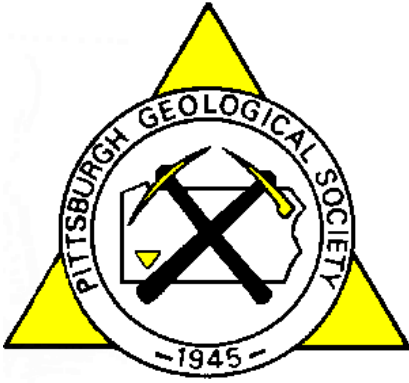
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PGS Newsletter

<http://www.pittsburghgeologicalsociety.org/>

Vol. LV, No8

Mike Keeliher, Editor

April 2003

Wednesday, April 16, 2003

Social hour - 6:00 p.m.

Dinner - 7:00 p.m.

Program - 8:00 p.m.

SPECIAL STUDENT PRESENTATION NIGHT

In February, Wendell Barner, (PGS), Brian Greene, (AEG-PGS-ASCE-Geotech), Paul Hale, Matt Morris (AEG), and Andy Rose (ASCE-Geotech) reviewed papers submitted by students and selected three for 20-minute presentations.

PGS Selection:

Evolution of Entrainment Mechanisms Producing the Debris Tails Associated with Translating Supraglacial Clasts, Matanuska Glacier, Alaska

Danielle Fishel, Environmental Science, Slippery Rock University

This Research was sponsored by the National Science Foundation at the Matanuska Glacier, Alaska, where two previous studies were conducted at a REU field site to investigate translation of supraglacial clasts. While insights were developed regarding clast rotation and translation phenomena, the development of fine to medium grained debris tails behind translating clasts remained enigmatic. Translation of clasts across the ice surface occurred in a southwesterly direction near the Matanuska's terminus at a rate of 5cm/d. The clast movement resulted from ice pedestals melting preferentially on the sunny side (SW), tilting the pedestal, and triggering clast slippage when oversteepened beyond the angle of repose. Translating clasts are associated with a concentrated linear pile of sediment, referred to as debris tails, which trace past locations. Multiple working hypotheses were designed to evaluate the source of sediment within these debris tails. Three potential entrainment mechanisms include (1) incorporation of up-ice sediment by sheet wash, (2) in-situ production of debris by spallation of the cobble or boulder, or (3) debris incorporation by clast over-ride. Experimental plots were designed to test for each proposed source. Three weeks of observations and measurements were completed, demonstrating the genesis of debris tails by incorporation from sheet wash and clast over-ride was demonstrated. Nine debris tails revealed over-ride, while three displayed entrainment by sheet wash. No evidence for spallation was observed. The significance of this study lies in the realization that multiple supraglacial processes constitute the formation of debris tails behind translating supraglacial clasts.

Dinner will cost \$20.00/person, students \$5.00; checks preferred. Reservations should be phoned in to Steve McGuire at (412) 809-6723 or faxed to (412) 809-6711 or e-mail McGuireS@USFilter.com by **noon Monday, March 17, 2003. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

AEG Selection

Utilizing Airborne Thermal Infrared and Helicopter Electromagnetics to Delimit Abandoned Mine Drainage and Abandoned Mine Pools in North Central Pennsylvania.

Erica I. Love, University of Pittsburgh

The U.S. Department of Energy's National Energy Technology Laboratory has utilized airborne thermal infrared (TIR) to locate abandoned mine discharges (AMD), and helicopter-mounted electromagnetic (HEM) surveys to delineate conductive mine pools, groundwater plumes, discharges, and recharge zones in the Kettle Creek Watershed, Clinton County, Pennsylvania. This area contains abandoned surface and underground coal mines that are over 100 years old. TIR in conjunction with geographic information systems (GIS) was used to focus our efforts on 114 potential groundwater discharges, which were ground-truthed to determine the source of the thermal anomaly. Anomalies found in the field reconnaissance included spring fed ponds, freshwater springs, houses, and 64 AMD sites were located using a hand held portable GIS and GPS receiver combination. Of the 64 sites, approximately 29 sites could be correlated with previously documented sites and 35 discharges were previously undocumented based on data provided by Pennsylvania Department of Environmental Protection. Seven documented sites were not visible in the TIR due to shielding by dense non-deciduous vegetation (conifers and mountain laurel). HEM was then used to delineate approximately 11 source areas and multiple flow paths for the metal-rich/conductive AMD. The HEM survey also accurately located acid-generating mine spoils at surface mines, as well as areas of groundwater recharge and discharge. Ground-based and down-hole surveys are planned to verify the findings of the HEM processing. This information will aid remediation by focusing expensive ground surveys on discrete areas.

