



# PGS Newsletter

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

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Vol. LVI, No. 1

Robert Burger, Editor

September, 2003

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**Wednesday, September 17, 2003  
Joint Meeting of the Pittsburgh Geological Society  
and the  
Society of Mining Engineers**

**The Future of Fossil Fuels  
and  
Energy Resources of the Appalachians**

Hal Gluskoter  
USGS, Emeritus

Oh, woe are we! The future of fossil fuels is bleak and they will eventually be superseded by things much better than they are. But, until the future gets here and until “eventually” happens, mankind will consume a humongous\* amount of solid and liquid hydrocarbons. Within the past few years your tax dollars have been supporting the U. S. Geological Survey in conducting assessments of coal, and oil and gas resources of the Nation. These assessments confirm that more than a smidgen\* of the coal, gas, and oil that will fuel our economy for the next several decades will be produced from the Appalachian basin(s).

\*Engineers! See the “Glossary of Geology” for the precise definitions of these volumetric terms.

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**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**, faxed to 412-809-6711, or emailed to [McGuireS@USFilter.com](mailto:McGuireS@USFilter.com) by **noon Monday, September 15.**

**Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

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# Pittsburgh Geological Society

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## PRESIDENT'S MESSAGE

To my fellow PGS members:

Welcome back from a long, hot and largely humid Summer. Here's hoping that the Fall will be mild and pleasant and most conducive to attending our monthly meetings. Wendell has done his usual fine job in arranging the speakers program, and I encourage you to join us monthly in the pre-meeting social hour, the dinner, and the technical program.

As always, the board welcomes your suggestions and comments.

Cheers,  
Michael Bikerman

## WALKING TOUR ANNOUNCEMENT

Submitted by Judy Neelan

*Building Pittsburgh – A Walking Tour of Pittsburgh's Building Stones* is now available.

Copies are available for \$5.00 by calling or emailing John Harper (412) 442-4230 or by email [jharper@state.pa.us](mailto:jharper@state.pa.us). Specific portions of the booklet are printed on the website.

One interesting result of the research on Pittsburgh's building stones is the discovery of the profound communication gap between geologists and those working in the stone industry. For the right person, this could be a career niche or even a personal quest.

This publication cannot be complete until thanks is expressed to all who had a hand in it, namely Chuck Shultz (petrology and photos), Bob Burger (illustrations), John Harper (text/illustrations/design), and Jan Smith (maps), and to those who have been patiently waiting for a finished copy since they took the tour during the 2000 Field Conference.

Special thanks is also extended to those non-PGS/non-geological folks who were actively involved in providing information, even to the extent of walking Pittsburgh streets with me – namely, Don Labriola from Pittsburgh Marble and Mick Nardozzi from Cost Company. Duane

Krueger from Cold Spring Granite was a “guru” and filled in lots of gaps, particularly with regard to quarry locations and the ages of the stone being quarried.

Finally, special thanks and appreciation must also be extended to Walter Kidney and Al Tanneler from Pittsburgh History and Landmarks Foundation for their expertise on Pittsburgh buildings and for having perhaps the best resources on the subject in the city. Perhaps I am biased. If you love Pittsburgh, and if you love history, and if you love architecture, this organization is waiting for you. See you downtown!

## IN MEMORIAM - FOUNDING MEMBER GEORGE C. “RED” GROW

PGS Founding and Honorary Member George C. “Red” Grow died at age 86 on March 27, 2003 in Westfield, NJ where he lived for many years. He was born in Stafford, NY, earned a BA in Geology from Lehigh University in 1938, and did graduate work at Carnegie Tech in 1941 and 1942. He worked most of his career as Chief Geologist for the Eastern Area for Transcontinental Gas Pipe Line Corporation and its successor, the Williams Companies. He was heavily involved in oil and gas exploration in the Appalachian basin and other areas of the eastern US until his retirement in 1978, but he continued to act as a consulting geologist until his death. Red was not only one of the founding members of the Pittsburgh Geological Society, but also its first president, from 1945-46. He was also a member of AAPG, a Fellow in the GSA, and a member of the New York Petroleum Exploration Society. In addition, he had served as chairman of the American Gas Association's Committee on Underground Storage and on the Advisory Council of Lamont-Doherty Geological Observatory. After his retirement, he became active in the community in Westfield, serving in the Westfield Presbyterian Church as an Elder, as President of the Westfield Community Concerts Association, President of the Rotary Club of Newark, and a member of the executive committee for the local Boy Scouts council. Red is survived by

his wife Ruth, daughter Christina, son George, and six grandchildren.

## **ORIGINS OF WESTERN PA PLACE NAMES**

The name Punxsutawney is a corruption of the Delaware Indian name “Ponks-uteneey” meaning gnat-town. The home of the world’s most famous groundhog is located on the site of a former Delaware village that was infested with gnats or sand fleas. One historical narrative says that the gnats were so bad the only place one could sit or lie in any comfort was in the smoke of the numerous kindling fires burning throughout the village.

## **DID YOU KNOW . . . ?**

- Formation waters associated with coalbed methane reservoirs have a common geochemical character, regardless of formation lithology or age – they are devoid of sulfate, calcium, and magnesium but contain sodium and bicarbonate, and chlorine if associated with marine deposits.
- Sir Isaac Newton performed a lot of experiments on diamonds, including measuring their ability to scatter light. Based on deductions from his experiments, Newton proposed that diamonds were basically the same as wood – made of carbon, and capable of being burned.
- Bedrock fractures and bedding-plane partings, rather than matrix porosity and permeability, represent the most common pathways for groundwater to flow from place to place in western Pennsylvania.
- Similarly, many oil and gas reservoirs having low porosity are productive as a result of natural fractures that enhance hydrocarbon delivery to wellbores.
- The Earth’s climate has fluctuated throughout the Quaternary Period on time scales that correspond to changes in the planet’s orbital geometry – that is, 19,000 to 23,000, 41,000, and 100,000 year intervals.
- At any given locality heat flow should be constant with depth. Some of the disturbing influences that keep this from happening include circulating pore fluids, complex distribution of thermal conductivities due to structural deformation, and intruding magmas.
- Knowing the petrological processes that occur during subduction helps provide a better

understanding of both the magma production at the active plate margins and the element cycles during destruction and formation of crust.

- Zircon is an excellent mineral component of detrital assemblages because it crystallizes with an extremely high uranium-lead ratio that can provide information on the age of crustal rocks in the source region, and also because it can withstand chemical and physical weathering for billions of years.
- Until recently, when Chinese paleontologists found the mandible of a 355-million year old tetrapod (four-limbed animal), it was thought that all early tetrapods lived exclusively on the Euramerican supercontinent, which consisted of what is now North America, Europe, and Greenland.
- High-resolution carbon isotope chemostratigraphy is a powerful tool for use in the global correlation of the Precambrian-Cambrian boundary successions.

## **NORTH AMERICAN COALBED METHANE FORUM**

The North American Coalbed Methane Forum, Inc. will hold its Fall Session on October 29-30 at the Stonewall Jackson Lodge at Roanoke, West Virginia. For information, please contact Ihor Havryluk at (412) 798-1391 or Dr. Kashi Aminian at (304) 293-7682.

In addition the West Virginia Energy Task Force will hold a Coalbed Methane Workshop. For information please contact Ms. Trina Wafle at (304)293-2867 ext. 5402.

## **VIRGINIA GEOLOGICAL FIELD CONFERENCE**

If you missed the 2003 PGS Spring field trip, or if you would like to experience it again, the Thirty-third Annual Virginia Geological Field Conference will be revisiting the area. On Saturday, October 25, the field conference will be leaving from Staunton, Virginia to spend the day examining the igneous rocks of the Ridge and Valley province near the Virginia/West Virginia border. For more information contact the Virginia Geological Field Conference, Virginia Division of Mineral Resources, Box 3667, Charlottesville, VA 22903.

## WEBSITE OF THE MONTH

<http://webmineral.com/crystall.shtml>.

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### The PGS Board:

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### **Other Important Members:**

**Historian:** Paul Garrett  
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**Memberships:** For information about memberships, please write PGS Membership Chair, PO Box 58172, Pittsburgh PA 15209, call John Harper at (412) 442-4230, or e-mail [jharper@state.pa.us](mailto:jharper@state.pa.us). Membership information can also be found online at : [www.pittsburghgeologicalsociety.org](http://www.pittsburghgeologicalsociety.org).

**News items:** To submit a news item in the PGS Newsletter, please contact Mike Keeliher at (724) 495-3363, 4590 Dutch Ridge Road, Beaver, PA 15009, or email at [keeliher@bellatlantic.net](mailto:keeliher@bellatlantic.net). Be sure to also send a phone number where you may be contacted.

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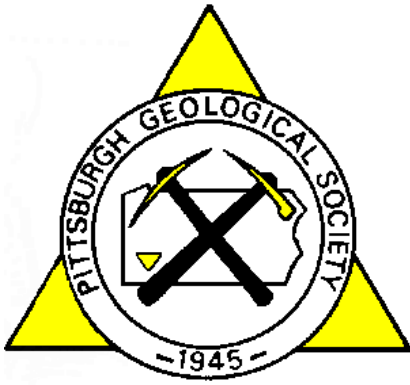
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**PO Box 58172**  
**Pittsburgh PA 15209**



# PGS Newsletter

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Vol. LV1, No2

Mike Keeliher, Editor

October 2003

**Social hour - 6:00 p.m.**

**Wednesday, October 15, 2003**

**Dinner - 7:00 p.m.**

**Program - 8:00 p.m.**

## **JOINT MEETING WITH THE ASSOCIATION OF ENGINEERING GEOLOGISTS**

### **ROCKSLIDES! CASE HISTORIES AND COMMON MISCONCEPTIONS**

by

**Dr. Chester F. (Skip) Watts  
Radford University, Radford, VA**

Potential hazards from rock falls and rockslides are on the rise as land development reaches into previously untouched areas, as aging highways and railroads require upgrades and new construction, and as people throng to public lands for recreation.

At the same time, new generations of decision makers in the form of politicians, administrators, land use planners, architects, engineers, and even geologists, continue to emerge who don't understand or recognize some of the most fundamental principles of mass wasting. And in recent years, numerous misconceptions regarding some fundamental principles have proved resistant to eradication.

Dramatic examples are to be found across the country. Case histories will be presented for consideration, including spectacular rockslides in Yosemite National Park, Virginia's Smart Road technology test bed, Thomas Jefferson's Natural Bridge of Virginia, highway stability in North Carolina, and weapons testing facilities in the west. Each case is compelling and contentious. Some are expensive and some are tragic.

Recurring misconceptions include the relative merits of constructing vertical slopes versus angled slopes, the roles of discontinuities in controlling rockslides, the direction of groundwater flow in fractured rock, the volumes of water necessary to trigger slides, and the variable nature of earth materials. These concepts are simple but not to be ignored.

Skip will also be talking about his duties and experiences on Capitol Hill while serving as a Congressional Fellow working as a science and technology advisor on Senator Lieberman's personal staff.

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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](mailto:McGuireS@USFilter.com) by **noon Monday, October 13, 2003. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

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## About our Speaker



**Dr. Chester F. (Skip) Watts** is the 2003 Richard H. Jahns Distinguished Lecturer, named jointly by the Association of Engineering Geologists and the Engineering Geology Division of the Geological Society of America.

A certified professional geologist in the Commonwealth of Virginia, Skip is the Dalton Distinguished Professor of Geology at Radford University, where he has worked since 1984. There he established the Institute for Engineering Geosciences and has taught undergraduate and graduate courses in engineering geology, hydrogeology, geomorphology, geophysics, soil mechanics, rock mechanics, computer applications in geology and advanced engineering geology.

Skip is also the author of ROCKPACK III computer software, used internationally for analyzing the safety and stability of mines, quarries, highway cuts, mountain slopes, buildings, and bridge foundations. He serves as a rock slope stability consultant to numerous highway departments, federal agencies, and engineering firms.

Skip is the recipient of several regional and national teaching awards, including the 1998 Outstanding Professor Award from the State Council for Higher Education in Virginia. He appeared in a television documentary called SLIDE! on The Learning Channel as well as on National Public Radio, by cell phone, while rock climbing during a rockslide study in Yosemite National Park.

Skip served 14 months on Senator Joseph

Lieberman's personal staff as the 2001-2002 GSA/USGS Congressional Science Fellow. During that time came the September 11 terrorist attacks in New York and Washington, D.C., the anthrax attacks and closure of the Hart Senate Office Building, and the war in Afghanistan with inevitable geologic factors at play. Also during that time came congressional debates over drilling in the Arctic National Wildlife Refuge, the disposal of nuclear waste at Yucca Mountain, and preparations for the great reauthorization of national transportation funding in 2003. In his alternate Jahns lecture, Watts describes his personal experiences as a senate "staffer" and the important political geologic issues of the day.

### **Forums at the Stonewall Resort in Roanoke, West Virginia.**

The North American Coalbed Methane Forum will hold its Fall 2003 at the Stonewall Resort in Roanoke, West Virginia on October 28 and 29. For additional you may call the Forum at (304) 293-7682 ex 3406.

The West Virginia Development Office will hold "The Coal Bed Natural Gas Symposium", also being held at the Stonewall Resort on October 29. For additional information and the registration form, please refer to their website:

<http://www.wvenergyroadmapworkshop.org/workshopCo.alGas.cfm>

### **Should This Be Required Reading?**

*The Orion Prophecy: Egyptian & Mayan Prophecies on the Cateclysm of 2012* by Patrick Geryl and Gino Ratinckx (2001) claims that, based on ancient Egyptian and Mayan texts and recent geological evidence, the Earth will experience a magnetic reversal in 2012 that will cause immense havoc. Purported to be a serious work, the book claims that the last magnetic reversal 10,000 years ago (it was actually about 800,000 years ago!) caused an Ice Age (!) that brought the extinctions of thousands of species and shifted entire continents northward in a matter of days (!?!). The authors also contend that this reversal caused the biblical Flood and the destruction of Atlantis. The great astronomers of Atlantis had predicted this event and escaped to Africa and South



America to become the Egyptians and Mayans (I guess that's why both societies had pyramids!). The book provides the "secret calculations" the Atlantean astronomers used so that we can gain the same insight and prepare for this "end of days" that will be coming up in just 9 short years. Anyone need a good laugh? This 264-page book, published by Adventures Unlimited Press of Kempton, IL, is available from a number of sources, including the Internet.

### **Speaking of Books.....**

*Your editor, having slept in front of the TV way too long during last year's winter, tried to pack in some books over the summer. Here are some suggestions.*

#### **South From Damascus – My Introduction to the Middle East, R. Peter Briggs, Publish America, 2003**

Most of us, in some point in our careers as geologists have been sent to some interesting region. And most of us, constrained by time, budget and lack of money, did our work and left with a feeling that we missed more than we should have. Not all of us, however. One of our members, Pete Briggs, learned a lot while on assignment to the Middle East, kept a diary, compiled some interesting research on the region and its peoples and wrote a book.

