PGS Newsletter

http://www.pittsburghgeologicalsociety.org/

Vol. LVII, No. 1 | Robert Burger, Editor | September, 2004

Wednesday, September 15, 2004
The Pittsburgh Geological Society presents:

The National Map - PAMAP

David Terrell
U.S. Geological Survey

PAMAP is Pennsylvania's part of The National Map—a visionary and pioneering set of digital layers of cartographic data. The data layers represent the modern version of the topographic map, but larger in scale, higher in resolution, interoperable, and up to date. It also is an example of a distinctive form of intergovernmental cooperation. The Federal Government, rather than supplying data, becomes the collector and coordinator of data; and State and local governments contribute the data, getting in return a consistent base map, continually revised and updated.

David Terrell is the U.S. Geological Survey's liaison to Pennsylvania for Geography. David began his career in journalism, writing politics for large Southern newspapers, the Arkansas Gazette in Little Rock and The Commercial Appeal in Memphis. David spent several years as a speechwriter and political operative in the United States Senate—Democratic side—before moving to the Department of the Interior.

David Terrell was deputy chief and then chief of publications for the old National Mapping Division of the USGS, then spent 9 years at the EROS Data Center in Sioux Falls, SD, building a worldwide network of data dealers. David has been working on the Pennsylvania job since March.

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 Mike Forth at (412) 323-2200 or emailed to mkf@peoplepc.com by **noon Monday**, **September 13.**

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

WELCOME FROM THE PRESIDENT

As President of the Society for the upcoming 2004-2005 program I would like to welcome the membership to an exciting year ahead. To begin, the PGS is currently a collage of more than 230 academic, corporate, honorary, professional, and student members sharing one common thread - a passion for geology. The Society intends to provide a common ground for its diverse membership base to share this passion through events that require the dedication of its elected officers, board members, committees, and of course, its members. As an active, future, or retired geoscientist there is much offered by the Society that invites the participation of the member. It may be the educational and social aspects of attending the monthly meetings and the professional networking that it offers. It may be the annual field trips that offer the geology in the field that our desks and offices do not present. For some, maybe you would like to get more involved in the operations of the Society. There are several committees that can use the energy, ideas, and participation of new members. Whatever personal or professional desires lead you to become a member of the PGS, the September meeting is a good time show up, get acquainted (or-reacquainted) and get involved. See you soon.

Ray Follador

SURVEY OF GEOSCIENCE DEPARTMENTS

The American Association of Petroleum Geologists (AAPG) disclosed the results of its annual survey of geoscience departments recently. The survey found that environmental geology was the number one academic strength in most American geoscience departments, with stratigraphy being the number two and hydrogeology being number three. More students are finding work in the environmental sector than any other—fully 55% of respondents found jobs in the environmental field, as opposed to only 13% for the petroleum field. There has been a decrease in both faculty and student numbers on average in US geoscience departments; graduate students account for 38% of all geoscience majors, with international students accounting for about 29% of graduate students.

ROBERT EDWARD EBERLY

7/14/1918 – 5/19/2004
PGS Honorary Member

PGS Honorary Member Bob Eberly passed away peacefully on May 19, 2004. Bob, for many years, was interested in the natural resources of Western Pennsylvania. He invested money with the Peoples Natural Gas Company (PNG) from the 1950s though the l970s. His involvement encouraged PNG to explore for the deeper and less developed Huntersville chert and Oriskany sandstone plays, first using surface geology and then detailed seismic surveys. The majority of these wells were drilled on Chestnut and Laurel Ridge anticlines ranging at depths of 7,500 to 8,000 feet. Bob's vast financial resources were never discussed when reviewing geologic and seismic data and the PNG staff respected him for his geologic knowledge and positive questions about prospects. If all were in agreement, the well drilling began.

Numerous productive gas wells resulted and many are still producing today. We thank Bob Eberly for helping the natural gas industry of Western Pennsylvania. We at the PGS are also grateful for his financial help in publishing the Geology of Pennsylvania, a resource book that will be used for many years by consultants, colleges, and universities.

PGS Historian – Paul Garrett

ORIGINS OF WESTERN PA PLACE NAMES

Johnstown was originally named Conemaugh Old Town when it was a Native American village, before 1731. The name Conemaugh, which now refers mostly to the river of that name, is derived from the word conunmoch (also spelled gunammochk), which means “otter”. The outcrops found along the Conemaugh River form the basis for the definition of the Pennsylvanian Conemaugh Group, which includes the lower Glenshaw and upper Casselman Formations.

PA FIELD CONFERENCE
The annual Field Conference of Pennsylvania Geologists will be held this year in West Chester, PA on October 7-9 to look at the geology of the Wissahickon "schist" and its associated Glenarm Series metasediments and Wilmington Complex arc rocks. This will be a good opportunity for those who have been away from metamorphic rocks to reacquaint themselves with these complex lithologies, and to learn about the latest hypotheses on how and when they formed.

Please note that the Field Conference is not suitable for beginning geology students, but that juniors, seniors, and graduate students are welcome, as are Earth Science teachers, college and university professors, and professionals from all disciplines.

Further information and the registration form and liability waivers can be found at www.paonline.com/gfleeger/fcopg.

AAPG EASTERN SECTION MEETING
The Ohio Geological Society and the Ohio Geological Survey cordially invite you to join us at the 33rd annual meeting of the Eastern Section of the American Association of Petroleum Geologists (ES-AAPG), Ramada Plaza Hotel, Columbus, Ohio, October 3-6, 2004

Our outstanding technical program has something for everyone in the geoscience community. A whopping 98 talks and posters will provide a tantalizing choice of topics for members of the oil and gas, coal, environmental, and academic communities. In addition, we will be offering two outstanding luncheon speakers in Dr. Albert Bartlett and Dr. Ronald Nelson. Attendees will also be afforded opportunities to participate in two great quarry fieldtrips and an excellent fractured-reservoir workshop. As always, the exhibit hall will be packed with businesses and groups presenting their technologies and services. It will also serve as the focal point of our social events, including the traditional Ice Breaker. Please plan on arriving early to attend the Opening Session and Awards Ceremony on Sunday. The session will be capped by two notable presentations - this year's Galey Memorial Address by Dr. Donald C. Haney and the meeting's keynote address by Dr. Jamil Al Dandany of Saudi Aramco.

The full meeting announcement including list of all talks, events, hotel information and registration form, can be found at the meeting web site: http://www.ohiodnr.com/geosurvey/aapg04.htm

WORKSHOPS

On October 30 and November 13, 2004, PGS is sponsoring two student workshops. The October 30 workshop will be a practical session on field methods for new professionals, and the November 13 workshop will be the third annual "So You Want To Be a Geologist" workshop featuring information useful for those seeking a career in geology. For more information, consult the website www.pittsburghgeologicalsociety.org or next month's newsletter.

FALL FIELD TRIP

On October 23rd, 2004, PGS and the Department of Geography, Geology, and the Environment of Slippery Rock University are sponsoring a field trip to the Slippery Rock Creek basin near Portersville, Pennsylvania, to view features indicating a re-mapping of the glacial margin in the area. Sedimentological, mineralogical, petrological, and textural analyses were performed by the leader, Gary D'Urso, as part of his dissertation from West Virginia University, to come to the conclusions formed. In addition, HEC-RAS paleoflood models were developed to investigate the role of proglacial lake outburst flooding in the glacial history of the basin. The study suggests the proglacial lakes drained rather slowly than by catastrophic dam outbursts as is currently thought. The trip will coincide with Dr. D'Urso's talk for the PGS in October on the same topic. More information on the trip will be forthcoming.in the October newsletter.

To reserve a spot contact Mike Forth at (412 323-2200) or mkf@peoplepc.com.

Website Of The Month
http://www.uc.edu/geology/geologylist

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Vol. LVII, No. 2 | Robert Burger, Editor | October, 2004

Wednesday, October 20, 2004
The Pittsburgh Geological Society presents:

Revised glacial margins and Wisconsin meltwater paleoflood hydrology in Slippery Rock Creek basin, central western Pennsylvania

Gary D'Urso

Glacial margins mapped in Slippery Rock Creek basin during the 1950s are problematic. The number of sedimentological, mineralogical, petrological, and textural analyses used to distinguish glacial drifts in the southern portion of the basin were inadequate to resolve the margins. Furthermore, misidentification of man-made deposits as glacial drift led to erroneous interpretations regarding the extent and character of pre-Wisconsin glacial deposits, and appears to have influenced subsequent soil mapping.

Canadian Shield erratic weathering was the primary tool used in this study to re-investigate the glacial margins. Erratics display one of three distinctive weathering rinds, so glacial deposits can be differentiated into three relative age classes, with rind thickness clusters of <2mm, 3-5 mm, and >6 mm. Similar weathering rinds have been reported in soils associated with Wisconsin, Illinoian, and pre-Illinoian stream terraces.

More than 500 locations were examined in order to remap the glacial margins. Prior to this study, Frank Leverett published the most accurate margins in 1934. The glacial maximum is Wisconsin in age southwest of West Liberty, but Illinoian in age northeast of West Liberty. No surface pre-Illinoian glacial deposits occur in Slippery Rock Creek basin.

HEC-RAS paleoflood models were developed to investigate the role of proglacial lake outburst flooding in the glacial history of the basin. This study suggests the proglacial lakes drained slowly rather than by catastrophic dam bursts. In fact, meltwater discharges may not have exceeded rainfall floods of record. This research developed a flow competence approach for reconstructing realistic flow discharges that are more consistent with fluvial deposits. This approach reduced the magnitude of the maximum potential meltwater flood in Slippery Rock Creek from 38,000 m^3/s (1,300,000 ft^3/s) to 380 m^3/s (13,000 ft^3/s).