ASCE-Geotech Selection

Geotechnical aspects of an iron ore pellet stockpiling system with 150,000 tons of open storage Stacey Tucek, University of Pittsburgh

The objective of the Capstone Senior Design Project in the University of Pittsburgh's Department of Civil and Environmental Engineering is to provide students with an opportunity to demonstrate their mastery of design skills by functioning as part of a multi-discipline team executing a significant "near real world" design project. Teams typically include Construction Management students as leaders and technical specialists (Structures, Geotechnical, Transportation, Water Resources and Environmental) performing design work.

One of the projects this term has major geotechnical content. Emeritus Professor Dr. Karl Lewis has taken information from a number of actual projects and conceived a hypothetical project – the design of an iron ore pellet stockpiling system with 150,000 tons of open storage. A traveling tripper on an overhead conveyor accomplishes stockpiling; tunnel reclaiming by rotary plows. Major geotechnical considerations include differential settlement of the stockpiled material, subsurface stability, and design of foundations.

The team is lead by Construction Manager student Gary Lloyd, with Geotechnical students Stacey Tucek and Scott Fazzone and Structures students Mike Riling and Brandon Walker performing the required design work. Their work product includes a conceptual design of the facility, a budget level estimate of its cost and a tentative construction schedule. This paper is a summary of the geotechnical aspects of the project – general approach, evaluation of soil borings, and the necessary design

The following students will present poster sessions during the social hour

Magnetic Susceptibility and Radiocarbon Dating of Paleosols to Attempt Correlation of Sod Tables Bradley Erney Slippery Rock University

Research was conducted in the White River Badlands to categorize geomorphic sequences of sod tables that we believe are vestiges of colluvial/alluvial fans eroded from Tertiary 'castles'. Stratigraphic techniques, including magnetic susceptibility and radiocarbon dating of paleosols in Quaternary deposits are being used to attempt correlation. We undertook these tasks with field work in May 2002 and subsequent lab analyses. Magnetic susceptibility was used for identification of distinctive paleosols for radiocarbon dating. We intend to test if paleosols can be used as marker beds for correlation among sod tables. Ultimately, classification of sod tables is envisioned to be useful for paleoclimatic reconstruction for the region, as they represent transitions between episodes of net aggradation vs. degradation of fans.

Strontium Isotope Ratios as Tracers of Water Movement in a Grouted Mine Barbara Hamel, Ann G. Kim and Brian W. Stewart, University of Pittsburgh

Acid Mine Drainage continues to discharge from the formerly grouted Omega coal mine near Morgantown, West Virginia. It was originally grouted to prevent subsidence, the oxidation of pyrite, and to neutralize any remaining AMD. Strontium isotope ratios are being utilized in a study that is attempting to determine the source of the discharge and the effectiveness of the grouting procedure.

PGS is Taking Reservations for our Spring Field Trip.

Join us on a overnight trip to view Eocene intrusives in West Virginia/Virginia
Topic: The Eocene intrusives in West Virginia and Virginia as discussed in the September PGS meeting along with other scenic wonders of Pendleton and Highland counties (i.e. Seneca Rocks?). West Virginia's Eocene igneous rocks range in composition from basaltic to rhyolitic and have fine-grained textures.

Leaders: Kathy Lee Avery, WV Geological and Economic Survey et al.

Where: Monterey, Virginia and surrounding area in West Virginia.

When: The PGS Spring Field Trip will take place April 25th through April 26th. Leave Pittsburgh on late Friday afternoon. The trip will end Saturday late afternoon and we will drive home Saturday evening

Where to Stay: Montvallee Motel (tel. 540/468-2500), room rates range from \$31.50/night for a single with one bed to \$40-something for a room with 2 double beds for 4 people, 15 rooms, very reasonably priced and not fancy (i.e. no phones in rooms, a couple of rooms with b&w tv's) and very friendly to wet, muddy geologists. Participants

should make their own reservations.