Pete's book provides readable summaries of the origins of the Arabs, their war-torn history, their religions and lifestyles. He comments on the flavor of various governments he had to work with, giving some of us clues as to what we suspected all along. Did I mention the geology stuff too?

After the second chapter or so, Pete's prose begins to fit like your favorite, ratty, old t-shirt or bedroom slippers, easy to pick up and slide into. This book comes highly recommended to those of us who were a bit foggy about the situation over in the Middle East and required reading for anyone contemplating work outside the US.

#### **At the Mountains of Madness and Other Tales of Terror, H.P. Lovecraft, 1939**

Just when you think you are going to enjoy a gooey horror story, you discover that the protagonist in the feature short story is a geologist and one of the main plot devices is plate tectonics. In 1939 Lovecraft embraced the theory of continental drift and its defenders Wegener, et. al., while the rest of the scientific world, scoffed. Perhaps we should assign a few grad student some Stephen King books, just in case.

#### **Origins Of Western Pa Place Names**

McKeesport is named for John McKee, son of a Scotsman who came to America in search of a "church without a bishop and a state without a king." The McKee family operated a ferry on the Youghiogheny and Monongahela Rivers, and, because they owned much of the land in the area of the ferry, it became know as McKee's Port.

#### **Did You Know . . . ?**

- Although the majority of geochemists believe hydrocarbons are generated from biogenic material in Phanerozoic sedimentary rocks, there are a large number who believe it all comes from abiogenic sources in the crust of the earth.
- In fact, for over 50 years, USSR (and now Russian) scientists have used the concept of abiogenic petroleum origins as an exploration strategy. They have successfully discovered several petroleum fields producing partly or entirely from crystalline basement rocks.
- Fully 18% of the US energy supply currently depends on the deteriorating, narrow, two-lane Louisiana Highway 1, which provides the only land-based access to an area of south Louisiana where 75% of all deepwater oil and gas in the Gulf of Mexico is produced.
- Although the Himalayan orogen as we know it occurred in the Tertiary, there is plenty of evidence that certain fundamental aspects of the orogen originated in an early Paleozoic thrust belt.
- Researchers at Cornell University used information from DNA mutations to discover that all army ant species in the world evolved from a common ancestor that originated in the

Cretaceous.

- One theory of the rapid warming episodes in the earth's past is that large quantities of methane gas, trapped as hydrates in coastal marine sediments, is released into the atmosphere, creating a sudden bout of global warming.
- Paleontologists at Macalester College have determined that a 9-meter tall dinosaur named *Majungatholus atopus* may have been cannibalistic, based on tooth and bite marks on bones from two skeletons found in Madagascar.
- Despite more than 100 years of intensive research on pegmatites, their crystallization temperatures still are not well known.
- Tropical forests currently are being destroyed throughout the world by human activity at the rate of approximately 72 acres per minute.
- The degree of preservation or destruction of primary physical stratification in aquatic sediments by bioturbation depends on the competition between the rates of sediment burial and biotic activity.
- The presence of heat-generating radionuclides in radioactive waste requires that waste disposed of under ground be packaged in relatively small units dispersed throughout a large volume to prevent excessive temperature increases in the enclosing rock.

#### Website Of The Month

<http://www.dinosauria.com/>

#### So You Want to Be a Geologist

PGS will once again be hosting the "So You Want to be a Geologist" student workshop on November 15, 2003 at the PADEP's offices on Herr's Island in Pittsburgh for 25 students from surrounding colleges. A flyer will be issued shortly with additional information. This year a drill rig will be on hand to provide a demonstration.

It is rumored that the driller will hold an Ad Hoc seminar during the lunch break detailing where you should stand so he can splash you with mud, understanding a person with a mouth full of chew, and treating mosquito bites and poison ivy with diesel fuel.

Board members are invited to attend and add to the commentary.

#### A Quick Thank You.

Many thanks to Bob Burger, who took over as newsletter editor during my absence in late August.

#### New Directors

Mike Forth, Mary Ann Gross, and Dan Martt were voted in last year as PGS directors. Please welcome them when you see them at the meetings.

*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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**Pittsburgh Geological Society**



**The PGS Board:**

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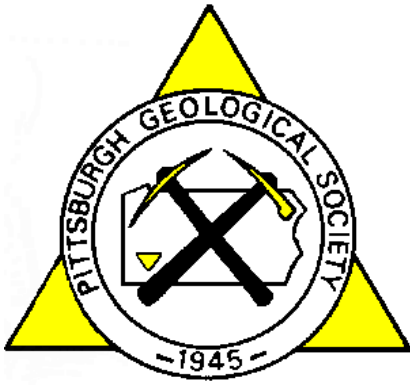
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# PGS Newsletter

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

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Vol. LV1, No3

Mike Keeliher, Editor

November 2003

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**Wednesday, November 19, 2003**

**Social hour - 6:00 p.m.**

**Dinner - 7:00 p.m.**

**Program - 8:00 p.m.**

**PENN DIXIE PALEONTOLOGICAL AND OUTDOOR EDUCATION CENTER:  
Newest Outdoor Educational Resource in Western New York  
By**

**Jerold C. Bastedo, Professional Geologist & Executive Director  
Penn Dixie Paleontological and Outdoor Education Center**

The Penn Dixie Paleontological and Outdoor Education Center is owned and operated by the Hamburg Natural History Society, Inc. (HNHS). Jerry ( a member of the Pittsburgh Geological Society) will discuss the Middle and Upper Devonian shales and limestones at the Penn Dixie Site, which contain a variety of 380-million year old invertebrate, vertebrate, and plant fossils at the Penn Dixie Site. The upper portion of the Wanakah Shale, the overlying Tichenor Limestone, the Windom Shale, the North Evans Limestone and the Genundewa Limestone are exposed at the site. This classic and unique site has an extensive lateral and vertical section of bedrock containing an abundant and diverse fossil assemblage, which weathers out making collecting relatively easy for visitors of all ages. The Upper Wanakah Shale is very fossiliferous, containing a variety of brachiopods, crinoids, corals, trilobites, etc. The "rusty" appearing Tichenor Limestone contains a variety of fossils, which can be difficult to remove from the limestone. There is a pop-up feature in the Tichenor Limestone on the north end of the site, which still remains a mystery as to its origin. There are several distinct horizons within the Windom Shale, such as the Amsdell and Big Tree pyrite beds, the "Praeumbona Beds", the Smoke Creek Trilobite Bed, Bay View Coral Bed, the "Ambocoelia Beds", and more that are very fossil rich. The overlying North Evans Limestone contains fossil fish remains, conodonts, carbonized wood, and other fossils. Several Masters' and PhD. dissertations have been conducted at the Penn Dixie Site. This preserved fossil-rich site is serving as an outdoor classroom for pre-school through post-graduate students to study the natural sciences.

Students, scouts, families, summer day camps, amateur and professional geologists find this classic geologic 32.5 acre site a great place to study geology, collect fossils, observe over 143 nesting and migratory birds, view the WNY skies and explore nature. Guided tours, astronomy programs, birthday parties and family outings are available by reservation. Jerold C. Bastedo, Executive Director of the Penn Dixie Site, will provide an illustrated presentation on the geology present at Penn Dixie; the preservation of this unique and classic geologic site; the current and future programming activities; and the continuing development plans for the outdoor education center building, the barrier-free nature trails, enhancement of the wetland areas, and the astronomy pad. Jerry will relate an interesting story on how a classic geologic site was preserved and is being developed for future generations to use as an outdoor educational resource in the natural sciences. Additional information and location map can be obtained on the Penn Dixie web site at [www.penndixie.org](http://www.penndixie.org).

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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](mailto:McGuireS@USFilter.com) by **noon Monday, November 17, 2003. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

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## About our Speaker



H A M B U R G  
NATURAL  
HISTORY  
SOCIETY, INC.

Jerold C. Bastedo serves as executive director of the Hamburg Natural History Society, Inc. (HNHS), and its Penn Dixie Paleontological and Outdoor Education Center in Hamburg New York. Bastedo, 56, a professional geologist and life-long resident of Hamburg, has been instrumental in the preservation and acquisition of the Penn Dixie Site since 1990. He holds a B.A. in earth sciences from Geneseo State University in Geneseo, New York, and an M.S. in geosciences from the State University College at Buffalo, in Buffalo, New York.

Bastedo's present position as HNHS executive director caps a distinguished career in geology, environmental consulting, management, and science education. Prior to his present position, Bastedo served as manager of environmental investigations for Vanasse Hangen Brustlin/VHB, a Boston, Massachusetts-based transportation/land development and environmental sciences firm. Bastedo had previously spent nine years as a chief geologist and group manager for Ecology and Environment, Inc., an international environmental consulting firm headquartered in Lancaster, New York. Bastedo has also held positions as an exploration geologist with National Fuel Corporation, worked as a supervisor for Bethlehem Steel Corporation, and served as a geologist for the Buffalo Museum of Science, in Buffalo, New York.

Long active in professional and educational organizations, Bastedo is currently a co-founder and former president of the HNHS; director and former vice president of the New York State Council of Professional Geologists; an at-large member of the Erie County Environmental Management Council; a member of the Erie County Environmental Educational Institute; a co-founder and past president of the Buffalo

Association of Professional Geologists; past president of the Buffalo Geological Society; member of the Pittsburgh Geological Society; the Central New York Association of Professional Geologists; and a member of numerous other professional organizations. Bastedo is also a certified petroleum geologist with the American Association of Petroleum Geologists and a licensed geologist in the State of Pennsylvania. Bastedo has lectured and published widely on the geology and paleontology of Western New York and is a co-author of *Colossal Cataract: The Geologic History of Niagara Falls*.

## PGS is featuring the second annual student night in the spring, Call for Papers

Last year PGS hosted a highly successful student night along with the geotechnical branch of the American Society of Civil Engineers (ASCE) and the Association of Engineering Geologists (AEG). Students we asked to meet with committee members from the societies listed above and present papers. Three winners were selected, given money and given the opportunity to give a 20-minute presentation during Student Night. Other students were invited to provide poster presentations that evening.

Students, this is an excellent opportunity to put your face and your research in front of people who can offer you a job. Announcements have been mailed to the surrounding universities and colleges. Check with your department head regarding details, or get to our website.

## Free Stuff!!!

FREE - to any active PGS geologist - 99% complete set of AAPG Bulletins, 1954 to present. Call S. L. (Scotty) Brooks, 724-941-1414.

## Student Workshop

PGS is again sponsoring a 'So You Want to be a Geologist' Student Workshop on Saturday, November 15th. The workshop offers students information on topics facing newly-graduated geologists. There will be a drilling rig provided by Terra Testing to acquaint students with the

practical aspects of gathering geologic data in the real world away from the classroom. The workshop starts at 10:00 AM and is limited to 25 students, so call Judy Neelan to reserve your spot right away at 412-442-5802. There is no charge for the Workshop and the PGS supplies free pizza, so how can you go wrong? Check our website for directions to Washington's Landing.

### **Paid Internships Available**

Insite Group, Inc. has paid internships available on a full or part-time basis for students or recent graduates in Geology, Environmental Engineering or Environmental Science at an environmental consulting firm located in Sharpsville, PA. Work may include fieldwork such as soil and groundwater sampling, aquifer testing, drafting, compliance monitoring as well as participation in report generation.

Interested parties are encouraged to contact Sara Giordano at (724) 962-9386 for additional information.

### **New Honorary Member**

The PGS Board of Directors has approved the nomination of Edward C. Girard as the society's newest Honorary Member. Ed has been an active member of PGS for many years, attending workshops and field trips, serving on the Board, and holding office, including as Treasurer in 1996-97, Vice President in 1997-98, and President in 1998-99. Congratulations Ed.

### **New Lewis and Clark Geology Poster**

David K. Brezinski and Albert Kollar of the Carnegie Museum of Natural History - Invertebrate Paleontology have produced a full-color educational geology poster of the Lewis and Clark trail (1803-1806). This poster documents 19 geology sites and 9 invertebrate paleontology sites between Washington, D.C. and the Pacific Ocean, including sites at Pittsburgh, Falls of the Ohio, the portage around Great Falls, MT., over the continental divide between Idaho and Montana, and down the Clearwater, Snake and Columbia Rivers to the Pacific Ocean, to name a few. The most significant feature of this poster is the legacy of ice – the parallel between the maximum extent of Pleistocene glaciers and the Lewis and Clark

Trail. This 2' X 3' poster, replete with full-color maps, diagrams, and photos, is available from PGS for only \$10.00, plus \$2.00 for shipping and handling. Or you can save the S&H charge by picking one up at a PGS meeting or by visiting the Pennsylvania Geological Survey at 500 Waterfront Drive on Washington's Landing.

### **Origins Of Western Pa Place Names**

The name Allegheny (also Alleghany or Allegany as they spell it elsewhere) is probably a corruption of Alligewi-hanna, meaning “stream of the Alligewi.” The Alligewi (actually, Talligewi) was a tribe that lived east of the Mississippi in the area drained by the Ohio and its tributaries. They were eventually driven southward in a war with the Delaware and Iroquois nations. Many historians believe the Talligewi are the ancestors of the Cherokee of historic times.

### **Did You Know . . . ?**

- New genetic information analyzing the relationships between humans, chimpanzees, gorillas, and Old World monkeys shows that humans and chimpanzees are so closely related that chimps should be placed in the genus *Homo*, rather than *Pan* where they are now classified.
- Computer simulations of Neoproterozoic Earth, using a coupled ocean-atmosphere circulation model, indicate that it is highly unlikely that the Earth was almost completely covered in ice around 1 billion years ago (the “snowball Earth” hypothesis).
- A 2002 report by the National Research Council warned that many of the nation's geological collections and geoscience data repositories are in danger of being lost through neglect and lack of funding.
- Mercury can circulate in the environment for up to a year before depositing on land or in water where it works its way into sediments.
- Chang Hêng, who lived in the first century AD, invented an “earthquake weathercock” (a seismograph) that was capable of detecting seismic activity in distant provinces of China.
- Although it is not considered to be one of the five biggest mass extinctions in geologic history, the Middle Devonian extinction, about 380 million years ago, is estimated to have wiped out about 40% of all living marine

- animal genera.
- Shocked quartz, high concentrations of nickel, chromium, cobalt, and other elements, and a sudden change in carbon isotopes from a site in Morocco indicates the Middle Devonian extinction event may be related to a bolide impact.
  - Until recently, scientists thought the largest source of bromine – known to destroy Earth's ozone layer – was from methyl bromide, a gas used to fumigate soils and crops, but research has shown that volcanoes may spew as much as 140,000 tons of bromine oxide into the atmosphere each year.
  - According to a recent article *Geology*, the world volume of gas hydrates, the water and methane compounds which occur in marine sediments, may be four to seven times less than the most widely cited estimates.
  - The super-giant oil fields of southeastern Iraq are the largest concentration of oil so far found anywhere in the world.

