

PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LIV, No.2

Mike Keeliher, Editor

October 2001

Wednesday, October 17, 2001

Hydrogeological Responses to Paleoclimatic Changes During Late Pleistocene and Holocene, Black Mesa Basin, Arizona

By Chen Zhu

University of Pittsburgh

Despite enormous efforts to reconstruct paleoclimatic changes, data on the responses of groundwater systems to such changes are rare. A quantitative understanding of paleohydrogeologic response is critical for studies of hydrogeological processes and global environmental changes, as well as for the safety of nuclear waste repositories and management of water resources. In this study, paleorecharge and paleogroundwater flow patterns were reconstructed for the past 31,000 years for the N aquifer in the Black Mesa Basin, northeastern Arizona. ^{14}C dating of groundwater was combined with numerical simulation of groundwater flow and ^{14}C transport. Results show that paleorecharge rates varied significantly. The temporal variations correlate well with ^{18}O and D records of paleotemperatures as well as with other climate proxies in the Four Corners area. Recharge rates were two to three times higher than today during the late Wisconsin when inferred annual mean temperatures were 5 to 6^o cooler, but about 50% lower during early to mid-Holocene, when inferred summer temperatures were 2 to 4^o warmer.

The pulse of the highest estimated recharge between 14 and 17,000 years ago may be related to the northward migration of the southern branch of the split jet stream. Model simulations suggest that thousands of years are required for water levels to fully respond to the changes in recharge, and that water levels fluctuated from 60 meters higher to 6 meters lower than today.

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) 269-5872 (Direct Dial) or (412) 269-5953 (fax) or emailed to McGuireS@USFilter.com by **noon Monday, October 15th**.

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

Pittsburgh Geological Society

In the wake of the September 11th tragedy, the 2001 Pittsburgh Geological Society along with Geology Of Pennsylvania Committee is donating \$1000 to the Salvation Army in New York City. The board approved the gift during our September meeting and a volunteer committee selected the charity.

Licensing of Geologists in the State of New York

The Buffalo Association of Professional Geologists reports that a NY State Senate version of a bill to license geologists in New York has passed and a version in the NY State Senate also must pass in order to become law.

Note: The editor would welcome news of any licensing activity in surrounding states for the benefit of our members.

PGS has a New Constitution and By-Laws

Chuck Shultz and his committee has reworked and updated the old constitution and by-laws. Members who are interested in obtaining a copy should contact one of the board members at the next meeting.

IMPROVEMENTS IN THE STATE BOOKSTORE

For those of you who have been frustrated over the years trying to obtain publications from the State Bookstore in Harrisburg, here is some great news. The State Bookstore, formerly operated by the Department of General Services and located on Stanley Drive, was taken over recently by the Historical and Museum Commission and is now located in the atrium of the new PennDOT building (Keystone Building). Visa and MasterCard payments are now accepted, and credit card orders can be made by telephone. They will also invoice. The public can still walk in and buy books, and the telephone number remains the same at 717-787-

5109. The hours are 10 a.m. to 4 p.m., Monday through Friday. The new address is: State Bookstore, Commonwealth Keystone Building, Plaza Level, 400 North Street, Harrisburg, PA 17120-0053. An online catalog will be available on the PHMC web site in the near future.

NEW PENNSYLVANIA GEOLOGICAL SURVEY PUBLICATIONS

The Pennsylvania Geological Survey has recently issued two new Educational Series booklets that will be of use to earth science teachers and anyone else with an interest in well-written general information on geology. The first is ES 9, "Landslides in Pennsylvania," revised by PGS member Helen Delano from "Geologic Hazards of Pennsylvania" (the previous title of ES 9). The older booklet, published in 1979 by the late J. Peter Wilshusen, contained information on landslides, earthquakes, and sinkholes. When the Survey issued separate publications on earthquakes (ES 10) and sinkholes (ES 11), it was decided that ES 9 should be revised to include only landslides. The second booklet is ES 12, "The Non-fuel Mineral Resources of Pennsylvania," by John H. Barnes and Robert C. Smith, II. It is a compendium of information on aggregate and construction resources such as gravel and limestone to metallic resources such as iron and copper to miscellaneous resources such as salt. Both of these publications are free of charge. To obtain a copy, call John Harper at 412-442-4230 or email at jharper@state.pa.us. For multiple copies, contact the Pennsylvania Geological Survey in Harrisburg at 717-787-2169.

FIELD CONFERENCE GUIDEBOOKS FOR SALE

If you are interested in some of the guidebooks for past Field Conferences of Pennsylvania Geologists, a limited number is available by contacting John Harper at 412-442-4230, email: jharper@state.pa.us. In most abundance is the guidebook for the 2000 Field Conference held here in Pittsburgh last year.

LOOKING FOR WORK?

The New Jersey Department of Environmental Protection is hiring (entry-level only, regardless of experience). Anyone interested should contact Mary Anne Kuserk, Chief, Bureau of Ground Water Pollution Abatement, Department of Environmental Protection, 401 E. State Street, 4th Floor, P.O. Box 413, Trenton, NJ 08625. Her telephone number is (609) 84-4421. You can fax resumes to (609) 292-0848 ATTN Mary Anne Kuserk, or e-mail to: mkuser@dep.state.nj.us. You do NOT need to be a New Jersey resident to be interviewed, hired, or employed.

DID YOU KNOW . . .?

- Geologists working in China have found evidence for a sulfur and strontium isotope excursion in end-Permian rocks that they think indicates the great Permian extinction resulted from a bolide impact.
- A curved shape is one of the common characteristics of convergent plate boundaries worldwide.
- Because hydrogen has the largest relative mass difference between its stable isotopes, it has the largest natural variations in stable isotope ratios.
- A team of geologist from Nebraska has found evidence that the climate of western Pangea during the Jurassic Period was characterized by strong, dry, winter winds and summer monsoons.
- Hawaii went through a debate on evolution in July – a proposed Board of Education change in language from “biological evolution” to “multiple theories of origin” was defeated after scientists became involved and overwhelmed a public meeting in early August.
- Tropical storm Allison caused an estimated \$5 billion dollars in damage during its sweep through the Gulf of Mexico this summer, and it wasn't even strong enough to be called a hurricane!
- USGS geologists examining volcanic slope stability on Mt. Rainier found that flank collapse greater than 0.1 cubic kilometers

occurs as a result of large amounts of weak, hydrothermally altered rock situated high on steep slopes.

- By the early 1800s Philadelphia was well known as the primary center of natural science on the American side of the Atlantic Ocean, housing such prestigious institutions as the American Philosophical Society and the Academy of Natural Sciences.
- The Laurentian continental margin was a slowly subsiding subtropical carbonate shelf from the Cambrian to the Early Ordovician.
- The invasion of land by arthropods, probably in the Silurian or Early Devonian, is considered to be one of the most significant events in the history of life on earth.
- Website of the month:
http://antwrp.gsfc.nasa.gov/apod/image/0011/earthlights_dmsp_big.jpg.

Election Woes

For those of you who attended last month's meeting, you were asked to vote on a slate of board members. As it turns out, there was a mistake on the ballot and members will be asked to vote again. Thank you for your patience.

Expanded Newsletter.... Maybe?

Generally the newsletter is restricted to four pages due to printing costs and my children: “I can't fold anymore, daddy, my fingers are bleeding.” However I can easily add some sections to the e-mailed version. Some possibilities might be: help wanted ads, change of address, change of company, book reviews, outcrop locations etc. Don't be shy about submitting stuff; it's your chance to get your name in print, at least electronically.

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

<u>President:</u>	Fred Coll	<u>Past President:</u>	Wendell Barner	<u>Board member:</u>	Chuck Shultz
<u>Vice President:</u>	Judy Neelan	<u>Board member:</u>		<u>GOPCO</u>	Pete Briggs
<u>Treasurer:</u>	Steve McGuire	<u>Board member:</u>		<u>Membership</u>	John Harper
<u>Secretary:</u>	Frank Benaquista	<u>Board member:</u>		<u>Historian.</u>	Paul Garrett

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

PGS phone line: (412) 928-2255

PGS web address: www.pittsburghgeologicalsociety.org

PITTSBURGH GEOLOGICAL SOCIETY
PO Box 58172
Pittsburgh PA 15209

PGS 2001 Corporate Sponsors

Abarta Oil & Gas Co., Inc.
American Geotechnical and Environmental
Services, Inc.
John A. Ames, Inc.
ARK Resources, Inc.
Aurora Environmental, Inc.
The Baron Group
Benedum Interests
Cummings Riter Consultants, Inc.
Earth, Inc.
Eberly & Meade, Inc.
Environmental Assessment Co.
The Fourth River Company
GAI Consultants, Inc.
Gannett Fleming
GeoData Corporation

Geo-Environmental Drilling Co.
GeoMechanics, Inc.
Geotechnics, Inc.
HDR Engineering, Inc.
L.G. Hetager Drilling, Inc.
The Hutchinson Group, Ltd.
HydroSystems Management, Inc.
The IT Group
Samuel T. Pees & Associates
Radian International
Paul C. Rizzo Associates
SE Technologies, Inc.
Shield Environmental Associates, Inc.
Test Boring Services, Inc.
Vista Resources, Inc.

PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LIV, No.3

Mike Keeliher, Editor

November 2001

Wednesday, November 14, 2001

The Portage Escarpment

Michael Wilson, PhD, SUNY Fredonia

From the vantage point of a modern space platform, the most prominent features of northeastern Ohio, northwestern Pennsylvania and southwestern New York consist of the familiar Lake Erie basin and the adjacent Allegheny Plateau. The view reminds us that the north edge of the plateau is a 1000-foot high escarpment, which drains to the St. Lawrence River and North Atlantic Ocean, while the top of the plateau tilts gently southward and ultimately drains to the Gulf of Mexico. Glacial end moraines at the top edge of the plateau commonly form the ultimate divide between the Mississippi and St. Lawrence basins, especially the Lake Escarpment Moraine dated at about 14,000 years before present. Although the escarpment likely functioned to inhibit canoe travel by native peoples, it was a critical issue for travel for early explorers and colonial expansionists. French and British interests collided in the mid-1700s as then 21- year old George Washington was sent by the colonial Governor of Virginia to northwestern Pennsylvania to discover French intentions concerning the frontier. In the few preceding years the French had sent expeditionary forces into the Chautauqua Creek and French Creek watersheds to define a canoe portage route to link their St. Lawrence territories with their Mississippi territories. Ever since the escarpment has been known as the Portage Escarpment and has typically been a cause of cultural division. Resources south of the escarpment were linked to Pittsburgh while resources to the north were linked to Great Lakes ports or central New York. The escarpment has divided, and continues to divide, the region in many ways: oil to the south and gas to the north, water wells to the south and reservoirs to the north, small lake recreation to the south and Great Lakes to the north, dairying to the south and vineyards to the north, and so on. The details of the escarpment also offer several subjects of interest; one for example, selective plugging or breaching of very small parts of the glacial end moraine will divert politically significant water across a "continental" drainage divide. And finally, one last subject for the evening: Why is the escarpment there?

