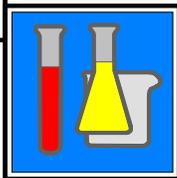




THE SOCIETY FOR ORGANIC PETROLOGY



NEWSLETTER

Vol. 22, No. 1

March, 2005

ISSN 0743-3816



2005 Annual Meeting, September 11 - 14:

Louisville, Kentucky

submit abstracts by April 30 - see page 10.

2005 TSOP Meeting
September 11 - 14
Louisville, Kentucky, USA
submit abstracts by April 30 - see page 10.

Conference themes will include

CO₂ sequestration
coal utilization
coalbed methane
coal petrography
organic geochemistry

Planned schedule includes

Sunday, September 11
CO₂ Sequestration Workshop (a.m.)
Field Trip: Falls of the Ohio (p.m.)
Monday, September 12
Technical Sessions
Reception, Louisville Slugger Museum
Tuesday, September 13
Technical Sessions
Wednesday, September 14
Post-meeting coal mine field trip

And mark your calendars now for the 23rd Annual TSOP Meeting
Beijing, China
September 15 - 22 , 2006

See page 19

The Society for Organic Petrology

TSOP is a society for scientists and engineers involved with coal petrology, kerogen petrology, organic geochemistry and related disciplines. The Society organizes an annual technical meeting, other meetings, and field trips; sponsors research projects; provides funding for graduate students; and publishes a web site, this quarterly Newsletter, a membership directory, annual meeting program and abstracts, and special publications.

Members may elect not to receive the printed Newsletter by marking their dues forms or by contacting the Editor. This choice may also be reversed at any time, or specific printed Newsletters may be requested.

Members are eligible for **discounted subscriptions** to the Elsevier journals *International Journal of Coal Geology* and *Review of Paleobotany and Palynology*. Subscribe by checking the box on your dues form, or using the form at www.tsop.org. You will then be billed by Elsevier. Contact Peter Warwick <pwarwick@usgs.gov> if you do not receive a bill or have any other problems with a subscription. For **subscription at the member rate** to AGI's *Geotimes*, see your dues form.

TSOP is a Member Society of AGI and an AAPG Associated Society.

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LINES: Sept. Issue: August 1

Writers, Photographers and Associate Editors Needed!

The TSOP Newsletter welcomes contributions from members and non-members alike. Submission methods: Text is preferred in WordPerfect, MS Word, RTF or plain text format. Photos as slides or prints (will be returned after use) or as digital files (300 dpi preferred) without strong compression on CD-ROM or as e-mail attachments (if larger than 5 MB, please e-mail me first). Zip disks are discouraged.

Contact the **Editor:**

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Address Changes

Please report any changes in address or contact information to:

Peter Warwick, TSOP Membership Chair
U.S. Geological Survey
956 National Center
Reston, VA 20192 USA
e-mail: pwarwick@usgs.gov

Society Membership

The TSOP Newsletter (ISSN-0743-3816) is published quarterly by The Society for Organic Petrology and is distributed to all Society members as a benefit of membership. Membership in the Society is open to all individuals involved in the fields of organic petrology and organic geochemistry. For more information on membership and Society activities, please see:

<http://www.tsop.org>

For purposes of registration of the TSOP Newsletter, a permanent address is: The Society for Organic Petrology, c/o American Geological Institute, 4220 King St., Alexandria, VA 22302-1520 USA

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Cover photo: Skyline of Louisville, Kentucky, 2005 TSOP meeting site.

Mailed to members with this issue (see page 6):
 2005 Membership Directory
 2004 Meeting CD

President's Page

from Colin Ward

This Newsletter, the first for 2005, provides an opportunity to give further information on possible changes to the Society's structure, and also to recognise some of the hard work being done by several groups and individuals behind the scenes. It also provides an opportunity to welcome the 19 new members who joined the Society at the Sydney meeting, as well as the additional new members who have joined since that time. We hope you find membership fulfilling, and look forward to your participation in a range of TSOP activities.

As foreshadowed in the previous Newsletter, a proposal aimed at extending term of office for the President and Vice-President from one year to two is to be considered by Council at its mid-year meeting on April 8. If accepted, the changes will provide a greater degree of continuity in TSOP Council activities, an aspect that is particularly significant in view of the higher level of international activity developing within the Society. The proposal will merge the positions of Vice-President and President-elect into a single position, and will allow the President and Vice-President/President-elect each to be appointed for two-years, rather than their present one-year terms. A separate but related proposal will see the position of Secretary/Treasurer split into two separate positions, with each also elected for a two-year term. This will keep the numbers on Council constant. Details of the proposal will be presented in the next Newsletter, and a ballot on the necessary changes to the By-laws will be put to the Society, along with an outline of the implementation process, when the proposal is fully drawn up.

April 2005 will see another change in the Society, when MaryAnn Malinconico steps down after 12 years of service as Chair of the Outreach Committee. This Committee's role is to communicate TSOP activities to other societies, such as AGI, AAPG, GSA and other kindred groups, and also to seek the involvement of Industrial Sustainers as a part of the Society's support base. The Committee, largely through MaryAnn's personal efforts, has contributed very significantly to the financial health of the Society since she took over the role

in 1992, and also to the success of our meetings and other activities. While we are disappointed at losing her services, we are extremely grateful for the work she has done in setting up and maintaining the Outreach program, and wish her every success with her future organic petrology activities.

New Councillor Tim Pratt has volunteered to take over as Outreach Committee Chair after MaryAnn steps down. Council has also agreed to direct at least part of the funds derived from the Industrial Sustainers program specifically towards the Student Research Awards, and also to help provide assistance, if possible, for full-time students to attend TSOP meetings. Council has also agreed to allow Industrial Sustainers to place an advertisement of up to one half-page in each issue of the TSOP Newsletter free of charge, provided it meets the Society's guidelines, as an incentive for companies and other organisations to support TSOP activities. TSOP members with contacts in appropriate organisations might like to consider encouraging these bodies to join our Industrial Sustainers group.

Jim Hower and Maria Mastalerz, along with other members of the Organising Committee, are well under way with arrangements for the next meeting of the Society, to be held in Louisville, Kentucky between September 11 and 14 of this year. Details of the meeting are given elsewhere in this Newsletter. In addition to the technical program, the schedule includes a workshop on CO₂ sequestration, a field trip to the fossil site at the Falls of the Ohio, and a post-meeting field trip to a very interesting coal mine. I would like to thank Jim and Maria for their efforts, and encourage all members of the Society to participate in the program. I would also like to take this opportunity to remind everybody that abstracts of papers for presentation at the meeting should be submitted by April 30.