Restricting the HEC-RAS flow models by flow competence data should be considered for any paleoflood that deposited coarse-grained sediments. Another technique of restricting the HEC-RAS models, using non-inundation surfaces as proxies for the water surface elevation, reduced modeled discharges in three other streams by approximately one order of magnitude.

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 Mike Forth at (412) 323-2200 or emailed to mkf@peoplepc.com by **noon Monday**, **October 18.**

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

Pittsburgh Geological Society

PGS PRESENTS TWO WORKSHOPS FOR STUDENTS

If you have wondered what you might be doing after you land that job in geology, you will want to attend these workshops.

"Tools of the Trade"

Four working professionals will be discussing:

- managing projects
- gathering data
- conducting an investigation
- using equipment
- performing field work
- reporting results
- necessary skills and knowledge
- licensing, ethics, and legalities

This workshop will be held 10:00 to 2:00, October 30, 2004 rain or shine at Monroeville, PA. This workshop will be held outdoors, so attendees should wear old clothes and dress for the weather.

"So You Want to be a Geologist"

Five working professionals will be discussing:

- careers in geology
- field camps, co-ops, and colleges
- taking the GRE
- job opportunities
- applicant information – interviewing, resumes, etc.
- professional etiquette
- "must-have" skills and attributes
- professional organizations
- licensing, ethics, and legalities

This workshop will be held from 10:00 to 2:00 on November 13, 2004 at the PA Department of Environmental Protection, 500 Waterfront Drive.

There is no charge to students at either workshop and pizza and soft drinks will be provided for lunch. To register, contact Judy Neelan at 412 442-4087. The registration deadline is October 20, 2004 for "Tools of the Trade" and November 5, 2004 for "So You Want to be a Geologist". Class sizes will be limited to 25 so reserve early. Additional information can be found at www.pittsburghgeologicalsociety.org.

FALL FIELD TRIP

On October 23rd, 2004, PGS and the Department of Geography, Geology, and the Environment of Slippery Rock University are sponsoring a field trip to the Slippery Rock Creek basin to view features of the glacial margin in the area. The fee is $20 per individual and $5 per student. Participants should meet at the large parking lot in McConnels Mills State Park at 8:30 a.m. A van will leave from Pittsburgh (Parkway Center Mall) at 7:30 a.m. to meet the trip. Transportation will be in either PGS or Slippery Rock University-provided vans, no private cars are permitted on the actual trip. To register call Dan Martt at 724-916-0300, x722, or email dmartt@agesinc.com. Please leave phone number and/or email address.

ANCIENT OIL-DRILLING TECHNOLOGY WORKING TODAY

The Fall 2004 issue of *The Barker*, the newsletter of The Colonel, Inc. (Drake Well Museum Associates), has an interesting story on the use of very old oil-drilling technology being used to produce water in Uganda. Missionaries Graham and Eileen Hodgetts of Christ Church in Sewickley, PA saw the exhibits at the Drake Well Museum in Titusville and got the idea of using spring pole technology, which is probably the most ancient method, for drilling water wells in the Bunyoro-Kitara region of Uganda. The spring pole is probably the lowest-tech and labor-intensive method of drilling, but it is also the lowest cost (about $700 per well), a fact that is important in this depressed area of Africa. It has taken an average of two weeks to drill a 70-foot deep well using this method, but within a year the region has four wells providing water to over 100 inhabitants.

ORIGINS OF WESTERN PA PLACE NAMES

The Monongahela River gets its name from the Native American word menaungehilla, which means "high banks, breaking off and falling down at places." And, of course, the outcrops along the river south of Allegheny County formed the basis for the Pennsylvanian Monongahela Group, which includes the Pittsburgh, Sewickley, Redstone, and Uniontown coals, as well as the Benwood carbonates.

DID YOU KNOW . . . ?

- Dust and sand storms have plagued Asia for thousands of years and are becoming more frequent and more intense as a result of bad land management practices and overpopulation pressures.
- Conservationists in Italy used to peel lichens off historic buildings, but have since learned that, at least in some areas, the lichens act as a natural seal against weathering.
- A new mineral has been discovered in meteorites from the moon. Hapkeite, named for Pitt Geology and Planetary Science Professor Emeritus Bruce Hapke, is composed of iron and silicon and may be the result of micrometeorite collisions with the moon's surface.
- After more than 4 years of study, the US Environmental Protection Agency has concluded that injecting hydraulic fracturing fluids into coal bed methane wells poses no threat to groundwater aquifers.
- There were 1,425 finalists at this year's Intel International Science and Engineering Fair in Portland, OR, but only 77 of them were in Earth and Space Sciences.
- Geochemists from the University of California at Santa Barbara claim to have found evidence for a bolide impact off the coast of Australia that they think is responsible for the Permian/Triassic extinction. This is a controversial claim that should stimulate both interesting research and interesting discussion.
- Mud volcanoes are a significant natural source of atmospheric methane, a well-known greenhouse gas.
- Geochemical models of Phanerozoic atmospheric concentrations suggest that Pennsylvanian and Permian air contained about 35 percent oxygen, as opposed to the current concentration of 21 percent.

ASCE SEMINAR

The Pittsburgh Section – Geotechnical Engineering Group of ASCE will hold a One-Day Interactive Seminar on Saturday November 13th, 2004 entitled "Lessons Learned in Geotechnical Engineering". The four speakers – Elio D'Appolonia, A.C. Ackenheil, Richard Gray, and James Hamel – will provide an overview of the lessons learned in geotechnical engineering over the last 50 years. The seminar will be held from 8:00 a.m. to 5:00 p.m., Saturday November 13th, 2004 at the Pittsburgh Athletic Association, 4215 Fifth Avenue in Oakland. The cost is $150 for Section Members, $172 for Nonmembers and $25 for Students. For more information and a registration form, contact Gabe Lang (412-922-4000), gabe.lang@psiusa.com or Cathy Bazan-Arias (421-856-6400), n.bazan-arias@gaiconsultants.com.

WESTERN PA HISTORIC OIL FIELD GUIDEBOOK PUBLISHED

Hills, Dales & Oil Trails is now available for sale from the Drake Well Museum. The soft cover 94-page book includes 99 figures, many of them historical photos of oilfield scenes. *Hills, Dales & Oil Trails* was written by Kathy J. Flaherty for the 2003 AAPG Eastern Section field trip as a guide to some of the historic oil fields between Pittsburgh and Titusville. Order forms can be obtained from the Drake Well web site (http://www.drakewell.org and follow the link to the museum shop) and either mailed with a check made payable to "The Colonel, Inc." in the amount of $23.18 (includes $19.99 for the book plus 6% tax and shipping) to: Drake Well Museum, 202 Museum Lane, Titusville, PA 16354 or faxed to Jeremy at (814) 827-4888 with your credit card information. For additional information or to place an order by phone, call (814) 827-2797 or email Jeremy at drakewell@usachoice.net. All proceeds from the sale of this book benefit the educational programs at Drake Well.

CALL FOR PAPERS

The Petroleum History Institute is currently requesting papers for presentation at the "2005 International Symposium on the History of the Oil Industry." The symposium will be held April 6-9, 2005 at the Radisson Hotel at Waterfront Place in Morgantown, West Virginia. For additional information on oral and poster sessions, abstract submission requirements, field trips, social events, and registration details, contact Larry D. Woodfork, at P.O. Box 4458, Star City, WV 26504-4458 or woodfork@earthlink.net.

Website Of The Month

http://www.rom.on.ca/quiz/fossil

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

News items: To submit a news item in the PGS Newsletter, please contact Bob Burger at (724) 772-7977, FAX at (724) 772-7980, mail at 1885 Redcoach Road, Allison Park, PA 15101, or email at r.burger@verizon.net .Be sure to also send a phone number where you may be contacted.

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Vol. LVII, No. 3 | Robert Burger, Editor | November, 2004

Wednesday, November 17, 2004

Joint Meeting of the
Pittsburgh Geological Society
and the
Society of Mining, Metallurgy, and Exploration

Coal, Water and the Proposed Longview Water Plant.

by Jim Laurita
MEPCO

The Pittsburgh coal seam in southwestern Pennsylvania & northern West Virginia has been mined by underground mining methods for the past century. More recently, many large mines have been closed or abandoned, and have been filling with ground water which eventually becomes highly acidic. MEPCO, Inc., which mines in the Sewickley coal seam approximately one hundred feet above these abandoned mines, has been affected by the rising mine pool and has partnered with the Pennsylvania Department of Environmental Protection to pump and treat some of these waters to enable MEPCO to continue mining and prevent their discharge into state waters. The long term plans are to feed the treated water to the Longview power station and MEPCO to supply the stations coal needs.

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 Mike Forth at (412) 323-2200 or emailed to mkf@peoplepc.com by **noon Monday**, **November 15.**

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

NGWA DISTINGUISHED LECTURER TO SPEAK AT CMU

The Carnegie Mellon University Department of Civil and Environmental Engineering in partnership with the University of Pittsburgh, Department of Geology and Planetary Science and the Pittsburgh Geological Society will present the National Groundwater Association's Henry Darcy Distinguished Lecture at Carnegie Mellon University:

Ground-Water Flow and Chemical Transport in Fractured Rock from Cores to Kilometers

Dr.. Allen Shapiro
U.S. Geological Survey

Abstract: Fractured-rock aquifers provide water for domestic use, locations for isolating hazardous and toxic waste, and sites for foundations and infrastructure. For these issues, the dimensions over which the characterization of ground-water flow and chemical transport needs to be conducted can range from meters to kilometers. Critical to the evaluation of these problems is how formation properties may vary over increasingly larger dimensions. Theoretical methods of scaling formation properties may not be successful in their application to fractured rock, because of the structural complexity and extreme variability in the hydraulic properties of bedrock environments. The influence of the physical dimensions of the problem on the magnitude of formation properties is viewed through the synthesis of laboratory studies, controlled field-scale experiments, and the interpretation of ambient ground-water flow and the spatial distribution of dissolved constituents, gases and isotopes using ground-water flow and chemical-transport modeling.

