

THE COAL GEOLOGIST

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

Fall 2006

Volume 32, Number 1

FROM THE DESK OF THE DIVISION CHAIR CHRIS CARROLL

Greetings from Colorful Colorado! I am pleased to announce that the annual meeting of the Geological Society of America (GSA) is here! I hope to see most of you in Philadelphia. As Chair of the Coal Geology Division (CGD) I am happy to announce that the CGD Awards Ceremony and Business Meeting will be held on Monday evening, October 23, 2006, in Room 104B of the Philadelphia Convention Center.

The Awards Ceremony will begin at 5:30 PM. There will be food and a cash bar, so plan to arrive on time to enjoy plenty of food and drink. The Awards Ceremony will start with the presentation of the 2005 Best Paper award to Constance Senior. Next, three Antoinette Lierman Medlin Scholarships for outstanding student research will be presented to Phillip Morath, Jen O'Keefe, and Sarah Mardon. The ceremony will close with the presentation of the 2006 Gilbert H. Cady Award to James C. Hower. Leslie Ruppert will be the citationist for this year's Cady Award winner.

After a break for refreshments, we will convene the annual membership Business Meeting to discuss CGD events over the past year. Agenda items from last year include the increase in professional dues (now \$8) for the division, discussion of the bylaws, and the possibility of a Distinguished Service Award for next year. We will also call for nominations for coal professionals to fill three positions on the management board: Secretary/Treasurer, First Vice-Chair, and Second

In addition to the scheduled meetings, the CGD is sponsoring three field trips on Friday and Saturday (October 20 and 21): 1) Plant Paleoecology and Geology of the Southern Anthracite Field, 2) The Great Centralia Mine Fire, 3) Journey into Anthracite. CGD is also sponsoring four topical sessions: 1) coal utilization, 2) energy resource policies, 3) Late Paleozoic climate changes on flora, and 4) environmental issues resulting from mining. I thank Alan Kolker, CGD First Vice-Chair and Joint Technical and Planning Committee (JTPC) representative for the Division for organizing CGD-sponsored field trips and topical sessions. Special thanks to Thomas Demchuk for all his hard work as Secretary/Treasurer over the years.

Coal Geology Division Management Board

Chair: Christopher Carroll, Colorado Geological Survey, Denver, CO: chris.carroll@state.co.us

First Vice-Chair: Alan Kolker, U.S. Geological Survey, Reston, VA: akolker@usgs.gov

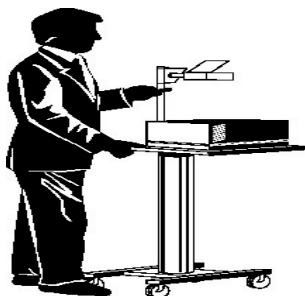
Second Vice-Chair: Edward L. Heffern, U.S. Bureau of Land Management, Cheyenne, WY: Ed_Heffern@blm.gov

Past Chair: Gretchen Hoffman, New Mexico Bureau of Mines and Mineral Resources, Socorro, NM; gretchen@gis.nmt.edu

Secretary-Treasurer: Thomas D. Demchuk, ConocoPhillips, Houston TX; thomas.d.demchuk@conocophillips.com

Member-at-Large: Leslie F. Ruppert, U.S. Geological Survey, Reston, VA: LRuppert@usgs.gov

Coal Geology Division Website: <http://www.uky.edu/KGS/coal/GSA/index.html> CGD WebMaster Steve Greb, greb@uky.edu