- The oldest known spider web has been found in a piece of 120-million year old Cretaceous amber from Lebanon.

#### **Website Of The Month**

<http://www.nps.gov/parkoftheweek/> (changes weekly)

*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](mailto:keeliher@bellatlantic.net)*

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**PITTSBURGH GEOLOGICAL SOCIETY**

**PO Box 58172**

**Pittsburgh PA 15209**

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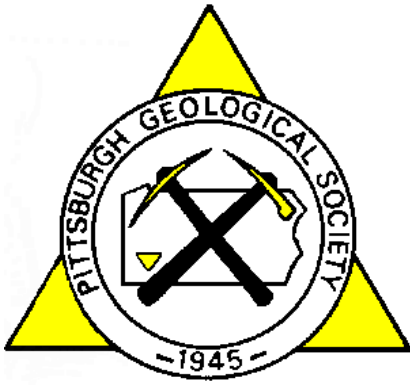
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# PGS Newsletter

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

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Vol. LV1, No4

Mike Keeliher, Editor

December 2003

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Wednesday, November 19, 2003

Social hour - 6:00 p.m.

Dinner - 7:00 p.m.

Program - 8:00 p.m.

## PGS Christmas Program and Spouse's Night

### GEOLOGY: THE FORGOTTEN SCIENCE OF THE LEWIS AND CLARK EXPEDITION

By

David K. Brezinski and Albert D. Kollar, Section of Invertebrate Paleontology, Carnegie Museum of Natural History, 4400 Forbes Avenue, Pittsburgh, PA 15213, [brezinskid@carnegiemuseums.org](mailto:brezinskid@carnegiemuseums.org), [kollara@carnegiemuseums.org](mailto:kollara@carnegiemuseums.org)

In his letter (1803) to Meriwether Lewis that outlined the expedition, President Thomas Jefferson directed the explorer to note not only the native people, plants, animals, but also “*mineral productions of every kind, but more importantly metals, limestone, pit coal & saltpeter; salines & mineral waters noting temperatures of the last & such circumstances as may indicate their character, volcanic appearances...*” Clearly, Jefferson recognized the importance of geologic features, but through the last two hundred years the geologic items observed and noted by Lewis and Clark and the role of these items placed in the outcome of the expedition have been overlooked. The geographic features observed and the obstacles encountered and surmounted by the expedition were geological in nature. The trail of preparation took Lewis to Harpers Ferry, West Virginia, through the Appalachian Basin, down the Ohio River, over the Falls of the Ohio, and eventually to St. Louis. Their 1804 sojourn saw the Corps of Discovery pass glacial features such as the Council Bluffs and the Great Bend of the Missouri. In 1805 the expedition portaged the Great Falls, passed through the Gates of the Rocky Mountains, and then scaled the Beaverhead and Bitterroot Mountains on their way down the Columbia River. The 1806 return trip took Lewis past the Lewis Overthrust and Clark down the Yellowstone River through Cretaceous outliers at Pompey’s Column. Ultimately, their route down the Ohio and up the Missouri Rivers was controlled more by Pleistocene glaciation than it was by Presidential orders.

#### About our speaker

Albert D. Kollar is curator of collection management of invertebrate paleontology at the Carnegie Museum of Natural History. He received his BS in geology from Southampton University and his MS in geology with emphasize in invertebrate paleontology from the University of Pittsburgh. Albert has maintained and assisted in the growth of the 570,000 invertebrate fossil collections, especially in the Carboniferous for more than 26 years. Albert’s research interest is in Carboniferous brachiopods reef faunas of the United States. Along with Associate Curator adjunct Dr. David K. Brezinski (senior author of tonight’s talk) they have been conducting detailed stratigraphic research collecting from the Waulsortian mud mounds in Kentucky, Illinois, Missouri, Oklahoma, New Mexico, and Montana. Invertebrate fossils are ideal tools for teaching about historical geology and other educational topics such as tonight’s presentation on the geological obstacles along the Lewis and Clark trail.

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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](mailto:McGuireS@USFilter.com) by **noon Monday, November 17, 2003. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

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## **State Registration Board to consider Geologist-in-Training (GIT) certification and education requirements**

The State Registration Board for Professional Engineers, Land Surveyors and Geologists is considering a Geologist-in-Training certification to be modeled after the Engineer and Land Surveyor certifications. The GIT would enable geology majors with satisfactory educational experience to sit for the fundamentals of geology exam before meeting the five years of professional experience requirement. Currently a candidate must sit for both the fundamental and the principals and practice exams. The GIT certification would be designed to encourage all recent graduates interested in professional licensure to take the exam as an optional college "exit exam".

The board is also considering formally defining the required educational coursework for licensure. Presently the Registration Law defines an appropriate degree and the total number of credit hours.

Article excerpted from: *Shaping the Future of Professional Geology*: Theodore Tesler, PG; State Registration Board Newsletter, Fall 2003.

## **Call for Abstracts, Students!**

Students are invited to submit abstracts of a Senior Research Project, Senior Design Project or Master's Thesis for presentation at a joint meeting of PGS, the Allegheny-Ohio Section of the Association of Engineering Geologist, and the Geotechnical Group of the Pittsburgh Section of the American Society of Civil Engineers. Topics will include geology, engineering geology, geotechnical engineering, environmental engineering, hydrogeology and hydrology.

Three students will be selected to give a 15 to 20 minute oral presentation based on their abstract at a joint society meeting on April 21, 2004. Other students will be invited to present a poster presentation of their work during the social hour. The three selected winners will each receive \$100.

Please check our website for details.

## **Student Workshop**

Twenty-eight students from Kent, SRU, IUP, Pitt, California, and YSU attended the third annual "So You Want to be a Geologist" Student Workshop hosted on Washington's Landing on November 15, 2003. A new practical section, including an onsite visit by Terra Testing personnel and their drill rig, provided added interest. Watch for photos on the website! The workshop committee is considering plans for the future that may include splitting the workshop into two days - 1) the original workshop plus 2) a full-day practical session on tools, equipment, and methods required for those entering the profession. Feedback on this idea is welcome. Interest in participating on the workshop committee is also welcome.

Many thanks to Terra Testing, Larry Deutsch and his crew for bringing a drilling rig to our seminar. Terra Testing brought a shiny track mounted CME 750 along with rock core to show students what will likely be a part of their future in the field. If only all jobs had shiny rigs, level ground and good weather. We do appreciate the time and expense and hope when one of these new geologists needs a rig, they'll call you. (Just remember to ask for the shiny one.)

And many thanks to Judy Neelan who began these seminars last year along with other PGS members who gave presentations.

## **Geologist Licensing Exam Training**

For the first time, PGS is cooperating with PCPG to co-present two sessions of the geologist licensing exam training in preparation for the ASBOG exam offered in March and October of next year. PGS training will occur in Pittsburgh on February 5 and 6 and the PCPG training will occur in Philadelphia on February 12 and 13. The Pittsburgh event will occur at the Best Western, Parkway Center Inn.

The training occurs in two parts - 1) "Fundamentals of Geology" and 2) "Applied Geology/Professional Practice." PGS members will be the trainers for the Pittsburgh session. These members include Chuck Shultz, Tamra Schiappa, Pete Hutchinson, Pat Burkhart, and

Brian Greene. Should anyone be interested in this event, more information is available on the PGS website, and detailed information on registration and costs can be found at the PCPG website, [www.PCPG.org](http://www.PCPG.org)

A \$99 discount is available to PGS members training in Pittsburgh.

We are trying to reach those who may be interested, particularly in western PA and adjoining states in the region. We need your help to spread the news!

### Reading for the Holidays

The author of “A Walk in the Woods” and “In a Sunburned Country” assures you, “*Not only have you been lucky enough to be attached since time immemorial to a favored evolutionary line, but you have also been extremely—make that miraculously—fortunate in your personal ancestry. Consider the fact that for 3.8 billion years, a period of time older than the Earth’s mountains and rivers and oceans, every one of your forbearers on both sides has been attractive enough to find a mate, healthy enough to reproduce and sufficiently blessed by fate and circumstances to live long enough to do so. Not one of your pertinent ancestors was squashed, devoured, drowned, starved, stranded, stuck fast, untimely wounded or otherwise deflected from its life’s quest of delivering a tiny charge of genetic material to the right partner at the right moment in order to perpetuate the only possible sequence of hereditary combinations that could result – eventually, astoundingly, and all too briefly – in you.*”

Bill Bryson is the author of “A Short History of Nearly Everything”. The title is a tip of his hat to Stephen Hawking’s, “A Short History of Time.” The rest of the book is a great romp around the scientific worlds of geology, chemistry, physics, biology, the great scientists and their discoveries. Mr. Bryson is a humorous writer who works mightily to bring complex, scientific theories to anyone who enjoys reading.

### Have You Paid Your Dues Yet?

There is still a significant number of PGS members who have not yet renewed their membership for the 2003-04 program year. Please be aware: if you have not paid your dues by January 31, 2004 you will be dropped from the membership list and will no longer receive newsletters, announcements, notifications, or other information. Please renew now and save your place in Pennsylvania’s largest and most active regional geological society.

### Kansas Really IS Flatter Than a Pancake

According to a paper published in the tongue-in-cheek *Annals of Improbable Research*, geography researchers from Texas State University and Arizona State University scanned a cross section of Kansas and a cross section of a pancake from IHOP, and the image data were run through a computer model that determines flatness. The result? A typical pancake at the scale of the Earth would have “mountains” and “valleys” higher and lower than anything found on the planet. Yes – Kansas is flatter than a pancake. So are the Himalayas.

### Origins Of Western Pa Place Names

The name Erie, as in Lake Erie, Erie, Pennsylvania, Erie County, New York, the Erie Canal, etc., comes from a corruption of the Huron phrase “yenresh,” which means, “It is long-tailed.” The phrase is probably a reference to the mountain lion (panther), which once roamed Pennsylvania in abundance. “Yenresh” was probably corrupted originally by the French to “Eri” or “Ri” and translated as “Place of the Panther.”

### Did You Know . . . ?

- When the mineral perlite is heated its volume increases and its density decreases.
- Pennsylvania ranks as the fourth most active state in drilling wells for natural gas.
- The Early Jurassic Navajo Sandstone is one of the largest aeolian deposits in the geologic record.
- Scientists have detected small amounts of the carbonate mineral magnesite in the dust of Mars.
- Glacial age peat occurring near Bridgeville, PA was discovered during coal mining

operation in the 1940s. It was believed to have formed during an interstage of the Wisconsin glacial epoch.

- The Earth is bombarded every day by tons of cosmic debris, but since most of it is dust size, we barely notice it.
- Basin modeling studies indicate that there was a nearly synchronous episode of rapid subsidence in almost all pre-existing margins and interior basins of North America between the Middle Devonian and the Early Mississippian.
- The International Commission on Stratigraphy, a committee of the International Union of Geological Sciences responsible for setting geologic names and dates, is encouraging geologists to abandon the name Tertiary Period in favor of the names Paleogene and Neogene periods. Their reasoning will be published next summer.
- Volcano-shape conical mounds of ice up to 16 feet high tend to form along portions of the Lake Erie shoreline as a result of spray, slush, and ice blocks being ejected shoreward during winter storms.
- A foreland basin is defined as a sedimentary basin lying between the front of a mountain belt and the adjacent craton; it forms by downward flexure of the lithosphere in response to thrust loading at a convergent margin.
- The Appalachian basin is classified as a peripheral foreland basin, which formed on the cratonward side of a collision zone during lithospheric flexure in response to the load of thickened crust.

#### Website Of The Month

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

#### Is Your Email Up-To-Date?

Membership Chair John Harper has reported that he has been having trouble getting the newsletter and miscellaneous announcements to an increasing number of members who are supposed to receive this information via email. Some members apparently applied spam blockers to their email but apparently neglected to include John's email address as a valid address for receipt. Others

appear to be having trouble with their ISPs. If you have changed your email in any way, and especially if you have not been receiving your newsletters and announcements by email, please contact John at [jharper@state.pa.us](mailto:jharper@state.pa.us) and let him know what's going on. We don't mind sending printed copies of the newsletter to those without email, but sending them to people who DO have email defeats the purpose of reporting your email address on your membership form.



*The Pittsburgh Geological Society takes this opportunity to wish you a Wonderful Christmas and New Year's Holiday with friends and family.*

*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](mailto:keeliher@bellatlantic.net)*

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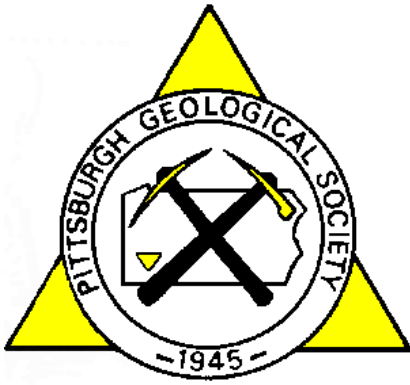
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# PGS Newsletter

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

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Vol. LV1, No. 5

Mike Keeliher, Editor

January 2004

**Social hour - 6:00 p.m.**

**Wednesday, January 21, 2004**

**Dinner - 7:00 p.m.**

**Program - 8:00 p.m.**

## **Joint Meeting with the Pennsylvania Council of Professional Geologists (PCPG)**

### **An Overview of PCPG Activities**

**by William (Bill) R. Gough, PG, Board of Directors**

We count among our most significant accomplishments the appointment of Professional Geologist appointees to six Regional Water Committees established under the Water Resources Planning Act of 2002 (Act 220). The Rendell Administration confirmed each PCPG-endorsed nominee for these positions this past fall in concert with requirements for geologist participation. We celebrate the success of our nominees, appreciate their willingness to serve and know that each will contribute to advancing "good science" approaches to managing our precious water resources.

We are also actively working to coordinate statutory and regulatory changes to Pennsylvania geologist registration law to establish minimum coursework criteria for professional geologist applicants and a means by which geology students can take the "geology fundamentals" portion of the ASBOG examination prior to completing 5-years of work experience currently needed to take the whole examination. The obvious advantage, aside from establishing the "geologist-in-training" classification, is that geology students will be eligible to take the examination much sooner than currently allowed.

During 2003 we offered modest but steady support for a legislative initiative that would have established professional geologist registration in New Jersey, where a number of our members maintain corporate offices and offer geologic products. We were disappointed to learn of failure of this initiative to gain critical momentum but we remain vigilant to opportunities in neighboring states, particularly in the mid-Atlantic region, where a burgeoning populous increasingly places demands on land, infrastructure and resources.

As significant as our public policy initiatives are, PCPG's political action committee, PA GEOPAC, remains an effective means by which we can provide support to PCPG-friendly legislators. PA GEOPAC had its most successful outreach year in 2003 since inception and expects to continue similarly in 2004.