The presentation will be held on Wednesday, December 1, at 6:00 p.m. at the Adamson Wing Auditorium, Baker Hall 136A Carnegie Mellon University. A reception will follow immediately afterward. Admission is free.
For additional information visit www.ce.cmu.edu/events or www.pittsburghgeologicalsociety.org

VOLUNTEERS WANTED FOR CARNEGIE GEM AND MINERAL SHOW

The Moraine Rock Busters Club is asking for volunteers to help with their team at the Carnegie Gem and Mineral Show, November 21 through 23 at the Carnegie Museum of Natural History. Their group will be running four classrooms for kids concerning aspects of rocks/minerals. One of the classrooms contains an exhibit where children will be able to hunt for geodes, another is a mineral identification class where kids will start a rock and mineral collection, a third classroom will contain a model mining exhibit with a model train, and the final room will have an exhibit with a sluicing machine. Preparatory help is needed for the event as well as help in the classrooms. Friday will include a flood of school kids.

Parking will be made available at discount of $1.00 per car, and admission to the show is free (although admission to the museum is not - see below). Hours on Friday are 9am-2pm, Saturday and Sunday noon-4pm.

If interested, please contact Gail Beall at (724) 789-7290. The Carnegie Gem & Mineral show website is www.carnegiemnh.org/minerals/gemshow/home.htm.

TOOLS OF THE TRADE WORKSHOP

On October 30, eight students and young professionals joined us for the first PGS workshop dealing strictly with tools and equipment they may encounter in the profession. The event occurred at the Monroeville Airport.

In addition to seeing a drill rig in action, attendees were introduced to the use and function of the following tools and equipment: hollow stem augers, split spoon samplers, shelby tube samplers, direct push samplers, encore samplers, bailers, monitoring well construction materials (well screen/sand pack/bentonite/grout/well covers), water level/interface probe, photo-ionization detector (PID), torvanes, pocket penetrometers, and sampling containers (soil and groundwater). The focus of the workshop was on managing projects, gathering data, and conducting investigations.

Special thanks is extended to Geo-Environmental Drilling Company, Environmental Data Resources, Field Environmental Instruments, and Pace

Analytical Services for their participation and to the Monroeville Airport for allowing us use of the facility. Special thanks is also extended to the presenters - Frank Benacquista, Dan Martt, and Steve McGuire for their extensive efforts.
The TOOLS team will be meeting to discuss the workshop at the next PGS meeting. If you have comments or suggestions, contact one of us.

DESPITE SLOW START OCTOBER PGS TRIP WAS BIG SUCCESS

Despite a holdup on I-79 due to a traffic-stopping accident (namely, three lanes of traffic merged onto the Wexford off-ramp and back on), the day was perfect for a field trip. A total of 33 showed up, including several Slippery Rock Creek University students. The trip was led by Gary D'Urso, who studied the area for his dissertation at West Virginia University. Pat Burkhart also helped lead the trip.

Gary led us through a series of stops to help us determine the origin and age of glacial erratics, emphasizing that only the granitic specimens (not sandstone or quartzite) can be used to measure the interior weathering rinds to estimate the age of glaciation. At one stop, an active dairy farm, we worked uphill to find the glacial margin. Lunch was at Cheeseman's farms, used as a tourist farm and campground, and was catered by the Cheeseman's. Gary pointed out that it the farm is located on a Wisconsin kame delta. The ice stopped at this point and shed sediment to build up the delta, the sediment reported to be more than 100 feet thick. We visited a deposit of stratified ice-contact drift just north of the farm after lunch.

Cleland Rock vista was next, showing the postulated Pliocene divide between two streams that theoretically created the Slippery Rock Creek gorge when the northern stream broke over the col. Gary's work shows that the largest flood in Slippery Rock Creek had an average peak discharge of 13, 400 ft^3/sec. The discharge is based on computer hydraulic modeling, and the size of the largest clast found in the gorge. Recently, a clast a bit larger than Gary's original model was discovered, and Gary had to admit that threw his model off, "but not that much." We observed this clast on the trip, discovered by a local resident.

Muddy Creek Falls (Gamma pass) was held for the end, as this is the last outfall for proglacial Lake Watts, the forerunner of Lake Arthur. The pass was incised during the Laurentide deglaciation, and is just south of the buried paleochannel of Muddy Creek. Three waterfalls are located in the stream and imbricated slabs of sandstone and large toppled sandstone blocks. One has a pothole large enough to sit in. Unfortunately, this area is private land, north of McConnel's Mills Park, and permission must be granted to view the stream.

All participants interviewed enjoyed the trip, and were enlightened as to the glacial history of the area.

DID YOU KNOW . . . ?

- Dolomite is a common, if not ubiquitous, mineral in the geologic record, but is rarely found forming today. This can be discouraging to people who blindly accept the principal that "the present is the key to the past."
- At approximately 17 million years old, the Columbia River Basalt Group is the youngest and best-preserved of the world's continental flood basalts.
- During the last 80 years, the melting of glaciers in Icy Bay in Alaska has been so great that it has reduced the stability of faults in the region. Researchers speculate that it may even have hastened the 7.2 magnitude St. Elias earthquake of 1979.
- If you're looking for a good place to study hydrothermal ore formation, the lead/zinc/copper deposits in the Proterozoic province of northern Australia has been known for a long time to be an especially appropriate natural laboratory.
- The Mars rovers have been looking for evidence of sedimentary rocks, including within the home crater of one of them (Spirit), but so far all they've found is pulverized igneous rocks – volcanic rocks shattered by impacts.
- Natural Bridge in Virginia was once owned by Thomas Jefferson, and surveyed by George Washington. How's THAT for a truly historical geological scenic feature?

Website Of The Month
for up-to-date images of Titan:
http://saturn.jpl.nasa.gov/multimedia/images/latest/index.cfm

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Vol. LVII, No. 4 | Robert Burger, Editor | December, 2004

Wednesday, December 15, 2004
The Pittsburgh Geological Society Annual Spouses Night

Basin and Range Glory: Great Basin National Park, Caves, Glaciers, Mines, Playas, Snow, and Drought

By Charles H. Shultz
Retired

This geo-adventure will take us to the great wild west of Utah and Nevada. But getting there, of course, is half the fun. I'll show you spectacular views from Loveland Pass (11,992 feet), Dillon Reservoir west beyond the Front Range, Land's End on Grand Mesa, Professor Valley south of Arches National Park, and Hite's Crossing on Lake Powell (drought has lowered the reservoir more than 100 feet; I'll show you amazing before-and-after pictures). We'll cross the volcanic Sevier Plateau and the Tushar Mountains in the transition zone from the Colorado Plateau to the Basin and Range. Continuing through western Utah, we'll cross three mountain ranges (and intervening basins), finally arriving at the desert mountain island called the Snake Range in Great Basin National Park (GBNP), in White Pine County, eastern Nevada.

After a 5-mile, 1,500 foot ascent on a great alluvial fan west of Baker, NV, we'll encounter Snake Range bedrock. In descending order, this includes the lightly metamorphosed Cambrian Pole Canyon Limestone and Pioche Shale followed by 4,500 feet of Proterozoic Prospect Mountain Quartzite. All are intruded by Jurassic granite. Wheeler Peak, centerpiece of the park and second highest in Nevada at 13,063 feet, is a horn dominating a cirque containing Nevada's only glacier. Ancient bristlecone-pine groves grace Wheeler's shoulders and include the oldest living organism on Earth at 4,950 years. Lehman Caves, namesake for a National Monument that was melded into GBNP in 1986, is said to be the most highly decorated dripstone cave in the country. A heavy snowstorm on September 3 created great beauty, especially on my trip to Lexington limestone arch, south of the caves.

(continued on next page)

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 Mike Forth at (412) 323-2200 or emailed to mkf@peoplepc.com by **noon Monday**, **December 13.**

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

December 15 Meeting Abstract
(continued from previous page)

After leaving the Park, we'll journey west to Ely where we'll board a steam train of the Nevada Northern Railroad to visit one of the greatest mining camps in North America at Ruth. We'll explore the ghost town of Hamilton in the White Pine silver-mining district, said to have experienced the greatest rush (1869) in Nevada history. North of Austin, we'll traverse the remote outback past Carico salt playa to the immense modern gold-mining complex at Cortesz and then on to the Precambrian migmatites in the glaciated Lamoille Canyon of the Ruby Range. On our way back east, we'll pass Sevier (dry) Lake, the great I-70 cut on the east monocline of the San Rafael Swell, and close at Brown State Lake at Hiawatha, Kansas.

Viva la Cordillera!

DID YOU KNOW . . . ?