**COAL GEOLOGY
SPONSORED
TOPICAL SESSIONS
PCC 110AB
8:00AM-12:00PM**

Topical Session No. 7

***Coal Utilization in the 21st Century:
Environmental Issues***

**John Kiefer, James C. Hower, Stephen
F. Greg, and Cortland F. Eble, presiding:
Sunday Afternoon, October 22nd**

1:30 PM TRACKING, DOCUMENTING AND
DISSEMINATING GLOBAL INFORMATION ABOUT
COAL FIRES

1:45 PM DETERMINATION OF COALBED
METHANE POTENTIAL AND GAS ADSORPTION
CAPACITY IN WESTERN KENTUCKY COALS

2:00 PM THE ENVIRONMENTAL IMPACTS OF
MINING, PROCESSING, AND USING COAL

2:15 PM LANDSLIDES IN THE EASTERN
KENTUCKY COAL FIELD

2:30 PM SOLID PHASE ASSOCIATIONS
AND LEACHABILITY OF TRACE ELEMENTS
ASSOCIATED WITH COAL FLY ASH

2:45 PM DISTRIBUTION OF SELENIUM,
ARSENIC, AND MERCURY IN ESP FLY ASHES

3:00 PM THE EFFECT OF COAL-FIRED
POWER PLANT EMISSIONS AND FLY ASH ON A
REGIONAL WATERSHED

3:15 PM Break

3:30 PM USE OF BORON ISOTOPES TO TRACK
THE INTERACTION OF COAL UTILIZATION
BYPRODUCTS WITH WATER IN THE
ENVIRONMENT

3:45 PM WHAT TO DO WITH CARBON DIOXIDE
EMISSIONS FROM COAL-FIRED UTILITIES?
GEOLOGIC SEQUESTRATION INVESTIGATIONS
OF THE MIDWEST REGIONAL CARBON
SEQUESTRATION PARTNERSHIP

4:00 PM STRONTIUM ISOTOPES AS TRACERS
OF WATER CO-PRODUCED WITH COAL BED
NATURAL GAS IN THE POWDER RIVER BASIN,
WYOMING

4:15 PM COAL MINING IN AFGHANISTAN - A
THIRD-WORLD PARADIGM OF PROBLEMS AND
OPPORTUNITIES

4:30 PM NEW PERSPECTIVES ON KENTUCKY'S
COAL RESOURCES: FUTURE TRENDS

Topical Session No. 8

***U.S. Energy Resources: Options,
Scenarios and Policy***

**Leslie Ruppert and Brenda Pierce,
presiding: Tuesday Afternoon, Oct 24th**

1:30 PM Introductory Remarks

1:35 PM REALISTIC ENERGY OPTIONS OR
WISHFUL THINKING? DO THE MATH

1:55 PM CLIMATE CHANGE SCIENCE: RECENT
DEVELOPMENTS

2:15 PM NORTH AMERICAN NATURAL GAS
MARKET, AND ITS GLOBAL CONTEXT – A
THREE YEAR LOOK-BACK AT THE NATIONAL
PETROLEUM COUNCIL NATURAL GAS STUDY
OF 2003

2:30 PM GLOBAL AND NATIONAL PEAKS IN OIL
AND GAS PRODUCTION

2:45 PM COALBED GAS RESOURCES OF THE
U.S., AND ENVIRONMENTAL ISSUES RELATED
TO PRODUCTION

3:00 PM HYDROGEN FROM COAL - A DOE
PERSPECTIVE

3:15 PM U. S. GEOTHERMAL RESOURCE
POLICY – 36 YEARS LATER

3:30 PM ENHANCED GEOTHERMAL SYSTEMS
WITH CARBON DIOXIDE AS THE HEAT
TRANSMISSION FLUID – A GAME-CHANGING
ALTERNATIVE FOR PRODUCING RENEWABLE
ENERGY WITH SIMULTANEOUS STORAGE OF
CARBON

3:45 PM THE AMERICAN NUCLEAR
RENAISSANCE: TODAY AND TOMORROW

4:05 PM NATURAL GAS HYDRATES: POTENTIAL
FUTURE ENERGY RESOURCE

**GSA COAL GEOLOGY DIVISION
AWARDS RECEPTION AND BUSINESS
MEETING**

Philadelphia Convention Center 104B

MONDAY, OCTOBER 23rd

5:30 - 6:30PM

**Chair's Address
Gilbert H. Cady Award Presentation
Cash Bar and Munchies**

Topical Session No. 9***“Ice House” / “Hothouse” – An Analysis of Late Paleozoic Floras and Their Response to Global Climate Change*****Cortland Eble, Thomas D. Demchuk, Hermann Pfefferkorn, Robert A. Gastaldo****presiding: Tuesday Morning Oct 24th****Co-sponsored with The American Association of Stratigraphic Palynologists (AASP); Paleontological Society; Society for Sedimentary Geology (SEPM); GSA Geobiology and Geomicrobiology Division**

8:00 AM THE MAGNITUDE OF CARBONIFEROUS-PERMIAN GLACIOEUSTATIC FLUCTUATIONS: A REVIEW

8:15 AM PHYTOGEOGRAPHIC DIFFERENTIATION DURING THE LATE VISEAN WARM PHASE BEFORE THE ONSET OF THE LATE CARBONIFEROUS ICE AGE