Cost: Costs to be determined, but students will probably be \$5-10, as in the past.

Start Point: Monterey, Virginia

Transportation: We are considering renting vans and driving down as a group to avoid a lot of vehicles at the stops. Anyone driving their own cars will have to leave their vehicle at the motel during the field trip. Once we see how many people commit to the trip, we will know for sure. Please contact us ASAP if you want to come.

Contact: Mary McGuire, Judy Neelan, or Wendell Barner.

Food: We will have Friday dinner and Saturday breakfast at one of the local restaurants in Montvallee. PGS will provide lunch foods for a make-your-own lunch on Saturday. We'll stop for dinner on the drive back to Pgh. Participants will buy their own dinners and breakfast.

Boardmembers Wanted, preferably alive.

Every year the society needs new boardmembers to take the place of those that are leaving. Our updated Constitution provides for term limits for boardmembers and officers. A slate of interested members is drawn up in April and published in the

May newsletter. The election is held at the May meeting. Members can mail in their ballots or bring them to the meetings. Duties and responsibilities are handed from the outgoing crowd to the incoming crowd during the “crossover” meeting, usually held in June.

In the past, boardmembers have published books and pamphlets, participated in educational programs, and served on committees. Our newest committee services our website.

Officers provide for meetings and field trips, keep our books, our minutes and preside over meetings.

USGS, CANADA, AND MEXICO RELEASE MAGNETIC ANOMALY MAP OF North America

North American Magnetic Anomaly Group has issued a new magnetic anomaly map of North America. The group is a consortium of the US Geological Survey, Geological Survey of Canada and Consejo de Recursos Minerales de Mexico. The map is an integrated, readily accessible, modern digital database of magnetic anomaly data that can be used for evaluation of the structure, geologic processes, and tectonic evolution of the continent. The group created three unique, gridded data sets to make the map. Details on the data processing and compilation procedures are described in an accompanying booklet. The first grid shows the magnetic field at 1,000 m. above terrain. For the second grid (used for the published map) the group removed long-wavelength anomalies (500 km and greater) from the first grid. The third grid uses an equivalent source method to correct for spurious shifts in the original magnetic anomaly grid. To download a copy of the map and booklet, go to http://pubs.usgs.gov/sm/mag_map/ and click on the PDF files. To order a printed copy, call 1-888-ASK-USGS.

ORIGINS OF WESTERN PA PLACE

NAMES: The name Youghiogheny (as in Youghiogheny River) derives from the Delaware Indian words “juh,” “wiah,” and “hanne” meaning

a stream flowing in a contrary direction (i.e. a winding stream). That’s a good description of Pennsylvania’s best white-water river.

DID YOU KNOW . . . ?

- Magnetic fabric in geological materials such as sediment is extremely sensitive to strain, so some geologists are using these fabrics to detect subtle deformation of sediments. It also helps to distinguish between geomagnetic and deformational features.
- There are many lines of evidence indicating that water from subducted oceanic crust and sediment has an important role in the generation of magmas in the mantle wedge above the subduction zones.
- The Hawaiian Islands resulted from the Pacific tectonic plate moving northward over a stationary hot spot in the mantle, creating a chain of seamounts and volcanic islands (including Hawaii) stretching 2,000 miles across the Pacific ocean.
- Numerical modeling of isostatic events suggests that lithospheric bending as a result of glaciation is a major source of lateral stress variations within the earth’s crust.
- Geological carbon sequestration, an issue currently generating a lot of attention, involves removing carbon dioxide from industrial smokestacks and injecting it into subsurface reservoirs where it can be used to enhance oil recovery.
- Mantle helium in continental environments is generally considered to be the result of active volcanism or active extension, but other factors might also cause helium to occur.
- Astronomers have found that Io, one of the larger moons of Jupiter, has salt (NaCl) in its atmosphere, leading to speculation that the moon’s volcanoes are actively spewing salt.
- The Sevier fold-thrust belt in Utah is one of the most important thrust belts in the world because it has been the source of many general

principles of thrust belt geology.