- The Pyramids in Egypt were built from Eocene limestone containing great quantities of the large foraminiferan, *Nummulites* ("coin stones"). These fossils of single-celled protists are so large that they have literally been mistaken for fossilized coins.
- Speaking of the Pyramids, there are actually people who believe that the limestone used for building these structures was manufactured, a form of concrete or geopolymer. Part of their evidence is the jumbled nature of the fossils (they think that a sedimentary deposit should have only flat-lying or layered fossils).
- Volatiles such as water, CO_2, and chlorine are considered to be the key components in crustal hydrothermal processes and in the formation of many magma-related ore deposits.
- There's yet more evidence of the dinosaur-bird link – both birds and non-avian theropod dinosaurs have brittle eggshells consisting of an outer spongy layer and an inner layer containing many conical bumps tightly compressed into a single continuous layer.
- Deformation between oceanic plates is limited to narrow zones along plate boundaries, but on continents deformation extends across regions hundreds of miles wide.
- Geochronological data from ash beds at the Devonian-Carboniferous boundary in Germany provide a date of 360.7 ± 0.7 million years.
- Investigators in England have demonstrated that wildfires existed at least as early as Early Devonian, about 405 million years ago, in vegetation composed of small plants with short, smooth stems.
- Diamonds generated in orogenic belts differ from those formed in kimberlite pipes by the irregular skeletal-like forms of their crystals.
- Estimates of the number of glacial episodes in the Neoproterozoic range from two to more than five because of the lack of isotopic age constraints on the existing glacial deposits.
- The process of serpentinization is not well understood, but it is believed to occur when seawater-derived fluids react with mantle rocks in the oceanic crust.

ORIGIN OF WESTERN PA PLACE NAMES

Natrona, and Natrona Heights on the old high-level river terrace above it, were named for the booming salt industry of the early 1800s. Natrona comes from the Latin root word for salt – natron – which is also the basis of the chemical abbreviation for sodium (Na). During the first half of the 1800s there were numerous salt wells along the Allegheny River near Tarentum that produced from the Pottsville sandstones. Some of these were owned and operated by Samuel Kier and his father. Crude oil in the salt water was a big problem for the salt industry, but Kier found a use for the pollutant. In 1858 he perfected a way to refine it into a form of kerosene that could be used in a lamp he invented, thus finding a cheap and abundant substitute for the diminishing supply of whale oil that was the mainstay of the lighting industry. Kier's discoveries paved the way for Colonel Edwin L. Drake to drill his famous well in Titusville a year later and begin the modern petroleum industry.

NEW HONORARY MEMBERS NAMED

The PGS Board of Directors has named long-time members Wayne Leeper and Sam Pees as the newest Honorary Members of the society. Both Wayne and Sam are well-known consultants in the oil and gas industry in Pennsylvania.

WHAT'S UNDER THAT TREE?

What do geologists like to give, or to get for the holidays? Coal? Not this year, but how about some books? Here is a list of some PGS publications to add to your shopping list.

Building Pittsburgh – A Walking Tour of Pittsburgh's Building Stones	$5.00
Atlas of Major Appalachian Basin Gas Plays*	$75.00
Gas Atlas Database on Floppy Disk*	$40.00
Rose Run Sandstone of Ohio and Pennsylvania	$10.00
"Lots" of Danger	$4.00
Environmental Geology of the Pittsburgh Area	$4.00

* Atlas and Database together = $100.00 + $5.00 S/H

Shipping and handling is $1.50 for most items. It is $2.00 for Rose Run Sandstone and $5.00 for the Gas Atlas (and database). To order, make check or money order payable to Pittsburgh Geological Society, Inc. Send orders directly to John Harper, Pennsylvania Geological Survey, 400 Waterfront Drive, Pittsburgh, PA 15222-4745. These publications, and other merchandise, are commonly available at the meetings.

Website Of The Month
http://www.volcano.si.edu/

WINNER OF RAFFLE TICKETS

David McDermott, a student at California University of Pennsylvania, was the winner of two tickets to see John Harper and the Pittsburgh Concert Chorale perform at North Allegheny High School. Congratulations David.

IS YOUR MEMBERSHIP IN DANGER OF EXPIRING??

There is still a significant number of PGS members who have not yet renewed their membership for the 2004-05 program year. Please be aware: if you have not paid your dues by January 31, 2005 you will be dropped from the membership list and will no longer receive newsletters, announcements, notifications, or other information. Please renew now and save your place in Pennsylvania's largest and most active regional geological society.

ERRATA

The review of the fall PGS field trip in last month's newsletter incorrectly stated that a number of students attended from Slippery Rock Creek University. In fact, the students attended from Slippery Rock University.

If you have any information you would like to have included in the PGS Newsletter, please submit it to Bob Burger at 1885 Redcoach Road, Allison Park, PA 15101, (412) 818-5659, or r.burger@verizon.net

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

News items: To submit a news item in the PGS Newsletter, please contact Bob Burger at (724) 772-7977, FAX at (724) 772-7980, mail at 1885 Redcoach Road, Allison Park, PA 15101, or email at r.burger@verizon.net .Be sure to also send a phone number where you may be contacted.

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Vol. LVII, No. 5 | Robert Burger, Editor | January, 2005

Tuesday, January 11, 2005

**The Pittsburgh Geological Society,
the Pittsburgh Association of Petroleum Geologists,
and the
University of Pittsburgh
present**

A Pack of Giant Carnivorous Argentinean Dinosaurs

**By Philip J. Currie,
AAPG Distinguished Lecturer**
Royal Tyrrell Museum of Palaeontology
Drumheller, Alberta, Canada

The Argentina-Canada Dinosaur Project was initiated in 1997 by the Museo Carmen Funes (Plaza Huincul, Argentina) and the Royal Tyrrell Museum of Palaeontology (Drumheller, Canada). A specimen that was looked at on the very first day in the field turned out to be so significant that it has become the largest dinosaur quarry in Argentina. Initially, it was assumed that there was a single, partial skeleton of a large meat-eating dinosaur called Giganotosaurus. This dinosaur had been described several years earlier on the basis of a skeleton found in the same region in Argentina, and had attracted worldwide notoriety as a meat-eater larger than Tyrannosaurus rex. Subsequent work in the quarry revealed that the new dinosaur is not Giganotosaurus, but is a new type of dinosaur that may even have grown to even larger size. Furthermore, the quarry is a mass-death site, and contains the remains of at least seven individuals of the same species. These range in size from half-grown juveniles to fully mature adults. The evidence strongly suggests that this was a pack of meat-eaters that probably cooperatively hunted the gigantic sauropod dinosaurs that inhabited South America during Late Cretaceous times.

Ironically, after the pack died in some kind of catastrophe, the bodies were trampled by sauropods. About 30 miles away, another new type of theropod was discovered. This one was not fully-grown, but was close to 25' long. The skull is very unusual because of its light build and long, elongate snout. There are characters in its skeleton that suggest relationship with some of the theropods of the Northern Hemisphere. Other discoveries include the earliest known bird footprints from South America.

Social hour - 5:30 p.m. **Dinner - 6:30 p.m.** **Program - 7:30 p.m.**

Dinner will cost $25.00/person, students $10.00. Return the reservation form on page 3 to Dan Billman, PO Box 567, Mars, PA 16046, fax 412-291-1100 or 724-625-3471, or email danaret@zoominternet.net. Reservations must be made on or before **Friday**, **January 7!**

Note Location Change. Meeting will be held at the Radisson Hotel, Greentree.

UPCOMING AAPG DELEGATE ELECTION

The PGS is calling for interested candidates to construct a ballot for its election of a delegate to the American Association of Petroleum Geologists. The AAPG voting region represented by the PGS contains 97 active AAPG members whom are represented by one delegate. This delegate serves an elected term of three years and may succeed him/herself. This delegate is expected to serve on at least one of the several house committees during his/her tenure, to assist in seeking new members, and to process membership and certification applications from the society area. The upcoming term of office for this election is July 1, 2005 through June 30, 2008. Delegates must be active AAPG members and only active members may vote. Our current PGS delegate to the AAPG is Dan Billman whose three-year term will expire on June 30, 2005.

All interested candidates must submit their names to Ray Follador at (724) 744-0399 or geodawg@comcast.net no later than January 31, 2005. A ballot will then be constructed and mailed to all individuals eligible to vote in February 2005. Upon tabulation, the newly elected delegate will be notified by PGS and then have his or her name submitted to AAPG Headquarters prior to April 30, 2005.

HISTORICAL SOCIETY PUBLISHES VOLUME ON CONEMAUGH SALT WORKS

The Saltsburg Historical Society has published a book by William Dzombak, entitled *Salt in the Conemaugh Valley: The Importance of the Conemaugh Salt Works in the Early American Salt Industry (1800-1860).* The book describes the history, chemistry, and geology of salt production at the third largest salt works in America. Appendices sketch the parallel history and science of salt manufacture at each of the other places where salt was made in early America - Cape Cod, MA, Onondaga, NY, Kanawha, WV, Saltville, VA, Ohio, Kentucky, Illinois. Extensive use of primary documents are embedded in all narratives.

Bill Dzombak is a retired Professor Emeritus of Chemistry at St. Vincent College in Latrobe, PA. He has long had an interest in the history of the salt industry in Western Pennsylvania. As a retirement project, he spent approximately ten years assembling the publication. The book is 882 pages, hardbound and contains a bibliography, index, and illustrations. The cost is $60.00 plus $7.00 shipping and handling. To purchase, send a check payable to Saltsburg Historical Society, P.O. Box 12, Saltsburg, PA 15681-0012.

PUBLICATIONS AVAILABLE FROM PGS

The following publications are available from PGS. These books, and other merchandise, are commonly available at the meetings, but may also be ordered directly from PGS using the instructions below.