8:30 AM FLORISTIC TURN-OVER AND STABILITY IN THE NAMURIAN (SERPUKHOVIAN-LOWER BASHKIRIAN) OF THE UPPER SILESIAN COAL BASIN (POLAND) AS AN INDICATOR OF PALEOCLIMATIC CHANGE IN THE MID-CARBONIFEROUS TROPICS

8:45 AM TERRESTRIAL ECOSYSTEM STABILITY IN THE SEPURKOVIAN (NAMURIAN) TO BASHKIRIAN (LANGSETTIAN) OF THE SILESIAN BASIN, CZECH REPUBLIC

9:00 AM COMPARISON OF MEGAFLOREAL CHANGES ACROSS THE BARBORA AND ENNA MARINE ZONES, OSTRAVA FORMATION (SERPUKHOVIAN [NAMURIANA]), UPPER SILESIAN BASIN, CZECH REPUBLIC

9:15 AM CLIMATIC SIGNAL IN THE TROPICS BASED ON PLANT-TAPHONOMY DURING EARLY STAGES OF THE CARBONIFEROUS ICEHOUSE INTERVAL (NAMURIAN, LUBLIN BASIN, POLAND)

9:30 AM Break

9:45 AM PALEOCLIMATIC CONDITIONS ACROSS THE MID-CARBONIFEROUS BOUNDARY REFLECTED IN PALEOFLORA ASSEMBLAGE OF PEAT-FORMING ENVIRONMENTS (LATE VISEAN THROUGH BASHKIRIAN, LUBLIN BASIN, POLAND)

10:00 AM BIOSTRATIGRAPHY AND PALEOECOLOGY OF THE LATE MISSISSIPPIAN – EARLY PENNSYLVANIAN BOUNDARY IN WESTERN KENTUCKY

10:15 AM MACROFLORAL EVIDENCE FOR AN UNCONFORMITY AT THE MID-CARBONIFEROUS BOUNDARY IN THE CENTRAL APPALACHIAN BASIN

10:30 AM THE PERMIAN STABLE ISOTOPE RECORD FROM ICE-PROXIMAL LOCALITIES IN EASTERN AUSTRALIA: A PROXY FOR LATE PALEOZOIC CLIMATE CHANGE

10:45 AM NEAR-FIELD STRATIGRAPHIC RECORD OF THE LATE PALEOZOIC GONDWANAN ICE AGE FROM EASTERN AUSTRALIA DISCLOSES MULTIPLE, ALTERNATING GLACIAL AND NON-GLACIAL INTERVALS

11:00 AM LOWER PERMIAN POST-GLACIAL SUCCESSION IN THE SOUTHERN BRAZILIAN PARANÁ BASIN: AN OVERVIEW OF STRATIGRAPHIC AND BIOSTRATIGRAPHIC FRAMEWORKS

11:15 AM BROAD PHYTOGEOGRAPHIC PATTERNS ACROSS NORTHERN PANGAEA THROUGH THE PERMIAN

11:30 AM NEAR-FIELD STRATIGRAPHIC RECORD OF THE LATE PALEOZOIC GONDWANAN ICE AGE FROM EASTERN AUSTRALIA PROVIDES A FRAMEWORK FOR EXAMINING FAR-FIELD STABLE ISOTOPE RECORDS

11:45 AM IMPACT OF ICE HOUSE CLIMATE ON TROPICAL VEGETATION AND PLANT EVOLUTION

Topical Session No. 75***Chemical and Hydrological Interactions in the Evolution and Control of Coal and Metal Mine Drainage*****Charles A. Cravotta, Joseph J. Donovan, Keith B.C. Brady** presiding: **Tuesday Morning October 24****Co-Sponsored with the GSA Hydrogeology Division and the Geochemical Society**

8:00 AM ACID MINE DRAINAGE KINETICS

8:20 AM THE EFFECT OF IMPURITIES ON ABIOTIC PYRITE OXIDATION KINETICS: AN ELECTROCHEMICAL STUDY OF SYNTHETIC PYRITE DOPED WITH AS, CO AND NI