Plans are also proceeding for the 23rd Annual Meeting of the Society, to be held in Beijing, China, between September 15 and 22, 2006. Venue is the Xijiao Hotel, which is close to many universities and research institutes, and conveniently located with respect to some of the other major attractions in Beijing. The Organising

Committee, led by Dai Shifeng and Jin Kuili, has developed a comprehensive program of interest to the entire TSOP membership, with pre- and post-meeting field trips, a short course on non-marine source rocks, and a wide range of technical program themes. Please mark the dates in your diary and start planning to attend.

President-elect Peter Warwick will represent TSOP at the American Geological Institute's annual Leadership Forum, to be hosted by the National Research Council in Washington on May 9. The aim of the forum is to improve communication between the various organisations involved in the geosciences, with a particular focus on issues of science policy and their impacts. On behalf of the Society I would like to thank Peter for representing us in this way, and also Muki Mukhopadhyay, for representing TSOP in the wider AGI activities.

By the time this Newsletter is distributed the Gussow Geoscience Conference on Coalbed Methane, co-sponsored by TSOP, will be over, and the World of Coal Ash meeting will be about to start. More complete reports, I am sure, will be published for members' information in due course. I would also like to remind members that nominations are also now being called for the award of Honorary Membership in the Society, and applications called for the TSOP Student Research Awards. Details of both these are given elsewhere in this Newsletter.

Colin R. Ward
TSOP President

* * * * *

Newsletter Contributions Invited

Readers are invited to submit items pertinent to TSOP members' fields of study. These might include meeting reports and reviews, book reviews, short technical contributions including those on geologic localities or laboratory methods, as well as creative works such as poems, cartoons and stories. Color illustrations may be possible in some issues.

David Glick, TSOP Editor (see page 3) *

Honorary Member Nominations Due by May 13

Every year TSOP members have the opportunity to make nominations for the TSOP Honorary Membership Award. The Honorary Membership Award is the Society's most prestigious award and is limited to a select few. Honorary Member status acknowledges sustained professional excellence in research, service, or education to the Society. The awardees are formally recognized at the annual meeting, presented with a plaque, and granted a lifetime, dues-free membership in the Society.

Honorary Membership awards are given for three categories:

1. Significant research contributions in organic petrology or related disciplines. Contributions must demonstrate a high degree of original research in organic petrology or related disciplines. To qualify within this category, nominees must possess a sustained record of professional publication and achievement. Contributions (publications, state-of-the-art technologies, or other contributions) must demonstrate international impact.
2. Service Contribution to TSOP: Significant contributions to TSOP in a leadership role that have enabled the Society to stimulate interest and promote research in organic petrology. Various contributions are possible in this category. For example, contributions may be related to educational activities, administrative duties, or the development of TSOP as a society. Contributions must demonstrate a high degree of dedication and leadership in overall support of the goals of TSOP.
3. Education Contribution: Significant contributions as a teacher in organic petrology or related disciplines. To qualify in this category, nominees must have demonstrated a high degree of dedication and significant impact as a teacher of organic petrology or related disciplines.

A nominee must be sponsored by a TSOP member, who will supply a letter of nomination and a brief vita detailing how and why the nominee qualifies for the award. Additional letters of support from other TSOP members are encouraged. Nominees will not be asked to supply their own vita.

Selection of the award recipient will be done by committee, whose chair is the current TSOP Vice President. This year's committee consists of Art Cohen, Hal Gluskoter, Joe Curiale, and Joan Esterle (Chair). Please submit nominations by **May 13, 2005** to:

Joan Esterle, TSOP Honorary Membership Comm.
CSIRO Exploration and Mining
PO Box 883
Kenmore, Qld 4069
AUSTRALIA

Tel: (61 7) 3327 4411 Fax: (61 7) 3327 4455
Email: joan.esterle@csiro.au *

INITIATIVE TO PROMOTE TSOP AND COAL SCIENCE

In 2003 the TSOP Council unanimously approved a proposal to promote coal science at universities around the world that do not have the resources to acquire essential current coal science publications, such as the International Journal of Coal Geology. To help address this situation TSOP has created a fund to underwrite the cost of a two-year subscription to the journal for deserving TSOP members. The first recipient was Prof Marko Ercegovac of the University of Belgrade.

The recipients will be obligated to share the journal with his/her students and colleagues and to encourage the students, faculty, and colleagues from the country and the region to contribute appropriate articles to the journal. Recipients who are successful in generating articles for the journal will continue to receive complimentary annual subscriptions.

Elsevier has agreed to make the journal available at a deeply discounted rate provided that TSOP accepts responsibility for distribution.

This activity would generate considerable goodwill for TSOP and should create interest in TSOP membership in scientists from developing countries, as TSOP membership would be a requirement for the applicant. Other benefits would include dissemination of current coal science information to a generation of enthusiastic young scientists and an increase in contributions to the journal from a significant, but largely untapped, source.

The Committee for Promotion of Coal Science will be responsible for soliciting applications, for selecting the most deserving candidates, for distributing the Journal issues, maintaining accurate records, and for soliciting contributions from TSOP membership or from industry.

Any TSOP member in good standing interested in submitting an application for the Journal need only send in a one-page letter describing how they would use the opportunity to promote TSOP and coal science in their school and in their country. The

proposal should be accompanied with a letter confirming that a subscription to the journal would cause financial hardship. The letters should be sent to

**Robert B. Finkelman
U.S. Geological Survey
Mail Stop 956
Reston, VA 20192
USA**

by June 30, 2005.

Contributions to support this effort would be greatly appreciated. *

2005 Membership Directory

The 2005 TSOP Membership Directory has been mailed to members along with this Newsletter. Please check your entry, and submit corrections or changes to Directory information to Peter Warwick, Membership Committee Chair, as noted inside the Directory's front cover: pwarwick@usgs.gov *

2004 Meeting Compact Disc

The 2004 Meeting Organisers have assembled materials from the meeting into a compact disc, which has been mailed to all members along with this Newsletter. As well as the Abstracts and Program, which TSOP provides to all members as a benefit of membership, the CD includes information on the field trips to the Joadja torbanite deposits and the Newcastle area coals of the northern Sydney Basin, the manual from the short course on mineral, the official group photograph, and a selection of other photographs taken during the meeting. The December 2004 TSOP Newsletter, which includes reports from the meeting, is also provided. Please report any problems with the CD to David Glick, Editor: xid@psu.edu *

TSOP Graduate Student Research Grants

TSOP invites applications for one or two graduate student research grants of up to \$1000 each. The purpose of the grants is to foster research in organic petrology (which includes coal petrology, kerogen petrology organic geochemistry and related disciplines) by providing support to graduate students who demonstrate the utility and significance of organic petrology in solving the thesis problem.