Dr. Wilson is a professor at SUNY Fredonia with a Doctorate from Syracuse University in geology and geotechnical engineering

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) 269-5872 (Direct Dial) or (412) 269-5953 (fax) or emailed to McGuire@USFilter.com by **noon Monday, November 12.**

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

Pittsburgh Geological Society

Grandmas and Grandpas

From the October newsletter of the Buffalo Association of Professional Geologists

The grandfathering period for professional geologists' licenses in New Hampshire is now open until June 30, 2002. Those interested in a license to practice as a professional geologist in that state may obtain an application by submitting your name and address by e-mail to dlobdell@nhsa.state.nh.us, or fax (603) 271-6990 or phone (603) 271-2219 or download at www.state.nh.us/jtboard/geo.htm.

Student Positions at PADOT

Submitted by William Adams, Jr. PhD, PADOT

The geotechnical unit of the Pennsylvania Department of Transportation, Engineering District 11-0 will be soliciting candidates for several positions in the Geotechnical Unit. These are for students majoring in geology, earth science, engineering geology, civil engineering and geotechnical engineering.

Opportunities include positions in the Cooperative Program, internships in the Rockfall Hazard Ratings project, and Geographic Information Systems. Pay is \$9.96 per hour.

There will be several forms available at the meeting for interested students or you may call William Adams Jr. at 412-429-4919 or e-mail at bsgadams@telerama.com

PTTC Announcement for PGS Members

From: Katharine Lee Avary, avary@geosrv.wvnet.edu

November 8th, PTTC will bring together six independent operators who are conducting field-oriented research projects funded by DOE. Case studies of all six projects will be presented, two of which are Appalachian basin projects funded through the Stripper Gas Well Program. Summaries of the following will be presented: Low Cost Methodologies to Analyze and Correct Abnormal Production Declines in Stripper Gas Wells (James Engineering), Advanced Technologies for Stripper Gas Well Improvement (Holditch Reservoir Technologies), On-Lease Power Generation (American Warrior), Water flooding (Coral Production company), Developing Marginal Expenses Oil Well Wireless Surveillance System (Hunter Living Trust; Hunter Edison Oil Development), and Solving Declining Production Problems (MNA Enterprises LTD). The workshop will be held at the Holiday Inn in Washington, PA. Look for "Field-Oriented Research Projects for Independents" on our website.

DON'T FORGET TO RENEW YOUR MEMBERSHIP

If you have a number next to your name on the mailing label, we have not yet received your dues renewal. Please fill out a membership form and mail your check made payable to "Pittsburgh Geological Society" (or just "PGS") for the proper amount - \$20 for regular members and \$5 for students - and mail it to John Harper, Pennsylvania Geological Survey, 400 Waterfront Drive, Pittsburgh, PA 15222-4745. Anyone who is in arrears on dues as of the January meeting will be dropped from the membership roles and will no longer receive the newsletter. If you don't have a membership form from the September newsletter, you can obtain one by logging into the new PGS website, <http://www.pittsburghgeologicalsociety.org/> and clicking on "Membership".

NEW HONORARY MEMBERS NAMED

The PGS Board of Directors is pleased to announce the addition of two new names to our list of honorary members. Thomas W. Angerman and Mary S. Robison are both long-time members of PGS who have been instrumental in the betterment of the society and the geologic community. Congratulations Tom and Mary.

GSA ISSUES POSITION STATEMENTS ON EDUCATION AND EVOLUTION

The Geological Society of America has issued two position statements that might be of interest to PGS members. One deals with Scholarship and Professional Activity in Geoscience Public Policy and Geoscience Education, and the other deals with Evolution. Members interested in reading these statements can find them online at

<http://www.geosociety.org/aboutus/position.htm>.

Those without internet access who would like to read these can get copies by calling John Harper at (412) 442-4230.

As if adjusting to Eastern Standard Time weren't enough, remember that this month's meeting is being bumped up a week to keep us clear of the Thanksgiving Holiday—please have a peaceful one.

DID YOU KNOW . . . ?

Submitted by John Harper

- The first recorded natural history paper describing geology in Pennsylvania was *A Cascade Near the Ohiopile [sic] Falls of the Youghiogeny [sic], Twelve Miles From Uniontown, Fayette County, Pennsylvania* by Thomas Hutchins, published in the Transactions of the American Philosophical Society (v. II, p. 50) in 1786.
- Although the fossil record shows that fungi and plants first colonized the land about 460 to 480 million years ago, studies of molecular clocks (using knowledge of gene mutations) suggest it actually occurred about 600 million years ago.
- A new computer model used by astrophysicists suggests that the Moon formed near the end of Earth's formation when our planet was hit by a planetoid the size of Mars.
- The world's oldest known (to date) fossil charcoal was described from the Upper Devonian Catskill Formation of Clinton County, Pennsylvania. It has been interpreted as evidence of an early wildfire associated with Late Devonian seasonal wet and dry climates.
- The Allegheny County Courthouse, built in 1884, is made of gray granite from Milford, New Hampshire.
- Scientists at the USGS and the Centers for Disease Control and Prevention (CDC) are studying the feasibility of using remote sensing and GIS to locate both the extents of disaster areas and those areas that host disease-causing pathogens, such as swamps that harbor mosquitoes.
- Hydrothermal (also called "saddle") dolomite, the variety of the mineral that occurs as a result of hot brines migrating through and dolomitizing limestone, forms in curved or twisted rhombic crystals.
- Although none of the local Pittsburgh area limestones are currently considered of economic quality or quantity, in earlier years many were quarried on a small scale to obtain stone for agricultural lime.
- The current "hot" gas play in the Appalachian basin, the Trenton-Black River play, is the search for high-pressure gas deposits in vuggy dolomite found associated with deep faults and fractures.
- Website of the month:
<http://www.volcano.si.edu/gvp/usgs>

down a mountainside, people look upon the event and report it to each other as news. People, in their whole history, have seen comparatively few such events; and only in the past couple of hundred of years have they begun to sense the patterns the events represent. Human time, regarded in the perspective of geologic time, is much too thin to be discerned—the mark invisible at the end of a ruler. If geologic time could somehow be seen in the perspective of human time on the other hand, sea level would be rising and falling hundreds of feet, ice would come pouring over continents and as quickly go away. Yucatans and Floridas would be under the sun the next minute and underwater the next, oceans would swing open like doors, mountains would grow like clouds and come down like melting sherbet, continents would crawl like amoebae, rivers would arrive and disappear like rainstreaks down an umbrella, lakes would go away like puddles after rain, and volcanoes would light the earth as if were a garden full of fireflies. At the end of the program, man shows up—his ticket in his hand. Almost at once he conceives of private property, dimension stone and life insurance. When a Mt. St. Helens assaults his sensibilities with an ash cloud eleven miles high, he writes a letter to the New York Times recommending that the mountain be bombed.

John McPhee, In Suspect Terrain

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

The PGS Board:

President: Fred Coll
Vice President: Judy Neelan
Treasurer: Steve McGuire
Secretary: Frank Benaquista

Directors-at-Large:

Bruce Camlin, Patrick Burkhart,
Chris Ruppen, Ed Girard
Chuck Shultz, Bob Burger

Counselor and GOPCO Chairman:

Pete Briggs
Counselor: John Harper
Past President: Wendell Barner

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@dcnr.state.pa.us. Membership information can also be found at our new website.

PGS phone line: (412) 928-2255

PGS web address: www.pittsburghgeologicalsociety.org

PITTSBURGH GEOLOGICAL SOCIETY

PO Box 58172

Pittsburgh PA 15209

**2000 CORPORATE
SPONSORS**

Abarta Oil & Gas Co., Inc.
**American Geotechnical and Environmental
Services, Inc.**
John A. Ames, Inc.
ARK Resources, Inc.
Aurora Environmental, Inc.
The Baron Group
Benedum Interests
Cummings Riter Consultants, Inc.
Earth, Inc.
Eberly & Meade, Inc.
Environmental Assessment Co.
The Fourth River Company
GAI Consultants, Inc.

Gannett Fleming
GeoData Corporation
Geo-Environmental Drilling Co.
GeoMechanics, Inc.
Geotechnics, Inc.
HDR Engineering, Inc.
L.G. Hetager Drilling, Inc.
The Hutchinson Group, Ltd.
HydroSystems Management, Inc.
The IT Group
Samuel T. Pees & Associates
Radian International
Paul C. Rizzo Associates
SE Technologies, Inc.
Shield Environmental Associates, Inc.
Test Boring Services, Inc.
Vista Resources, Inc.

PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LIV, No.4

Mike Keeliher, Editor

December 2001

Wednesday, December 19, 2001 Spouses Night and Lecture

Geology as seen on the Fall 2000 voyage of the SS Universe Explorer -or how turmoil in the World kept us out of the Mediterranean Sea again. In addition, a short trip to landlocked Bolivia.

**By Michael Bikerman, PhD, PG
Academic Dean of University of Pittsburgh's Semester at Sea 2000**

Our Semester at Sea Fall 2000 Voyage of Discovery started auspiciously from a geological perspective - visiting Olympic National Park for a couple of days prior to boarding the ship in Vancouver. Once the 627 students, 45 adult passengers, 26 faculty, 37 staff, along with 31 spouses and children boarded the 23,000 ton SS Universe Explorer on 23 September 2000 and passed below the Lions Gate Bridge on our way to open water, the excitement became palpable. People waving from all the decks to friends and strangers in Stanley Park watching us sail by from vantage points in volcanic tuff.

Five days out our first true geologic experience, seeing an eruption of steam from Mt. Korovin on Atka Island in the Aleutians, unfortunately a bit too far away for a good picture. Vulcan again showed his hand the day before reaching Kobe, with an eruption of Mt. Miyaki - again a steam explosion. Kobe has recovered from the 1995 earthquake well, but has made major changes in an attempt to prevent such catastrophic damage when the next one hits.

After Japan, China, docking in Shanghai. Later a flight to Guilin and a trip down the Li River to see the karst topography made famous by Chinese artists for over a millennium. Then: Vietnam, with a flight to Cambodia to see the Temples of Angkor - truly one of the Wonders of the World! A trip which also allowed us to see major flooding of the Mekong River from the air and on the ground.

Malaysia was a good place to study beach and tropical rainforest features. India was the site of a nice field trip, arranged by a former student from Pitt with the help of the Geological Survey of India, to see the type locality of charnockite - peculiar dark colored hypersthene granite, and other local outcrops. At this point of the voyage we were diverted from our intended course through the Suez Canal to the southern route via Africa and South America.