8:35 AM AERATION OF NET ALKALINE MINE DRAINAGE TO DEGAS CO₂, INCREASE PH AND IRON OXIDATION RATES

8:50 AM GEOCHEMICAL AND MINERALOGICAL CHARACTERIZATION OF OVERBURDEN MATERIALS FOR THE ADTI-WP2 PROCEDURE FOR COAL MINE DRAINAGE PREDICTION

9:10 AM STABLE ISOTOPE CHARACTERISTICS OF ABANDONED COAL MINE DISCHARGES, PA

Topical Session No. 75 (continued)

9:25 AM COPPER ISOTOPIC COMPOSITION OF STREAM WATER DOCUMENTS SULFIDE MINERAL DISSOLUTION DURING ACID MINE DRAINAGE

9:40 AM Break

9:50 AM SENSITIVITY ANALYSIS OF SUBAQUEOUS PYRITE OXIDATION IN A PREDICTIVE MODEL OF PIT LAKE CHEMISTRY, MARTHA MINE, NEW ZEALAND

10:05 AM GEOCHEMICAL LESSONS LEARNED FROM LABORATORY TESTING THROUGH OPERATION OF A WATERSHED-SCALE ACID ROCK DRAINAGE WATER TREATMENT SYSTEM

10:20 AM LINKING GEOSCIENCE WITH TOXICOLOGY TO PREDICT ACUTE METAL TOXICITY IN STREAMS

10:40 AM GEOCHEMISTRY OF ALUMINUM IN SURFACE AND GROUND WATERS AFFECTED BY ACID ROCK DRAINAGE

11:00 AM EFFECTS OF HYPERACIDIC H₂SO₄ MIGRATION THROUGH CLAY MEDIA UNDERLYING SULFUR STORAGE BLOCKS IN THE ALBERTA OIL SANDS

11:15 AM INTERRUPTION OF FLOODING TO DEWATER UNDERGROUND MINES OVER THE FLOODED PITTSBURGH COAL: SOUTHEASTERN MONONGAHELA BASIN

11:30 AM TEMPORAL VARIATIONS IN THE FLOW AND CHEMISTRY OF MINE-WATER DRAINING FROM A PORTAL OF THE MYRA MINE, VANCOUVER ISLAND, BRITISH COLUMBIA

11:45 AM EFFECTIVENESS OF BEST MANAGEMENT PRACTICES FOR REDUCING POLLUTION LOAD AT COAL REMINING SITES

COAL GEOLOGY DIVISION SPONSORED FIELD TRIPS

Plant Paleoecology and Geology of the Southern Anthracite Field, Pennsylvania Friday Oct. 20

Hermann Pfefferkorn, University of Pennsylvania. Rudy Slingerland, William Kochanov. The Southern Anthracite Field is a classic area for paleobotany and Carboniferous stratigraphy that is very unusual in many respects. Plant fossils are preserved in anchimetamorphic rocks and are often replaced by the white mineral pyrophyllite. The plants occur predominantly in the bottom rock ("underclay") of coal seams rather than in the roof shale. Paleosols occur throughout the section, formed under widely different conditions at different times. The stratigraphic sections are largely continuous in spite of intense tectonism. This field trip will visit the classic Pottsville section that shows >1 km of section in slightly overturned, near vertical position. Late Mississippian through early Late Pennsylvanian stratigraphy, biostratigraphy, sedimentology, paleoclimatology, coal geology, paleosols, rooting structures, and plant fossils will be seen and discussed. The famous St. Clair locality will be visited, which is otherwise inaccessible.

The Great Centralia Mine Fire: A Natural Laboratory for the Study of Coal Fires Saturday. Oct. 21

Glenn Stracher, East Georgia College, Melissa Nolter; Daniel H. Vice; Janet L. Stracher.

On this trip we will travel to the famous Centralia Mine Fire in the central Appalachian Mountains of eastern Pennsylvania, where we will discuss the coal stratigraphy and structural geology of the Western Middle coalfield as well as the origin, history, and socio-political-economic impact of the mine fire. Trip participants will see spectacular subsidence features, anthracite smokers (gas vents), and ground fissures associated with underground burning in abandoned coal-mine tunnels. Field techniques for collecting the mineral by-products of coal combustion and for collecting microarthropods from vegetation adjacent to gas vents and fissures will be demonstrated. Gas collection techniques using stainless steel gas canisters, a hand-operated sampler, and Tedlar gas bags will also be demonstrated as will in situ field analysis of select coal gas components using Drager tubes. An interview with one of the few remaining residents of Centralia is planned. Participants should be prepared for light hiking and possible inclement weather. People interested in coal stratigraphy, coalmining, and coal fires will enjoy this trip.