PCPG is well underway in planning 2004 offerings of the PG Exam Prep Review Course in major metropolitan areas in both eastern and western Pennsylvania. We are excited by the alliance we have established with the Pittsburgh Geological Society (PGS) for these course offerings and look forward to working with the PGS on an ongoing basis for some time into the future.

We are also planning a proposed May 2004 offering related to the long-awaited passage of the Water Resources Planning Act. This

symposium promises to have broad appeal to water resources professionals, policy makers, and the regulated community! Stay tuned for an announcement of this and other PCPG education opportunities!

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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](mailto:McGuireS@USFilter.com) by **noon**



**Monday, January 19, 2003. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

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### **About our Speaker**

Bill Gough graduated from Mount Union in 1971 with a bachelor's degree in Geology. He subsequently received a master's degree in Geology from Penn State in 1977. He has been employed by Moody and Associates, Inc. since 1973 and currently serves as a Vice President and Senior Geologist. Bill is a Registered Professional Geologist in Pennsylvania.

Bill has been a member of the Board of Directors of the Pennsylvania Council of Professional Geologists since 1993. He has also served four years as a member of the Board of Directors of the Pennsylvania Section of the American Water Works Association (AWWA).

### **PGS loses an Honorary Member**

It is with a sad heart that we announce that Honorary Member Sam Frazier died on January 2<sup>nd</sup> 2004, at the age of 81. Sam was a delightful person with a long and fascinating career at Gulf Oil after graduating from Pitt in the 1950's. He was a longtime member of PGS. Barbara Frazier has asked that memorial donations be sent to the Department of Geology & Planetary Science, University of Pittsburgh, Pgh, PA 15260 for a new Sam Frazier memorial scholarship which will be used to assist undergraduate majors.

The memorial service for Sam will be held on January 12<sup>th</sup> at the Christ United Methodist Church, 44 Highland Road, Bethel Park at 1030 AM.

### **Grand Canyon National Park Selling Creationist Book**

On December 16th, the presidents of AGI and six of its member societies sent a letter to the superintendent of Grand Canyon National Park expressing concern that a young-Earth creationist book -- "Grand Canyon: A Different View" -- was being sold at park bookstores as a source of scientific information about the canyon's history. The Christian Broadcasting Network's online bookstore describes the book by Colorado River guide Tom Vail: "According to a biblical time

scale, the Grand Canyon can't possibly [sic] be more than a few thousand years old, and that is what Tom now believes...[T]his book also has many facts about the Grand Canyon presented in a biblical light." As a unique geological wonder that receives over four million visitors per year, the Grand Canyon represents an unparalleled opportunity to educate our nation's citizens about earth science, but the opportunity is compromised by the National Park Service's apparent endorsement of this religious text as science.

The letter from the presidents of AGI, the American Geophysical Union, Association of American State Geologists, Geological Society of America, National Association of Geoscience Teachers, Paleontological Society, and Society for Vertebrate Paleontology is available at <http://www.agiweb.org/gap/legis108/evolution.html>. The American Institute of Biological Sciences has sent a similar letter. AGI is also looking into a report by the Public Employees for Environmental Responsibility that "Park Service leadership has blocked publication of guidance for park rangers and other interpretative staff that labeled creationism as lacking any scientific basis." A review of "Grand Canyon: A Different View" by Wilf Elders that appeared in Eos can be viewed at <http://www.agu.org/journals/eo/eo0338/2003EO380005.pdf#anchor>.

*From the AGI GOVERNMENT AFFAIRS MONTHLY REVIEW -- DECEMBER 2003*

### **33rd annual meeting of the Eastern Section of the American Association of Petroleum Geologists (ES-AAPG), Columbus, Ohio, October 3-6, 2004**

You are cordially invited to attend the 33rd annual meeting of the Eastern Section of the American Association of Petroleum Geologists (ES-AAPG), in Columbus, Ohio, October 3-6, 2004, at the Ramada Plaza Hotel. The theme of this year's meeting is "Still Economic after all these Years." From the historic days of the Drake well and the world's first giant oil-and-gas field (the Lima-Indiana producing trend) to the present-day exploration for new frontier horizons, our region has been contributing to the world's energy

resources for nearly 150 years. Geoscientists have led the way in developing the ideas and innovative techniques necessary to sustain our industry, and are the reason our region is "Still Economic after all these Years."

ES-AAPG together with AAPG's Division of Environmental Geosciences (DEG), Energy Minerals Division (EMD), and Division of Professional Affairs (DPA) will offer two concurrent oral sessions each day of the meeting and two full-day poster sessions. A post-meeting workshop also is being planned. This year's meeting not only incorporates our goal of highlighting new exploration plays, but also offers a forum to emphasize new ideas for old plays, new technologies and ideas for finding or developing reserves, and historical perspectives that provide a foundation for new opportunities.

The Technical Program Committee encourages you to contribute an abstract for an oral or poster presentation and participate in this informative and exciting meeting. All papers of interest to the Eastern Section will be considered. Proposed Topics include:

- Bypassed Reservoirs in Mature Fields, Geochemistry and Source Rock Studies Cambrian/Ordovician Frontier Plays-Trenton/Black River, Knox, and Pre-Knox units.
- Fractured Reservoirs, Enhanced Oil Recovery; Unconventional Petroleum Systems and Methods for Hydrocarbon Recovery-Geochemical Techniques, Horizontal Drilling, Basin-Centered Gas Systems, Fractured Shale-Gas, Coalbed Methane Opportunities
- Environmental Assessment, Remediation and Hydrogeology Issues; GIS and Computer Applications in Petroleum Geology; Historical Retrospect of Eastern Plays, Geophysical Methods Including 2D, 3D Seismic, and Aeromagnetic Interpretation.
- Detailed Studies/Case Histories of Oil and Gas Fields; Hydrocarbon Resources of the Great Lakes, Sequence Stratigraphy-Applications in Exploration and Development Impact Features and Hydrocarbon Potential, Reservoir Characterization of Siliciclastics and Carbonates, Evaluation and Prediction of Stratigraphic Traps, CO<sub>2</sub> Sequestration-Studies and potential impact on the region

### *Information for Presenters*

Authors are invited to submit new and original work for either oral or poster sessions outlined in this call for papers. Abstracts are due by April 1, 2004. Please visit the 2004 Meeting web site for more information:

<http://www.ohiodnr.com/geosurvey/aapg04.htm>

#### *Contact Information; General Co-Chairs*

Larry Wickstrom, Ohio Geological Survey  
4383 Fountain Square Dr., Columbus, OH 43224-1362, e-mail: [larry.wickstrom@dnr.state.oh.us](mailto:larry.wickstrom@dnr.state.oh.us)  
ph: (614) 265-6598

Steve Zody, Zody Geoscienc, P.O. Box  
921, Wooster, OH 44691, e-mail:  
[zodyoil@sssnet.com](mailto:zodyoil@sssnet.com), ph: (330) 262-4323  
ph: (614) 265-6573

### **Geologist Licensing Exam Training**

For the first time, PGS is cooperating with PCPG to co-present two sessions of the geologist licensing exam training in preparation for the ASBOG exam offered in March and October of next year. PGS training will occur in Pittsburgh on February 5 and 6 and the PCPG training will occur in Philadelphia on February 12 and 13. The Pittsburgh event will occur at the Best Western, Parkway Center Inn.

The training occurs in two parts - 1) "Fundamentals of Geology" and 2) "Applied Geology/Professional Practice." PGS members will be the trainers for the Pittsburgh session. These members include Chuck Shultz, Tamra Schiappa, Pete Hutchinson, Pat Burkhart, and Brian Greene. Should anyone be interested in this event, more information is available on the PGS website, and detailed information on registration and costs can be found at the PCPG website, [www.PCPG.org](http://www.PCPG.org)

A \$99 discount is available to PGS members training in Pittsburgh.

We are trying to reach those who may be interested, particularly in western PA and adjoining states in the region. We need your help to spread the news!

### **You're Invited!**

The Ohio Geological Survey cordially invites all Ohio geologists, associates and friends to a gala winter celebration on Friday, January 23, 2004 at the Ramada Plaza Hotel in Columbus, Ohio. Cost is \$25 per person. R.S.V.P. by Monday January

19. Please call Amy Lang (614) 717-9262 or e-mail [aburke@ee.net](mailto:aburke@ee.net) for details and reservations

### **Is Your Membership in Danger of Expiring???**

There is still a significant number of PGS members who have not yet renewed their membership for the 2003-04 program year. Please be aware: if you have not paid your dues by January 31, 2004 you will be dropped from the membership list and will no longer receive newsletters, announcements, notifications, or other information. Please renew now and save your place in Pennsylvania's largest and most active regional geological society.

### **PGS Membership Directory**

The Membership Committee will be putting together this year's membership directory early in February. If any member has changed jobs, addresses, phone or fax numbers, email addresses, etc. since submitting a membership application or renewal form, please contact John Harper at Pennsylvania Geological Survey, 400 Waterfront Drive, Pittsburgh, PA 15222-4745, phone 412-442-4230, fax 412-442-4298, or email [jharper@state.pa.us](mailto:jharper@state.pa.us).

### **Origins Of Western Pa Place Names**

The name Neshannock, which is a town in Mercer County and a creek in Lawrence County, is a corruption of the Delaware Indian phrase "nischam-hanne" meaning "two streams" or "double stream." It refers to a place where two streams join to form one. The corrupted name is a variation of Neshiminy, which is a well-known town and creek in Bucks County in southeastern Pennsylvania.

### **Did You Know . . . ?**

- According to the AAPG, job prospects in the oil industry for upcoming students should be good because the average age of AAPG members indicates many of them will be retiring within the next 10 or 15 years.
- Although radioactive decay of uranium and thorium in apatites and zircons produces helium, it is lost by diffusion over geologic time at temperatures above 70°C and 180°C, respectively, thus making these systems great low-temperature thermochronometers.
- If you want a good source of information on

paleoenvironmental and climatic changes, look to deep lakes – long continuous sedimentary records preserved in these lakes provides some of the best information out there.

- At over 44 miles thick, the continental crust beneath the central Andes Mountains in South America is among the thickest known on Earth.
- A group of researchers from Canada and England recently showed evidence that there was, in fact, no distinctive wildfire across North America related to the Cretaceous-Tertiary impact event at Chixulub, and therefore fires and extreme heat were not responsible for end-Cretaceous extinctions.
- Research into the use of lasers to drill wells indicates that modern equipment has enough power to cut, melt, or vaporize rock, and that the type of rock tested did not significantly change the amount of energy needed to cut or melt it.
- The continental interior of North America, particularly in the southwest, was subjected to severe drought conditions between 7000 and 5000 years BP, apparently the victim of a series of El Niño events.
- The super-giant oil fields of southeastern Iraq are the largest concentration of oil so far found anywhere in the world.
- About 10% of the world's known gold deposits result from a major gold-rich metallogenic event that occurred in East Gondwana (now southeastern Australia) about 440 million years ago.
- The most conspicuous plants of the Devonian Period were large tree-like plants called *Archaeopteris* that had conifer-like stems up to five feet in diameter and fern-like leaves.
- The Middle Cretaceous must have been an interesting place to live – atmospheric CO<sub>2</sub> levels were high, there were few if any polar ice caps, and global temperatures were about 10°C higher than they are today. Nodules containing barite, galena, and sphalerite can be found in calcareous shales at the base of the Upper Freeport coal at certain places around western Pennsylvania, such as in the vicinity of Vandergrift in Armstrong County.

### **Website Of The Month**

<http://antwrp.gsfc.nasa.gov/apod/> (thanks to Chris Laughrey).

*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](mailto:keeliher@bellatlantic.net)*

## **Pittsburgh Geological Society**

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V. President: Ray Follador  
Treasurer: Steve McGuire  
Secretary: Frank Benacquista

### **Directors-at-Large:**

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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](mailto:jharper@state.pa.us). Membership information can also be found at our website: [www.pittsburghgeologicalsociety.org](http://www.pittsburghgeologicalsociety.org)

## **PITTSBURGH GEOLOGICAL SOCIETY**

**PO Box 58172**

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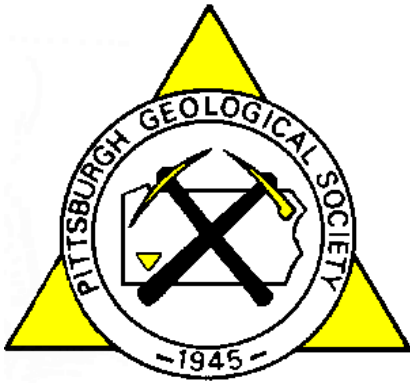
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# PGS Newsletter

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

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Vol. LV1, No 6

Mike Keeliher, Editor

February 2004

**Wednesday, February 18, 2004**

**Social hour - 6:00 p.m.**

**Dinner - 7:00 p.m.**

**Program - 8:00 p.m.**

**Joint Meeting with the Pittsburgh Association of Petroleum Geologists (PAPG)**

**Canyonland Grabens of SE Utah, A Natural Laboratory**

**for Understanding Fault Growth**

**Bruce Trudgill, Colorado School of Mines**

**AAPP Distinguished Lecturer**

The Canyonlands Grabens in southeast Utah form an active extensional fault array covering 200 square kilometers southeast of the Colorado River in Canyonlands National Park. The fault array formed as the result of gravity gliding above a thick layer of salt. Growth of this fault array within the last 0.5 million years, (possibly in the last 100,000 years) has produced a spectacular array of linked normal fault geometries. A wide variety of relay ramp structures are developed in regions of fault overlap and their evolution can be clearly defined in the field.

The rapid growth of the fault array resulted in major changes in the stream drainages across the area through processes of stream capture and diversion. During growth of the fault array, relay ramps between overlapping fault segments form topographic lows along the graben margins. These commonly act as access points for captured streams to enter a graben system. As fault systems continue to propagate laterally, linkage leads to breaching of the relay ramp structures. This causes changes in the courses and gradients of the streams, often shifting the locus of alluvial sediments deposition away from grabens that were previously infilling. This complex evolution of drainage networks in a growing fault array may provide a valuable analogue to the early structural and stratigraphic development of larger continental rift systems.

Current research is now focused on obtaining rates of fault growth from an integrated analysis of drainage evolution with dating techniques and GPS measurements. This will ultimately lead to constraints on the fault array through time and help enhance our understanding of fault growth process.

The geometry of the fault array at depth is less well constrained in the field. However, the presence of a salt detachment level 500 meters below the land surface means the models of graben formation and vertical fault propagation can also be tested in this unique natural laboratory. By happy coincidence the Canyonland Grabens lie within one of the most spectacular National Parks in the United States and are reasonably accessible to geologists keen to examine these features for themselves.