Building Pittsburgh – A Walking Tour of Pittsburgh's Building Stones	$5.00
Atlas of Major Appalachian Basin Gas Plays*	$75.00
Gas Atlas Database on Floppy Disk*	$40.00
Rose Run Sandstone of Ohio and Pennsylvania	$10.00
"Lots" of Danger	$4.00
Environmental Geology of the Pittsburgh Area	$4.00

* Atlas and Database together = $100.00 + $5.00 S/H

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Website Of The Month

www.analemma.com/Pages/framesPage.htm
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A FEW SCRAPS

The Colonel, Inc. is pleased to announce that they have reprinted a limited number of copies of the 1907 book: *A Few Scraps (Oily and Otherwise)* by Alfred W. Smiley. Smiley drew upon his extensive personal experience in the early oil patch, and his book gives us a glimpse into that world. Filling barrels, driving horse teams, loading wagons and boats with oil, rowing the oil-filled boats to the mouth of Oil Creek, pipeline construction and pipeline management are a few of the many jobs Smiley held. He was a roommate of John Wilkes Booth at Pithole. As oil towns came and went, Smiley went with them, through several of the northwestern counties of Pennsylvania and into Ohio. Copies of *A Few Scraps* are available through the Drake Well Museum gift shop. To order, print the order form from the Drake Well web site (http://www.drakewell.org and follow the link to the museum shop) and either mail your request and a check made payable to "The Colonel, Inc." in the amount of $36.80 (includes $30.00 for the book plus $1.80 tax and $5.00 shipping) to: Drake Well Museum, 202 Museum Lane, Titusville, PA 16354 or fax it to Jeremy at (814) 827-4888 with your credit card information. For additional information or to place an order by phone, call (814) 827-2797 or email Jeremy at drakewell@usachoice.net.

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PGS web address: www.pittsburghgeologicalsociety.org.

RESERVATION FORM

Joint Meeting of PGS and PAPG, January 11, 2005

A Pack of Giant Carnivorous Argentinean Dinosaurs

Radisson Hotel, Greentree

Name(s) _____ Company _____

_____

Dinner Selections (Choose one for each registrant): Rotisserie Style Chicken _____

Roast Pork Loin _____

Mail, fax, or email this form to: **Dan Billman**
PO Box 567
Mars, PA 16046

fax: 412-291-1100 or 724-625-3471
email: danaret@zoominternet.net

RESERVATIONS MUST BE MADE NO LATER THAN FRIDAY, JANUARY 7!

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Vol. LVII, No. 6 | Robert Burger, Editor | February, 2005

Wednesday, February 16, 2005
The Pittsburgh Geological Society
presents

Paleoceanographic events and faunal crises recorded in Lower Ordovician platform carbonates of the southern Rockies, southern Basin and Range, and central Appalachians

John F. Taylor
Geoscience Department, Indiana University of Pennsylvania

High-resolution biostratigraphic (trilobite and conodont), sedimentologic, and carbon-isotopic data from the Manitou Formation in Colorado, the El Paso Group in west Texas and New Mexico, and the Beekmantown Group in Pennsylvania and Maryland identify several depositional events that affected sedimentation in all three areas. Refined correlations across western Colorado reveal that the widely accepted paleogeogaphic reconstruction of that area into two depositional basins separated by a Transcontinental Arch is entirely an artifact of miscorrelation between ranges in that area, where several unconformities combine to produce a stratigraphy that is more complex than previously appreciated. Conversely, improved time control provided by hundreds of new fossil collections and thousands of carbon isotope samples from the El Paso Group confirms a relatively simple stratigraphy within the Lower Ordovician across southern New Mexico and into west Texas. In this case, miscorrelation of key intervals led previous investigators to misinterpret a localized sandy carbonate zone as a major sequence boundary, inserting a major stratigraphic break where none actually exists. One prominent feature of the El Paso Group, a thin (5-15m) interval of dark, sandy oolitic grainstone known as the Jose Oolite, is traceable across the region. Formerly misinterpreted as a product of sea level fall, the Jose is now known to represent a submergence event that also left its mark in the central Appalachians. In the Frederick Valley of Maryland, it resulted in replacement of microbial reefs and carbonate sands of the platform margin with dark, shaly upper slope deposits that are now mapped as the Woodsboro Member of the Grove Formation. Farther in on the platform, it inhibited microbial reef growth and triggered deposition of bioclastic oolite that is mapped as a member of the Rockdale Run Formation in the Great Valley. The Jose submergence event can be recognized even in the San Juan Formation of the Precordillera in Argentina owing to a prominent negative carbon isotopic excursion that is associated with the base of the unit. Associated conodonts suggest that the Jose onlap corresponds with the transgression that marks the base of the British Arenig Series. In each region, detailed analysis of the sedimentary succession and utilization of multiple correlation tools allowed construction of an improved lithostratigraphy in which formation and member boundaries are no less suitable for mapping but considerably more reliable for derivation of the area's depositional history.

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 Mike Forth at (412) 323-2200 or emailed to mkf@peoplepc.com by **noon Monday**, **February 14.**

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

Pittsburgh Geological Society

AAPG DELEGATE ELECTION

The candidates for the upcoming election for the Pittsburgh Geological Society delegate to the American Association of Petroleum Geologists (AAPG) are Dan Billman and Greg Wrightstone. If you are an active member of the AAPG and located within the PGS voting region, you will be receiving a ballot from AAPG in the near future. Please be sure to return your vote promptly.

CALL FOR ABSTRACTS!

Students are invited to submit abstracts of a senior research project, senior design project, or Master's thesis for presentation at the second annual Student Night joint meeting of the Association of Engineering Geologists, the Pittsburgh Geological Society, and the Geotechnical Group of the Pittsburgh Section of the American Society of Civil Engineers. Abstracts related to geology, engineering geology, geotechnical engineering, environmental engineering, hydrogeology, and hydrology are welcome. Three students will be selected to give a 15-20 minute oral presentation based on their abstract submittal. Students not selected to give an oral presentation will be invited to present a poster summarizing their research work.

The students selected to give oral presentations will receive $100 awards.

Please limit abstracts to no more than 350 words. The meeting will be held on April 20, 2005 at the Terrace Room, Parkway Center, Greentree, PA. Abstracts may be submitted via email to barnerwl@cdm.com. If you have any questions or require a mailing address for abstract submittal please call Wendell Barner at 412-208-2409.

The deadline for abstracts is March 11, 2005.

Notification will be given to the selected speakers on March 18th, 2005.

PGS SPRING FIELD TRIP

This year's PGS spring field trip will take us to Gorge Metro Park in Cuyahoga Falls, Ohio where our field trip leader, Annabelle Foos, will present the "Pennsylvanian Sharon Formation, Past and Present: Sedimentology, Hydrogeology, Historical and Environmental Significance".

The Sharon Conglomerate is the basal member of the Pennsylvanian Pottsville Formation. We will discuss the depositional environment and regional setting of this braided stream paleovalley complex as we visit classic exposures of the Sharon Conglomerate at Gorge Metro Park in Cuyahoga Falls. We'll have a unique glimpse into the Sharon Aquifer where it has been recently dissected by downcutting of the Cuyahoga River at the Cuyahoga Falls Gorge. The chemistry of natural springs and seeps at the Gorge has yielded information about the heterogeneous flow through this unit. Early settlers built dams and associated mills where the rivers flowed over resistant layers such as the Sharon Sandstone. The impact of these dams on the development of Cuyahoga Falls and controversy over their removal will be discussed. The trip will take place rain or shine on April 30, 2005. Stay tuned for further details, and if you have any questions, please contact Wendell Barner at (412)208-2409 or barnerwl@cdm.com.

PTTC SPRING WORKSHOP

The petroleum Technology Transfer Council will hold a workshop entitled "Basic Carbonate Geology" from 8:00 a.m. to 5:00 p.m. on March 8, 2005. at the Holiday Inn – Meadowlands in Washington, PA. PAPG will hold a dinner meeting afterward where Taury Smith will talk about the Trenton/Black River in New York State. To register for the PTTC workshop, send a check for $75.00 made payable to PAPG along with your name, affiliation, address, phone number, and email address to Mark Hoffman, NRCCE/WVU, PO Box 6064, Morgantown, WV 26506-6064. For further information, you can reach Mark at (304) 293-2867 x5446, or mahoffman@mail.wvu.edu. To register for the dinner meeting, call Bret McDaniel at (724) 464-1529, or email bret_a_mcdaniel@dom.com.

CARNEGIE MUSEUM LAUNCHES PA*l*S

The Section of Invertebrate Paleontology of the Carnegie Museum of Natural History has created an organization called PA*l*S (Patrons and *lauradanae* Supporters). The name comes from the section logo, the trilobite *Ameropiltonia lauradanae*, the type specimens of which are housed in the section's collections. PA*l*S is a paleontological activity chapter organized to nurture interest, support, development, and advancement of invertebrate paleontology and geology topics of the tri-state region. Annual memberships are available for individuals and families. To learn more, or apply for membership, contact Albert D. Kollar, Collections Manager, Section of Invertebrate Paleontology, Carnegie Museum of Natural History, 4400 Forbes Ave., Pittsburgh, PA 15213, (412) 622-5513, or email kollara@carnegiemnh.org.

PETROLEUM HISTORY INSTITUTE TO HOLD SYMPOSIUM

The "International Symposium on the History of the Oil Industry" will be held by the Petroleum History Institute on April 6-9, 2005. The symposium, which is headquartered at the Radisson Hotel in Morgantown, WV, will consist of technical sessions and a field excursion. The field excursion will travel through the early oil and gas producing region of northern West Virginia. Some highlights include visits to Sistersville, a reception and tour of the Oil and Gas Museum in Parkersburg, and a barbeque at the Rathbone well at Burning Springs. For additional information and to obtain a registration form, visit the symposia link at www.petroleumhistory.org, or contact Larry Woodfork, PHI 2005 Symposium, PO Box 4458, Star City, WV 26504-4458. If you are interested in presenting a paper at the symposium, abstracts are being accepted until February 15. Submit abstracts to Larry Woodfork at the above address.