The Grant Program supports qualified graduate students from around the world who are actively seeking advanced degrees. Preference is given to full-time students in master's (or equivalent) degree programs but applications are also encouraged from Ph.D. candidates and part-time graduate students. The grant is to be applied to expenses directly related to the student's thesis work such as summer fieldwork, laboratory expenses, etc.

Grant application deadline is **May 1, 2005**. The award will be made in September, 2005. Detailed information and an application form are available on the TSOP web site

<http://www.tsop.org/grants.htm> or from

S. J. Russell

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Nigg

Aberdeen AB12 3FY

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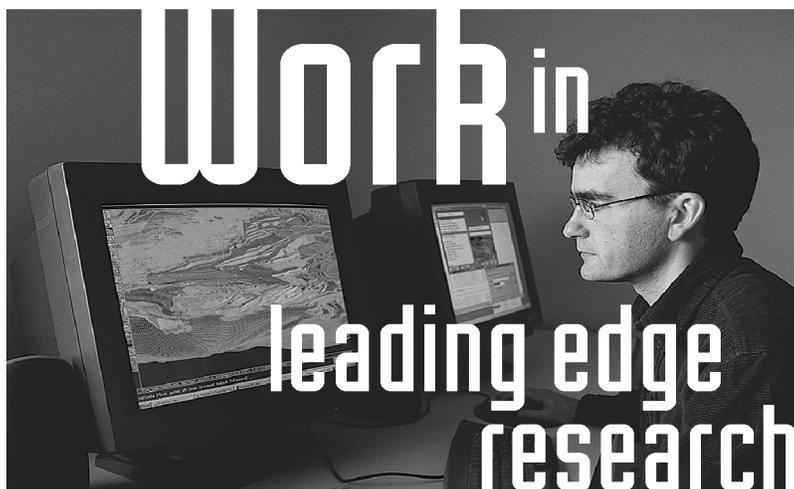
fax +44 (0) 1224 88 3689

e-mail: suzanne.j.russell@shell.com ✱

Energy Exploration Position West Virginia University

The Department of Geology and Geography at West Virginia University invites applications for the Marshall S. Miller Energy Professorship in Geology. For full information, see

http://www.geo.wvu.edu/energy_position.htm ✱



Solid Energy, a top 100 company, is New Zealand's leading producer and exporter of world-class coal, with more than 500 staff and 250 contractors at opencast and underground mines on the West Coast, in the Waikato and in Southland. A highly skilled workforce is essential to achieve our future development plans.

PhD Research Opportunities

■ Leading Edge Coal Seam Gas Extraction

Play a part in leading edge research of coal seam gas extraction. Never has there been a better time to get involved - New Zealand industry and government are looking for alternative solutions for our future energy needs and Solid Energy is investing significantly in research and technology to provide an answer.

In conjunction with the University of Auckland and the University of Canterbury, Solid Energy is seeking two PhD candidates for a Technology New Zealand, Technology in Industry Funding Scholarship to work on an integrated study into enhanced coal seam gas extraction.

New Zealand has a large resource of low-rank coals - some of which are mined. However, considerable deep un-mineable deposits could be ideal for methane extraction.

Solid Energy has identified key knowledge gaps in the technology of methane extraction and has developed a series of research and technology projects aligned with its coal seam gas initiatives.

Two of the projects are now available for students interested in pursuing PhD level research - one is situated in the Department of Geological Sciences at the University of Canterbury and the other through the Department of Civil and Environmental Engineering at the University of Auckland.

The successful candidates will benefit from involvement in the developing field of coal seam gas research. This has implications not just for New Zealand but many other parts of the world. These projects give students the best of both worlds - progressing their academic research and working in the New Zealand energy industry.

Funding available for the three year period consists of \$25,000 per annum stipend, \$5,000 for university fees per annum, \$1,000 travel fee (for conferences) per annum and field and analytical support from Solid Energy of \$10,000 per annum, per student.

University Of Canterbury - "Geological and Geochemical Controls On Fracture And Pore Systems In relation To Gas Flow Regimes"

The successful candidate for this project must have a BSc (hons) or preferably an MSc in geology or a related field with a background in sedimentology, geochemistry and microscopy.

This PhD research will involve geochemical modelling, organic microscopy, use of SEM, TEM, microprobe and other high resolution techniques to identify how coal chemistry and petrology are related to the recovery of methane gas.

University Of Auckland - "Coal Permeability And Its Implications For Coal Seam Gas Production"

The candidate we select for this work will have a strong technological background ideally with a BE (hons) qualification or equivalent. Science graduates with appropriate backgrounds will also be considered. This research will involve delineation of engineering behaviour of coal in regard to permeability and involve determining relative permeability curves, effect of desorption on shrinkage and predictive modelling aspects in order to assist in the prediction of rates of methane gas recovery from coal.

To find out more about the projects and how to apply please contact: Tim Moore, Research Manager, telephone 03 345 6000, email tim.moore@solidenergy.co.nz. Applications should be sent to Tim Moore, Solid Energy New Zealand Ltd, PO Box 1303, Christchurch by 1 May 2005.



www.coalnz.com

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TSOP PUBLICATIONS

SALE through May 31, 2005:

(1) Order the **package of 4** publications: #s 6, 7, 9, and 13 for **\$15** while supplies last.

(2) Individual issues on sale: #16 at \$20 and #17 at \$10.

Please use a publications order form (following page).