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](mailto:McGuireS@USFilter.com) by **noon**



**Monday, February 16, 2004. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

**About our Speaker**

Dr. Trudgill received a B.Sc, First Class, Honors, Geology from the University of Wales, Aberystwyth and a Ph.D from the University of London, Imperial College in Structural Geology. He has worked as Geophysicist Post-Doctoral Research Fellow for Amerada Hess UK Ltd., London, and has been a research associate and an assistant research professor at the University of Colorado in Boulder. He was a lecturer in Geology and Geophysics at Imperial College and is presently an Associate Professor at the Colorado School of Mines in Boulder. Dr. Trudgill has published numerous papers on faulting in the Gulf of Mexico and Utah.

**Professor at CUP dies**

PGS is saddened to report the death of Dr. Robert A. Vargo, Professor of Earth Sciences at California University of Pennsylvania, Friday, January 9, 2004. Attached is a link to the obituary. Please pass this on to anyone you know will be interested in receiving this information.

[http://www.zwire.com/site/news.cfm?newsid=10795730&BRD=2280&PAG=461&dept\\_id=468518&rft=6](http://www.zwire.com/site/news.cfm?newsid=10795730&BRD=2280&PAG=461&dept_id=468518&rft=6)

For those wishing to pay their respects, there will be a memorial service at the Chapel of Old Main on the campus of California University of Pennsylvania on Feb. 6, 2004, at 11 a.m. The family is asking that any donations be made to the Earth Science Scholarship Fund at California University of Pennsylvania.

**Fossil Collecting and Waterfalls in New York, the PGS Spring Field Trip.**

Have your children taken all your prize fossils to "Show and Tell" and traded them for French fries in the lunchroom? Has your significant other used them to chase the squirrels off the bird feeder? Now's the time to re-stock!

The 2004 PGS Spring Field Trip will be heading

to the Buffalo New York area to visit the Penn Dixie Fossil Site and a trip to Niagara Gorge. The trip date is planned for April 30-May1st. This will be an overnight trip with departure around 3-4 p.m. on Friday April 30. We will stay at a hotel Friday night in Buffalo and then begin the field trip on Saturday May 1st. The first stop will be the Penn Dixie Fossil Site where we can collect fossils. For more information visit <http://www.penn Dixie.org/>. Then we will depart for the Niagara Gorge for lunch and spend the afternoon at the Gorge to check out the geology and scenery. Each participant will be responsible for his or her overnight accommodations and food. PGS will reserve a block of rooms at a motel to be determined. To reduce costs, consider sharing a room.

The mode of transportation has not been finalized, but may consist of renting vans or carpooling. If we rent vans, the cost of the trip will be \$30/person and \$10/student. If we car pool, the cost will be based on the most current government mileage allowance to be paid to the owner/driver of the vehicle.

**33rd annual meeting of the Eastern Section of the American Association of Petroleum Geologists (ES-AAPG), Columbus, Ohio, October 3-6, 2004**

You are cordially invited to attend the 33rd annual meeting of the Eastern Section of the American Association of Petroleum Geologists (ES-AAPG), in Columbus, Ohio, October 3-6, 2004, at the Ramada Plaza Hotel. The theme of this year's meeting is "Still Economic after all these Years." From the historic days of the Drake well and the work for either oral or poster sessions outlined in this call for papers. Abstracts are due by April 1, 2004. Please visit the 2004 Meeting web site for more information:

<http://www.ohiodnr.com/geosurvey/aapg04.htm>

**Spring Session, Coalbed Methane Forum**

The North American Coalbed Methane Forum will hold its spring session on April 15 and 16, 2004 at the Holiday Inn, 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.

### **Geologist Licensing Exam Training**

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### **New Honorary Member Named**

The PGS Board of Directors has named Paul G. Benedum, Jr. its newest Honorary Member. Mr. Benedum, President of Benedum Interests, is a long-time member who has also contributed to the Society financially as a corporate sponsor. He is Pittsburgh's most prominent philanthropist when it comes to the Earth Sciences – for example, his endowment to the Carnegie Museum of Natural History, which resulted in construction of the aptly named Benedum Hall of Geology. Congratulations and many thanks, Paul, from the Society and the geological community.

### **Creationism Rears Its Ugly Head Again**

Proposed educational guidelines for middle and high school science classes in Georgia appear to be a veiled effort to bolster creationism. Much of the state's 800-page curriculum, unveiled at the end of January 2004, was taken verbatim from the "Standards for Excellence in Education," an academic framework produced by the nonprofit Council for Basic Education. But the Georgia Education Department omitted large chunks of material when it came to science, including references to Earth's age and the concept that all organisms on Earth are related through common ancestry. The word "Evolution" was replaced with "changes over time," and the word "long," in reference to the "long history of the Earth," was removed completely. Educators across the state said that the guidelines would leave the state's public school graduates at a disadvantage. The current curriculum is already weak in biology, leading to a high failure rate in the sciences among Georgia high school students. Even those who do well in high school science are not necessarily proficient in the fundamentals of biology, astronomy, and geology. Sarah L. Pallas, an Associate Professor of Biology at Georgia State

University, said, "The point of these benchmarks is to prepare the American work force to be scientifically competitive. By removing the benchmarks that deal with evolutionary life, we don't have a chance of catching up to the rest of the world." Without coming out and calling herself a creationist, Georgia's Schools Superintendent, Kathy Cox, has not masked her feelings. She is on record as supporting parents who wanted "Christian" (actually, creationist, which is not the same thing) notions of Earth and human creation to be taught in schools. The guidelines, which were adopted by a panel of 25 educators, will become official in 90 days unless concerned citizens demand change.

### Origins Of Western Pa Place Names

The name Ohio, referring to the main river in this area as well as to our neighboring state to the west, is based on a Seneca Indian word that means, essentially, "The Beautiful River." When the French came to this area, they used that name but translated it to "La Belle Riviere." Interestingly enough, the Senecas, and later the French, considered "the Beautiful River" to flow from Potter County to the Mississippi. The name Ohio, in other words, was used for both the current Allegheny and Ohio Rivers. The Monongahela was considered a mere tributary of this river.

### Did You Know . . . ?

- Seismologists have discovered that glaciers produce long-period seismic surface waves as large, long-lasting earthquakes.
- Superman might be able to make diamonds out of coal by squeezing it in his hands, but in real life, when you compress carbon (specifically graphite) it becomes super-hard graphite rather than diamond.
- Vertebrate paleontologist Malcolm McKenna has provided data showing that a land bridge connected North America to Europe during the Early Cenozoic, not only paving the way for animal and plant migration but also blocking circulation between the Atlantic and Arctic oceans.
- Geologists still don't know why South Africa has what seems to be a disproportionate concentration of gold, diamonds, platinum,

chromite, manganese, and other minerals.

- The meteorological term "windchill," as in windchill factor, was first coined by Paul Siple, a 1932 Allegheny College (Meadville, PA) graduate, who used it in his doctoral thesis entitled *Adaptations of the Explorer to the Climate of Antarctica*.
- The three largest impact craters known on Earth are at Sudbury in Canada, Vredefort in South Africa, and Chixulub in the Yucatan. The two former are 2 billion years old, and the latter purportedly wiped out the dinosaurs.
- Using genetic evidence to study the expansion of North American and Amazonian mammals following the last glaciation, scientists from Uruguay showed that Amazonian forests remained stable and constant through the Ice Age, in contrast to North American habitats that underwent dramatic changes.
- Some scientists are using the term *Anthropocene* for the youngest epoch of the Holocene – the time in which we are now living – because humans have as much on the environment as Nature.
- Researchers from the University of Rochester and Harvard University have found meteor fragments in Antarctica that supposedly are associated with the Permian-Triassic mass extinction. Here we go again!
- Subduction of oceanic lithosphere is relatively rapid – on the order of 5 to 15 centimeters per year – so it can remain cold and rigid at great depths, allowing for it to remain in one slab over distances greater than its thickness.
- Spectral maps made by data from the Mars Global Surveyor reveal that large areas are covered by olivine, indicating that Mars may have been cold and dry for most of its history (olivine weathers rapidly in Earth's humid climate).

### Website Of The Month

<http://science.howstuffworks.com/>

*If you wish to make a contribution to the newsletter you may e-mail the editor at [keeliher@bellatlantic.net](mailto:keeliher@bellatlantic.net) or send a letter to 4590 Dutch Ridge Road, Beaver, PA 15009.*

## The Penn Dixie Paleontological and Outdoor Education Center



The Penn Dixie Paleontological and Outdoor Education Center is owned and operated by the Hamburg Natural History Society, Inc. (HNHS). Jerry ( a member of the Pittsburgh Geological Society) will discuss the Middle and Upper Devonian shales and limestones at the Penn Dixie Site, which contain a variety of 380-million year old invertebrate, vertebrate, and plant fossils at the Penn Dixie Site. The upper portion of the Wanakah Shale, the overlying Tichenor Limestone, the Windom Shale, the North Evans Limestone and the Genundewa Limestone are exposed at the site. This classic and unique site has an extensive lateral and vertical section of bedrock containing an abundant and diverse fossil assemblage, which weathers out making collecting relatively easy for visitors of all ages. The Upper Wanakah Shale is very fossiliferous, containing a variety of brachiopods, crinoids, corals, trilobites, etc. The “rusty” appearing Tichenor Limestone contains a variety of fossils, which can be difficult to remove from the limestone. There is a pop-up feature in the Tichenor Limestone on the north end of the site, which still remains a mystery as to its origin. There are several distinct horizons within the Windom Shale, such as the Amsdell and Big Tree pyrite beds, the “Praeumbona Beds”, the Smoke Creek Trilobite Bed, Bay View Coral Bed, the “Ambocoelia Beds”, and more that are very fossil rich. The overlying North Evans Limestone contains fossil fish remains, conodonts, carbonized wood, and other fossils. Several Masters’ and PhD. dissertations have been conducted at the Penn Dixie Site. This preserved fossil-rich site is serving as an outdoor classroom for pre-school through post-graduate students to study the natural sciences.

Students, scouts, families, summer day camps, amateur and professional geologists find this classic geologic 32.5 acre site a great place to study geology, collect fossils, observe over 143 nesting and migratory birds, view the WNY skies and explore nature. Guided tours, astronomy programs, birthday parties and family outings are available by reservation. Additional information and location map can be obtained on the Penn Dixie web site at [www.penndixie.org](http://www.penndixie.org) .



# **Pittsburgh Geological Society**

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Counselor: John Harper  
Past President: Judy Neelan

**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](mailto:jharper@state.pa.us). Membership information can also be found at our website: [www.pittsburghgeologicalsociety.org](http://www.pittsburghgeologicalsociety.org)

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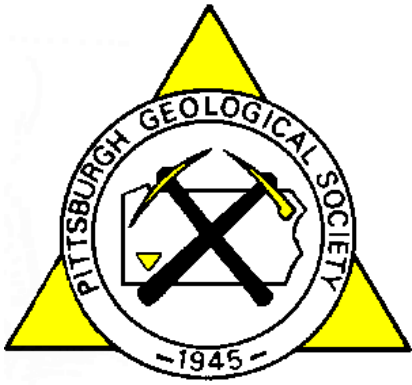
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# PGS Newsletter

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

Vol. LV1, No 7

Mike Keeliher, Editor

March 2004

Wednesday, March 17, 2004

Social hour - 6:00 p.m.

Dinner - 7:00 p.m.

Program - 8:00 p.m.

## New Mammal Discoveries from the Lower Cretaceous of China

By

**Dr. Zhe-Xi Luo, Curator of Vertebrate Paleontology and interim Associate Director of Research and Collections at the Carnegie Museum of Natural History.**

Placental and marsupial mammals make up 99.9% of all mammals living in the world today, and the placental and marsupial lineages have a long evolutionary history extending to the Mesozoic when dinosaurs dominated the land. The earliest fossils of placental and marsupial mammals from the Mesozoic are of great interest because they shed light on the beginning of the evolutionary lineages that include humans and many mammals that are still thriving today. Dr. Luo will discuss the newest fossil evidence from the Lower Cretaceous (125 million years ago) of China on evolutionary origins of marsupial and placental mammals. The new fossils help to establish a new timeframe for the earliest diversification of the marsupial and placental lineages, and their earliest skeletal and locomotory evolution.



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 [stephen.mcguire@veoliawaterna.com](mailto:stephen.mcguire@veoliawaterna.com) by noon Monday, March 15, 2004. Meeting will be held at the Terrace Room, Parkway Center, Greentree.

About our Speaker



The lifetime passion of Dr. Zhe-Xi Luo's ("Luo") is the history of early mammals that lived in the times of dinosaurs. In search for new fossil mammals, dinosaurs and other vertebrates of the Mesozoic, he led scientific expeditions to many places in China, including the Northwestern Gansu Province and Xinjiang Region, along the historical Silk Road, and the feathered dinosaur sites of Liaoning Province. Among his recent discoveries are the world's earliest-known relatives to the marsupial and placental mammals. Born in Beijing, Luo has studied and worked in the US for 20 years and he is currently Curator of Vertebrate Paleontology and interim Associate Director of Research and Collections at the Carnegie Museum of Natural History.

### **Fossil Collecting and Waterfalls in New York, the PGS Spring Field Trip.**

The 2004 PGS Spring Field Trip will be heading to the Buffalo New York area to visit the Penn Dixie Fossil Site and a trip to Niagara Gorge. The trip date is planned for April 30-May 1st. This will be an overnight trip with departure around 3-4 p.m. on Friday April 30. We will stay at a hotel Friday night in Buffalo and then begin the field trip on Saturday May 1st.

The first stop will be the Penn Dixie Fossil Site where we can collect fossils. For more information visit <http://www.penndixie.org/>. Then we will depart for the Niagara Gorge for lunch and spend the afternoon Chuck Shultz will lead us into Niagara Gorge to check out the geology and scenery.

Each participant will be responsible for his or her overnight accommodations and food. Ten rooms (two-double beds in each) are currently on reserve at the Tally Ho Motel, Buffalo, NY. The price for the room is \$39.99 + tax and if you double up, which would be the optimum plan, then you can halve that cost. The rooms are on a 6 pm hold, April 30th. Interested parties may call the motel anytime and reserve one of these rooms; let them know you are with the Pittsburgh Geological Society to get this rate. The phone number is 716.648.2000.

PGS is reserving vans for the trip. The cost of the trip will be \$30 per person and \$10/student. Please e-mail your reservations to: [barnrwl@cdm.com](mailto:barnrwl@cdm.com)

### **ASCE and AEG present 2003 Terzaghi Lecturer**

John T. Christian, P.E., Ph. D., Hon. M. ASCE  
*Geotechnical Engineering Reliability: How Well Do We Know What We Are Doing?*

Uncertainty and risk are central features of geotechnical and geological engineering. Nevertheless, probability is not a property of the world but a state of mind. Engineers can deal with uncertainty by ignoring it, by being conservative, by using the observational method, or by quantifying it. Reliability analysis and probabilistic methods are ways to quantify uncertainty, and they have recently found wide application in geotechnical engineering.

