

The Coal Geologist

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Newsletter of the Coal Geology Division of the Geological Society of America



Message from the Division Chair



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The Coal Geology Division's membership has steadily increased since 2003, by nearly 24%, with the enrollment at 269 as of December 31, 2007. Thanks to the efforts of management and enthusiastic members, the Division sponsored and assisted in the organization of exciting topical sessions and field trips in 2007. Cross-disciplinary participation between coal geologists and scientists in other divisions, including energy and environmental, continues to gain momentum. In commemoration of 2008 as the International Year of Planet Earth (for more information please visit <http://yearofplanetearth.org/index.html>), the 2008 GSA Annual Meeting in Houston, Texas will be a joint venture between GSA and the American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, and Gulf Coast Association of Geological Societies, with the Gulf Coast Section of SEPM (<https://www.acsmeetings.org/2008>).

The Division's 2007 Annual Business Meeting and Awards Banquet in Denver was a busy event. The speeches by this year's Gilbert H. Cady Award recipient, Andrew Scott (see photo in upper right) and citation by Jack Crelling focused on the excitement of studying coal geology and the potential opportunities for today's coal geology students. Such is the case with the three 2007 Antoinette L. Medlin Scholarship awardees, J. Denis N. Pone, Lindsey Henry, and Ryan Grimm and their innovative graduate-research projects. The business meeting was followed by a taco buffet and cash bar and then by another get-together with Division members for Italian fare at a Denver restaurant.

2007 Gilbert H. Cady Award recipient Andrew Scott



and Anne Scott at the CGD Awards Banquet.

I thank Division Chairs Chris Carroll (2006) and Allan Kolker (2007) as well as Leslie (Jingle) Ruppert, Division Member-at-Large, for assisting me with Division-related duties in 2007 during my appointment as 1st Vice-Chair. Special thanks to the Division Secretary-Treasurer, Anupma Prakash, for the wonderful job she is doing with *The Coal Geologist* newsletter. My gratitude also to Barbara EchoHawk at GSA for keeping members informed via e-mail about Division activities. In addition, Please join me in welcoming Ron Affolter as 1st Vice-Chair of the Division and our new board member, Jack Pashin, as 2nd Vice-Chair. I look forward to working with them.

I hope that you will attend and participate in the Division's sponsored sessions and field trips during the 2008 meeting, while continuing to forge relationships with other divisions of GSA and the various societies attending the annual meeting. Please drop me a line (stracher@ega.edu) if you have Division news to share or would simply like to chat. All the best!

Glenn B. Stracher, CGD Chair



The CGD Management Team

Chair	: Glenn B. Stracher
1 st Vice-Chair	: Ron Affolter
2 nd Vice-Chair	: Jack Pashin
Secty./Treasurer	: Anupma Prakash
Member-at-Large	: Leslie (Jingle) Ruppert



CGD Timeless Photographs: Contributions by John Popp

GSA 1981 Southeastern Sectional Meeting: Field trip to see stratigraphy and sedimentation of south-eastern KY. Right to left are Jim Hower, Jim Cobb, Don Chesnut, Sue Rimmer, Suzanne Russell, Heinz Damberger, and J. Hiram Smith.



GSA 1977 Annual Meeting in Seattle: Coal Division fieldtrip. Visible in photo are Hal Gluskoter, Heinz Damberger, W. Pat Diamond.



GSA 1977 Annual Meeting in Seattle: Centralia Mine Field Trip sponsored by CGD – Participants watch as tour bus is pulled out of a ditch by the mine's dozer, after sliding on the extremely slippery haul road.



AAPG 1978 meeting in Oklahoma City: Energy Division fieldtrip. In the photo, Sam Friedman is examining large *Calamites*.





Featured article: Mercury-rich coals in the Donets Basin, near Donetsk, Ukraine

The Donets Basin, in the Donbas region of eastern Ukraine is an important coal-producing area, containing more than 130 coal beds of at least 0.7 m in thickness. Many of the coal beds are steeply dipping, requiring deep underground workings for continued extraction after years of mining. The deadly combination of deep workings and unsafe levels of coal-bed methane has resulted in several recent explosions and loss of life.