<u>TSOP Number</u>	<u>Name of Publication</u>	<u>Price (USD)</u> (includes shipping)
1.	<i>Fluoreszenz von Liptiniten und Vitriniten in Beziehung zu Inkohlungsgrad und Verkohlungsverhalten</i> - (in German with photomicrographs) M. Teichmüller, 1982	\$10
2.	<i>Fluorescence - microscopical changes of liptinites and vitrinites during coalification and their relationship to bitumen generation and coking behavior</i> , TSOP Special Publication No. I (English translation by Neely Bostick, without photomicrographs) M. Teichmüller, 1984	\$ 5
3.	<i>Influence of Kerogen Isolation Methods on Petrographic and Bulk Chemical Composition of a Woodford Shale Sample</i> , TSOP Research Committee Report, October 1989	\$20
4.	<i>Fluorescence Microscopy Workshop Lecture Notes</i> , 1989 TSOP Meeting	Sold Out
5.	<i>Organic Geochemistry</i> , 2nd TSOP Meeting, Houston, TX, 1985; Vol. 11, No. 5, 1987	\$ 5
6.	<i>Organic Geochemistry</i> , 3rd TSOP Meeting, Lexington, KY, 1986; Vol. 12, No. 4, 1988	\$ 5
7.	<i>Organic Geochemistry</i> , 4th TSOP Meeting, San Francisco, CA, 1987; Vol. 14, No. 3, 1989	\$ 5
8.	<i>Organic Geochemistry</i> , 5th TSOP Meeting, Houston, TX, 1988; Vol. 17, No. 2, 1991	Sold Out
9.	<i>Organic Geochemistry</i> , 6th TSOP Meeting, Urbana, IL, 1989; Vol. 17, No. 4, 1991	\$10
10.	<i>Organic Geochemistry</i> , 7th TSOP Meeting, Calgary, Alberta, 1990; Vol. 18, No. 3, 1992	\$10
11.	<i>Organic Geochemistry</i> , 8th TSOP Meeting, Lexington, KY, 1991; Vol. 20, No. 2, 1993	\$10
12.	8th TSOP Meeting Field Trip Guidebook, Lexington, KY, 1991	\$ 5
13.	<i>Organic Geochemistry</i> , 10th TSOP Meeting, Norman, OK, 1993; Vol. 22, No. 1, 1994	\$10
14.	<i>Energy & Fuels</i> , ACS symposium on kerogen/macerals; Vol. 8, No. 6, 1994	\$10
15.	12th TSOP Meeting Field Trip Guidebook, The Woodlands, TX, 1995	\$ 5
16.	<i>Organic Geochemistry</i> , 11th TSOP Meeting, Jackson, WY, 1994; Vol. 24, No. 2, 1996	SALE \$20
17.	<i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997	SALE \$10
18.	IJCG, 13th TSOP Meeting, Carbondale, IL, 1996; Vol. 37, Nos. 1-2, 1998	Sold Out
19.	IJCG, Special Issue: Appalachian Coalbed Methane; Vol. 38, Nos. 1-2, 1998	\$20
20.	IJCG, 14th TSOP Meeting, Lexington, KY, 1997; Vol. 39, Nos. 1-3, 1999	\$25
21.	IJCG, Special Issue: Applied Topics in Coal Geology; Vol. 41, Nos. 1-2, 1999	Sold Out
22.	IJCG, 15th TSOP Meeting, Halifax, Nova Scotia, 1998; Vol. 43, Nos. 1-4, 2000	Sold Out
23.	IJCG, 16th TSOP Meeting, Snowbird, Utah, 1999; Vol. 46, Nos. 2-4, 2001	\$25
24.	IJCG, 17th TSOP Meeting, Bloomington, Indiana, 2000; Vol. 47, Nos. 3-4, 2001	\$25
25.	IJCG, 18th TSOP Meeting, Houston, Texas, 2002; Vol. 54, Nos. 1-2, 2003	\$30

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THE SOCIETY FOR ORGANIC PETROLOGY

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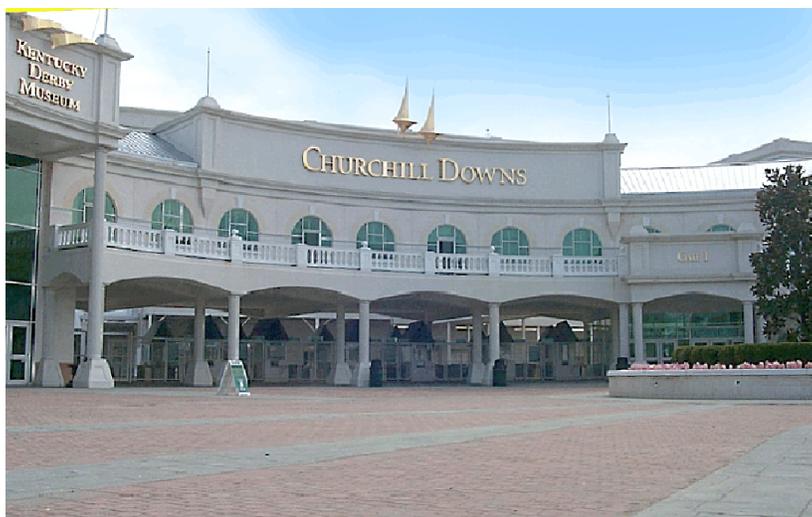
Louisville, Kentucky

**11 - 14 September,
2005**

22nd Annual Meeting of

The Society for Organic Petrology

from the 2005 Annual Meeting Committee



The Organizing Committee of the 22nd Annual TSOP meeting, to be held in Louisville, Kentucky, USA, on 11-14 September 2005, would like to invite you to submit an abstract for the meeting. The deadline for submission is 30 April 2005. For more details about the conference, including instructions for abstract submission, please see below, or the website <http://igs.indiana.edu/tsop2005/>

Registration forms will be e-mailed to members and placed on the meeting website in April. Members without Internet access may contact the organizers to request that printed copies be mailed to them.

Jim Hower
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Tel. (812) 855-9416
Fax (812) 855-2862
E-mail: mmastale@indiana.edu
<http://www.indiana.edu/~geosci/people/>

CALL FOR ABSTRACTS

*Abstracts should be submitted by
April 30*

Abstracts up to 3 pages (including figures) will be accepted. Leave 2 cm margins on both sides; use 1.5 line spacing and a 12-point Times New Roman font. The title of each abstract should be in 12-point bold and include names of the authors (12-point) and their affiliations (10-point). Figures in Abstracts should be suitable for black and white reproduction; colour figures may be acceptable (at additional cost) in full-length papers subsequently submitted to the International Journal of Coal Geology. After review and notification of acceptance authors will also be invited to submit their papers for a special issue of The International Journal of Coal Geology.

Abstracts may be submitted by post or e-mail (Word, WordPerfect). Please enclose a copy of your abstract on a diskette/CD if submitting by post. Indicate whether an oral or poster presentation is preferred.

Abstracts should be sent to

JIM HOWER at the address at left.

See page 12 for
**Student Paper Competition
Meeting Program**

2005 TSOP: A GAME PLAN FOR FUN IN LOUISVILLE, KENTUCKY

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Actor's Theater:	www.actorstheatre.org	(1 mile from Brown hotel)
Louisville Glassworks:	www.louisvilleglassworks.com	(1 mile from Brown hotel)
Louisville Ballet	www.louisvilleballet.org	(1 mile from Brown hotel)
Kentucky Center for the Arts:	www.kentuckycenter.org	(1 mile from Brown hotel)
Louisville Science Center:	www.louisvillescience.org	(1 mile from Brown hotel)
Louisville Slugger Museum:	www.sluggermuseum.org	(1 mile from Brown hotel)
Muhammad Ali Center	www.alicenter.org	(1 mile from Brown hotel)
Kentucky Museum of Art & Craft	www.kentuckyarts.org	(1.3 miles from Brown hotel)
Belle of Louisville	www.belleoflouisville.org	(2 miles from Brown hotel)
Speed Art Museum	www.speedmuseum.org	(2 miles from Brown hotel)

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502-581-0100 or online at
www.louisvillehorsetrams.com

OR for information on self-guided walking tours go to:
www.oldlouisville.com/



IF YOU WANT TO TRAVEL A BIT FARTHER IN A CAR...