In Kenya we did a safari, which allowed us to see many animals, and some quite recent lava flows. In South Africa, lunch with Nobel peace prize laureate Archbishop Tutu, a chance to visit Table Mountain and coastal geology to Cape Point below the Cape of Good Hope. Brazil was the scene of my first ever field trip on a sailboat, and in our last stop, Cuba, we met Fidel Castro.

Some months later a chance to visit Bolivia and see some of the best dinosaur footprints in the world. A selection of slides from these experiences will allow a vicarious voyage!

Mike is an emeritus professor of Planetary Science at the University of Pittsburgh and a research associate at the Carnegie Museum of Natural history. He has taught undergraduate courses in Physical Geology, Historical Geology and a variety of upper division subjects including Ore Deposits, Geochemistry, Earth Physics and graduate level Isotope Geochemistry and graduate seminars. He has been an active and welcomed member of PGS for many years.

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) 269-5872 (Direct Dial) or (412) 269-5953 (fax) or emailed to McGuireS@USFilter.com by **noon Monday, December 17th.**

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

Pittsburgh Geological Society

Hank Williams to speak in January 2002

Dr. Pat Burkhart of Slippery Rock University has arranged to have Harold (Hank) Williams present a talk to the Society in January 2002. Hank Williams is a mapper and compiler of the Appalachian-Caledonian orogen and one of the first global experts on ophiolite emplacement. On continental margins, he is probably Newfoundland's most accomplished and best-known scientists. (OK, it's not who you thought it was going to be.) A much-honored researcher, rigorous but revered teacher and colorful, dynamic and inspirational lecturer, he is also a celebrity in both learned and less-learned circles as a fiddle virtuoso and as a savant of wit with a distinctively Newfoundland flavor.

He has over 250 papers to his credit and for several years has been Canada's most cited geoscientist. The abstract for his talk titled, "Patterned Orogeny in Eastern Canada" will appear in January's newsletter.

Members Abroad

Submitted by Jim Hamel

In late October, Jim and Betsy Hamel of Hamel Geotechnical Consultants took a 12-day architectural tour through central Honshu, the largest island of Japan. They studied wooden farmhouses, tea houses and temples in rural areas. They also visited the new Miho Museum, designed by I.M. Pei and constructed in a cut and cover in a mountainside near Kyoto. In the Japan Alps, they observed highway construction, including various slope stabilization measures and visited several concrete gravity and arch dams as well as the highest (120 meters) rockfill dam in Japan.

Watershed Atlas of Western Pennsylvania

from Alleghenies Watershed NETWORK NOTES

On November 15, 2001 the Pennsylvania Environmental Council and Alleghenies Watershed Network will premier the redesigned Watershed Atlas of the Allegheny River.

The new Watershed Atlas of Western Pennsylvania will include the Monongahela River watershed, which encompasses the Youghiogheny, Cheat, West Fork and Tygart River watersheds. Users will be able to explore the rich heritage of the Mon Valley, experience the natural and historic resources of the rivers, and learn more about the impact these rivers have on southwestern

Pennsylvania and northern West Virginia. Like the Watershed Atlas of the Allegheny River, the expanded Atlas will also use photographs, maps, diagrams, and text to teach important and fascinating lessons about our watersheds.

Log on to www.watershedatlas.org.

HAVE YOU RENEWED YOUR MEMBERSHIP?

If you have a highlighted number next to your name on the mailing label, we have not yet received your dues renewal. Please fill out a membership form and mail your check made payable to "Pittsburgh Geological Society" (or just "PGS") for the proper amount - \$20 for regular members and \$5 for students - and mail it to John Harper, Pennsylvania Geological Survey, 400 Waterfront Drive, Pittsburgh, PA 15222-4745. Anyone who is in arrears on dues as of the January meeting will be dropped from the membership rolls and will no longer receive the newsletter. If you don't have a membership form from the September newsletter, you can obtain one by logging into the new PGS website,

<http://www.pittsburghgeologicalsociety.org/> and clicking on "Membership". Or, if you do not have Internet access, call John at (412) 442-4230 and he will mail you a form.

PGS SPRING FIELD TRIP

The Pittsburgh Geological Society is currently planning for the spring field trip to be held early in May 2002. Next year we will travel to Hollidaysburg in Blair County to begin an examination of "The History and Geology of the Allegheny Portage Railroad." The trip will start with an overview of the old Pennsylvania Mainline Canal system, of which the railroad was a part, as seen from the grand overlook of Chimney Rocks Park in Hollidaysburg, Blair County. The trail of the field trip will closely follow that of the railroad from Hollidaysburg, up the Allegheny Front on old US 22 to the Allegheny Portage Railroad National Memorial; then along PA 53 and other routes from Summit to Johnstown. Along the way we'll stop to look at certain aspects of the railroad (including some of the inclined planes that still exist), and some of the geological problems that had to be

overcome before the railroad could be completed. As the trip is still in the planning stage, only a few sites can be confirmed, including a stop at the memorial and, perhaps, at the Johnstown Flood National Memorial in Salt Fork. Details of the trip, including times, cost, and transportation, will be forthcoming as the trip begins to take final shape. For more information, contact John Harper at (412) 442-4230 or by email at jharper@state.pa.us.

KENT STATE STUDENT LOOKING FOR PROJECT

Kent State University graduate student Rich Ruffolo is seeking a thesis topic involving some aspect of engineering geology in the Pittsburgh region. If anyone has any suggestions for a topic, please contact Rich at rruffolo@kent.edu. Any assistance would be greatly appreciated.

DID YOU KNOW . . . ?

- The Gulf of Mexico currently is the largest oil and gas producing area in the US, providing about 20% of the nation's oil and natural gas from 7,564 active leases, most of which are in waters less than 650 feet deep.
- Most of the ground-based gamma radiation detectable by airborne instruments comes from the top 18 inches of soil.
- Diabase dikes in eastern Pennsylvania can be divided into three compositionally distinct, but internally homogeneous, types called Rossville, York Haven, and Quarryville.
- Iron and manganese minerals are abundant in many soils, where soil environments such as oxidation state, pH, and ionic strength of soil solution control the predominant mineralogy.
- The Buhrstone iron ore, a bedded siderite occurring at the top of the Vanport Limestone (lower Allegheny Group) in western Pennsylvania, contains as much as 30 or 40 percent iron.
- The summer trade winds carry African dust across the Atlantic Ocean into the southeastern US. Some of this dust contains pathogenic fungi, bacteria, and viruses that can harm plants and animals, including humans.
- Scientists from the USGS who analyzed information from an earthquake that occurred in the Mojave Desert in 1999 have concluded that the earth's upper mantle is surprisingly more plastic and flexible than the lower crust.

- More evidence continues to be collected suggesting the end-Permian mass extinction was the result of a bolide impact. But the lack of a continental crater, and the lack of shocked quartz, indicates that any suspected impact would have had to occur in the oceans.
- Quartz cement is one of the most common cements in sandstones, and it causes a great deal of loss of economic porosity in aquifers and petroleum reservoirs.
- The earth's inner core, which consists of almost pure solid iron more than 1,500 miles in diameter, did not exist in the early years of the planet's formation – it grew over time.
- Website of the month:
<http://my.en.com/~danp/pixs/cams/cd-cam.htm> (thanks to Paul Kucsma).

The Society would like to take this opportunity to wish all of its members, their families and friends a peaceful holiday and good wishes in the coming year.



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

The PGS Board:

President: Fred Coll
Vice President: Judy Neelan
Treasurer: Steve McGuire
Secretary: Frank Benaquista

Directors-at-Large:

Bruce Camlin, Patrick Burkhart,
Chris Ruppen, Ed Girard
Chuck Shultz, Bob Burger

Counselor and GOPCO Chairman:

Pete Briggs
Counselor: John Harper
Past President: Wendell Barner

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@dcnr.state.pa.us. Membership information can also be found at our new website.

PGS phone line: (412) 928-2255

PGS web address: www.pittsburghgeologicalsociety.org

PITTSBURGH GEOLOGICAL SOCIETY

PO Box 58172

Pittsburgh PA 15209

**2000 CORPORATE
SPONSORS**

Abarta Oil & Gas Co., Inc.
American Geotechnical and Environmental
Services, Inc.
John A. Ames, Inc.
ARK Resources, Inc.
Aurora Environmental, Inc.
The Baron Group
Benedum Interests
Cummings Riter Consultants, Inc.
Earth, Inc.
Eberly & Meade, Inc.
Environmental Assessment Co.
The Fourth River Company
GAI Consultants, Inc.

Gannett Fleming
GeoData Corporation
Geo-Environmental Drilling Co.
GeoMechanics, Inc.
Geotechnics, Inc.
HDR Engineering, Inc.
L.G. Hetager Drilling, Inc.
The Hutchinson Group, Ltd.
HydroSystems Management, Inc.
The IT Group
Samuel T. Pees & Associates
Radian International
Paul C. Rizzo Associates
SE Technologies, Inc.
Shield Environmental Associates, Inc.
Test Boring Services, Inc.
Vista Resources, Inc.

PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LIV, No.5

Mike Keeliher, Editor

January 2002

Wednesday, January 16, 2002

PATTERNED OROGENY IN EASTERN CANADA

The Proterozoic Grenville Orogen, the Paleozoic Appalachian Orogen to the southeast, and the Mesozoic/Cenozoic modern Atlantic margin are all parallel, implying ancestral controls. The Grenville Orogen records orogenic events from 1860 to 1000 Ma. Most are accretionary, successively younger toward the southeast, and culminating with a Grenvillian collision that overprinted earlier structures. There is no well-preserved stratigraphic record of Grenville continental margins or oceanic tract that preceded collision. The exposed orogen is one-sided, asymmetric with structures directed toward the Canadian Shield.

The Appalachian miogeocline developed on Grenville basement and the orogen built up by Ordovician and Silurian accretionary events with final collision in the Devonian. Stratigraphic analyses of the Paleozoic Laurentian margin of North America are as sophisticated as those for any continental margin and oceanic vestiges are well preserved in interior parts of the orogen. The Appalachian Orogen is two-sided with structures directed both toward the Laurentian and Gondwanan margins of the intervening Iapetus Ocean.

The Mesozoic Atlantic margin developed along Gondwanan terranes of the Appalachian orogen, except north of Newfoundland where it crosses the Appalachian and Grenville orogens as well as the Makkovik and Nain provinces of the Canadian Shield. Many features of the Atlantic margin mimic those of the Appalachian miogeocline. Other examples of ancestral controls abound.

The modern situation has the Atlantic margin poised for destruction by closure of the Atlantic Ocean and another cycle of patterned orogenesis.

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) 269-5872 (Direct Dial) or (412) 269-5953 (fax) or emailed to McGuireS@USFilter.com by **noon Monday, January 14, 2002**.

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

Pittsburgh Geological Society

PGS Honorary Member Elected to National Council

Richard E. Gray has been elected to the Council of the Geological Society of America for a three-year term (2002 to 2004). GSA is a non-profit organization dedicated to the advancement of the geosciences with more than 16,000 members in 85 countries.