- Steps or jogs in basement strike-slip fault zones typically produce rhombic-shaped pull-apart basins in the overlying sedimentary section that may have significant hydrocarbon potential.
- Marine geologists at Tongji University in Shanghai have found a negative shift in $\delta^{13}\text{C}$ that preceded a large-amplitude $\delta^{18}\text{O}$ event coincident with a major ice-sheet expansion about 430 thousand years ago (Middle Pleistocene). They suggest such changes in oceanic carbon could be a useful index for the onset of global ice formation.
- Because topography is influenced by the underlying strata, a hill composed of shale with a sandstone cap will have moderately steep slopes and a broad flat top. In contrast, a sandstone hill would be steep and rugged, and a shale hill would have gentle slopes and a rounded outline.
- The common Pennsylvanian plant fossils called *Calamites* are the remains of arborescent plants that grew as much as 100 feet high. Their extant relatives are the tiny (usually less than one foot high) scouring rushes, or horsetails, that you can find growing along the sides of highways of western Pennsylvania.

Our website is presently posting two positions, one for an environmental geologist with Shield Environmental and a one or more positions as a test boring inspector for PENDOT related geotechnical investigations with American Geotechnical and Environmental Services, Inc. (AGES). Please log onto our website for additional details.

Distinguished Lecturer at Pitt

The University of Pittsburgh Department of Planetary Science presents GSA's Birdsall-Driess Distinguished Lecturer, Professor Jean Bahr, University of Wisconsin who will speak on "Geochemical Heterogeneity of Groundwater in Contaminated and Uncontaminated Aquifers. The Lecture will be given Monday, April 7th at 4 PM at 102 Thaw Hall, 4107 O'Hara Street in Pittsburgh.

WEBSITE OF THE MONTH:

<http://wrgis.wr.usgs.gov/docs/parks/cave/>

"Just take the ball and throw it where you want.
Throw strikes. Home plate don't move.

Satchel Page

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PGS Newsletter

<http://www.pittsburghgeologicalsociety.org/>

Vol. LV, No9

Mike Keeliher, Editor

May 2003

Social hour - 6:00 p.m.

Wednesday, May 21, 2003

Dinner - 7:00 p.m.

Program - 8:00 p.m.

IN THE WAKE OF THE FLOOD: RURAL LAND-USE LESSONS IN THE CENTRAL APPALACHIANS

by

Patricia Miller, Ph.D., West Virginia University Extension Service

Record floods in July 2001 and May 2002 devastated several counties in southern West Virginia. Despite the many tragic consequences of these disasters, several flood recovery programs offer opportunities for reviving communities that have long wrestled with unemployment, poverty, and limited opportunities for economic development.

Coal mining and logging historically have dominated the local economy in this rugged, geographically isolated terrain, and residential settlement is concentrated in steep, narrow valleys with minimal floodplains. In recent decades, many mining companies have drastically reduced their workforce or left the area altogether, leaving limited resources for maintaining infrastructure, housing, and community services in former company towns.

In McDowell County, an Extension Service Disaster Education (EDEN) program for private water wells and septic systems has become inseparable from a web of other land use and economic development issues. To best target funds for infrastructure repair and development, an innovative rural facilities plan is closely linked with an understanding of the nature, distribution, and causes of flooding. Geographic Information Systems mapping provides an essential tool for prioritizing areas of greatest infrastructure needs and minimal geologic hazards.

Flood mitigation programs expand opportunities for tourism and recreational development in the valleys and rebuilding of communities in areas outside the floodplains and closer to transportation corridors. Construction is underway on a regional recreational trail system, and funding and planning have commenced for a Coal Heritage highway. However, the benefits of mitigation programs must be balanced with a new set of environmental concerns for development on ridge tops and valley fills: exacerbating already severe runoff; geomorphic and hydrologic stability of valley fills; restricting and contaminating recharge of high quality groundwater used for drinking water and targeted for bottled water and aquaculture enterprises. Several housing coalitions are working to utilize "green" building and landscaping practices for new low-income housing communities, to demonstrate environmentally sound development as an essential part of county revitalization.