Speed Art Museum	www.speedmuseum.org	(3 mi from Brown hotel)
Churchill Downs	www.churchilldowns.com	(4 mi from Brown hotel)
Kentucky Kingdom	www.sixflags.com	(5 mi from Brown hotel)
Louisville Zoo	www.louisvillezoo.org	(7 mi from Brown hotel)
BBC Brewing Co.	www.bbcbrew.com	
Jim Beam's American Outpost	502-543-9877	
Buffalo Crossing Family Fun Ranch	www.buffalocrossing.com	
My Old KY Dinner Train	www.kydinnertrain.com	
Maker's Mark Distillery	www.makersmark.com	
Mammoth Cave National Park	www.nps.gov/maca	

For a Kentucky map and a 2005 Travel Guide to KY, please go to www.kytravel.com

The Visitor Center Guide for Louisville may be accessed Online at:

www.gotolouisville.com/Pubs/VisitorGuide-Winter2003.pdf

We also encourage you to visit the TSOP website for information about the city of Louisville, the TSOP conference, and for featured activities in the region. The TSOP website for the 2005 meeting is:
<http://igs.indiana.edu/tsop2005/>

STUDENT PAPER COMPETITION

TSOP will hold its usual competition for Outstanding Student Paper at the 2005 meeting, with a **US\$ 250** prize. The paper may be presented either in an oral technical session or as a poster, and will be judged on both technical content and presentation / delivery. Requirements (from the Procedures Manual) are:

- The student should be a TSOP member in good standing.
- The subject presented must have been initiated by the student and completed while the presenter was a student.
- To be considered a student, a person should be actively enrolled at a college or university at the time of the presentation or have been enrolled within twelve months prior to the presentation. The student should be pursuing a college or university degree as his/her primary professional activity and not working in a professional capacity while pursuing a graduate degree at the same time.
- If a paper has multiple authors, the student must be the senior author and the presenter.
- The award will not be given unless a minimum of three student papers are presented. If none of the student papers meets a minimum standard, as determined by the Awards Committee, no award may be given.

2005 MEETING PROGRAM

Watch for details and updates in future issues or on the meeting web site
<http://igs.indiana.edu/tsop2005/>

SUNDAY September 11, 2005

CO₂ sequestration workshop (Time to be determined)

Field trip to the Falls of Ohio (noon-5 p.m.)

The Falls of the Ohio at Louisville, Kentucky is world famous for its fossil beds that expose a wide variety of Silurian and Devonian age strata. This trip will offer an excellent opportunity to observe these fossil beds via a walking tour through the state park. Fossils of Devonian and

Silurian marine life have attracted scientists to the Falls for well over a hundred years. More than 600 species of marine fossils have been identified at this location, and include corals, algae, brachiopods, snails, trilobites and primitive fish. Weather and logistics permitting, we will also visit a nearby quarry that will provide collecting opportunities of this rich fauna.

Opening reception and student icebreaker

MONDAY September 12

Technical sessions

Reception at the Louisville Slugger Museum

TUESDAY September 13, 2005

Technical sessions

WEDNESDAY September 14, 2005

Post-meeting trip to a coal mine 7:30 a.m. - 5:30 p.m.

This trip will examine outcrop and surface mine exposures of Lower and Middle Pennsylvanian strata (Langsettian – Bolsovian) on the eastern margin of the Illinois Basin. Outcrop exposures will highlight the nature and origin of Caseyville and Lower Tradewater Formation strata. Special emphasis will be placed on the origin of coal beds in this interval, using palynologic, petrographic and geochemical methods. Stratigraphic relationships with other areas, worldwide, will also be discussed.

Conference themes will include:

CO₂ sequestration
 coal utilization
 coalbed methane
 coal petrography
 organic geochemistry

A **symposium on dispersed organics** is being planned by Tom Algeo and Sue Rimmer.



History of Organic Geochemistry Additional Contributions Invited

Dear Colleagues,

As many of you are aware, the ACS Division of Geochemistry hosted a symposium on the History of Organic Geochemistry at the recent ACS meeting in San Diego. The symposium was very successful and greatly enjoyed by all who were able to participate. In order to ensure the symposium is also a means by which we preserve the history of our discipline, we have invited the symposium speakers to contribute to a special collection of papers on the History of Organic Geochemistry to be published in the Geochemistry Division's online journal, *Geochemical Transactions*. We hope that the collection of papers that will result from this symposium will be a unique reference, documenting the factors, forces, accomplishments, individuals and groups that have driven our science.

By assembling a collection contributed by many authors we also hope to ensure that as many points of view as possible are represented. To further that objective, we are also inviting contributions on this subject from other interested organic geochemists who, for various reasons, were not able to participate in the meeting itself. All of the papers will undergo peer review in the normal manner and if/when accepted will be published online in GT. We invite you to contribute to this collection to ensure that the widest possible range of perspectives on the history of our discipline are represented. Contributions in all areas of Organic Geochemistry are welcome. If you are interested in contributing to this special collection, please feel free to contact us and we will ensure that you receive all additional information as it becomes available.

(For those that have not previously published in an online publication, the process of preparation of manuscripts is not significantly different than preparation of manuscripts for conventional print

publication. Authors are, of course, free to take advantage of the opportunities afforded by online publication, such as unlimited use of color, photographs etc., but this is not required. No knowledge of HTML etc. is required, all of that is handled by the publisher. Further instructions for authors are available on the GT web site <http://gt.aip.org/> and additional information will also be provided for those who express an interest in contributing to this collection.)

Please freely forward this message to colleagues whom you feel may have an interest in this collection.

Sincerely,

R. Paul Philp and Ken B. Anderson

Symposium Organizers

pphilp@ou.edu

kanderson@geo.siu.edu

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Department of Geology

Southern Illinois University Carbondale

Carbondale, IL, 62901

Phone 618 453 7389

Fax 618 453 7393

The on-line journal *Geochemical Transactions* is a service of the Division of Geochemistry of the American Chemical Society. It covers "research in all areas of chemistry as it relates to materials and processes occurring in the Earth's hydrosphere and geosphere." Manuscripts are submitted via web site.