Dick, a Senior Vice President of GAI Consultants, is a past PGS President and an Honorary Member.

TIME IS RUNNING OUT!!! RENEW NOW.

If you have a highlighted number next to your name on the mailing label, we have not yet received your dues renewal. Please fill out a membership form and mail your check made payable to "Pittsburgh Geological Society" (or just "PGS") for the proper amount - \$20 for regular members and \$5 for students - and mail it to John Harper, Pennsylvania Geological Survey, 400 Waterfront Drive, Pittsburgh, PA 15222-4745. Anyone who is in arrears on dues as of the January meeting will be dropped from the membership roles and will no longer receive the newsletter. If you don't have a membership form from the September newsletter, you can obtain one by logging into the PGS website,

<http://www.pittsburghgeologicalsociety.org/> and clicking on "Membership". Or, if you do not have Internet access, call John at (412) 442-4230 and he will mail you a form.

PGS SPRING FIELD TRIP

The spring field trip, to be held in late April or early May 2002, will focus on the history and geology of the Allegheny Portage Railroad in Blair and Cambria counties. We will travel to Hollidaysburg and trace the route of the railroad westward to Johnstown, with stops at various historical and/or geological sites along the way. The trip is still in the planning stages at this time, but it should be both interesting and informative. Details of the trip, including times, cost, and transportation, will be forthcoming as the trip begins to take final shape. For information on those aspects that are known at this time contact John Harper at (412) 442-4230 or

by email at jharper@state.pa.us.

PLEASE KEEP YOUR MEMBERSHIP INFORMATION UP TO DATE

Every month the PGS mailbox receives returned newsletters because some of the membership move on and leave no forwarding address. If you change addresses, jobs, email addresses, phone numbers, or whatever, please keep us informed. We want you to keep informed of your society. Any changes should be phoned or emailed to John Harper at 412-442-4230 or jharper@state.pa.us.

DID YOU KNOW . . . ?

Submitted by John Harper

As of 2001 there are 713 coal waste impoundments in the United States, mostly in West Virginia, Virginia, and Kentucky.

Paleontologists from Howard University and the University of Florida recently discovered the elusive fossil evidence linking land animals and the sirenians, that group of mammals that include the manatees and dugongs.

The winding topographic ridge of sand and gravel in Butler County known variously as the West Liberty, Miller, or Jacksville esker is one of the best-formed and best-preserved eskers in North America.

The Middle Devonian Acadian orogeny affected the entire Appalachian orogen from Newfoundland to Alabama with varying intensities of deformation and metamorphism.

The oil industry is searching for petroleum reserves by using synthetic aperture radar (SAR) to map topographic changes from satellite.

The world's largest and most complete fossil cockroach, 3.5 inches long, was recently found in a coal mine in northeastern Ohio.

Pennsylvania coals often contain a suite of uncommon accessory minerals that includes things like apatite, crandallite, opal, and zircon as well as a host of other species.

Average annual precipitation in Pittsburgh is about 37 inches, based on over 100 years of data.

Evidence from the extinction of fossil vertebrates in the Permian-Triassic boundary sequence of South Africa point to a relatively sudden, possibly catastrophic event at that time, rather than a gradual decline as had been thought previously.

Prior to 1930, all but a very minor amount of oil and gas production in Pennsylvania came from rocks of Late Devonian through Pennsylvanian age.

Oxygen isotope data from well-preserved Tanzanian fossil plankton indicate that tropical oceanic temperatures during the Eocene and Late Cretaceous ranged from 28 to 32 degrees Celsius, which agrees with climate models for those times.

Website of the month:
<http://photojournal.jpl.nasa.gov>

Signs You Might Be A Geologist:

Submitted by Charlie Wingerd

You have answered, "yes" to the question, "What have you got in here, rocks?"

You have taken a 22-passenger van over "roads" that were really intended only for cattle.

You have found yourself trying to explain to airport security that a rock hammer isn't really a weapon.

Your rock garden is located inside your house.

You have hung a picture using a Brunton as a level, and your rock hammer to drive a tiny nail.

You consider a "recent event" to be anything that has happened in the last hundred thousand years.

Your photos include people only for scale and you have more pictures of your rock hammer and lens cap than of your family.

SEEKING EMPLOYMENT

LISA WHITED IS A RECENT GRADUATE OF WEST VIRGINIA UNIVERSITY AND IS SEEKING EMPLOYMENT AS A GEOLOGIST.

BACHELOR OF SCIENCE IN GEOLOGY (GRADUATED DEC 2001 FROM WEST VIRGINIA UNIVERSITY)
ASSOCIATE DEGREE IN COMPUTER-AIDED DRAFTING AND DESIGN (GRADUATED 1988 FROM TRIANGLE TECH)

EXPERT AT UTILIZING AUTOCADD AND MICROSTATION TO DEVELOP TECHNICAL DRAWINGS. DESIGNED AND DETAILED DIAGRAMS FOR BRIDGES, TRANSPORTATION SYSTEMS, AND SURFACE AND DEEP MINING. BROAD KNOWLEDGE OF CIVIL DESIGN, CONSTRUCTION, AND DEP REGULATIONS. PERFORMED TITLE SEARCHES, PARCEL VERIFICATION, AND DRAFTED PLATS UTILIZING DEEDS AND/OR SURVEY NOTES. EXPERIENCED IN CORE LOGGING AND DESCRIPTION, AND GEOLOGIC FIELD MAPPING.

SENIOR THESIS: STRATIGRAPHY AND DEPOSITIONAL ENVIRONMENT OF THE UPPER CONEMAUGH GROUP IN SOUTHWESTERN PENNSYLVANIA.

CONTACT LISA WHITED AT WHITED@LCSYS.NET OR 724-438-0370 FOR ADDITIONAL INFORMATION.

“The Nemesis Theory of the companion star would not exist without the proposition that extinction events occur with clocklike periodicity, every 26 million years.”

David M Raup, The Nemesis Affair.

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

The PGS Board:

President: Fred Coll
Vice President: Judy Neelan
Treasurer: Steve McGuire
Secretary: Frank Benaquista

Directors-at-Large:

Bruce Camlin, Patrick Burkhardt,
Chris Ruppen, Ed Girard
Chuck Shultz, Bob Burger

Counselor and GOPCO Chairman:

Pete Briggs
Counselor: John Harper
Past President: Wendell Barner

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

PGS phone line: (412) 928-2255

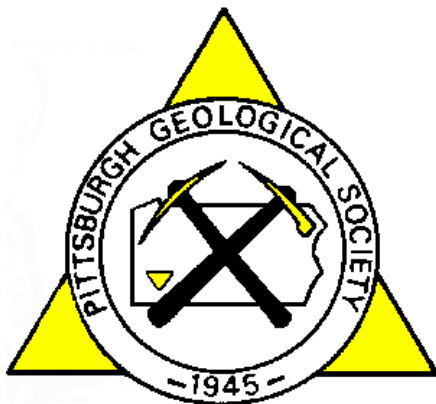
PGS web address: www.pittsburghgeologicalsociety.org

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

PGS 2002 Corporate Sponsors

ABARTA OIL & GAS CO., INC.
AMERICAN GEOTECHNICAL AND ENVIRONMENTAL SERVICES,
INC.
ARK RESOURCES, INC.
ATLAS AMERICA INC.
AURORA ENVIRONMENTAL, INC.
BARON GROUP, THE
BENEDUM INTERESTS
BILLMAN GEOLOGIC CONSULTANTS, INC.
CUMMINGS/RITER CONSULTANTS, INC.
EARTH, INC.
FOURTH RIVER COMPANY, THE
GAI CONSULTANTS, INC.
GANNETT FLEMING, INC.
GEODATA CORPORATION
GEO-ENVIRONMENTAL DRILLING CO., INC.
GEOMECHANICS, INC.
GEOTECHNICS, INC.
HDR ENGINEERING, INC.
HUTCHINGSON GROUP, LTD., THE
HYDROSYSTEMS MANAGEMENT, INC.
IT CORPORATION

MOODY AND ASSOCIATES INC.
PENNSYLVANIA DRILLING CO.
RADIAN INTERNATIONAL
RIZZO ASSOCIATES, PAUL C.
SHIELD ENVIRONMENTAL ASSOCIATES INC.
SKELLY AND LOY, INC.
TEST BORING SERVICES, INC.
VISTA RESOURCES, INC.



PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LIV, No.6

Mike Keeliher, Editor

February 2002

Wednesday, February 20, 2002

by

Paul W. Garrett

Franklin and Marshall B.S. Texas Technological University M.S.

THE DRILLING PROGRAM OF PEOPLES NATURAL GAS

Paul Garrett joined the geology department of Peoples Natural Gas Company in 1950. The Devonian drilling programs were in progress, proceeding in two phases. The shallow Bradford well had an average depth of 3600 feet. The Oriskany (Ridgeley) wells had an average depth of 8000 feet. These programs enabled Peoples gas to add new customers and maintain supplies to existing consumers. A variety of slides will be shown.

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) 269-5700 (receptionist) or to Judy Neelan at (412) 442-5802 or e-mail GuireS@USFilter.com by **noon Monday, February 18, 2002.**

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

Please note that Steve McGuire has a new phone number. If connections are difficult, please call Judy at the number listed above. If all else fails, e-mail or call the editor.

The society sadly announces the passing of one of its founding members, Jane Freedman, at the age of 81. Jane had the singular distinction of being the first woman to work in the vertebrate paleontology department of the Carnegie Museum of Natural History, from 1943 to around 1945. When World War II ended, Jane gave up her career and started a family, raising three children. After leaving the Carnegie in 1945, she remained active as a museum member and edited and helped write publications for the PGS. When she wasn't promoting earth sciences, Jane devoted her time to improving educational opportunities for others less fortunate. She spent many years reading textbooks on tape for the blind and teaching literacy and English to immigrants. As a member of Western PA MENSA, she served as a judge at that group's annual essay contest.

We extend our sympathies to all her friends and family.

Pittsburgh Geological Society

NEW HONORARY MEMBER NAMED

PGS is please to announce that Derek B. Tatlock has been named an Honorary Member of the Society. Derek has been a member of PGS for four decades. He retired to New Hampshire a couple of years ago after a long and prosperous career here in Pittsburgh, first with Peoples Natural Gas, and later with independent oil and gas companies and, finally, as a consultant. Among his more recent accomplishments, he was a coauthor on two chapters of The Geology of Pennsylvania. He has also maintained a continuing interest in local community geological affairs, both in Pittsburgh and in New Hampshire. Congratulations, Derek, on being named PGS's most recent Honorary Member.