Date: Thursday, March 18, 2004, Time 6 PM,  
Place: Pittsburgh Athletic Association, 4215 Fifth Avenue across from the Cathedral of Learning (412) 621-2400. Cost: \$36.00 for members of the ASCE Pittsburgh Section \$38.00 for non-members \$5.00 for student members Contact: Jim James at (412) 922-5575 [jjames@gfnet.com](mailto:jjames@gfnet.com) or Andy Rose at (814) 269-7249 [androse@pitt.edu](mailto:androse@pitt.edu)

### **Spring Session, Coalbed Methane Forum**

The North American Coalbed Methane Forum will hold its spring session on April 15 and 16, 2004 at the Holiday Inn, 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.

### **Deadline Extended for Student Abstracts**

Students are invited to submit abstracts on a Senior Research Project, Senior Design Project, or Masters Thesis for presentation at the Second Annual Student Night joint meeting of the Association of Engineering Geologists, PGS and the Geotechnical Group of the Pittsburgh Section of the American Society of Civil Engineers.

Abstracts on the following topics are welcome: Geology, Engineering Geology, Geotechnical Engineering, Environmental Engineering, Hydrogeology and Hydrology.

Three students will be selected to give a 15 to 20 minute oral presentation based on their abstract



submittal (no more than 350 words). Students not selected to give an oral presentation will be invited to present a poster summarizing their research work. Abstracts are due March 5, 2004.

Notification will be given to the selected speakers on March 12. The three students selected to give oral presentations will receive \$100 awards.

The meeting will be on April 21, 2004 at 6:00 PM at the Terrace Room, Parkway Center, Greentree PA. PGS will host the evening.

Abstracts may be submitted via e-mail to [rtinsley@mbakercorp.com](mailto:rtinsley@mbakercorp.com). If you have any questions or require a mailing address for your abstract submittal, please call Ryan Tinsley at (724) 495-4175.

### **Reminder about the PGS Membership Directory**

The Membership Committee will be putting together this year's membership directory early in March. If any member has changed jobs, addresses, phone or fax numbers, email addresses, etc., please contact John Harper at Pennsylvania Geological Survey, 400 Waterfront Drive, Pittsburgh, PA 15222-4745, phone 412-442-4230, fax 412-442-4298, or email [jharper@state.pa.us](mailto:jharper@state.pa.us).

### **Change of PGS Meeting Date in May**

Our meeting date in May has been moved up to May 4, 2004 to meet with the National President of the Association of Engineering Geologists, David B Simon who will be speaking on A Case Study - The Holocene "Downtown Fault" in Salt Lake City, Utah: Technical Controversies and Geopolitics and an overview of the AEG

### **Call For Nominees**

The Society is calling on the membership for interested candidates for next year's Officer and Director-at-Large positions. There are 3 Director-at-Large positions that need to be filled. These positions are for a term of 2 years and require regular attendance at the Board meetings held 1 hour prior to the Social hour of each Society monthly meeting. If you are an active member of the Society and have an interest in being a candidate, or know of a member that you think would be a good candidate, please inform one of

the Society officers or Board members at the upcoming March meeting. A list of all candidates will be printed in the April Newsletter prior to the election to be held at the May Meeting. Also, any member who may be interested in succeeding Mike Keeliher as Newsletter Editor on the Board should discuss the position with Mike at one of the future meetings.

Candidates will be put on the ballot, due out in the April Newsletter. This year the pace will be a bit quicker due to the meeting date in May.

### **Origins Of Western Pa Place Names**

The name Ohio, referring to the main river in this area as well as to our neighboring state to the west, is based on a Seneca Indian word that means, essentially, "The Beautiful River." When the French came to this area, they used that name but translated it to "La Belle Riviere." Interestingly enough, the Senecas, and later the French, considered "the Beautiful River" to flow from Potter County to the Mississippi. The name Ohio, in other words, was used for both the current Allegheny and Ohio Rivers. The Monongahela was considered a mere tributary of this river.

### **"Kennewick Man" Wins One in the Courts**

A US appeals court ruled in February, 2004 that scientists should be allowed to continue studies of "Kennewick Man", a skeleton discovered in 1996 near the Columbia River at Kennewick, Washington that has been dated as 8,340- to 9,200-years old. American Indian tribes, backed by the U.S. Department of Interior, U.S. Army, and other agencies, had been seeking an immediate burial of the remains, which the Indians believe belong to a distant relative. But the skeletal features are quite different from those of American Indians, and scientists hoped further study would shed light on early North Americans. Evidence of human settlements dating from the late Ice Age on California's channel islands and in Chile suggests America's first humans traveled by boat much earlier than believed. Therefore, the Kennewick skeleton is considered an irreplaceable source of information about early New World populations. In their ruling, the three-man court wrote, "The age of Kennewick Man's remains, given the limited studies to date, makes it almost

impossible to establish any relationship between the remains and presently existing American Indians." The judges recognized from the evidence that there is no clear link, temporal or physiological, between the skeleton and American Indians, so science has won one in the courts.

### **Did You Know . . . ?**

- Geochemical analysis of Proterozoic microfossils from China indicates the Earth's atmosphere 1.4 billion years ago contained levels of CO<sub>2</sub> 10 to 200 times higher than those found today.
- The Mars Global Surveyor discovered strongly magnetized crust on Mars, indicating the presence of an earlier epoch when the planet had a dynamo in its core.
- The major sources of the world's copper, lead, zinc, silver, and gold deposits generally come from porphyritic intrusions emplaced into carbonate rocks.
- The interaction of atmospheric/oceanic CO<sub>2</sub> with silicates in the continental crust is believed to be fundamental in the regulation of Earth's climate, releasing calcium and magnesium through weathering and deposition of calcium and magnesium carbonates in the oceans.
- Overpressured rocks that compact only as a response to changes in the effective stress (stress minus pore pressure) will have enhanced porosity in comparison to normally pressured, but otherwise similar, rocks.
- Modeling of the melting that accompanies mantle upwelling predict that there should be more melt that has been observed at nonvolcanic margins, probably as a result of assuming incorrectly that the asthenosphere is uniform.

- The oldest known fossils are believed to be 3.49 billion-year old microfossils of photosynthesizing bacteria from the Warrawoona Group of western Australia.
- By comparing paleoclimate reconstructions of El Niño from tree rings, corals, and ice cores to proxy records of volcanic activity, researchers at the University of Virginia have established that chances of an El Niño-like event occurring after a large tropical volcanic eruption are double what they would be by chance alone.
- Many geologists believe that Late Paleozoic glaciation in Gondwanaland lasted from Late Devonian to Late Permian, with waxing and waning ice sheets or alpine glaciers contributing to the sea level changes apparent in the stratigraphic record in Laurentia.
- The Council Run field of Centre and Clinton Counties, PA is one of the most productive natural gas fields in the central Appalachian basin.
- The climate record from around the world indicates an abrupt climate change event in 6400 BC in which there was a period of immense cooling and drought that persisted for 200 to 300 years.

### **Website Of The Month**

<http://spacewander.com/USA/english.html>

*If you wish to make a contribution to the newsletter you may e-mail the editor at [keeliher@verizon.net](mailto:keeliher@verizon.net) or send a letter to 4590 Dutch Ridge Road, Beaver, PA 15009.*

## **Pittsburgh Geological Society**

**The PGS Board:**

President: Mike Bikerman

V. President: Ray Follador

Treasurer: Steve McGuire  
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Counselor Pete Briggs  
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**Directors-at-Large:**

**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](mailto:jharper@state.pa.us). Membership information can also be found at our website: [www.pittsburghgeologicalsociety.org](http://www.pittsburghgeologicalsociety.org)

**PITTSBURGH GEOLOGICAL SOCIETY**  
**PO Box 58172**  
**Pittsburgh PA 15209**

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## **PGS 2003 Corporate Sponsors**

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# PGS Newsletter

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

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Vol. LV1, No 8

Mike Keeliher, Editor

April 2004

**Wednesday, April 21, 2004**

**Social hour - 6:00 p.m.**

**Dinner - 7:00 p.m.**

**Program - 8:00 p.m.**

**Student Night, a joint meeting with the Association of Engineering Geologists and the American Society of Civil Engineers, Geotechnical Division.**

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## **AEG Award Winner**

**Preparation of Landslide Susceptibility Map of Summit County, Ohio using GIS and Remote Sensing Techniques**

**Arpita Nandi**

**Kent State University**

The aim of this study is to evaluate the factors affecting the landslides in Summit County, Ohio. Summit County is well known for the rotational slides in mud rocks along the Cuyahoga River valley. The landslide locations of the County are identified from the aerial photographs, field check and exiting literatures. A landslide inventory map is prepared for the region in a scale of 1:25,000. The occurrence of landslides generally depend upon the complex interaction of different dependent and independent factors (variables) like geomorphology, topography, elevation, soil type, land use/land cover pattern, etc. GIS is a contemporary tool, which is used in such study to analyze the spatial dependency of the various factors affecting the landslides. The slope angle, aspect, and drainage maps of the study area are extracted from the Digital Elevation Model data. The lithology and structure data are collected from the geological database. Erodable soil types are evaluated from the existing soil maps. The landcover/landuse pattern is identified using supervised classification scheme from the Landsat 7 ETM satellite image. The water resource and precipitation data is received from Division of Natural Resources. All theses layers are used to create the database for the susceptibility analyses of landslides in Summit County. The vector data layers are converted to raster data and Spatial Analyst tool in ArcMap is used for the study. Each factor such as, slope angle, slope aspect, drainage, erodable soil, lithology and structure, land cover /land use, water resources and precipitation are classified and coded in a numerical scale. This procedure is performed to represent the variables that someway correspond to the actual physical condition of the region. Frequency distribution analyses are carried out within each class and among all the variables to assign the mentioned numerical codes and the weight values for dominant factors. A landslide susceptibility Index (LSI) is calculated from the weights and the coded factors and categorized as low, moderate and high depending upon the range of the LSI values. The final product of the study is a landslide susceptibility map of Summit County based on the LSI index.

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 [stephen.mcguire@veoliawaterna.com](mailto:stephen.mcguire@veoliawaterna.com) by **noon Monday, April 19, 2004. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

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**PGS Award Winner**

**Characterization of Dome Processes at Soufrière Hills Volcano, Montserrat: Synthesis of Infrared Remote Sensing Data with a Multi-parameter Database**

**Sally Susan Kuhn**

**Michael Ramsey**

**Department of Geology and Planetary Science University of Pittsburgh**

**Abstract:** The Advanced Spaceborne Thermal Emission Reflectance Radiometer (ASTER) is a high-resolution multispectral imager that has been used to discern physical variations on an inactive volcanic dome. Five band thermal infrared data at 90-meter spatial resolution has produced accurate temperature and emissivity data. These data can potentially provide information of glass and vesicle distribution across an active and changing dome, and therefore on internal processes and hazards. For the first time, this methodology has been applied to and tested on an active dome, Soufrière Hills, Montserrat. One cloud-free ASTER image was captured every three months on average, with increased frequency in 2002, where the volcano was a high priority target. Five nighttime ASTER scenes of the dome have been chosen based on coverage of the entire dome, the presence of thermal infrared anomalies, and pyroclastic flow activity, as well as a relative lack of cloud cover over the active dome. Montserrat Volcano Observatory (MVO) weekly reports from 1999 to present (available online) were also ingested into a multi-parameter, searchable database. These data, which detail specific volcanic activity, were compared to the ASTER results. The database fields include SO<sub>2</sub> flux, high temporal resolution weather satellite-derived radiance measurements, description of dome growth and collapse, and intensities of pyroclastic flows, rockfalls, fumarolic activity, and seismic activity. This database offers a unique cross-reference for the interpretation of the spaceborne data, as well as highlighting observable trends in each of the volcanic activity types. Results from this study provide an improved understanding of the capabilities of the ASTER instrument to accurately describe active dome processes and to characterize these and other processes statistically. This knowledge can be applied to other active areas in order to discern potential indicators of volcanic activity, dome collapse, the generation of hazardous pyroclastic activity, as well as the transition from effusive dome growth to explosivity.

**ASCE Award Winner**

**A Geotechnical Evaluation of Lime Kiln Dust (Lime-Pozzolan) as a Stabilizing Agent for Highway Subgrades**

**Timothy Shevlin**

**Kent State University**

During highway construction, the subgrade soil is often found to be of poor quality with respect to bearing capacity which can be due to the soil being too wet, too loose, or both. One common method to treat subgrades is to over excavate and replace the soil with crushed stone or to add chemicals to the soil such as lime or Portland cement. A new chemical product that is being marketed for soil stabilization is lime kiln dust (LKD), a byproduct from lime production. The Pennsylvania Turnpike Commission has recently started to use LKD as a subgrade stabilization agent and expressed a need to verify the necessary LKD content for stabilization and to evaluate the variability of different LKD materials.

A bulk sample of fine-grained subgrade soil (CL) was obtained from milepost 113 on the PA Turnpike and was evaluated for Atterberg limits, moisture-density relations, permeability, unconfined compressive strength, California Bearing Ratio (CBR) and the Eades and Grim pH procedure. These properties were also found for each of the four LKD-soil mixtures at 2%, 4%, 6%, 8%, and 10% LKD content. All tests were performed on samples compacted to within 95% of MDD and within 2% of the OWC.

The results have shown no significant difference between any of the LKD samples. The plasticity of the pure soil was reduced enough to reclassify the soil as a silt of low plasticity at 6% LKD content and above. The permeability of all the LKD-soil mixtures is on the order of 10<sup>-6</sup> ft/min. The CBR increases from 4.5% for the pure subgrade soil to 35-40% for all of the LKD-soil mixtures. The Eades and Grim pH procedure determines the minimum amount of LKD required to modify the subgrade soil is 4% LKD content.

Unconfined compressive strength values increase from 55 psi for the pure soil to approximately 85-95 psi at a 6% mixture and above. A longer curing time of 27 and 81 days has shown strength increases to as much as 150 psi with

only the lower quality LKD not reaching this strength. Compressive strength tests were also performed on samples subjected to accelerated curing temperatures of 120°F for 48 hours to see if unnatural strengths were gained. All of the LKD-soil samples cured under accelerated conditions showed higher strengths compared to samples that were cured under equivalent ambient conditions.

This study concludes that LKD is a viable as a subgrade stabilization agent for fine-grained soils at 6% LKD content. Also, it seems that there is little variability between LKDs with respect to the tests performed throughout this study.

Also attending Student Night will be the following students with poster presentations:

**Katherine Walden** (1,2), **Brian W. Stewart** (1,2), **Yumiko Watanabe** (2), and **Hiroshi Ohmoto** (2) - (1) Department of Geology and Planetary Science, University of Pittsburgh, PA, (2) Penn State Astrobiology Research Center, University Park, PA. "*Neodymium isotopic evolution of the Kalkkloof Paleosol, South Africa*".