ARE WE IN DANGER FROM YELLOWSTONE?

Few people realize that one of the largest volcanic systems in the world – a "supervolcano" (a volcano that has produced an exceedingly large, catastrophic explosive eruption and a giant caldera) – lies beneath Yellowstone National Park. A body of magma and gas lying about five miles down is growing; it is now about 31 miles long, 19 miles wide, and six miles thick, and is undergoing tremendous pressures. The Yellowstone "supervolcano" has been on a regular eruption cycle of 600,000 years. The last major eruption was 640,000 years ago, so the next one, which could be 2,500 times the size of the 1980 Mount St. Helens eruption, is overdue. A smaller eruption about 70,000 years ago may have helped relieve the pressure enough that a major eruption won't happen for several thousand to several hundred thousand years from now. If the Yellowstone "supervolcano" erupts, it would send ash, dust, and sulfur dioxide into the atmosphere worldwide, reflecting the sun's rays and creating a cold wave lasting several years. It would bury the American heartland in several feet of ash and destroy the country's agricultural lands and its ability to feed itself and the world. Many species of animals and plants would face extinction. A recent Discovery Channel program on "supervolcanoes" suggests that the eruption of the Toba "supervolcano" in Indonesia about 74,000 year ago devastated the world's climate and possibly led to the near extinction of the human race.

DID YOU KNOW . . . ?

- The Wisconsinan glacial period was marked by millennial-scale climate oscillations as evidenced from ice cores and oceanic sediments.
- And, speaking of which, recent evidence suggests that the system of low-latitude (tropical) climates might have been a major player in global climate change during the last (current?) deglaciation.
- The continuing discovery of new dinosaurs around the world now has researchers suggesting that dinosaurs were increasing in diversity through the Mesozoic. To date, over 250 genera have been described from the Late Cretaceous, as compared with less than 150 in the Early Cretaceous and less than 100 in each of the preceding Mesozoic epochs.

Website Of The Month

www.geo-outdoors.info/index.html

(Thanks to Kristen Hand)

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

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PGS Newsletter

http://www.pittsburghgeologicalsociety.org/

Vol. LVII, No. 7 | Robert Burger, Editor | March, 2005

Wednesday, March 16, 2005
The Pittsburgh Geological Society
presents

Hunting Dinosaurs on Three Continents

Matthew C. Lamanna
Assistant Curator, Section of Vertebrate Paleontology, Carnegie Museum of Natural History

Dr. Lamanna provides an overview of his paleontological fieldwork in Cretaceous sediments of China, Argentina, and Egypt, and some of the discoveries produced by these efforts. Among them are several new species of dinosaur, including *Paralititan stromeri*, a gigantic Egyptian sauropod that may have weighed over 45 tons.

Dr. Matthew C. Lamanna was appointed as an Assistant Curator of Vertebrate Paleontology at Carnegie Museum of Natural History in June 2004, weeks after receiving his doctorate from the University of Pennsylvania in May. His research interests involve exploring the effects of large-scale geographic and environmental changes on dinosaur evolution, distribution, and diversity. Within the past five years he has directed or co-directed field expeditions to central and southern Patagonia, Egypt, China, and the western United States that have resulted in the discovery of multiple new species of dinosaurs and other Mesozoic vertebrates. Foremost among these is one of the largest land animals ever discovered, a 95-million-year-old herbivorous dinosaur from Egypt that Dr. Lamanna and his colleagues named *Paralititan stromeri*. The discovery of *Paralititan* received extensive national and international media coverage and was documented in *The Lost Dinosaurs of Egypt*, a film that aired on A&E in 2002. Dr. Lamanna is currently serving as a principal scientific advisor to Carnegie Museum of Natural History's *Dinosaurs in Their World* project. He lives near Mars, PA.

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 Mike Forth at (412) 323-2200 or emailed to mkf@peoplepc.com by **noon Monday**, **March 14.**

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

CALL FOR NOMINEES

The Society is calling on the membership for interested candidates for next years Officer and Director-at-Large positions. There are three Director-at-Large positions that need to be filled. These positions are for a term of two years and require regular attendance at the Board meetings held one hour prior to the Social hour of each Society monthly meeting. If you are an active member of the Society and have an interest in being a candidate, or know of a member that you think would be a good candidate, please inform one of the Society officers or Board members at the upcoming March meeting. A list of all candidates will be printed in the April Newsletter prior to the election to be held at the May meeting.

SPRING NORTH AMERICAN COALBED METHANE FORUM ANNOUNCED

The North American Coalbed Methane Forum will hold its spring session on April 12-13, 2005 at the Hilton Garden Inn/Southpointe near Canonsburg, PA. For more information, please contact Ihor Havryluk at 412-798-1391 or Dr. Kashi Aminian at 304-293-7682 ext. 3406.

This year the North American Coalbed Methane Forum is celebrating its 20th Anniversary. It was initially founded in 1985 as the Pittsburgh Coalbed Methane Forum with the mission to advance the conservation, development, and production of coalbed methane as a worldwide energy resource. It's members include representatives of the coalbed methane industry, coal and gas industries, gas marketing and service industries, and representatives from the legal, government, and education communities.

ORIGINS OF WESTERN PA PLACE NAMES

Vandergrift, on the border between Westmoreland and Armstrong counties, is named for Capt. J. J. Vandergrift, a director of the Apollo Iron & Steel Company. The town was founded in 1895 as a planned industrial town when the company needed to expand their galvanized steel operations. Unable to acquire additional land adjacent to the plant in Apollo, PA, the company instead bought 650 acres of farmland several miles downstream on the Kiskiminetas River. Frederick Law Olmsted, designer of the 1893 Chicago World's Fair, was brought in to create a new town designed to be sold to the company workers. The result is an ergonomic town with streets that follow the natural topography, with building lots that were sold to the company employees so that they could build their own homes. Vandergrift may have been one of the first company towns in America to be planned in advance and then turned over to the total control of the workers.

AAPG EASTERN SECTION MEETING

The AAPG Eastern Section will be holding its 34th annual meeting in Morgantown, WV on September 18 through 20, 2005. For more information, visit http://www.wvgs.wvnet.edu/www/esaapg05/ or contact Lee Avary, General Meeting Chair, at West Virginia Geological Survey, 1 Mont Chateau Road, Morgantown, WV 26508-8079, 304-594-2331. If you are interested in being a presenter, abstracts for the meeting are being accepted through April 1, 2005.

PGS SPRING FIELD TRIP

This year's PGS spring field trip will take us to Gorge Metro Park in Cuyahoga Falls, Ohio where our field trip leader, Annabelle Foos, will present the "Pennsylvanian Sharon Formation, Past and Present: Sedimentology, Hydrogeology, Historical and Environmental Significance". The trip will take place rain or shine on April 30, 2005. Stay tuned for further details, and if you have any questions, please contact Wendell Barner at (412)208-2409 or barnerwl@cdm.com.

STUDENT NIGHT MEETING

This is a reminder to students submitting abstracts for the second annual Student Night joint meeting of the Association of Engineering Geologists, the Pittsburgh Geological Society, and the Geotechnical Group of the Pittsburgh Section of the American Society of Civil Engineers that the deadline for receipt is March 11, 2005. Abstracts are limited to 350 words and students whose

abstracts are selected for oral presentations will receive $100 awards.

The meeting will be held on April 20, 2005 at the Terrace Room, Parkway Center, Greentree, PA. Abstracts may be submitted via email to barnerwl@cdm.com. If you have any questions or require a mailing address for abstract submittal please call Wendell Barner at 412-208-2409. Notification will be given to the selected speakers on March 18th, 2005.

WV SURVEY ANNOUNCES NEW PUBLICATION

The West Virginia Geological and Economic Survey has published *WVGES Oil and Gas Well Data for West Virginia* (publication DDS-5). It is a digital publication of the Survey's oil and gas well data on CD. Information is provided for over 138,000 permitted wells in WV completed since the late 1800's. Included in the data are:

- well locations,
- well completion and ownership,
- pay, show, and water intervals,
- stratigraphy,
- production reported since 1979,
- plugging,
- e-logs available in the Survey's log library, and
- well samples and cores available in the Survey's sample library.

Data is provided as ASCII text files and as a generic Microsoft Access database. The price is $495.00. For more information visit http://www.wvgs.wvnet.edu or call the WVGES at 304-594-2331.

DID YOU KNOW . . . ?