PGS's AAPG Delegate

It is time for the PGS to elect a Delegate for the AAPG House of Delegates. If you are interested in serving the PGS as the AAPG Delegate or would like more details, please contact Jeff Greenawalt at 412-922-8161 or e-mail jcg1957@bellatlantic.net. The following describes some of the duties as Delegate:

- Term of service is for 3 years beginning July 01, 2002 to June 30, 2005
- The Delegate represents the PGS and its AAPG members in the House of Delegates. The House of Delegates is the governing body of AAPG and annually meets at the national AAPG meeting.
- The Delegate also represents the PGS at the Eastern Section AAPG business meeting that annually takes place at the Eastern Section meeting
- Delegates assist in processing AAPG membership applications and certification applications
- Delegates can serve on various committees for the House and Eastern Section

STUDENT WORKSHOP

PGS is hosting the "So You Want to Be a Geologist" Student Career Workshop on February 16, 2002 from 10:00 to 2:00 at the Department of Environmental Protection in Pittsburgh. Brian Green (Army Corps of Engineers), Ray Follador

(Ark Resources, Inc.), Frank Benacquista (Earth Science Consultants), Ed Girard (The Bizet Group), and Judy Neelan (PaDEP) will be discussing items relevant to geology majors such as career paths, academic choices, internships/co-ops, GRE's, employment information, professional ethics, and others. We will also be discussing a questionnaire sent to employers regarding what they consider the best and the worst candidate qualities.

The February 16 workshop is filled but a second event may be held if there is enough demand. To request a second event, please call Judy Neelan at 412-442-5802. Directions and other information may be found at the PGS website - pittsburghgeologicalsociety.org.

PGS SPRING FIELD TRIP

The PGS spring field trip is being scheduled for Saturday, May 11, 2002. Although details are still sketchy at this time, we will probably meet at the Monroeville Mall and travel east along US 22 to Hollidaysburg where we will begin a journey closely approximating that of the Old Allegheny Portage Railroad (APR). The focus of the field trip will be on the history of the APR in Blair and Cambria counties and the part geology played in its design, building, and operation. We will stop at various historical and/or geological sites along the way to Johnstown. We will keep you posted here in the newsletter, and by email, as details, including times, cost, transportation, etc. begin to take final shape. For further information contact John Harper at (412) 442-4230 or email at jharper@state.pa.us.

PA SURVEY HARRISBURG OFFICE HAS MOVED

The Harrisburg office of the Pennsylvania Geological Survey has moved to a new location in Middletown, PA, near the Harrisburg International Airport. The building, former site of R. E. Wright and Associates, gives the Harrisburg office their first truly professional office space in decades. The new address is Pennsylvania Geological Survey, 3240 Schoolhouse Road, Middletown, PA 17057. The new phone number is 717-702-2017, and the fax is 717-702-2065. For more information on the

location, including directions on driving to the office and phone numbers for individual staff, go to the Survey's web site at www.dcnr.state.pa.us/topogeo.

The Appalachian Geological Society will hold it's meeting on Tuesday, February 12, 2002.

The speaker will be K. Lee Avary of the West Virginia Geological Survey, presenting a talk titled: "New Life in an Old Basin: The Upper Ordovician Trenton-Black River Limestone, Appalachian Basin, USA."

Abstract

Recent gas discoveries in the Upper Ordovician Trenton and Black River limestones in New York and West Virginia have generated new interest in the resource potential of the Appalachian Basin. Trenton - Black River strata have been known to be productive since the 1800's in eastern Kentucky, New York, and Ohio. Both comprise widespread, shallow marine carbonates deposited throughout the Appalachian Basin during a Late Ordovician transgression. Late Ordovician, organic-rich, black shale source rocks immediately overlie the carbonates and are interbedded with limestones near the top of the Trenton.

The discovery of gas in the Trenton - Black River in western New York in the mid-1980's wasn't pursued seriously until the late 1990's when Columbia Natural Resources (CNR) initiated an exploratory drilling program. Encouraged by the NY results, CNR drilled a discovery well in Roane County, WV in spring, 1999 and has followed this with more than a dozen successful wells in the 10,000 foot depth range. In NY, the reservoir is highly fractured, dolomitized limestone; in WV, the reservoir is highly fractured limestone. Narrow grabens related to basement structures form the traps in both states. Modern seismic data are valuable in defining these traps. Production of more than 10 Bcfg from the Trenton - Black River in both states from 1999 to 2000 makes this play a significant new discovery in an old basin.

The meeting will be held at the Dockside Grille Banquet Room, #2 Kanawha Boulevard, Charleston, West Virginia. Please call in your reservations by noon Friday, February 8, 2002 to DEBBIE YOUNG at 304-925-6100 or e-mail: dyoung@eca-eaec.com.

**North American Coalbed Methane
Forum**

The North American Coalbed Methane Forum, Inc. will hold its Spring Session on April 24 – 25, 2002 at the Holiday Inn in Meadow Lands near Washington, PA. For information, please contact Ihor Havryluk at 412-798-1391 or Dr. Kashi Aminian at 304-293-7682 ext. 3406

SEEKING EMPLOYMENT

Brian Lipinski is a recent graduate of Michigan State University and is seeking employment as a Hydrogeologist.

Master of Science in Environmental Geology (concentration: Hydrogeology) from Michigan State University (completed requirements January 2002)
Bachelor of Science in Environmental Science from Slippery Rock University (May 1999)

Proficient at groundwater flow and transport modeling using GMS, Visual MODFLOW, MT3D, and RT3D. Master's Thesis: Estimating Natural Attenuation rates for a Chlorinated Hydrocarbon Plume in a Glacio-Fluvial Aquifer, Schoolcraft, MI.

Brian can be contacted by e-mail at brian_lipinski@hotmail.com or by phone at (724) 941-2379.

Seeking More Employment, fieldwork a specialty.

A recent geology graduate and a US Army Veteran seeks a position in the field of geology with a strong interest in field work. Bachelor of Science in Geology (concentrations in Mathematics and Biology), Edinboro University of Pennsylvania, with Honors. Contact Raymond R. Kolacek, 204 Elm Street, Edinboro, PA. 16412, or Phone (814) 734-9994 or e-mail: freestylekayaker2001@yahoo.com.

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

The PGS Board:

President: Fred Coll
Vice President: Judy Neelan
Treasurer: Steve McGuire
Secretary: Frank Benaquista

Directors-at-Large:

Bruce Camlin, Patrick Burkhart,
Chris Ruppen, Ed Girard
Chuck Shultz, Bob Burger

Counselor and GOPCO Chairman:

Pete Briggs
Counselor: John Harper
Past President: Wendell Barner

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

PGS phone line: (412) 928-2255

PGS web address: www.pittsburghgeologicalsociety.org

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

PGS phone line: (412) 928-2255

PGS web address: www.pittsburghgeologicalsociety.org

DID YOU KNOW . . . ?

- Mt. Vesuvius, the active Italian volcano that buried Pompeii in AD 79, has been relatively quiet for nearly 58 years.
 - PennDOT estimated in 1991 that it costs an average of \$10 million annually to repair landslide damage across Pennsylvania.
 - Researchers in North Carolina have found that trees store contaminants such as uranium in their bark and sapwood, providing an alternative method (tree ring cores) to drilling expensive monitoring wells.
 - The fear that the US is rapidly losing potentially productive farmland is real – it seems developers prefer land with deep, well-drained, and nearly level soils, the same areas that are best suited for agriculture.
 - Pittsburgh-based CONSOL Energy, Inc. is the country's largest producer of high-Btu bituminous coal and the largest exporter of US coal. It is also one of the largest producers of coalbed methane in the US with daily production of approximately 130 million cubic feet.
 - If you were lucky enough to have seen the Leonid meteor showers last November, you would have seen fully 1,000 shooting stars per hour, caused by the earth's journey through four separate dust trails from comet Tempel-Tuttle as it made its 33-year revolution of the sun. (*editor's note: It was so foggy in Beaver that morning, I couldn't see the apple tree in my backyard*)
 - Speaking of meteor showers, a team of Princeton University astronomers has lowered Earth's estimated risk of suffering a catastrophic impact from an asteroid from about one in 1,500 to about one in 5,000 over the next century. Helps you sleep better at night, doesn't it!
 - The Mesozoic rift basins of eastern North America (including the Gettysburg and Newark basins in Pennsylvania) inherited their orientations from Appalachian structures on which they lie, whereas the associated basaltic dikes apparently occur as a result of deep-seated stresses related to continental rifting.
 - The National Science Foundation has granted more than \$1 million over the next three years to create interdisciplinary research and education programs in hydrologic sciences.
 - The estimated amount of carbon stored in world soils is about 1,100 to 1,600 billion metric tons, more than twice that in the atmosphere or in living vegetation.
 - The first Geological Survey of Pennsylvania began in 1836 by act of the State Legislature, which authorized an annual appropriation of \$6,400 for five years to pay the salaries of a geologist, two assistants, and a chemist.
 - Website of the month: <http://mars.jpl.nasa.gov/odyssey/>.
-

PGS 2002 Corporate Sponsors

**AMERICAN GEOTECHNICAL AND
ENVIRONMENTAL SERVICES, INC.
AMMONITE RESOURCES
ARK RESOURCES, INC.
ATLAS AMERICA INC.
AURORA ENVIRONMENTAL, INC.
BARON GROUP, THE
BENEDUM INTERESTS
BILLMAN GEOLOGIC CONSULTANTS, INC.
CUMMINGS/RITER CONSULTANTS, INC.
EARTH, INC.
FOURTH RIVER COMPANY, THE
GAI CONSULTANTS, INC.
GANNETT FLEMING, INC.
GEODATA CORPORATION
GEO-ENVIRONMENTAL DRILLING CO., INC.
GEOTECHNICS, INC.
HDR ENGINEERING, INC.
HUTCHINGSON GROUP, LTD., THE
HYDROSYSTEMS MANAGEMENT, INC.
MOODY AND ASSOCIATES INC.
PENNSYLVANIA DRILLING CO.
RIZZO ASSOCIATES, PAUL C.
SHIELD ENVIRONMENTAL ASSOCIATES INC.
TEST BORING SERVICES, INC.
URS CORPORATION
VISTA RESOURCES, INC.**

PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LIV, No.7

Mike Keeliher, Editor

March 2002

Wednesday, March 20, 2002

by

Patricia Campbell, PhD, Patrick R. Kormos, and Michael N. Goodman

Department of Environmental Geosciences, Slippery Rock University, Slippery Rock, PA 16057,

Faculty/Student Research at Slippery Rock University

**Ductile shear zones in the basement complex of the Blue Ridge anticlinorium in central Pennsylvania:
Implications for the evolution of the northern Blue Ridge.**

A ductile shear zone defined by lineated, mylonitic, volcanic rocks, principally rhyolitic quartz-feldspar porphyry, crops out in the Precambrian basement of the northern Blue Ridge anticlinorium in south central PA. These mylonitic rocks occur north of the Carbaugh-Marsh Creek (CMC) fault. In this area the CMC fault trends east-west across the structural grain of the Blue Ridge and is interpreted as a right-lateral strike-slip fault. North of the CMC fault, mylonitic foliation strikes northeast and dips moderately southeast. Adjacent to the CMC fault, the strike is more eastward and the mylonitic rocks are cut by numerous joint sets that are prominent close to the fault. Mylonitic volcanic rocks are not known south of the CMC fault. The absence of mylonitic rocks may indicate offset during right-lateral movement along CMC fault compatible with the more eastward strike caused by drag along the CMC fault. Displacements along Triassic normal faults may also obscure the mylonite zone south of CMC fault. An alternative interpretation is that the ductile fault bends into a transverse tear at an oblique thrust ramp that has been reactivated during later right-lateral movement on the CMC fault under brittle deformation conditions.