**Tracee Iami**, and **IP Skilling**, Department of Geology and Planetary Science, University of Pittsburgh, "*Volcanology of Peperite-Fed Andesitic Debris Flows in the Miocene Mehrten Formation, Kirkwood, CA*".

**Matt Fry**, Youngstown State University. "*Investigation of the Clay Mineralogy of Argillaceous Sedimentary Rocks from the US Army Corps of Engineers Point Marion Lock and Dam Project*".

**Jahn Michael**, **Ashley Van Dyne**, **Patrick Burkhart**, **Jack Livingston**, **Erin Heffron**, **Marie Maher**, Geography, Geology, and the Environment, Slippery Rock University. "*Radiocarbon Dating of Paleosols to Constrain Timing of Holocene Land Surfaces, Badlands National Park, SD*".

**Nathanael Barta**, **Mathew Saltzman**, and **Stig Bergstrom**, Department of Geological Sciences, The Ohio State University. "*Correlation of the lower Chatfieldian (upper Middle Ordovician) strata of New York, Ontario and Pennsylvania using the Guttenberg Carbon Isotope Excursion (GICE)*".

Note: Bold type indicates presenter or co-presenters

### **2003-2004 Pittsburgh Geological Society Annual Spring Field Trip**

On this year's trip PGS will embark on a venture to the Buffalo, New York area to learn about the geology and collect fossils at the Penn Dixie

Paleontological and Outdoor Education Center in Hamburg, NY. In addition, we will venture to the Niagara Gorge to view the falls and learn about the geology and collect minerals.

The field trip will depart from Park Way Center Mall parking area, near the Best Western Hotel on Friday afternoon April 30<sup>th</sup>, around 3-4 p.m. (Stay tuned for more information). We will stay at the Tallyho-tel in Hamburg, NY on Friday night. A block of rooms have been reserved. Please contact the Tallyho-tel at (716) 648-2000. Please let them know you are with the Pittsburgh Geological Society (and/or Wendell Barner) when you are reserving your room. The rooms contain double beds, so you can share a room with another attendee and save a few dollars. Or, you can reserve a single bed for the same rate (\$39.99).

The field trip has two stops; the first stop will be Saturday morning at the Penn Dixie site and the stop and discussion will be lead by Jerold Bastedo, geologist and Executive Director of the Penn Dixie Educational Center. The second stop will be the Niagara Gorge led by Chuck Shultz, retired professor of Slippery Rock University. A brief description of the stops are provided below:

### **PENN DIXIE PALEONTOLOGICAL AND OUTDOOR EDUCATION CENTER: Newest Outdoor Educational Resource in Western New York**

By **Jerold C. Bastedo**  
Professional Geologist & Executive Director  
Penn Dixie Paleontological  
and Outdoor Education Center

The Penn Dixie Paleontological and Outdoor Education Center is owned and operated by the Hamburg Natural History Society, Inc. (HNHS). Jerry will discuss the Middle and Upper Devonian shale and limestones at the Penn Dixie Site, which contain a variety of 380-million year old invertebrate, vertebrate, and plant fossils at the

Penn Dixie Site. The upper portion of the Wanakah Shale, the overlying Tichenor Limestone, the Windom Shale, the North Evans Limestone and the Genundewa Limestone are exposed at the site. This classic and unique site has an extensive lateral and vertical section of bedrock containing an abundant and diverse fossil assemblage, which weathers out making collecting relatively easy for visitors of all ages. The Upper Wanakah Shale is very fossiliferous, containing a variety of brachiopods, crinoids, corals, trilobites, etc. The “rusty” appearing Tichenor Limestone contains a variety of fossils, which can be difficult to remove from the limestone. There is a pop-up feature in the Tichenor Limestone on the north end of the site, which still remains a mystery as to its origin. There are several distinct horizons within the Windom Shale, such as the Amsdell and Big Tree pyrite beds, the “Praeumbona Beds”, the Smoke Creek Trilobite Bed, Bay View Coral Bed, the “Ambocoelia Beds”, and more that are very fossil rich. The overlying North Evans Limestone contains fossil fish remains, conodonts, carbonized wood, and other fossils. Several Masters’ and PhD. dissertations have been conducted at the Penn Dixie Site. This preserved fossil-rich site is serving as an outdoor classroom for pre-school through post-graduate students to study the natural sciences.

## **THE GEOLOGY AND HISTORY OF NIAGARA FALLS AND GORGE**

By  
Chuck Shultz

The Niagara Gorge stop will be rigorous, and will require a descent of 300-400 feet over the Niagara escarpment, down a series of staircases and steep slopes to river level. We will then hike along the old Niagara Gorge Railroad grade, about one-half mile in length to the Whirlpool. Near the Whirlpool, you’ll have to climb over a large-block rock-fall talus pile. The hard part will be the climb back out of the gorge, up the same 300-400 feet to the vehicle parking.

It is extremely important to know your limitations, have substantial field boots, a good rock hammer or sledge hammer, hand lens, goggles or safety glasses (The Lockport Limestone is very hard), collecting bags, wrapping paper (for specimens you may discover and collect), day pack, and

plenty of drinking water.

The stop at the Gorge will allow us to learn about the geology (the complete Silurian stratigraphic column of NY will be discussed), the falls, and view some impressive potholes in the Lockport Limestone near the Whirlpool. In addition, mineral collecting will be possible, which may include any or all of the following: pink dolomite crystals, gypsum, anhydrite, calcite, sphalerite, fluorite, marcasite, and others.

The field trip will cost \$30/adult, \$10/child-student. All attendees will be responsible for their own lodging and food, except for lunch on Saturday. PGS will provide lunch and drinks for Saturday, with plenty of water on the trip down and out of the Gorge.

If you have further questions, please contact Wendell Barner at 412.208.2409 (work) or 412.973.1389 (cell) or by email: [spelunkdoc@aol.com](mailto:spelunkdoc@aol.com) or [barnerwl@cdm.com](mailto:barnerwl@cdm.com).

### **Sidney S. Galpin, 1915-2003**

We recently received word that PGS Honorary Member Sidney S. “Sid” Galpin passed away on November 17, 2003 at the age of 88 in Clarksburg, WV following an extended illness. He was born in 1915 in Iowa, and graduated from West Virginia University’s School of Earth Sciences in 1936. Sid worked for more than 42 years with the Consolidated Gas Supply Corporation and its affiliates, including Peoples Natural Gas Company, retiring in 1980 as Manager of Geology. He was a member of the American Association of Petroleum Geologists, the Geological Society of America, and PGS, for which he served as treasurer from 1948 to 1950. In his later years, he was a member of several Clarksburg area community theater groups. He also served as a Deacon and Elder in the First Presbyterian Church of Clarksburg. His wife of 64 years, Mary Reinwald Galpin, preceded him in death in 1998. He is survived by a son, two daughters, a sister, and four grandchildren. The family requested that any donations in his memory be made to the First Presbyterian Church, Galpin Office Equipment Fund, 175 West Main Street, Clarksburg, WV 26301.



## **Slate Proposed for 2004-05**

### **PGS Board of Directors**

This announcement serves as the FINAL CALL for Candidates for Officer and Director-at-Large positions for the upcoming election to be held at the May 4 meeting. Any active member interested in becoming a candidate must note so at the April meeting. A ballot will be included in next month's newsletter.

The Society is pleased to announce the current candidates as follows;

**President:** Raymond Follador

**Vice President:** Patrick Burkhart  
Steve McGuire

**Secretary:** Dan Martt

**Treasurer:** Michael Forth

### **Director-at-Large Positions**

**Frank Benacquista** - B. S. Geology 1981, University of Pittsburgh, Geologist, KU Resources, Inc., member since 1999, current Secretary.

**Beverly Christen** - B. S. Biology 1967, Kent State University, Retired/Standing Rock Farm, member since 1992.

**Michael Goodman** - B. S. Geology 2001, Slippery Rock University, Staff Geologist, Atlas America, member since 1997.

**Erica Love** - M. S. Geology 2003, University of Pittsburgh, Hydrogeologist, Shaw Environmental and Infrastructure, Inc., member since 1999.

**Mary McGuire** - B. S. Geology 1973, The Pennsylvania State University, GIS Analyst, One Call Systems Inc., member since 1974, Past President and current Webmaster.

**Mary Robison** - Ph. D. Geochemistry 1978, University of Pittsburgh, Free-lance Geochemist, member since 1970, Past President and Honorary Member.

**Ryan Tinsley** - B. S. Geology 1999, Radford University, Engineering Geologist, Michael Baker Jr., Inc., member since 2002.

### **CALL FOR PAPERS:**

#### **“Full Cycle Symposium on Coal-Bed Methane: From Prospect through Project Completion”**

The Energy Minerals Division (EMD) of AAPG has been developing the concept of a “Full-Cycle Symposium,” i.e., a symposium that includes papers that describe the “full cycle” (cradle to grave) of energy resource projects that are in EMD topic areas (coal bed methane, coal, gas hydrates, gas shales, tar sands, geothermal, nuclear). Such a national, all-encompassing symposium has yet to be held, but we in the Eastern Section would like to move ahead with a “Mini-Full Cycle” version of our own, a half day session for the Columbus meeting in October 2004 that focuses only on one EMD resource - coal bed methane. Thus, this is a request for papers that, in the proper sequence, would describe a coal bed methane project from prospect to completion and possible to abandonment due to mining or conversion for CO<sub>2</sub> sequestration.

The purpose of this full-cycle approach is to address the integrated economic, geologic and planning aspects of a coal bed methane resource project. Complete coverage of the concept would require papers from the planning and exploration stage through development and production right to closure and abandonment or conversion.

Suggested topics/subtopics include:

Preliminary/initial resource assessment  
Selecting prime targets and play fairways  
Assessment of ownership and leasing issues  
Setting up/conducting an exploration program  
Assessment of engineering and economic issues  
Drilling, completion and production decisions  
Enhanced gas production projects; CO<sub>2</sub> sequestration  
Case studies and actual examples of one or more of the above are encouraged.

If you are interested in participating in this session, please contact:

Douglas Patchen, 304-293-2867, x5443;  
[doug.patchen@mail.wvu.edu](mailto:doug.patchen@mail.wvu.edu)

If you have an abstract ready to be submitted,

please contact:

Ron Riley, 614-265-6573;

[ron.riley@dnr.state.oh.us](mailto:ron.riley@dnr.state.oh.us)

### **Student Looking for Internship**

Hard working, highly motivated, geology major seeking internship in Pittsburgh area, summer 2004. Currently a junior at the University of Pittsburgh, I have completed the majority of the core courses in the major including groundwater geology. I would be excited for the opportunity to gain hands on experience in the field. Please contact: Elizabeth Ondeck 412.751.2757 or [lizzybizzy82@hotmail.com](mailto:lizzybizzy82@hotmail.com)

### **Spring Session, Coalbed Methane Forum**

The North American Coalbed Methane Forum will hold its spring session on April 15 and 16, 2004 at the Holiday Inn, 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**

Pennsylvania was NOT, as many suppose, named Penn's Woods by the great man himself. William Penn actually wanted to call his new territory New Wales, but King Charles II objected to the name. Penn then proposed to call it Sylvania because of the lush forests, and the king, in agreement, appended the prefix Penn in honor of William's father who was a distinguished admiral.

### **New AGI Publication on Maps**

The American Geological Institute (AGI), in cooperation with the Association of American State Geologists, Geological Society of America, National Park Service, and the U.S. Geological Survey, has issued a new publication called *Meeting Challenges with Geologic Maps*. This richly-illustrated, 64-page booklet provides an overview of the nature, production and interpretation of geologic maps, along with 16 key examples demonstrating the application of geologic mapping to addressing societal issues. *Meeting Challenges with Geologic Maps* is intended for educators, policy-makers, and the general public. It is written clearly and concisely and contains many photographs and graphics of natural phenomena and their corresponding representation on a geologic map to illustrate the

application of geologic maps to problem solving. Copies are available for \$15.95 plus \$7.00 for postage and handling for the first copy and \$1.25 more for each additional copy at

<http://www.agiweb.org/pubs>. The booklet can also be obtained by mail from American Geological Institute, Attention: Publications Center, 4220 King Street, Alexandria, VA 22302, by telephone at (703) 379-2480, by fax at (703) 379-7563, or by e-mail at [pubs@agiweb.org](mailto:pubs@agiweb.org). Members of AGI member societies receive a 20% discount.

### **UCS Web Site on Climate Change**

The Union of Concerned Scientists (UCS) has expanded its colorful, interactive web pages on climate change and the Great Lakes region: *Great Lakes Communities and Ecosystems at Risk*. This interactive feature is based on the highly acclaimed report by UCS and the Ecological Society of America (ESA), *Confronting Climate Change in the Great Lakes Region: Impacts on Our Communities and Ecosystems*. Written by leading university and government scientists within the region, the comprehensive report combines advanced models of the Earth's climate system, with 100 years of historical climate data to generate the most reliable projections of future climate for the diverse habitats of the Great Lakes region. These information-packed pages show the projected impacts of climate change in Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Ontario, Pennsylvania, and Wisconsin. You can find this information by visiting <http://www.ucsusa.org/greatlakes>.

### **Did You Know . . . ?**

- Viscous mantle flow models predict that upwelling and downwelling flow in the Earth's mantle elevates and depresses the Earth's surface on a continental scale.
- Robert Wright and Luke Flynn of the University of Hawaii measured heat flow from 45 volcanoes that were active in 2001 and 2002 and determined that the energy released to the troposphere was three orders of magnitude less than the amount of energy consumed in the US in 1999.
- The presumed reliability of dates determined by U-Pb zircon geochronology is based on a perception that zircon does not readily

recrystallize during low-temperature metamorphism.

- The source of CO<sub>2</sub> in the mineral spring waters of Saratoga Springs, NY is an Ordovician dolostone that provides cold carbonated water along a high-angle extensional fault.
- If you're wondering about those high prices at the gas pump, you might be interested to know that the futures contract for US light, sweet crude oil hit a 13-year high of \$38.35 per barrel on the New York Mercantile Exchange in mid-March.
- A small earthquake with a magnitude of 2.5 occurred 1½ miles south of Rockford, Mercer County, OH on the morning of January 30, 2004. Although a small earthquake causing no damage, it was felt strongly throughout Mercer County, from Celina on the south to Rockford and Mendon on the north where residents described a sharp boom or thud followed by brief shaking, which rattled windows and dishes.
- Garnet's strength and unique internal structure give it the ability to diffuse elements slowly, preserve inclusions from the early part of its growth history, and armor early deformation fabrics.
- Archean greenstone belts exhibit a distinctive tectonic style unique to the record of the early Earth.
- Milutin Milankovitch is best known for discovering the link between orbital variations and paleoclimate, but he also considered the main amplifier of Quaternary orbital signals to be changing volumes of ice sheets.
- West Virginia's mines and quarries produce 10 to 13 million tons of limestone and dolomite

annually, having a combined value of between \$40 and \$53 million.