Some recent special issues have addressed ACS Division of Geochemistry symposia, and papers in honor of noted geochemists.

Full information may be found on the web site

<http://gt.aip.org/>

The Mystery of the Coaly Waif

by Alan Davis

With apologies to Sir Arthur Conan Doyle

1.

Dr Watson's third marriage and return to practice in 1902 had not given him much opportunity to see his old colleague; at the first opportunity he persuaded Holmes to accompany him to Teesdale for a few days. Watson had hoped that Holmes would go fishing with him but the renowned criminologist preferred to wander off and inspect the stables and orchards in the extensive grounds of the hotel where they were staying. On the second day Watson returned from Highcliffe Waters to find his colleague sitting outside the hotel smoking his pipe and lacking the listlessness that had been his demeanour of the previous day. "My dear friend," said Holmes, "The moment you suggested coming to this part of the country I realised that I might have an opportunity to take care of one of those loose threads that life presents to us. Do you remember that it was necessary for me to go into hiding in France in '93 and that during that time I was able to find employment doing research into coal tar derivatives?"

Watson remembered only too well; he had been grief-stricken for several years in the belief that Holmes had plunged to his death while fighting his nemesis Professor Moriarty. "Well, continued Holmes, "A patent that resulted from that work was eventually taken out by Teeside Coking and Chemical. They are located in Middlesbrough and tomorrow I am going to visit them to see what practical benefits my research has produced. It's encouraging to know that I have done some good in the world other than bring a sad collection of scoundrels to justice. It shouldn't take long to get there. Do you fancy coming with me?"

Watson dutifully accompanied his friend to the heart of one of the industrial centers of north-east Britain. The plant they visited consisted of grimy long brick and tall metal buildings and large towers with arrays of interconnecting piping. Smoke, flame and noise arose all around as a result of incredible human activity. Trains on sidings were unloading and

attaching tank cars. Watson followed Holmes and technical officers who described the plant operations. In most cases the noise was so loud and the descriptions so technical that he was left quite unenlightened.

Back at the main office Holmes was recognized by a stout, bowler-hatted man who introduced himself as Inspector Cocker, investigating a series of thefts at the plant. After few pleasantries which Holmes obviously did not welcome, Cocker asked if the detective would give his opinion regarding the discovery of a boy's body in a local quarry. Had it not been for some lads playing hide-and-seek in the brambles the body might have remained undiscovered for months. As it was it appeared that death had taken place very recently. The mystery was that no boy had been reported missing throughout Teeside and the adjacent parts of neighbouring Durham county.

Dr Watson could tell that Holmes was not thrilled at being asked to provide a free consultation on the basis of a chance encounter; the famous criminologist was used to charging handsome fees. But there was something intriguing in the story the Inspector had told and when he offered to drive the couple to the morgue which was nearby, Holmes nodded.

The boy's body was already laid out on a table, naked but with a sheet covering the lower half. In life he had been about ten years old and comely. His face and short fair hair were streaked with black. A coroner's assistant joined the party and pointed out an indentation at the back of the head. The blow which had given rise to a wound of this size would certainly have resulted in death. Holmes took up a measuring tape and exactly measured the dimensions of the indentation and probed the wound with his fingers. Cocker stated that the body had been found at the bottom of a drop of about 20 feet. There were marks on the body that indicated it had fallen onto some rocks.

“This indentation could not have been caused by a fall onto rocks,” said Holmes. “The murder weapon, for we are dealing with murder, was almost spherical in shape, two and a half inches in diameter. This child died from a massive blow to the head.”

“Poor little blighter,” put in Watson. The Inspector suggested that there might have been an intention on the part of the murderer to make it look like an accident, although strangely the boy had no shoes or boots.

“This suggests to me that the murderer was not thinking clearly and that the murder was not premeditated,” said Holmes. “He was sufficiently alert to know that mud on the shoes might provide a clue as to where the boy the boy had died, but not enough to think that young lads generally do not go wandering around without footwear.”

Holmes began an examination of the rest of the body. Watson had watched this kind of performance many times in their association and never ceased to be amazed at the speed and thoroughness with which his colleague conducted his investigation. There were several patterns of bruises on the boy’s legs, arms and back. Each bruise was unusual, almost serpentine and with repeated variation in the shade of purple. Holmes took measurements of the bruises and wrote them on a slip of paper. He moved on to the boy’s grimy hands, pointing out to the others how the fingernails were worn right down and the fingertips bore dried sores. The inspector suggested that the boy might have been involved in a fight or had been trying to escape confinement.

“Look here!” pointed out Holmes. “Under the nails which aren’t as badly worn, there’s black powder and particles that look like coal. Do you have a vial that I can put this in?” He carefully removed the particles with a spatula and scraped them into the inside of the vial he was offered by the assistant.

“What possibilities do we have for where he might have picked up the coal?” asked Holmes.

“This is one part of the country where we can come up with a more than a handful of suggestions regarding that,” replied the inspector. “We have the docks, and some lads find employment helping out

there in the yards where the coals are stockpiled for shipping. Quite a few are employed on the coal picking belts not too far away. Others do quite well picking sea coal along the coast near here, and some pick up coal along the railway lines to help out at home. We get quite a bit of coal pinched from the coke works and at the gas works too. And that’s all without considering the mines only ten or so miles away to the north and on up through the rest of the Durham coalfield ; some lads get work on the surface.”

“All those possibilities and only a few grains of coal,” muttered Holmes. “This is going to be a tough one. Now can we see the clothes?” he asked. The assistant lifted up a pitiful bundle of clothing on top of which was the boy’s cap. Holmes inspected each item minutely but his concentration became fixed on the dirty jacket. He tilted it one way and another under the single light bulb in the ceiling. The front of the jacket was coated in a brownish slime. “Some parts look reddish under the light,” noted Homes. “Yet around the edge it looks distinctly green.” He took up the spatula again and carefully scraped the mud from different parts of the jacket, trying to separately collect the reddish and green areas. He also was able to collect more grains of coal from the jacket cuffs.

“Some years ago we were caught up in some villainy that originated in the coal valleys of Pennsylvania,” Holmes reminded Watson. “We have something more home grown this time.”

The detective turned the boy’s pitiful socks inside out and carefully removed something with the end of a pencil; the others closed in and could see that it was a tiny transparent object. “A fish scale,” said Holmes pulling a magnifying glass from an inside pocket and then after a pause added “Herring.” Watson smiled at yet another example of Holmes’ amazing knowledge. “It remains to be seen if this has any significance regarding his death,” said Holmes, “but in any case one has wonder how he could manage to pick up a fish scale as well as the coal.”