A regionally extensive horizon of mylonitic beds, the Keedysville mylonite, has previously been recognized along the west flank of the Blue Ridge at the base of the Cambrian carbonate section in the northern Blue Ridge (Campbell and Anderson, 1996). The Keedysville mylonite is interpreted to be a fundamental detachment surface in the central Appalachians that is folded and cut by younger faults. The sheared volcanic rocks that crop out north of the CMC fault may be a detachment stratigraphically lower than the Keedysville within the Cambrian carbonates. If these zones of ductile deformation are correlative, then they may represent the footwall cutoff of a thrust ramp along which basement rocks were carried across the platform margin onto the Keedysville flat.

Social hour - 6:00 p.m.

Dinner - 7:00 p.m.

Program - 8:00 p.m.

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

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

Pittsburgh Geological Society

ABOUT OUR SPEAKERS

Patricia Campbell received her B.S., M.S. and Ph.D. (1994) from the University of Pittsburgh. She has worked for engineering and environmental consulting firms in the Pittsburgh area and taught one semester at Kutztown before coming to Slippery Rock. She teaches Physical Geology, Environmental Geology, Earth Materials, Structural Geology, X-ray Spectrometry and Geologic Map Interpretation. Her interests include the study of ductile fault zones and the tectonic evolution of the Blue Ridge.

Patrick Kormos will graduate from Slippery Rock in May 2002 with a BS in Geology. He is a GSA undergraduate research assistant grant recipient.

PGS is an Act 48 Provider

PGS has partnered with the Beaver Valley Intermediate Unit to provide credit to science teachers under Pennsylvania Act 48. The Act requires all teachers in Pennsylvania to obtain credits or hours of additional training in order to renew their teaching certification. Teachers wishing to attend this month's talk may contact Christine Wagner at (724) 774-7800 or the Newsletter Editor. Credit may also be obtained by attending the field trip or any seminars sponsored by PGS.

PGS SPRING FIELD TRIP

The PGS spring field trip, *The History and Geology of the Allegheny Portage Railroad*, is scheduled for Saturday, May 11, 2002. Details are still being worked out at this time, but we should have final plans and complete information available by the April newsletter. If you require further information before then, contact John Harper at (412) 442-4230 or by email at jharper@state.pa.us.

PA SURVEY OPEN HOUSE

The Pennsylvania Geological Survey is extending an invitation to visit the new location of their Harrisburg Office. This will be an opportunity to see the new building and also to meet both the Harrisburg and Pittsburgh staff members. The new facility is user friendly and includes a spacious

library, a training center, computer lab and plenty of free parking. There will be opportunities to learn about the public services that the Survey offers, as well as poster presentations of some of the Survey's ongoing projects and speeches by DCNR Secretary John Oliver, Deputy Secretary Richard Sprenkle, and State Geologist Jay Parrish. The open house will be held Wednesday, April 10th, 2002 from 10:00 AM to 3:00 PM at the new location just off the Pennsylvania Turnpike at exit 19 (I 283). The address is 3420 Schoolhouse Road, Middletown, PA 17057 (the former offices of R. E. Wright & Associates, for those who know where that is). For directions, log into www.dcnr.state.pa.us/topogeo/ or call 717-702-2017. If you are interested please RSVP by March 29, 2002 to Jaime Kostelnik at 412-442-5828 (jkostelnik@state.pa.us) or Kristen Reinertsen at 717-702-2047 (kreinertse@state.pa.us).

NATIONAL SECURITY VERSUS INTELLECTUAL FREEDOM

In October, 2001 Francis Buckley Jr., superintendent of documents at the Government Printing Office, ordered 335 public and university libraries that participate in the Federal Depository Library Program to destroy a USGS database CD entitled "Source-Area Characteristics of Large Public Surface-Water Supplies in the Conterminous United States: An Information Resource for Source-Water Assessment, 1999." The reasoning behind the order? Because of the September 11 terrorist attacks, government agencies had been ordered to clean up government websites containing sensitive information. The USGS decided their data CD on water supplies was "too sensitive for public access." Although the CD contained no analyses of points of vulnerability, it documented locations of critical infrastructure such as intake pipes. Some people question the threat posed by the CD, which apparently contains only information compiled from previously published reports. In addition, they point out the distinct possibility that "bootlegged" copies of the CD still exist, meaning that the government's attempt at securing the data is basically just a Band-Aid. But most of the criticism

so far has come from librarians, rather than geologists and others with a specific interest in the data. Librarians say the order raises new concerns about unlimited censorship in the name of national security. The American Library Association's code of ethics states that libraries should "resist all efforts to censor library resources." The Government Printing Office, however, said that the "documents we send out are still the property of the government, and if we ask for a document to be withdrawn, it should be." Although the order drew protests across the country, there have been no reports of librarians refusing to comply. The USGS may issue a more limited version of the CD at some later date to replace the recalled data.

ESCHEW SCIENTIFIC OBFUSCATION

The following is from a commentary by A. M. C. Sengor in the February, 2002 issue of GSA Today: When Bertrand Russell returned to the United States just before World War II to teach, he offered to lecture about "Words and Facts" as he had done in Oxford. In his famous *Autobiography*, he wrote later, "But I was told that Americans would not respect my lectures if I used monosyllables, so I altered the title to something like 'The Correlation between Oral and Somatic Motor Habits.' Under this title, or something of the sort, the seminar was approved."

Reading modern American geological literature frequently reminds me of Lord Russell's experience. In it, complicated foreign-sounding words are preferentially – and often unsuitably – used where simple English words would be perfectly adequate and often more suitable. There are undoubtedly cases where entirely new words are necessary. I myself have been responsible for introducing a number, now in current use. But there is no excuse whatsoever for using an unusual word when one from the everyday language will do equally well. The situation becomes more intolerable if the concept to be described is **better** represented by the common and simple word than by the uncommon and complex.

AAPG ELECTIONS IN MAY

Presently, there are two candidates interested in the position of PGS delegate. Nominations are still open. Please contact the board if you are interested. Ballots will be sent out the first week in May to

AAPG members.

BE A BOARD MEMBER

The Nominating and Elections Committee of the PGS Board of Directors is seeking enthusiastic candidates to fill three positions on the Board as Director-at-Large. The election will be in May 2002. Successful candidates will serve two-year terms from June 2002 to May 2004. If you believe that you could contribute to society management and would like to be considered for this position, please contact Dr. Charles H. Shultz, Chairman, at (724) 738-2501 or charles.shultz@sru.edu.

SEEKING EMPLOYMENT

My name is Carol Doe and I am looking for employment in the environmental field in my home city of Pittsburgh. I recently earned my Master of Science in geology from Ohio University, focusing on hydrogeology. I earned my Bachelor of Science in geology from West Virginia University, graduating Cum Laude.

Through my graduate program at Ohio University and my own thesis research, I have gained an extensive amount of practical experience. The title of my Master's research topic is "Hydrological and Thermal Processes in a Burning Coal Refuse Pile: The Misco Gob Pile, Perry County, Ohio" prepared for the Ohio Department of Natural Resources. The ODNR will use the results of this research to help develop a remediation design for the abandoned refuse pile. In addition, I have outstanding work experience through a 3-year co-op position at Southern Ohio Coal Company.

You can write Carol Doe at 9 Roxbury Drive Athens, Ohio 45701, call at (740) 594-3377 or e-mail: scdoe@frognet.net

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

The PGS Board:

President: Fred Coll
Vice President: Judy Neelan
Treasurer: Steve McGuire
Secretary: Frank Benaquista

Directors-at-Large:

Bruce Camlin, Patrick
Burkhart,
Chris Ruppen, Ed Girard
Chuck Shultz, Bob Burger

Counselor and GOPCO**Chairman:**

Pete Briggs
Counselor: John Harper
Past President: Wendell Barner

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

DID YOU KNOW . . . ?

- Recent research indicates the Chicxulub bolide impact, the purported cause of the end-Cretaceous mass extinction, could not have created enough submicrometer-size dust to shutdown photosynthesis, as the current hypothesis suggests.
- The estimated density of the Earth's iron core is about 10% lower than it should be for pure iron, indicating the probable presence of some lighter element or elements, such as oxygen, carbon, sulfur, hydrogen, and/or silica, in the mix.
- Groundwater in aquifers generally is older than expected on the basis of flow velocity, probably as a result of mixing with old water from aquitards
- Most of the flagstone produced in Pennsylvania comes from Susquehanna County, with minor amounts quarried in Wayne, Bradford, Wyoming, and Lackawanna counties.
- On the basis of U-Pb zircon and $^{87}\text{Sr}/^{86}\text{Sr}$ isotopic dating, the Vindhyan Supergroup in India, which has been reported to contain Ediacaran and Cambrian body and trace fossils, is actually about 1,600 million years old, placing the rocks in the Proterozoic.
- Despite certain climatologists' needs for research funds and international recognition, a global warming trend that began about 55 million years ago and lasted for about 100,000 years has NOT been linked to man's use of fossil fuels! Yet!
- In fact, anthropomorphic activity has not even been linked with the rapid climate change that seems to be occurring on Mars.
- The demonstrated reserve base of bituminous coal in Pennsylvania as of January 2000 was 28.2 billion short tons. Of this, only 927 million short tons of recoverable coal was considered low-sulfur coal (less than 0.61 pounds of sulfur per million BTU).
- Hydrologists at the USGS estimate that marine groundwater has encroached approximately 15.6 miles into the Everglades during the past 100 years.
- The prospects for those who have recently finished a Ph.D. in the earth sciences have been improving over the last five years.
- The earliest mention of petroleum in Pennsylvania was in a report of the Commander of Fort Duquesne to General Montcalm in 1750 in which he stated that he had witnessed a Seneca Indian ceremony on Oil Creek where they made a fire from the oil oozing from the ground.
- Website of the month, of special interest to K-12 educators and parents: <http://www.kids.rrc.state.tx.us>.