- The Upper Devonian black (organic-rich) shales in Pennsylvania and adjacent states typically have been interpreted as having been deposited in deep ocean basins, despite an overwhelming amount of evidence, such as preserved erosion surfaces, to the contrary.

### Website Of The Month

<http://ngmdb.usgs.gov/>

### Reminder about the PGS Membership Directory

The Membership Committee will be putting together this year's membership directory early in May. If any member has changed jobs, addresses, phone or fax numbers, email addresses, etc., please contact John Harper at Pennsylvania Geological Survey, 400 Waterfront Drive, Pittsburgh, PA 15222-4745, phone 412-442-4230, fax 412-442-4298, or email [jharper@state.pa.us](mailto:jharper@state.pa.us).

### Change of PGS Meeting Date in May

Our meeting date in May has been moved up to May 4, 2004 to meet with the National President of the Association of Engineering Geologists, David B Simon who will be speaking on A Case Study - The Holocene "Downtown Fault" in Salt Lake City, Utah: Technical Controversies and Geopolitics and an overview of the AEG

*If you wish to make a contribution to the newsletter you may e-mail the editor at [keeliher@verizon.net](mailto:keeliher@verizon.net) or send a letter to 4590 Dutch Ridge Road, Beaver, PA 15009.*

## Pittsburgh Geological Society

### The PGS Board:

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V. President: Ray Follador  
Treasurer: Steve McGuire  
Secretary: Frank Benacquista

### Directors-at-Large:

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Dan Martt, Chris Ruppen,  
Mike Forth  
Wendell Barner

Counselor Pete Briggs

Counselor: John Harper

Past President: Judy Neelan

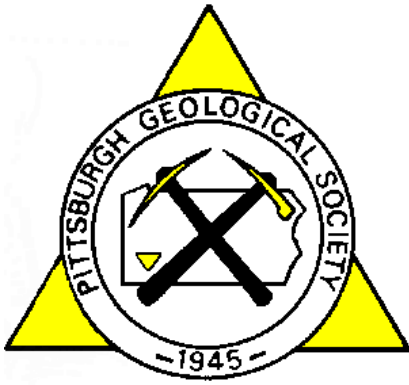
**Memberships:** For information about memberships, please write PGS Membership Chair, PO Box 58172, Pittsburgh PA 15209, or call John Harper at (412) 442-4230, or e-mail [jharper@state.pa.us](mailto:jharper@state.pa.us). Membership information can also be found at our website: [www.pittsburghgeologicalsociety.org](http://www.pittsburghgeologicalsociety.org)

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# PGS Newsletter

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

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Vol. LV1, No 9

Mike Keeliher, Editor

May 2004

Social hour - 6:00 p.m.

Tuesday May 4, 2004

Dinner - 7:00 p.m.

Program - 8:00 p.m.

A joint meeting with the Association of Engineering Geologists

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## A Case Study - The Holocene "Downtown Fault" in Salt Lake City, Utah: Technical Controversies and Geopolitics

by

David B. Simon, Simon-Bymaster, Inc. 1025 East 400 North,  
Bountiful, Utah 84010 <mailto:dbsimon@att.com>

In 1999, investigations for expansion of the Salt Palace Convention Center in downtown Salt Lake City revealed the presence of three grabens, bounding faults, liquefaction dikes, and offset paleosols and alluvial fan sediments of Holocene age. These were judged to be caused by multiple displacements of an on-site Holocene fault, the southern terminus of the Warm Springs fault, previously mapped through the site and physically documented at the Washington Elementary School ~1.5 km to the north. A second-party opinion agreed with this view. This interpretation would necessitate substantial setbacks in accordance with State of Utah active-fault criteria, major delays in construction schedules, or possibly abandonment of the site. Accordingly, the Convention Center expansion would not be ready for the 2002 Winter Olympics in Salt Lake City, nor for three major income-producing (>\$45 million) trade shows already under contract. The client therefore sought a "third-party" opinion. The third-party firm concluded that the downtown features were solely the result of liquefaction-induced, lateral spread caused by off-site seismic events, and that CPT-interpreted displacement (up to 9 ft) of the underlying, ~12-27 ka Bonneville Lake beds were minor anomalies. The divergent technical opinions were sent to an independent reviewer who, with only hours remaining

until the bond issuance would expire, agreed with the "liquefaction only" scenario. Construction on the site was completed in 2001.

The technical controversies and geopolitics of the project were well documented by the local press. The project became the topic for considerable discussion within the geologic community west of Denver and was the basis for the Sarah Andrews novel "Fault Line." Investigations for the "Holocene Downtown Fault" (which, in our judgment, truly exists) also exemplify, unfortunately, the influence of substantial geopolitical pressure. This included the public "rebuking" of the State Geologist (who held an appointed position), the political removal of the Salt Lake County Geologist from the project, the political removal of the Utah Geological Survey as an independent reviewing agency, and the major interest, if not speculation, of the local press about other possible active faults in downtown Salt Lake City.

Lessons to be learned (and relearned): (1) differences in interpretation of technical data have been and continue to be common, particularly when first-or second-party opinions have potentially adverse economic

consequences; (2) high-value, high-visibility projects almost invariably invite political "manipulation" when short-term social and economic interests are at stake; and (3) legislating public safety (e.g., Holocene faults) is one matter, enforcing such legislation is another. However, at least one benefit has apparently accrued from the "Downtown Fault" investigations: the local geologic standard-of-care, we hope, has now been substantially upgraded.

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 [stephen.mcguire@veoliawaterna.com](mailto:stephen.mcguire@veoliawaterna.com) by **noon Monday, April 19, 2004. Meeting will be held at the Terrace Room, Parkway Center, Greentree.**

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### **About Our Speaker**

Mr. Simon is the President of the Association of Engineering Geologists and in addition to the talk will provide an overview of the Association.

### **Not too late to sign up for the field trip!**

On this year's trip PGS will embark on a venture to the Buffalo, New York area to learn about the geology and collect fossils at the Penn Dixie Paleontological and Outdoor Education Center in Hamburg, NY. In addition, we will venture to the Niagara Gorge to view the falls and learn about the geology and collect minerals.

The field trip will depart from Park Way Center Mall parking area, near the Best Western Hotel on Friday afternoon April 30<sup>th</sup>, around 3-4 p.m. (Stay tuned for more information). We will stay at the Tallyho-tel in Hamburg, NY on Friday night. A block of rooms have been reserved. Please contact the Tallyho-tel at (716) 648-2000. Please let them know you are with the Pittsburgh Geological Society (and/or Wendell Barner) when you are reserving your room. The rooms contain double beds, so you can share a room with another attendee and save a few dollars. Or, you can reserve a single bed for the same rate (\$39.99).

The field trip has two stops; the first stop will be Saturday morning at the Penn Dixie site and the

stop and discussion will be lead by Jerold Bastedo, geologist and Executive Director of the Penn Dixie Educational Center. The second stop will be the Niagara Gorge led by Chuck Shultz, retired professor of Slippery Rock University.

The field trip will cost \$30/adult, \$10/child-student. All attendees will be responsible for their own lodging and food, except for lunch on Saturday. PGS will provide lunch and drinks for Saturday, with plenty of water on the trip down and out of the Gorge.

If you have further questions, please contact Wendell Barner at 412.208.2409 (work) or 412.973.1389 (cell) or by email: [spelunkdoc@aol.com](mailto:spelunkdoc@aol.com) or [barnerwl@cdm.com](mailto:barnerwl@cdm.com).

### **Time to vote for your Board of Directors.**

Included in this newsletter is this year's ballot. There is one candidate each running for President, Secretary and Treasurer. Two candidates are running for Vice President. (The winner will have to live at an undisclosed location.). There are seven candidates running four positions for Director at Large. They are all good, but please, just vote for four.

Bring your ballot to the May 4<sup>th</sup> meeting or if you can't attend, send it to our PO Box. No e-mails, or hanging chads, please



**Ballot**  
*Pittsburgh Geological Society*  
**Board of Directors Election**  
May 4, 2004

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

**President:** \_\_\_\_\_ **Raymond Follador**  
M.S. Geology 1993, West Virginia University, B.S. Earth Science 1979, Pennsylvania State University, Executive Vice President, ARK Resources, Inc., member of PGS since 1982, Past President and current Vice President of the Society.

**Vice President:** \_\_\_\_\_ **Patrick Burkhardt**  
Ph.D. Geology 1994, Lehigh University, M.S. Geology 1987, Wright State University, B.A. Geology 1985, Case Western University, Associate Professor, Slippery Rock University, member of PGS since 1999, current Board member of the Society.

(Select one)

\_\_\_\_\_ **Steve McGuire**  
B.S. Meteorology 1968, Pennsylvania State University, Project Manager, US Filter/Veolia Water, member of PGS since 1975, current Treasurer of the Society.

**Secretary:** \_\_\_\_\_ **Dan Martt**  
M.S. Engineering Geology 2002, Kent State University, B.S. Geology 1974, Muskingum College, Project Geologist, American Geotechnical and Environmental Services, Inc., member of PGS since 1990, current Board member of the Society.

**Treasurer:** \_\_\_\_\_ **Michael Forth**  
M.S. Geology 1968, Oregon State University, B.S. Geology 1963, Franklin & Marshall College, Geologist, A & A Consultants, member of PGS since 1980, current Board member of the Society.

**Director-at-Large Positions** (vote for 4)

\_\_\_\_\_ **Frank Benacquista**  
B.S. Geology 1981, University of Pittsburgh, Geologist, KU Resources, Inc., member of PGS since 1999, current Secretary of the Society.

\_\_\_\_\_ **Beverly Christen**  
B.S. Biology 1967, Kent State University, Retired/Standing Rock Farm, member of PGS since 1992.

\_\_\_\_\_ **Michael Goodman**  
B.S. Geology 2001, Slippery Rock University, Staff Geologist, Atlas America, member of PGS since 1997.

\_\_\_\_\_ **Erica Love**  
M.S. Geology 2003, B.S. Environmental Geology 2000, University of Pittsburgh, Hydrogeologist, Shaw Environmental and Infrastructure, Inc., member of PGS since 1999.

\_\_\_\_\_ **Mary McGuire**  
B.S. Geology 1973, Pennsylvania State University, GIS Analyst, One Call Systems Inc., member of PGS since 1974, Past President and current Webmaster of the Society.

\_\_\_\_\_ **Mary Robison**  
Ph.D. Geochemistry 1978, University of Pittsburgh, M.S. Biochemistry 1963, Medical College of Georgia, B.S. Chemistry 1960, Marian College, Free-lance Geochemist, member of PGS since 1970, Past President and Honorary Member of the Society.

\_\_\_\_\_ **Ryan Tinsley**  
B.S. Geology 1999, Radford University, Engineering Geologist, Michael Baker Jr., Inc., member of PGS since 2002.



## Origins Of Western Pa Place Names

Butler County, and its county seat, were named for Gen. Richard Butler, a Revolutionary War hero who later served as a judge in the Allegheny County Court of Common Pleas and in the Pennsylvania General Assembly. At the end of his term, he returned to the military as an Indian fighter. He was killed in 1791 in a disastrous battle with Indians, sacrificing his life for his younger brothers who were not as badly wounded as he.

## Did You Know . . . ?

- Researchers are now casting doubt on the Chicxulub crater in Yucatan as the site of a bolide impact that killed off the dinosaurs. In fact, the impact that created the crater might be as much a 300,000 years older than the Cretaceous-Tertiary boundary (see website of the month for further information on the debate).
- The US Geological Survey is celebrating its 125<sup>th</sup> birthday this year.
- The Business Communications Co., Inc of Norwalk, Connecticut recently released a report indicating that the demand for natural gas worldwide will reach 116.9 trillion cubic feet by 2008.
- Astrophysicists have found the biggest known diamond in the universe, a 2,500-mile-wide hot compressed carbon core of a collapsing white dwarf star in the constellation Centaurus, about 50 light years from Earth. They estimate

its weight at about 10 billion trillion trillion carats!!!

- Thawing permafrost in Sweden is leading to vegetation changes and the release of methane trapped in the soils.
- Steve Squyres, principal investigator of NASA's Mars Exploration Rover mission projects, announced early in March 2004 that the mission had found definitive evidence for "a lot of water" at some point in Mars' history.
- A bus driver in Scotland has found the remains of a 428 million year old millipede, the oldest known land animal found so far.

## Website Of The Month

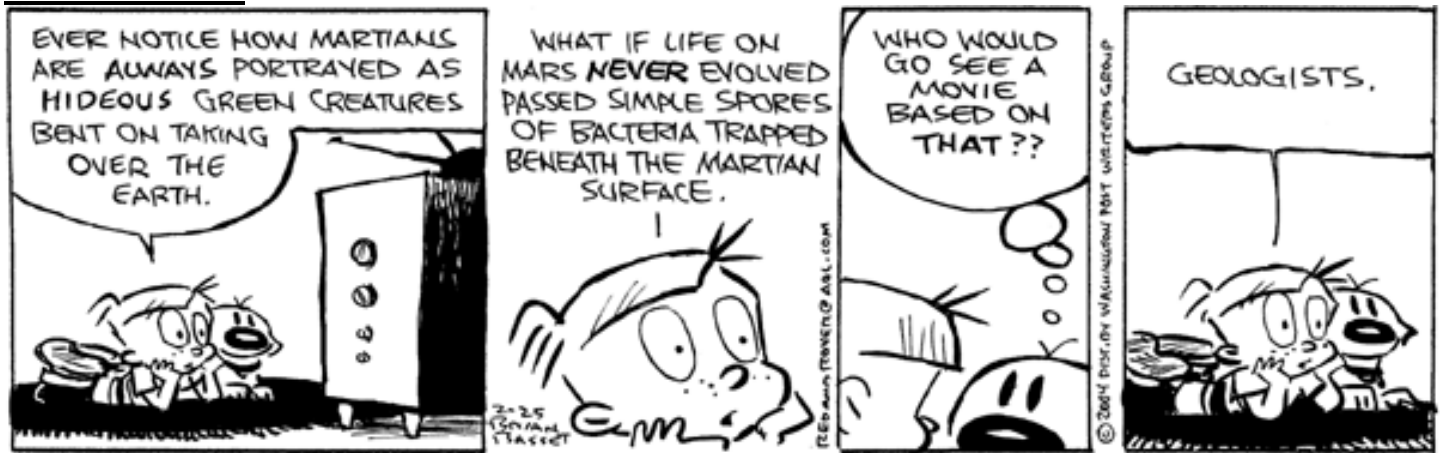
<http://geoweb.princeton.edu/people/faculty/keller/chicxrefs.html>

## New Newsletter Editor

I will be stepping down after three or so years on the job. It was a lot of fun and just a little work. Its time you were treated to a new font and someone what knows gooder English. Bob Burger, who has handled this task before, will be stepping up to the plate.

*If you wish to make a contribution to the newsletter you may e-mail the website or send a letter to Bob Burger, c/o the Society*

## Red and Rover



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