They prepared to take their leave and Holmes informed inspector that they would be returning to London the following day and that he would be in touch if he was able to throw any light on where the boy had come from.

2.

Arriving at St Pancras Holmes summoned a hansom and instructed the cabbie to take them directly to Gower Street. Watson realized immediately that the destination was University College, though he was totally at a loss to conceive who there was to be called upon to assist Holmes.

As they entered the foyer of the institute of learning they were met by a gaze from the mortal remains of Jeremy Bentham, philosopher. Holmes asked for directions from the porter who emerged from a cubicle not much bigger than the cabinet holding Bentham's effigy. They left their luggage with the porter who warned them that it was close to the end of term and examinations were in progress; not many people were going to be found. They walked through corridors and up broad staircases, passing no-one, their footsteps ringing out loudly in the deserted building. Eventually the corridors became lined with cabinets containing fossils and minerals, and large slabs and blocks of rock were displayed against the walls of clearly what was the geology department. Holmes had been checking the numbers of the rooms and called out "Ha" when found what he was searching for.

The laboratory they entered had benches across its width and around the perimeter. Trays of rocks were spread out on some of the benches and several microscopes and lamps were set up. A few students were working individually but a group was concentrated around the only female student in the room. She was sitting at a microscope with her back to the door. One by one the students became aware of the pair standing in the doorway. The young woman was the last to sense this intrusion but when she turned and saw who was there she stood and hurried straight to them. Watson saw her to be in her early twenties dressed in a white long-sleeved blouse and ankle-length black skirt. Black hair framed her face which was smiling in recognition of Holmes whom she greeted enthusiastically. Watson detected a faint Scottish accent to her speech. The intensity of the woman's eyes was immediately apparent to the doctor; they were certainly disconcerting but also suggested an openness and warmth that easily overcame his first impression.

"Miss Carmichael," said Holmes, "I would like you to meet my colleague and old friend Dr John Watson. John, this is Miss Marie Carmichael. We have met on a few occasions at the rooms of the Geological Society. Miss Carmichael is just finishing her Bachelor's degree here at University College and has been making a special study of fossil plants and coal. In fact, I understand that she hopes to go on to study paleobotany at the University of Munich.

Holmes came straight to the point, telling Miss Carmichael the nature of their investigation. He explained how a body had been found in a location where there were multiple possible sources for coal found on a dead boy. Producing the vial of coal particles, he asked "I was wondering, on the basis of what you have told me concerning the nature of coal, is it possible to deduce the source of a coal by the kind of examination you have described to me? After all, several crimes have been solved by identifying the kind and source of soil on a person's boots."

Miss Carmichael took the vial over to one of the microscope lamps for illumination. She shook some of the particles onto a filter paper and sighed. "Much of this is almost dust. The larger particles might have come from the bright bands we see in coal. You know, Mr Holmes, there is no terminology to describe the components of coal in the same way that there is for the inorganic rocks. The brightness of this kind of particle varies according to geologic setting; maybe I can take a look into that. Also, I can try to make a thin section out of these particles, although that will be something of a headache. If I am successful, the microscopic composition may enable me to say something concerning the source. I will try to have something for you one way or the other within couple of days Mr Holmes."

"I'm sorry to take you away from your group of admirers," said Holmes.

Miss Carmichael grimaced very slightly. "Really" she said, "I can't think what on earth they are interested in."

Back outside the college, Holmes secured a hansom to take them to Queen Anne Street where the married

Watson now lived. For some time Holmes sat in silence, his head sunk onto his chest. Finally he spoke. "You know, Watson, that from an early age, I have not sought the company of women except in the course of an enquiry. I have always been of the opinion that romantic and domestic relationships detract from one's ability to let one's thought processes operate unimpeded by interruption and diversion. I don't mean to be insulting - after all, you are now married for the third time and I can see that you are the better man for it. But my life has been devoted to solving crime and bringing the perpetrators of crime to justice. I have had to accept what that means in terms of the possibility of relationships to women. Moreover, to be blunt, I have not found women to be all that appealing anyway, probably because I have seldom encountered any whose intellect is a match for my own. For me, that is important. You would have noticed that I said 'seldom' and not 'never.' There was 'the woman,' you remember. When I found myself drawn to her, it was the first time in my life that I had experienced such feelings and even then the attraction was intellectual. In any case, as you know, she was already spoken for and was an adventuress. Not the sort of lady a lifetime fighter of crime should want to associate with."

Watson muttered two words of understanding, "Irene Adler," but tactfully declined to comment further.

As the cab drew up to Watson's residence Holmes said "I have to say Miss Carmichael is unique. And we have a special bond in that I try to solve mysteries of the present day and she solves those over a great span of time. It seems to me that we hit it off. But here am I contemplating retirement and she is just launching into what is bound to be an illustrious and fascinating career. Nevertheless I have to admit to you old friend that if I was even ten years younger I would have no hesitation in seeking to develop a relationship with her." Watson patted his friend on the shoulder and bade him good night. He had barely alighted when Holmes signaled the cabbie to drive on.

Inside his lodgings at Baker Street, Holmes threw down his baggage and overcoat and went straight to the table that served as a work bench for his

experiments and cleared the cluttered and scarred surface with a quick brush of his arm. He set out the vials containing the muddy material that he had scraped from the dead boy's clothes and transferred the contents of one into a test tube. He added water to the tube, shook it and peered at the contents as they swirled and settled. After a while he placed the tube in a rack, went to his armchair, sat, took tobacco from his slipper, lit his pipe and closed his eyes.

Late the next morning Holmes was still in his dressing gown when there was a knock on the door and Watson entered. "Just in time Watson," said Holmes; "I've been playing with the muds from the boy's clothes to see if I can separate out what appear to be distinct red and green components. By slurring the muds, allowing them to settle into layers, decanting, separating the layers and then repeating the process to obtain purer materials I've been able to get these." He showed Watson a definite green powder and another which was an earthy red. These along with products of intermediate separations were in the process of drying out on small filter papers. Holmes drew a Bunsen burner to the fore.

There was another tap on the door eliciting an impatient curse from Holmes. Mrs Hudson stuck her head around the door and announced Miss Carmichael. Holmes was surprised and overjoyed. "Don't say you have some information for me already?" he exclaimed. "What about your exams?"

"This was just too intriguing," said Miss Carmichael. "My last exam is this afternoon and I am quite confident that I am more than adequately prepared." She pulled a small wooden case from her purse and from that drew out a glass slide. "I knew that you had a microscope," she said, nodding towards the tall brass device at the back of the table where Holmes had so recently thrust it. "So I brought this over before I even put a cover slip on it."