PGS 2002 Corporate Sponsors

AMERICAN GEOTECHNICAL AND
ENVIRONMENTAL SERVICES, INC.
AMMONITE RESOURCES
ARK RESOURCES, INC.
ATLAS AMERICA INC.
AURORA ENVIRONMENTAL, INC.
The BARON GROUP,
BENEDUM INTERESTS
BILLMAN GEOLOGIC CONSULTANTS,
INC.
CUMMINGS/RITER CONSULTANTS, INC.
EARTH, INC.
The FOURTH RIVER COMPANY,
GAI CONSULTANTS, INC.
GANNETT FLEMING, INC.
GEODATA CORPORATION
GEO-ENVIRONMENTAL DRILLING CO.
INC.
GEOMECHANICS, INC.
GEOTECHNICS, INC.
HDR ENGINEERING, INC.
The HUTCHINSON GROUP, LTD.
HYDROSYSTEMS MANAGEMENT, INC.
MOODY AND ASSOCIATES INC.
PENNSYLVANIA DRILLING CO.
RIZZO ASSOCIATES, PAUL C.
SHIELD ENVIRONMENTAL ASSOCIATES
INC.
TEST BORING SERVICES, INC.
URS CORPORATION
VISTA RESOURCES, INC.



PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LIV, No.8

Mike Keeliher, Editor

April 2002

Wednesday, April 17, 2002

Abandoned Mineland Restoration in Pennsylvania

by

Margaret H. Dunn, PG, CPG

In order to address the extensive environmental problems associated with historical mining operations, Pennsylvania has become the leader in abandoned mineland restoration and the development of long-term, low-maintenance passive treatment systems. As part of the PA Department of Environmental Protection's Growing Greener initiative and in-kind contributions from environmental professionals, the mining industry, and local, state, and federal agencies, the Slippery Rock Creek headwaters are being restored. Since 1995, over 13 multi-component, passive systems, utilizing innovative drainage collection systems, Anoxic Limestone Drains, Vertical Flow Ponds, Horizontal Flow Limestone Beds, and naturally-functioning wetlands, have been successfully installed and over 150 acres of abandoned minelands have been reclaimed. The result: 11 stream miles significantly improved with fish returning in 6 miles after a 100-year absence.

About our Speaker

Margaret H. Dunn is a co-founder of the Slippery Rock Watershed and Jennings Water Quality Improvement Coalitions. Margaret, along with Tim Danehy, Shaun Busler, and Cliff Denholm, at Stream Restoration Incorporated (non-profit) currently focuses on the development of public-private partnership efforts to utilize environmentally-friendly techniques to restore watersheds impacted by abandoned minelands. Margaret has worked with the mining industry on drainage issues for over 20 years and is the recipient of the 2000 Environmental Conservation Distinguished Service Award of the American Institute of Mining, Metallurgical, and Petroleum Engineers.

Social hour - 6:00 p.m.

Dinner - 7:00 p.m.

Program - 8:00 p.m.

Dinner will cost \$20.00/person, students \$5.00; checks preferred. Reservations should be phoned in to Steve McGuire at (412) 809-6723 or faxed to (412) 809-6711 or e-mail McGuireS@USFilter.com by **noon Monday, April 15, 2002.**

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

Pittsburgh Geological Society

ALLEGHENY PORTAGE RAILROAD FIELD TRIP

The PGS spring field trip will be held Saturday, May 11, 2002. Attendees will wend their way from Monroeville to Hollidaysburg to participate in **The History and Geology of the Allegheny Portage Railroad in Blair and Cambria Counties**. As we wind through the sometimes breathtaking, sometimes blighted landscape between Hollidaysburg and Johnstown, we will travel beside and on the railroad right-of-way for much of the distance, stopping for photo opportunities, to examine outcrops, and to view the preserved history of a truly remarkable engineering feat defunct for almost 150 years. Major stops will include the Allegheny Portage Railroad National Historic Site and the Johnstown Flood National Memorial. Cost of the field trip is \$25 for adults, \$10 for children and students to cover transportation, a fieldtrip guidebook, and entry fees/contributions to the national memorials. Beverages and will be provided, but you need to bring your own lunch. For further details, or to sign up for the trip, come to the April PGS meeting, or call John Harper at 412-442-4230 (or email jharper@state.pa.us) by no later than 12:00 noon, Friday, May 3, 2002.

THE GEOCHEMICAL BASIS OF DEMOCRACY

The following is excerpted from an editorial in the February 18 issue of the Oil & Gas Journal:
The democracy that we love today may be traced back to a crazed woman stuffed in a cave and zonked on hydrocarbon gases. Ancient history says the Greeks defended Athens against the mighty Persian Empire based upon a prophecy from the Pythia of the Oracle of Delphi. The Pythia was a priestess through whom the god Apollo spoke. The Greeks believed she derived her prophetic power through the Oracle, the Greeks' most sacred shrine. Some ancient authorities suggested the Pythia's trance stemmed from gaseous emissions coming from a fissure in bedrock and from a spring. The latest theory is that light hydrocarbon gases from bituminous limestone triggered the Pythia's revelations. Geologist Jelle Zeilinga de Boer, an earth science professor from Wesleyan University

in Middletown, Conn., and his colleagues have found ethane, methane, and ethylene in spring water near the Oracle. Ethylene is known to have euphoric effects and has been used as anesthesia. Its narcotic influence matches the ancients' descriptions of gas that Pythia inhaled . . . Athens defeated the Persians and became a model for democracy. Hydrocarbons influenced the prophecy, which set in motion a sequence of events resulting in the freedoms that western civilization enjoys today.

DID YOU KNOW . . . ?

- If you have a Bachelor's degree and have been working for at least 10 years, you must be making about \$100K per year, according to the AAPG's latest salary survey. Yeah – right!!!
- If you are REALLY interested in the global climate controversy, you will want to pick up a copy of William Ruddiman's textbook, *Earth's Climate: Past and Future*, from W.H. Freeman and Co. \$79 at a university bookstore near you.
- At least one of the enigmatic Ediacaran organisms, the strange fossils from the Late Precambrian of Australia (and other areas of the world), appears to be more closely related to primitive colonial algae than to true multicellular organisms.
- This year marks the 30th anniversary of the launching of the first Landsat Earth-observing satellite, sent into a polar orbit on July 23, 1972. Several days later, the first MultiSpectral Scanner data came to earth and remote sensing hasn't been the same since.
- As of mid-2001, Ohio was producing 65% of the central Appalachians' total crude oil, followed by Pennsylvania (25%). New York and West Virginia together produce the remaining 10%.
- Geologists and geophysicists believe that millions of gallons of hazardous waste injected into a deep well in Ashtabula County, Ohio caused the 3.8-magnitude earthquake that rocked the region in 1987.
- A Department of Energy-sponsored team of companies has created a system that uses sound waves to remove inorganic matter and other debris that clog the perforations of gas wells,

allowing the gas to flow more freely from the reservoir.

- In 1998 the state of Texas implemented new educational standards, which define what high school seniors must know before they graduate. The only science courses they are required to take are Biology, Chemistry, and Physics. So what else is new?
- The US holds more nuclear waste, from both spent fuel rods and weapons production, than any other country in the world.
- Geologists from England and Denmark believe they've found a link between the mass extinction event at the Triassic-Jurassic boundary and the initiation of volcanism in the Central Atlantic magmatic province associated with the breakup of Pangea.
- Although panspermia, the concept that life originated in space and came to Earth in meteorites, is probably apocryphal, recent research has revealed that some meteorites contain sugar molecules that might have been necessary for the origin of life on this planet.
- German scientists believe they have found a piece of pitch used by a Neanderthal hunter to glue a wooden haft to a flint stone blade. The pitch, dated at more than 80,000 years, had imprints of a tool, the structure of wood cells, and what appears to be a humanoid fingerprint.
- Website of the month:
<http://www.ucmp.berkeley.edu/exhibit/geology.html>

PGS Delegate Ballots

The PGS Delegate ballots were mailed on April 01, 2002, and that the deadline for votes to be counted is April 20, 2002. Ballots were mailed to all Active AAPG members assigned to the PGS geographical area.

Free Seminar on Seismic Software

Seismic Micro-Technology will be presenting their new Version 7 software suite April 18, at the Radisson Greentree hotel, 2 to 5 PM. The program will focus on the seamless integration of the **Kingdom Suite** modules, which include 2D/3D Pak (an interactive seismic interpretation package for 2D or 3D data), EarthPak (an integrated geological interpretation package), and VuPak (an interactive module for 2D or 3D interpretation and

visualization). There will also be information on the integration and application of SynPak (a full featured synthetic seismogram generation package), TracePak (a cost effective solution for analyzing and processing post-stack seismic data), and ModPak (a tool for creating a unified geophysical/geological model of the subsurface). Each module may be used separately, or integrated together to maximize their contribution to your subsurface interpretation. If you plan on attending, please contact Craig Anderson with Oil and Gas Solutions, so that we can be sure of proper room size and facilities. Phone: (814) 934-6597 Fax: (814) 940-1041 Email: crancy@earthlink.net

Position Available: ENVIRONMENTAL SCIENTIST; For full time position at local environmental consulting company. Must be responsible, able to work independently collecting water, wastewater and soil samples and have flexible schedule. 40 hour Hazwoper training and a minimum Associates Degree in related field required. Benefits, vacation, and retirement plan included. Send resumes to: AURORA ENVIRONMENTAL, INC., 1031 Third Ave., New Brighton, PA 15066. No phone calls please.