COAL GEOLOGY DIVISION SPONSORED FIELD TRIPS

Journey into Anthracite

Saturday., 21 Oct.

Aaron R. Frantz, CDM Ed Simpson; Dale Freudenberger,

Three transects into the Southern Anthracite field will be made on this trip. The first and second transects will begin at the Mauch Chunk Formation, extend through the Pottsville Formation, and end at the Llewellyn Formation. These two transects will be made at Pottsville and Tamaqua, Pennsylvania, respectively. The third transect will be into the Llewellyn Formation at the renovated Number 9 Coal Mine in Lansford, Pennsylvania. The mine tour will transport participants 1600 ft into the subsurface; a 900-ft-deep mine shaft will be viewed during the tour.

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P.O. Box 9140
Boulder, CO 80301-9140*

TO THE GENERAL CGD MEMBERSHIP

IN THE FUTURE we hope to produce more issues of the **COAL GEOLOGIST** at regular, more frequent intervals. To do so we need input from the general membership to provide timely and interesting articles to put into this Newsletter. Send me anything you believe may be of interest to the coal community. In the meantime, I'd like to hear from all of you concerning the Newsletter in general. Please feel free to contact me at chris.carroll@state.co.us. Please come to the Awards Ceremony and Business Meeting so that I can meet you in person. I hope you enjoy this issue of the Newsletter: we now have 244 CGD Members!
Chris Carroll, GSA-CGD Chair 2006

COAL GEOLOGY POSTERS

MONDAY, October 23rd, 1:30-5:30 PM

Philadelphia

Convention Center

Exhibit Hall C

Poster # 111-1 ORGANIC DEPOSITS

ACCUMULATING IN AN AVULSIVE RIVER SYSTEM: IMPLICATIONS FOR COAL AND CARBONACEOUS SHALE FORMATION: DAVIES-VOLLUM, K. Siân, Interdisciplinary Arts and Sciences, University of Washington, Tacoma, WA 98402, sdavies@pomona.edu and SMITH, Norman D., Geology, Univ of Nebraska, Lincoln, NE 68588

Poster # 111-2 OCCURRENCE OF PYROLITIC CARBON IN CLAIBORNE GROUP LIGNITES, KENTUCKY: O'KEEFE, Jennifer M.K., Department of Physical Sciences, Morehead State University, Morehead, KY 40351, j.okeefe@moreheadstate.edu and HOWER, James C., Center for Applied Energy Research, University of Kentucky, 2540 Research Park Dr, Lexington, KY 40511-8479

Poster # 111-4 AN INFLECTION IN THE LATE PALEOZOIC PALEOGEOTHERM OF THE ILLINOIS BASIN AND ITS IMPLICATIONS FOR COALIFICATION: MARIÑO, Jorge E., Geology, University of Illinois, 1301 W. Green St, Urbana, 61801, jemarino@uiuc.edu and MARSHAK, Stephen, Dept. of Geology, Univ. of Illinois, 1301 W. Green St, Urbana, IL 61801

Poster # 111-5 INVESTIGATION OF THE INITIAL FORMATION OF VITRINITE BY COMPARISON OF VITRIFIED AND UNVITRIFIED EOCENE WOODY PLANT TISSUES: KAELIN, Paul E., HUGGETT, William W., and ANDERSON, Ken B., Department of Geology, Southern Illinois University Carbondale, Carbondale, IL 62901, kaelin@siu.edu

Upcoming Meetings

2006 Geological Society of America Annual Meeting, October 22-25, 2006 Philadelphia, PA

2006 American Association of Petroleum Geologists, International Conference, November 5-8, 2006, Perth, Australia

2006 American Geophysical Union Fall Meeting, December 11-15, 2006, San Francisco, CA

2007 American Association of Petroleum Geologists Annual Meeting, April 1-4, 2007, Long Beach, CA

2007 The Society for Organic Petrology Annual Meeting, September 2007

2007 Geological Society of America Annual Meeting, October 28-31, 2007 Denver, CO

ANY OTHER MEETINGS YOU THINK WILL BE OF INTEREST TO THE GENERAL CGD COMMUNITY? PLEASE PASS ON THE INFORMATION