These programs illustrate the importance of examining human activities as integral parts of the environmental balance, in making sustainable land use decisions for rural Appalachian communities.

Dinner will cost \$20.00/person, students \$5.00; checks preferred. Reservations should be phoned in to Steve McGuire at (412) 809-6723 or faxed to (412) 809-6711 or e-mail McGuireS@USFilter.com by **noon Monday, May 19, 2003. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

About our Speaker

Patricia Miller was born in southwestern Pennsylvania. She received a B.S. (geology/math) from Tulane University, an M.S. (mineralogy) from Ohio State University, and a Ph.D. (environmental sciences) from the University of Texas at Dallas. She has more than 15 years' experience in private sector (metals mining, geothermal, oil & gas, water quality) and academia (hydrology, hydrogeology, mineralogy).

Dr. Miller directed outreach, education, and technical programs at the National Small Flows Clearinghouse and the National Onsite Demonstration Project; onsite wastewater and private water well programs at the Virginia Dept. of Health; and TMDL/nonpoint water quality programs at the Virginia Dept. of Conservation and Recreation.

In 2000, Dr. Miller joined WVU Extension Service, as Assistant Professor and Extension Specialist in Agricultural and Rural Environmental Health. She recently received funding for a multi-year assessment and remediation of bacterial contamination of the Lower Mud River watershed in Lincoln County, West Virginia.

In Memoriam: Edith I. Baum

We recently discovered that PGS Charter and Honorary Member Edith Baum died on Wednesday, November 21, 2001. We missed the obituary and mail sent to her address did not start coming back until a year later. Edith began her association with PGS as an associate member. She was a champion speed skater, enjoyed whitewater rafting, and loved to spend time at the Sylvan Canoe Club in Verona. Our deepest sympathy belatedly goes out to her family.

64th Pittsburgh Regional Science and Engineering Fair April 4, 2003

PGS-PCPG Award Winner

The PGS-PCPG judging panel for the 64th Pittsburgh Regional Science and Engineering Fair

was Wendell Barner (Shaw Environmental), Thomas Beatty (ACA Engineering) and Steve McGuire (USFilter/Chester Engineers). As usual, the judging panel had fun and enjoyed the afternoon off from more pressing matters.

We made our way through a number of interesting projects, some of which weren't related to geoscience or engineering, but we enjoyed the distraction and talking with the students. But getting back on track, the judges focuses on the task at hand and found many water quality related projects to choose from. Most of these projects came from the high school students. Some of the more note worthy projects that made our first cut ranged from looking at acid/abandoned mine drainage (AMD) and the impacts on the creeks and potential remedies, another student looked at how algae may be used to remediate AMD, which looked promising. And another student, at the encouragement of his dad (a geologist) looked at ways to monitor underground storage tank leaks.

In the intermediate division, one student gave us an incredible 15-minute presentation on analyzing chlorine and pH levels above and below the ALCOSANs plant. And one of our favorites (and runner up) was a high school student (whose parents own and operate a funeral home) who looked at the weathering rates of different types of granites (used for monuments) and which ones he would promote to his future customers based on his findings. The title of his project was "*A Grave Mistake.*" He almost won our award, but he could not explain the different types of mineralogy and how that might affect the rates of weathering.

And our winner this year is Miss Samantha Matta from South Allegheny High School whose project was titled "*Mr. Sandman.*" Her project was to recreate the formation of sandstone. Her hypothesis: "It is thought that when smaller grains are poured, less defined layers are made. The opposite is expected from larger grains." Pouring a sugar/sand mixture into a viewing apparatus consisting of Plexiglas shows this. Her hypothesis was proven to be correct. Different sands used consisting of masonry sand, which is fine-grained sand did not develop distinguished layers and concrete sand, which is coarser, made very

distinguished layers. Miss Matta also used sand from Deep Creek in MD, Virginia Beach and the Florida Keys to help support her hypothesis. She also suggested that besides grain size, the degree of roundness and mineralogy could influence the layering of sand. She also indicated that her study could be useful in archaeology, understanding how the ground is formed, and could be used in construction projects by determining stronger and more reliable materials to build on. Samantha's science teacher is Dr. Skraly.