- In December, 2004, President Bush signed legislation designating Pennsylvania's Oil Heritage Region as a National Heritage Park. The bill awarded the Drake Well Museum a matching grant of $150,000 to preserve artifacts and machinery that will be displayed in new exhibits.
- The spectacular fossil dinosaur and bird beds of Liaoning, China have yielded an interesting discovery – *Dilong paradoxus*, an early member of the group of dinosaurs that includes *T. rex*, had feathers.
- New studies from England suggest that the famous "Irish Elk," thought to have become extinct 10,000 years ago, actually survived to at least 7,700 years ago in western Siberia.
- The demise of the "Irish Elk" can probably be blamed on a combination of human hunting, climate change, and loss of habitat induced by humans.
- A two-pound meteorite landed in the backyard of a Colorado family in October that scientists say is 4.5 billion years old, igneous, and has a low metal content. Imagine a soft ball-size chunk of the early solar system landing in YOUR yard!
- Laurel Caverns, with 2.8 miles of passages, is the 16th longest developed cave in the United States, and the largest cave in Pennsylvania.
- Mafic minerals, especially those with high magnesium and/or iron contents such as serpentine and olivine, naturally sequester CO_2, and so may be valuable for taking CO_2 from power plant emissions and turning it into minerals that can be used to manufacture cinderblock and other construction materials.
- The West Antarctic ice sheet, the last marine-based ice sheet on earth, contains 3.2 million cubic kilometers of ice.
- Charles Ver Straeten of the New York State Museum has documented a previously undescribed interval of Lower Devonian K-bentonites (altered volcanic ash beds), called the Sprout Brook K-Bentonites, that occurs in the lower parts of the Esopus Formation and equivalent Needmore Shale and Huntersville Chert at least from southern West Virginia to central eastern New York.
- The US Geological Survey recently reassessed the Appalachian basin for undiscovered oil and gas resources. They estimated that the basin has about 70.2 trillion cubic feet of gas, 54 million barrels of oil, and 872 million barrels of natural gas liquids yet to be found.
- Mount St. Helens has the only growing glacier in the US, advancing as much as 135 feet in a year within the volcanic cone.

Website Of The Month
http://www.earthquakecountry.info/

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

News items: To submit a news item in the PGS Newsletter, please contact Bob Burger at (724) 772-7977, FAX at (724) 772-7980, mail at 1885 Redcoach Road, Allison Park, PA 15101, or email at r.burger@verizon.net .Be sure to also send a phone number where you may be contacted.

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Wednesday, April 20, 2005

3rd Annual Student Night

Joint meeting with the Pittsburgh Geological Society, the Association of Engineering Geologists, and the American Society of Civil Engineers

PGS Award Winner
Hydrochemical signatures indicating deep groundwater circulation in part of the Himalayan foreland basin.

Asim Yousafzai, Department of Geology, Kent State University

A total of 71 samples were analyzed from springs and deep and shallow water wells as part of a larger program of investigations of groundwater in a basin under compressive tectonic stress. The study site covers Peshawar Basin and its surroundings in the Himalayan foreland fold-and-thrust belt of Pakistan which is experiencing a total stress of 90 MPa. The study area can be divided into two types of aquifers. The northern portion of the area is mountainous and the water table varies in depth in different intermountain valleys. Abundant springs (normal and high temperature) are present in this part of the study area and constitute an important source of drinking water. These springs have their surface expressions in a variety of rocks and unconsolidated sediments. The southern part is divided into isolated basins with a number of drilled wells and dugwells which are extensively used for irrigation, industrial and domestic purposes.

Most of the spring water is typically characterized by Ca>Mg>(Na+K), with bicarbonate as the dominant anion, suggesting young and fresh recharge, however, two samples have surprisingly (Na+K)>Ca>Mg, with sulfate for the dominant anion. Similarly, most of the samples from shallow wells are predominantly Ca-bicarbonatic, with a few exceptions, where none of the cation is dominant. Large group of samples from deep wells are also dominated by (Na+K)>Ca>Mg, with sulfate for the dominant anion. Most significantly, water samples from one shallow well and three deep wells, all located in an immediate vicinity of a major thrust zone, demonstrate clear imprints of admixture of oil-brines. Hydrochemical signatures of Sr, Li, B and high source reservoir temperatures indicate a deep circulation of the emerging groundwater. Results from water chemistry, in conjunction with the measured spring and water well temperatures and calculated reservoir temperatures for the spring water samples, all suggest that several of the sampling sites yield water with anomalous composition and temperatures. Both characteristics suggest origin from deep horizons within the basin. Remarkable proximity of the entire thermal and hydrochemical anomalies leads us to hypothesize that water with anomalous composition and temperatures ascend along the major fault lines from greater depths.

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 Mike Forth at (412) 323-2200 or emailed to mkf@peoplepc.com by **noon Monday**, **April 20.**

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

Pittsburgh Geological Society

ASCE Award Winner
A statistical approach for predicting the shear strength parameters of mudrocks

Al Hajdarwish, Department of Geology, Kent State University

Shear strength is one of the most important properties for design of engineering structures built on or within mudrocks (shales, claystones, mudstones, siltstones, etc.), and also the most difficult to evaluate. This is because it is usually difficult to obtain undisturbed samples of mudrocks, due to their weak nature, required for determination of shear strength parameters. The purpose of this research was to investigate geological and engineering properties that can be used statistically to predict the shear strength parameters of a broad range of mudrocks. Forty-five samples of various types of mudrock were collected from highway cuts throughout the United States. Clay content, clay mineralogy, water content, Atterberg limits, specific gravity, dry density, void ratio, absorption, adsorption, slake durability, and shear strength parameters (c and φ) were determined for each sample. Data were analyzed statistically, using bivariate and multivariate regression techniques, to determine the correlations between shear strength parameters and geologic and engineering properties. Based on the statistical analyses, prediction models were developed for all mudrock types as a single group as well as separately for shales, claystones, mudstones, and siltstones. Results show that cohesion and friction angle parameters for all mudrocks, treated as one population, can be predicted from selected properties (amount and type of clay, Atterberg limits, % absorption, % adsorption, dry density, void ratio, and slake durability) with adjusted R^2 values of 0.77 and 0.81, respectively. When mudrocks are subdivided into individual types and analyzed separately, the adjusted R^2 values for predictive models are improved and the estimated errors decreased. The cohesion for shales, claystones, mudstones, and siltstones can be predicted with R^2 values of 0.85, 0.98, 0.99, and 0.98, respectively, whereas the R^2 values with respect to friction angle are found to be ~0.99 for all four types of mudrock.

AEG Award Winner
The effect of varying degrees of saturation on the unconfined compressive strength of selected sandstones

Edward Barefield, Michael Baker Jr., Inc.
and Abdul Shakoor, Department of Geology, Kent State University

Unconfined compressive strength is one of the primary parameters by which sandstone rocks are evaluated for their usefulness as engineering materials. The unconfined compressive strength of sandstones is known to be controlled by such factors as loading rate, bedding orientation, presence of microfractures, and petrographic characteristics (grain size, grain shape, matrix-cement mineralogy, etc.). Research has also shown that unconfined compressive strength is significantly reduced upon saturation with water. The aim of this research was to characterize the relationship between unconfined compressive strength and varying degrees of saturation for sandstone rocks, and to explain this relationship using index properties and petrographic characteristics.

Eighteen NX-size cores were prepared from each of nine different sandstone formations that were sampled from Central Ohio through Central Pennsylvania. Laboratory tests were conducted to determine absorption, dry density, specific gravity, and porosity values for each core. Cores were then tested for unconfined compressive strength at 0, 20, 40, 60, 80, and 100% saturation. The sandstones were also classified according to Okada's classification in order to further characterize them and provide a means of explaining the measured trends of compressive strength decrease with increasing degree of saturation for each sandstone formation.

Laboratory test results show that the sandstones tested have absorptions values ranging from 1.32% to 6.93%, dry density values of 126.7 pcf to158.5 pcf, porosities of 3.35% to 14.11%, and dry compressive strength values ranging from 2426 psi to 21700 psi. Preliminary data analysis indicates significant trends of unconfined compressive strength reduction with increasing degree of saturation. The trends are stronger for sandstones of high and medium strength compared to those of low to very low strength which display less predictable behavior. Strength reductions of up to 62% between dry and saturated states were observed.

POSTER PRESENTATIONS

The poster presentations at this year's student night include:

Reef monitoring implementing aerial photography and GIS on San Salvador, Bahamas
Marie Maher, Jade Sheetz, Dr. Jack Livingston, and Dr. Tamara Schiappa, Slippery Rock University

Accretion of middle to late Holocene tidal marsh sediments, Rappahannock, VA
Andrew Smith and Mark Abbott
University of Pittsburgh

Andesitic peperite and peperite-bearing deposits: physical volcanology and paleoenvironment of the Miocene Mehrten formation, Kirkwood, California
Tracee Imai[1], Ian Skilling[1], Cathy J. Busby[2]
(1) University of Pittsburgh, (2) University of California, Santa Barbara

An example of a GIS- based approach to evaluate landslide susceptibility and hazard potential for a portion of Summit County, northeast Ohio
Ahmad Dalqamouni, Arpita Nandi, and Abdul Shakoor, Kent State University

CALL FOR NOMINEES

The last call for candidates for the upcoming May election will be officially made at the April 20, 2005 meeting. The Society is strongly encouraging it's membership to consider nominees for the three (maybe four) Director-at-Large positions that will be open. Any Society member that wishes to be placed on the ballot as an Officer or Board candidate should respond before or at the April meeting. Prior to nominating any member other than yourself, please obtain the consent of that member.

PGS SPRING FIELD TRIP

The title to this year's spring field trip is *Pennsylvanian Sharon Formation, Past and Present: Sedimentology, Hydrogeology, Historical and Environmental Significance* and will be led by Annabelle Foos from the University of Akron.

The Sharon conglomerate is the basal member of the Pennsylvanian Pottsville formation. We will discuss the depositional environment and regional setting of this braided stream paleovalley complex as we visit classic exposures of the Sharon conglomerate at Gorge Metro Park in Cuyahoga Falls, OH. We will have a unique glimpse into the Sharon Aquifer where it has been recently dissected by downcutting of the Cuyahoga River at the Cuyahoga Falls Gorge. The chemistry of natural springs and seeps at the Gorge has yielded information about the heterogeneous flow through this unit. Early settlers built dams and associated mills where the rivers flowed over resistant layers such as the Sharon Sandstone. The impact of these dams on the development of Cuyahoga Falls and controversy over their removal will be discussed.