The area is also known for its elevated metal contents in coal, especially mercury. With increasing interest in limiting mercury emissions from coal combustion, the USGS began collaborating with scientists at Donetsk National Technical University to obtain coal samples from operating mines in the region. In a 2001 visit to Donetsk sponsored by the NATO Science Program, two USGS scientists, accompanied by Ukrainian geologists, sampled underground coal and mine water in several active mines. Coal samples obtained through this collaboration have sub-ppm to ppm mercury contents averaging about four times the U.S. average content (Fig. 1).



Figure 1. Histogram showing average mercury contents for Ukraine coal from active mines, extreme mercury-rich coals from the Nikitovka mercury mines, and U.S. coals. Mercury contents are on an as-determined basis. Note break in vertical scale from 1-10 ppm

Study of the Ukrainian samples shows mercury content increases consistently with the amount of pyrite present. Mercury in mine water was found to be much below drinking water limits in the U.S and Ukraine.

The most extreme mercury enrichment is found in coals associated with the Nikitovka mercury mines, a series of open-cast abandoned mines in Gorlovka, about 50 km north-northeast of Donetsk. The Nikitovka ores occur along a narrow fault zone that provided a conduit for mercury-bearing fluids at depth to form economic sandstone-hosted cinnabar deposits. Although the mines ceased operation in the early 1990's, access to the site remains unrestricted, allowing some local residents to collect and use extreme mercury-rich coal. Samples of this coal collected here by the USGS scientists have mercury contents in the 10's of ppm, averaging more than 100 times the average mercury content for U.S. coal (Fig. 1).

Work begun in 2005, sponsored by the U.S. Civilian Research and Development Foundation, is focusing on potential health effects to Gorlovka citizens from mercury exposure. Groups at highest risk include workers at a mercury recycling operation on the site of the former mercury plant (Fig. 2), and residents of apartment blocks adjacent to mercury mine tailings nearby the plant. Dispersion of mercury over large areas of the mine-site is indicated by soil samples collected in the project. These samples have mercury contents in the 10's to 100's of ppm, a result of atmospheric deposition from past operation of the mercury plant, and natural enrichment.



Figure 2. Defunct mercury processing plant at Nikitovka Mines, Gorlovka, Ukraine, operated from 1968 to 1991 (2005 photo).

By Allan Kolker, Research Geologist, USGS.

North-Central Section Meeting

This year, the North-Central Section meeting is in Evansville, IN, from April 24-25, 2008. Visit www.geosociety.org/sectdiv/Northc/08mtg/index.htm.

CGD Sponsored Technical Session: (12) Coal for the 21st Century: New Science for New Applications. Maria Mastalerz and John A. Rupp, Indiana Geological Survey.

CGD Sponsored Post-Meeting Field Trip on April 26, 2008: (9) Aspects of Pennsylvanian Stratigraphy, Sedimentation, and Conodonts, Southwestern Indiana. Carl B. Rexroad, Indiana Geological Survey; Penny Meighen, Marshall Miller & Assoc.; John Nelson, Illinois State Geological Survey. Cost: US\$38; includes transportation, lunch, and handout.

GSA 2008 Joint Annual Meeting

This year, the Joint Annual Meeting is in Houston, Texas from October 5-9, 2008. Keep a tab on the meeting web site at <https://www.acsm meetings.org/> for details.

This year's meeting promises 209 technical sessions listed at <http://gsa.confex.com/gsa/2008AM/top/index.epl>. **Abstract submission deadline is June 3, 2008.**

Over 30 planned field trips are listed at <https://www.acsm meetings.org/programs/field-trips-and-tours/field/>.

For updates, keep a watch on the Upcoming Meeting section of our CGD website at <http://www.uky.edu/KGS/coal/GSA/meeting.htm>.

Spot the Differences

Two images (acquired by the Landsat satellite) of an open pit mining area in South Africa are shown below. The image on the left is from May 1989, and the one on the right is from May 2001. The yellow line on the image is 2km long. Can you find the two major differences?