PGS Sponsors Meeting in Ohio

May 9 - Robbie Gries, President of AAPG. Topic TBA. This monthly meeting will be a special joint meeting of the Ohio Geological Society, the Ohio Chapter of SPWLA, the Appalachian Geological Society, the Pittsburgh Association of Petroleum Geologists, and the Pittsburgh Geological Society. The meeting will be held at the Cambridge Country Club. The luncheon will start at 11:30 a.m. See the map for directions to the Cambridge Country Club. Because there will be a larger attendance at the meeting, please RSVP for the luncheon by May 2 to Jim McDonald (614) 265-6601. For more information, please contact Jim McDonald at (614) 265-6601, e-mail at jim.mcdonald@dnr.state.oh.us

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

The PGS Board:

President: Fred Coll
Vice President: Judy Neelan
Treasurer: Steve McGuire
Secretary: Frank Benaquista

Directors-at-Large:

Bruce Camlin, Patrick
Burkhart,
Chris Ruppen, Ed Girard
Chuck Shultz, Bob Burger

Counselor and GOPCO**Chairman:**

Pete Briggs
Counselor: John Harper
Past President: Wendell Barner

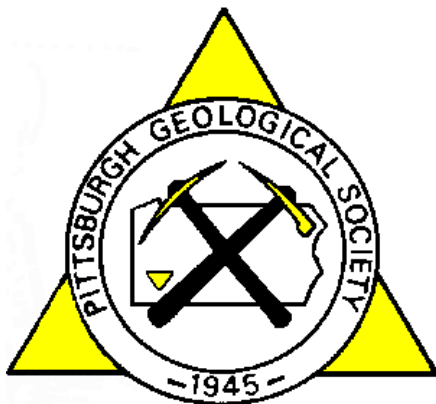
Memberships: For information about memberships, please write PGS Membership Chair, PO Box 58172, Pittsburgh PA 15209, or call John Harper at (412) 442-4230, or e-mail jharper@state.pa.us. Membership information can also be found at our new website. **PGS phone line** (412) 928-2255 **PGS web address:**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

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

PGS 2002 Corporate Sponsors

**American Geotechnical and
Environmental Services, Inc
Ammonite Resources
Ark Resources
Atlas America
Aurora Environmental, Inc.
The Baron Group
Benedum Interests
Billman Geologic Consultants
Cummings/Riter Consultants, Inc.
Earth, Inc.
The Fourth River Company
GAI Consultants
Gannett Fleming, Inc
Geodata Corporation**

**Geoenvironmental Drilling Company,
Inc.
Geomechanics, Inc.
Geotechnics, Inc
HDR Engineering, Inc.
The Hutchinson Group, ltd.
Hydrosystems Management, Inc.
Moody and Associates
Pennsylvania Drilling Company
Paul C Rizzo Associates
Shield Environmental Associates, Inc.
Test Boring Services, Inc
URS Corporation
Vista Resources**



PGS Newsletter

www.pittsburghgeologicalsociety.org

Vol. LIV, No.9

Mike Keeliher, Editor

May 2002

Wednesday, May 15, 2002

Recent Applications in the Use of Isotope Geochemistry for Identifying Sources of Stray Gas

F.J. Baldassare & C.D. Laughery

The use of carbon & hydrogen isotopic analyses provides a powerful geochemical tool to identify the source of stray gas in the subsurface. When combined with a site-specific investigation, these analyses can often positively identify the source of stray gas where several potential sources are involved. The consequences of the uncontrolled migration of stray gas in the subsurface can be devastating, with the potential for loss of life.

In western Pennsylvania, there frequently are multiple potential sources to evaluate including, active and abandoned gas wells, active and abandoned coal mines, permitted and unpermitted municipal waste landfills, natural gas transmission lines, and overburden gas. In the previous 10 years, we have established an isotopic database of gases sampled from western Pennsylvania, thereby defining carbon and hydrogen isotopic signatures for gases from different sources in this area. In recent years, isotopic analyses have also been used successfully to identify sources of stray carbon dioxide. We will present several cases where we have successfully interpreted molecular analyses and carbon and hydrogen isotopic analyses in combination with other elements of our investigation to identify sources of stray methane and carbon dioxide in western Pennsylvania.

Social hour - 6:00 p.m.

Dinner - 7:00 p.m.

Program - 8:00 p.m.

Dinner will cost \$20.00/person, students \$5.00; checks preferred. Reservations should be phoned in to Steve McGuire at (412) 809-6723 or faxed to (412) 809-6711 or e-mail McGuireS@USFilter.com by **noon Monday, May 13, 2002**.

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

Reminder! The outbound lane of the Fort Pitt Bridge is closed. Plan accordingly.

Pittsburgh Geological Society

About our Speakers

Christopher D. Laughrey is a Senior Geologic Scientist with the Pennsylvania Geological Survey where he has worked since 1980. He worked as a geophysical analyst for the Western Geophysical Company in Houston, Texas before taking his present position in Pittsburgh, Pennsylvania. He also has taught sandstone petrology at the University of Pittsburgh. Laughrey's special interests include isotope and organic geochemistry, borehole geophysics, reservoir petrology, and karst studies.

Fred Baldassare is a Professional Geologist with the Pennsylvania Department of Environmental Protection where he has worked since 1985. He worked previously as a Mine Examiner for Solar Fuel Company in Windber, PA. With more than 40 cases solved, Fred is recognized as the Department's expert in investigating incidents of stray gas migration. In 2001 his investigation and court testimony resulted in a jury award of more than one million dollars to a family whose home exploded and burned to the ground as a result of the migration of stray gas. This landmark case was the first time a federal cause of action was enforced in state court. Fred has also served as technical advisor on Pennsylvania's Land Recycling Program. His special interests include isotope geochemistry and contaminant fate and transport.

Fred and Chris have co-authored several technical papers on the use of isotope geochemistry to identify sources of stray gas.

Vote for your Candidates

This year the Society has eight candidates running for three openings for Directors-at-Large on the board. The candidates for President, Vice President, Secretary and Treasurer are running unopposed. The enclosed ballot is provided for your vote. Please fold the ballot so that the address shows and post it or bring it to the meeting. Those permitted to vote include members in good standing, honorary members and representatives of corporate members. Sorry students, you can't vote for your favorite professor and add to his or her workload.

Ballots can be turned in at the May meeting or sent to the address on the back of the Ballot. The ballots must be received by May 15, 2000. Postmarks don't count. The ballots will be picked up on that day, brought to the May meeting and counted. The results will be made available during the May meeting and the new Directors at large will be listed in the September Newsletter.

ALLEGHENY PORTAGE RAILROAD FIELD TRIP

Available seats for the field trip scheduled for May 11 have been filled. Please contact John Harper at (412) 442-4230, or e-mail jharper@state.pa.us to confirm your reservation.

DID YOU KNOW . . . ?

- The US Department of Energy estimates that Pennsylvania's reserves of crude oil have slipped to only 16 million barrels, less than one percent of the total US reserves.
- And . . . daily oil production in the entire US is less than 6 million barrels per day while consumption is 18.5 million barrels per day (and continuing to increase).
- Ocean temperatures during the Middle Cretaceous may have been as much as 4 to 7 degrees C higher than the highest recorded modern mean annual temperature.
- The occurrence of quartz-pebble conglomerates decreases through time from the Precambrian to the Tertiary.
- Studies of zircons indicate that some continental crust probably formed as early as 4.4 billion years ago and that surface temperatures probably were low enough for liquid water, suggesting that the early earth had long intervals of relatively temperate surface conditions from 4.4 to 4.0 billion years ago.
- Fossil remains of Pennsylvanian vertebrates are relatively common in the Pittsburgh area – if you know where to look.
- The proposed federal budget for fiscal year 2003 would cut 5 percent from the USGS budget, with about half of that decrease coming from the National Water Quality Assessment Program (NAWQA) and the Toxic Substances

Hydrology Program.

- The Mars Odyssey spacecraft that went into orbit around Mars in February has been sending back data indicating large amounts of hydrogen in the soil near the south pole, suggesting the possibility of water ice.
- President Bush is pushing an initiative called EarthScope, a scientific survey that will investigate the structure and evolution of the North American continent and the physical processes controlling earthquakes and volcanic eruptions.
- EarthScope data suggest that old oceanic lithosphere, once part of the Farallon plate (which is now split into the Cocos and Juan de Fuca plates, exists in the mantle about 700 miles beneath North America.
- Pleistocene clays in the terrace deposits along the three rivers in western Pennsylvania were a quality source of pottery, roofing tiles, and bricks in the 1800s.
- Website of the month:
<http://earthobservatory.nasa.gov/NaturalHazards/>.

Early Mammals,

Dr. Zhe-Xi Luo who has twice given talks to the society, was on National Public Radio several weeks ago talking about a placental mammal discovery in China which sets placental mammal's age back to 125 million years ago from a previous 110 million years ago. The beast is chipmunk sized, named Eomaia (dawn mother) and came complete with finger bones, claws and traces of hair, giving rise to speculation that it spent time in trees or bushes staying away from dinosaurs and eating insects, fruits and seeds. Eomaia was found in the same formation where feathered dinosaurs were discovered.

The NPR interview was the result of an article he published in Nature.

PGS Delegate Election Results:

The PGS is pleased to announce that Dan Billman will be the PGS Delegate to the AAPG House of Delegates. Dan's term will begin July 01, 2002 and will end June 30, 2005. Dan can be contacted at: Billman Geologic Consultants, Inc., President and Principal Geologist, P.O. Box 567, Mars, PA 16046, Phone 724-625-3461, E-mail

danaret@fyi.net. We look forward to Dan serving the PGS as Delegate.

Some Important Topics Discussed at the Recent AAPG Annual Meeting in Houston, Texas.

1. The AAPG is undertaking the digitizing of the AAPG Library in Tulsa, OK. In the near future all the AAPG publications and library resources will be available on line. This project may be expanded to affiliated society publications and details are still being considered at this time.

2. The 2003 Eastern Section AAPG Meeting will be held jointly with the SPE Eastern Region in Pittsburgh in September 2003. As a part of the meeting a Student Expo and Job Fair will be held. Graduate and under graduate geology students will be able to display and discuss student research projects, independent studies and thesis projects. Job recruiters will be invited to attend and discuss and possibly interview for employment positions in the oil and gas industry. Details are presently being worked out and the PGS Newsletter and meeting announcements will keep you informed as more information becomes available.

A Review of "Bone Wars"

Most geologists who were raised or went to school in the Pittsburgh area know about Andrew Carnegie and Diplodocus. But did you know about Bill Reed, Carnegie's bone hunter, Jacob Wortman, expedition leader, or John Bell Hatcher, a paleontologist who may have been one of the first to see evidence for continental drift, if history had been kinder? The book takes you to Como Bluffs, Wyoming, Pittsburgh, and Patagonia, describing politics, geology, Andrew Carnegie's vast fortune, Pittsburgh's horrid water, and the dinosaur that brought the city, paleontology and the philanthropist worldwide status.

Author Tom Rea is a freelance journalist who was raised in Pittsburgh and now lives and writes in Wyoming for the Casper Star Tribune. The book is published by the University of Pittsburgh Press.

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

The PGS Board:

President: Fred Coll
Vice President: Judy Neelan
Treasurer: Steve McGuire
Secretary: Frank Benaquista

Directors-at-Large:

Bruce Camlin, Patrick
Burkhart,
Chris Ruppen, Ed Girard
Chuck Shultz, Bob Burger

Counselor and GOPCO**Chairman:**

Pete Briggs
Counselor: John Harper
Past President: Wendell Barner

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

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

PGS 2002 Corporate Sponsors

**American Geotechnical and
Environmental Services, Inc
Ammonite Resources
Ark Resources
Atlas America
Aurora Environmental, Inc.
The Baron Group
Benedum Interests
Billman Geologic Consultants
Cummings/Riter Consultants, Inc.
Earth, Inc.
The Fourth River Company
GAI Consultants
Gannett Fleming, Inc
Geodata Corporation**

**Geoenvironmental Drilling Company,
Inc.
Geomechanics, Inc.
Geotechnics, Inc
HDR Engineering, Inc.
The Hutchinson Group, ltd.
Hydrosystems Management, Inc.
Moody and Associates
Pennsylvania Drilling Company
Paul C Rizzo Associates
Shield Environmental Associates, Inc.
Test Boring Services, Inc
URS Corporation
Vista Resources**