Field trip cost is $30 for adults, $10 for students and children. Cost includes lunch, beverages, transportation, and guidebook. The trip will depart from Parkway Center Mall in the parking area east of the hotel and Terrace Room. Departure is 7:30 sharp!

To make reservations contact Wendell Barner at (412) 208-2409 or barnerwl@cdm.com no later than April 7th. The field trip should last approximately five hours (excluding travel time) and should return to Pittsburgh around 6:00 p.m.

GEOLOGIC CONSULTANT LIST

In the interest of serving the geological needs of the community (most recently with a multitude of landslides), PGS is interested in creating a consultant list for the following geological categories:

General	Coal
Engineering	Hydrogeology
Environmental	Database services
Oil and gas	

Even though PGS will be posting a legal disclaimer saying that we are not endorsing any particular company, we ask that you not request to be listed in a category unless you are qualified to do so.

You can be on the consultant list in two different ways. An electronic document will be sent separately to the PGS membership or you may consult the website www.pittsburghgeologicalsociety.org.

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Vol. LVII, No. 9 | Robert Burger, Editor | May, 2005

Wednesday, May 18, 2005
The Association of Engineering Geologists
and
The Pittsburgh Geological Society
present

Engineering Geology and Geotechnical Engineering Working Together
Three Case Studies

by David W. Bieber, RGP, CEG, CHG
and Jeremy J. Zorne, GE

The respective responsibilities of the Engineering Geologist (EG) and the Geotechnical Engineer (GE) are ideally complimentary. While the areas of practice overlap, each of these areas of expertise has its focus. The EG generally focuses on the nature and behavior of geologic materials in their in situ state. By contrast, GEs generally focus on the interaction between structures and geological materials or man-made materials that mimic geological materials. Between these two generalized areas of focus is a large area of common overlap. Ideally, the EG and the GE acknowledge each others strengths and work together to perform their professions.

Three projects completed together by the authors serve as illustrations of how the EG and GE complimentary and successfully work together. The first project was an integrated hydrogeologic investigation, fault investigation, and geotechnical investigation for a wastewater disposal facility. The second project involved the evaluation of the stability of temporary cut slopes within existing fill and natural geologic materials. The third project involved the evaluation of the stability of cut and fill slopes associated with a building pad constructed in an area of serpentine rock mapped as containing naturally occurring asbestos.

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 Mike Forth at (412) 323-2200 or emailed to mkf@peoplepc.com by **noon Monday**, **May 16.**

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

Pittsburgh Geological Society

PGS BOARD-OF-DIRECTORS ELECTION

The Election of officers and directors for Pittsburgh Geological Society's 2005-06 season will be held at the PGS May 2005 meeting on May 18, 2005. A ballot is included with this newsletter listing one candidate each for the positions of President, Vice President, Secretary, and Treasurer. There are five candidates running to fill three open Director-at-Large positions. Regular members, corporate members, and honorary members are eligible to vote; student members are ineligible. Please complete your ballots and bring them to the May meeting. If you cannot attend, please send them to PGS at P. O. Box 58172, Pittsburgh, PA 15209. Allow time for the ballots to reach us before the meeting.

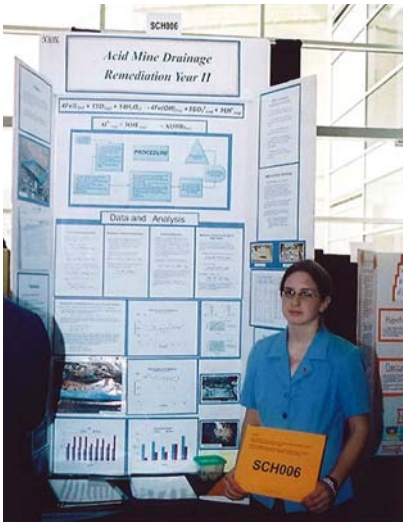
PGS PRESENTS SCIENCE FAIR AWARDS

Over 700 students displayed their research and engineering projects at this year's Pittsburgh Regional Science and Technology Fair. PGS delivered awards to three students who presented research related to the geological sciences. Megan Conroy of Conroy Learning Center in Export, PA was the Senior High award winner for her work entitled "Acid Mine Remediation – Year II". Zack Reinheimer from Ambridge Area Junior High was the Junior High winner with his project, "The Effect of Plumbing Systems on Geysers", and Phillip Howells, Jr. of State Street Elementary School in Baden, PA was the Elementary School award winner with his presentation " Do Crystals Have Different Shapes?" Congratulations and best wishes for continued success go out to Megan, Zack, and Phillip from the entire PGS membership for their excellent scientific research work.

PAPG/PTTC HOLD WORKSHOPS

The Pittsburgh Association of Petroleum Geologists (PAPG) and the Petroleum Technology Transfer Council (PTTC) will hold the Appalachian Region PTTC Workshop at the Holiday Inn – Meadowlands, Washington, PA on May 26, 2005. The meeting title is *Upper Devonian Sandstone Play Review*. For more information, contact Mark Hoffman at (304) 293-2867x5446, or email MAHoffman@mail.wvu.edu.

The PTTC will also hold a hydrothermal dolomite core workshop and field trip at the New York State Museum in Albany on Tuesday June 7, 2005. For more information, contact Rose Schulze, New York State Museum, Room 3140 CEC, Albany, NY 12230.



Senior High Award Winner Megan Conroy.

Junior High Award Winner Zack Reinheimer

Elementary School Award Winner Phillip Howells, Jr.

ORIGINS OF WESTERN PA PLACE NAMES

Saltsburg, in Armstrong County, was named for its first industry – salt. In the late 1700s, so the story goes, Mrs. Deemer was boiling water from a nearby well when she noticed salt crystals forming in the bottom of the kettle. This discovery led to the birth of the salt industry that made the Kiskiminetas River valley one of the leading salt producers in the expanding United States. By the early 1830s, The Great Conemaugh Salt Works consisted of numerous salt manufacturers that used steam engines powered by coal for drilling and pumping wells. By 1837, nearly all of the wells had played out and the industry had moved to the Natrona-Tarentum area. But the industry had left its mark on western Pennsylvania history – besides providing millions of tons of salt to the growing nation, it also provided Colonel Edwin L. Drake with the drilling technology he needed to discover oil in Titusville in 1859 and set the modern petroleum industry into motion.

DID YOU KNOW . . . ?

- Most subduction zone backarcs have hot, thin, and weak lithospheres extending over considerable widths.
- For the first time in (unlucky?) 13 years, the US congress has cut funding for the National Science Foundation by almost 2%, despite President Bush's recommendation for a 3% increase.
- The December, 2004 tsunami that devastated the region around the Indian Ocean was generated by a magnitude-9.0 earthquake, the fourth largest ever documented by seismometers in the last 100 years.
- According to a national inventory, the total area of impervious surface (highways, parking lots, paved surfaces, etc.) in the US almost equals the total square footage of the state of Ohio.
- Although lithosphere strength generally increases with depth, at great depths lithosphere becomes ductile as temperature and composition become the most important controls on strength.
- The best material for manufacturing cement has a uniform composition of about 75% $CaCO_3$, 12 to 15% SiO_2, and the rest Al_2O_3 and Fe_2O_3. In the Pittsburgh area, only the Benwood carbonates (middle Monongahela Group) comes close to that mix, but it usually has a high percentage of undesireable $MgCO_3$ present.
- Two of the world's most spectacular and scientifically valuable fossil sites are located in China, the Early Cambrian Chengjiang faunal site famous for its amazing preservation of soft-bodied creatures resembling the Burgess Shale fauna of Canada, and the Early Cretaceous Liaoning faunal site famous for its preservation of ancestral birds and feathered dinosaurs.
- Unfortunately, both Chinese sites are threatened by economic forces – the Cambrian site by phosphate mining, the Cretaceous site by poor farmers who quarry the site and sell the fossils on the black market.
- A peculiar feature of several counties in southwestern Pennsylvania is that the tributaries flowing into the main east-west flowing streams from the north typically are longer and have steeper slopes than those flowing in from the south.
- Stable isotopes and poleward expansion of vegetational provinces and temperature-dependent animals during the mid-Cretaceous suggest this period of time was influenced by greenhouse climate conditions.
- Cornell University geologist Jason Morgan and colleagues suggest that massive volcanic eruptions caused by the passage of continents over hot spots may have produced all the physical and geochemical indicators that have led many scientists to accept extraterrestrial impact as the likely cause of many mass extinctions.
- Coral reefs are well known in the Middle Devonian Onondaga Limestone from outcrops in New York and from the subsurface of New York and Pennsylvania, but drilling for natural gas in northwestern Pennsylvania in the 1990s surprisingly revealed the presence of sponge reefs in the Onondaga.

Website Of The Month

http://exoplanets.org

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Ballot

Pittsburgh Geological Society

Board-of-Directors Election

May 18, 2005

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

___ President: Frank Benacquista

___ Vice President: Pat Burkhart

___ Secretary: Dan Martt

___ Treasurer: Michael Forth

Director-at-Large Positions (vote for 3)

___ Mary Ann Gross

B. S. Geology 1973, Edinboro University of Pennsylvania, Independent Geologist/Land Agent, member PGS since 1980. Currently completing term as a Director-at-Large, Past President of the Society.

___ Steve McGuire

B. S. Meteorology 1968, Pennsylvania State University; Technical Consultant, Veolia Water/NA Water Systems, member of PGS since 1975; Currently completing term as Vice President of Society.

___ Mary Robison

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