PGS Membership Directory

The PGS Membership Directory has been issued on line in Adobe Acrobat Format. If you do not have access to a computer, please get in touch with any of the boardmembers if you want a copy. We will arrange for a limited printing.

Field Trip Revisited

For those of you that missed last month's field trip, it was obviously so good it is being recycled for the VW Geological Field Conference.

GEOLOGIC CURIOSITIES IN THE APPALACHIANS OF HIGHLAND COUNTY, VIRGINIA AND PENDLETON COUNTY, WEST VIRGINIA

For the first time in conference history, the Virginia Geological Field Conference will include stops across the state line into West Virginia. The trip will take in geologic curiosities in Highland and Pendleton counties, including igneous intrusive rocks that are unique to this part of the Appalachians, a large ancient landslide, and outcrops that demonstrate the structural history of the Hightown/Wills Mountain Anticline.

The conference will be headquartered at a motel (to be announced) in Staunton, Virginia and there will be an informal pre-trip smoker at the motel on Friday evening, October 24th, at 7:30 pm. The one-day field trip will leave the motel in vans Saturday morning, October 25th, at 8 am and return to the motel at the end of the day. Lunch will be provided along with a guidebook.

Field trip leaders are: Lee Avary, Dave Matchen,

Ron McDowell, West Virginia Geological and Economic Survey, Jon Tso, Radford University and Gerry Wilkes, Virginia Division of Mineral Resources

Registration materials and more information for the conference will be mailed at a later date. If you would like to be added to the mailing list, contact David Spears (434-951-6361 or dspears@geology.state.va.us).

Pa Survey Issues New Park Guide

The Pennsylvania Geological Survey has issued a new park guide for both Moraine and McConnells Mill State Parks. This well-illustrated, 13-page booklet replaces the older single-page, gate-fold guides to the individual parks. Authored by Gary Fleegeer of the Survey with PGS Honorary Members Kent Bushnell and Don Watson, the booklet explains the bedrock and glacial geology and geomorphology of the parks in layman's terms, and includes a short discussion of the iron, limestone, petroleum, and coal resources of the area. A map of the parks and the surrounding regions of Butler and Lawrence Counties shows the locations of numerous points of interest that are discussed in the booklet. Copies of this free booklet can be obtained from the park offices or from the Pennsylvania Geological Survey offices in Pittsburgh and Middletown. To request a copy, call 412-442-4235 or stop in at the Survey office on Washingtons Landing.

Origins Of Western Pa Place Names

In 1749, when Celeron de Blainville came through western Pennsylvania in his mission to claim much of eastern North America for King Louis XV of France, he was impressed by the most beautiful creek he had yet seen on the Allegheny and Ohio Rivers. The creek, which flowed northward and emptied into the Ohio at what is now McKees Rocks, was at that time called Alaquipa after the local Seneca Indian "queen". By the time George Washington came through the area in 1752, Alaquipa had moved south to McKeesport and the creek had been renamed Chartiers in honor of Pierre Chartiers, a French-Seneca "half-breed" who traded at the mouth of the creek.

Ballot

Pittsburgh Geological Society

Board of Directors Election

May 21, 2003

Note: Eligible voters include regular Members, Honorary Members, and Corporate Members (one vote each, by representative). Student members are ineligible to vote.

- ___ President: Mike Bikerman
- ___ Vice President: Raymond Follador
- ___ Secretary: Frank Benacquista
- ___ Treasurer: Steve McGuire

Director-at-Large Positions (vote for 3 of the 6)

- ___ Michael Forth
M. S. Geology 1968, Oregon State University, B. S. Geology 1963, Franklin & Marshall College, Geologist, A & A Consultants; member PGS since 1980.
- ___ Wendell Barner
M. S. Geology 1988, B. S. Geology 1982, Southwest Missouri State; Senior Geologist/Project Manager, Shaw Environmental & Infrastructure, Inc., member PGS since 1990
- ___ Beverly Christen
B. S. Biology 1967, Kent State University, Retired/Standing Rock Farm, member PGS since 1992.
- ___ Mary Ann Gross
B. S. Geology 1973, Edinboro University of Pennsylvania, Independent Geologist/Land Agent, member PGS since 1980.
- ___ Daniel Martt
M. S. Engineering Geology 2002, Kent State; B. S. Geology 1974, Muskingum College; Project Geologist, American Geotechnical and Environmental Services Inc., member PGS since 1990.
- ___ Jeff Schubert
M. S. Geology 1978, Pennsylvania State University, B. S. Geology 1972, University of Illinois, Geologist, Tetra Tech NUS, Inc., member PGS since 2002.
- ___ Ryan Tinsley
B S. Geology 1999, Radford University, Engineering Geologist, Michael Baker Jr., Inc., member PGS since 2002.

Did You Know . . . ?

- According to the USGS and the US Minerals Management Service, federal lands contain 77 percent of the country's estimated, undiscovered oil and 59 percent of its estimated, undiscovered Natural Gas.
- The Paleocene-Eocene thermal maximum that occurred at the close of the Paleocene Epoch about 55 million years ago was one of the most dramatic global warming events in geologic history, with oceanic surface temperatures rising between 4°C and 8°C within a few thousand years (and not a power plant or automobile in sight!).
- Separate research teams from Sweden and the US have concluded recently that all domesticated dogs in the world, regardless of breed, are descended from three female wolves that associated with early man in China about 15,000 years ago.
- Oxygen isotope ratios derived from lacustrine carbonate minerals can provide information about many past climatic conditions like temperature, circulation patterns, and moisture balance.
- The US Geological Survey estimates that the Lower Devonian Oriskany Sandstone may still contain as much as 864.4 billion cubic feet of undiscovered natural gas resources within the Appalachians.
- On average, of the 36 to 45 inches of precipitation that falls on Pennsylvania annually, only about 33 percent (approximately 12 to 15 inches) gets into the groundwater system.
- When cosmic radiation strikes the earth it induces mostly very short-lived radioactivity in the atmosphere. Some radionuclides, such as tritium, beryllium-7, and carbon-14, however, survive to eventually reach the surface of the earth where they can be used for a wide variety of dating and tracing applications in the geological sciences, archaeology, and biomedicine.
- Because quartz is a relatively insoluble earth material, silica in sedimentary deposits, quartz veins, and silica overgrowths probably originates mostly from the breakdown of volcanic glasses and silicate minerals other than quartz (e.g. feldspar, pyroxene, and

olivine).

- Two Penn State geologists argue in the April, 2003 issue of *Geology* that the semi-precious stone, Tiger's-eye, is not pseudomorphous after crocidolite asbestos as previously thought, but by the synchronous growth of quartz in a discontinuous crack-seal vein-filling process.
- Hurricanes and other catastrophic storms are responsible for only a small fraction of the total landscape erosion and annual sediment load in large, lower-gradient river systems, but are very important in denuding the landscape in smaller, high-gradient systems.
- The Sierra Nevada range and parts of adjacent central California comprise an independent microplate within a 935-mile-wide boundary between the Pacific and North American plates.

Website Of The Month:

<http://scvhistory.com/scvhistory/index2.htm>
(thanks to Pete Briggs)

PGS Ballot, 2003-04

The PGS Ballot included in this newsletter is for the 2003-4 officers and directors-at-large. The officers are running unopposed and there are six members running for three director-at-large positions. Both officers and directors-at-large require votes. The ballots can be brought to the meeting or mailed to PGS, PO Box 58172, Pittsburgh, PA 15209. Student members are not eligible to vote. Votes will be counted the night of the meeting and the new officers and directors will be announced.

If you have any information you would like to have included in the PGS Newsletter, please submit it to Mike Keeliher at 4590 Dutch Ridge Road, Beaver, PA 15009 or e-mail: keeliher@bellatlantic.net

Have a nice summer. See you in September!

Pittsburgh Geological Society

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V. President: Mike Bikerman
Treasurer: Steve McGuire
Secretary: Frank Benacquista

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Chuck Shultz, Bob Burger

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Memberships:

For information about memberships, please write PGS Membership Chair, PO Box 58172, Pittsburgh PA 15209, or call John Harper at (412) 442-4230, or e-mail jharper@state.pa.us. Membership information can also be found at our website: www.pittsburghgeologicalsociety.org

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