Holmes examined the slide and could see that several of the larger particles from the vial he had presented to Miss Carmichael had been embedded together and ground to the point of transparency. Held up to the light the particles were chestnut in colour, some paler around the edges. Holmes set up the microscope. "This is my other Watson," he joked.

“Not as reliable, but generally more instructive.” He slipped the slide under the clips on the microscope stage and after focusing and adjusting the illumination made way for Miss Carmichael.

“The orange-yellow material represents longitudinal and tangential sections of the coalified xylem of a conifer similar to *Araucaria*, the monkey puzzle tree” said the lady student. “You will see some darker cell fillings of ray parenchyma. This is not your common or garden coal; it’s jet.”

“Marvelous,” said Holmes, shaking her hand and then looking down the microscope, “You have succeeded in not just narrowing our investigation, but have come close to pin-pointing it. I think I told you that I have had some success as a coal chemist but it seems that the coal chemist can be taught a thing or two by the coal petrologist?”

“It’s the first time I’ve heard that term used,” responded Miss Carmichael.

Holmes continued, “Tomorrow, Watson, if you are free, we should make tracks for Whitby. Have you ever been there?” Watson replied in the negative. Holmes said “Nor I. Miss Carmichael, botany and geology are not my strong points. You have been our champion there. Now let us see what the poor chemist can do.” With that Holmes returned his Bunsen burner to the center of the table and lit it. He found a platinum wire, heated the looped end and dipped it into a white powder in an open jar. This he heated also and dipped the molten bead into the green powder he had concentrated. Then with the aid of a blowpipe he reheated the bead with an uninterrupted blast of flame. After examining the bead he seemed to be satisfied. “You have to keep your cheeks filled and breathe through the nose Watson, just as in playing the mouth organ or didgeridoo.” He re-heated the bead, but this time held the blowpipe outside instead of inside the Bunsen flame. Again he examined the bead and, again satisfied, held it up for the student’s inspection. It was emerald green in colour. “You should know this Miss Carmichael. The oxidising flame was a yellower green. What do you think we have here?”

“Chromium,” she replied promptly and added with

the hint of a smile “That was elementary. I hope my exam this afternoon will be as easy as this.”

Holmes turned his attention to the red powder. When he withdrew its bead from the oxidising flame it was yellow but faded to colourless as it cooled. After heating with the reducing flame the bead was bottle green. The student’s answer of “Iron” in this case met with Holmes concurrence. “I had suspected that this might be jewelers’ rouge,” he said quietly.

Miss Carmichael looked beseechingly at the detective. “Won’t you please let me come to Whitby with you.” she begged. “I’ll be on my way to Edinburgh as soon as exams are over. Whitby is on the way. And it seems as if you might need the advice of a botanist or geologist.”

Holmes turned the notion over in his mind but Watson could see already that the idea was appealing to him. “Alright,” Holmes said, “But no boots. I don’t want you looking like as if you are on a botanical field trip. Dress as if you are a young lady of some position in society. And you Watson, dress to match. We’ll catch the first train from St Pancras tomorrow. We’re off to the seaside.” With that he swung back to the microscope.”

“What’s all this about,” said Miss Carmichael to the doctor.

“Don’t ask,” replied Watson, and mixing his foreign phrases added “He likes to drag out his *denouements ad nauseum*.”

Read the conclusion of
The Mystery of the Coaly Waif
in our next issue.



Calendar of Events

2005

April 11 - 15, 2005: World of Coal Ash, Lexington, Kentucky, USA. <http://www.worldofcoalah.org>

April 24 - 29, 2005: European Geosciences Union 2nd General Assembly, Vienna, Austria. Including session BG2.04 on *Organic-geochemical biomarkers in living material, particulate matter, and sediments - their potential as proxies*.

April 24 - 26, 2005: Williston Basin Petroleum Conference, Regina, Saskatchewan, Canada, by the North Dakota Geological Survey, Saskatchewan Industry and Resources, and North Dakota Oil & Gas Division. <http://www.ir.gov.sk.ca/willistonbasin>

May 20 - 25, 2005: 15th Annual Goldschmidt Meeting, Moscow, Idaho, USA. Including Special Session 59, *Organic-Inorganic Interactions in Petroleum Hydrocarbon Systems*.
<http://www.the-conference.com/2005/gold2005/index.php>

June 19 - 25, 2005: AAPG Convention, Calgary, Alberta, Canada. <http://www.aapg.org/calgary/>

August 28 - Sept. 1, 2005: American Chemical Society Meeting, Washington, DC

Sept. 11 - 14, 2005: 22nd Annual **TSOP** Meeting, Louisville, Kentucky, USA. See page 10.

Sept. 12 - 16, 2005: 22nd International Meeting on Organic Geochemistry (IMOG), Sevilla, Spain.
<http://www.eaog.org/meetings/meetings.html>
<http://www.imog05.org>

Sept. 18-20, 2005: Eastern Section, AAPG, Radisson Hotel at Waterfront Place, Morgantown, WV, USA, by the Eastern Section, AAPG. (Katharine Lee Avary, WV Geological Survey, Phone: 304/594-2331 FAX: 304/594-2575 EMail: avary@geosrv.wvnet.edu Web: <http://karl.nrcce.wvu.edu/esaapg/>)

Sept. 18 - 23, 2005: 57th Annual Meeting of **ICCP**. Patras, Greece. Followed by a three-day excursion. <http://www.iccop.org/pdf/PatrasInfo.pdf>

Oct. 16 - 19, 2005: Geological Society of America Annual Meeting, Salt Lake City.

2006

March 26 - 30, 2006: 231st American Chemical Society meeting, Atlanta, Georgia

Sept. 10 - 14, 2006: 232nd American Chemical Society meeting, San Francisco, California

Sept. 15 - 22, 2006: 23rd Annual **TSOP** Meeting, Beijing, China.

2006 TSOP Meeting, Beijing, China September 15 - 22

The 23rd Annual Meeting of TSOP will be held at the Xijiao Hotel, in the western part of Beijing. It is adjacent to many universities, including China University of Mining and Technology (Beijing) (CUMT), which will be the host organization and sponsor the meeting.

Key Conference Themes:

1. Organic petrology and geochemistry of non-marine source rocks;
2. Coal-derived hydrocarbons (coal-derived oil, unconventional natural gas and coalbed methane) exploration and development;
3. Coal petrology, coal-measure sedimentology and the hazardous elements in coal related to the environment and human health;
4. Organic petrology in coal mine security and coal utilization: mine fire, gas burst, coal slurry and other less-conventional utilization technologies;
5. New techniques in organic petrology/geochemistry.

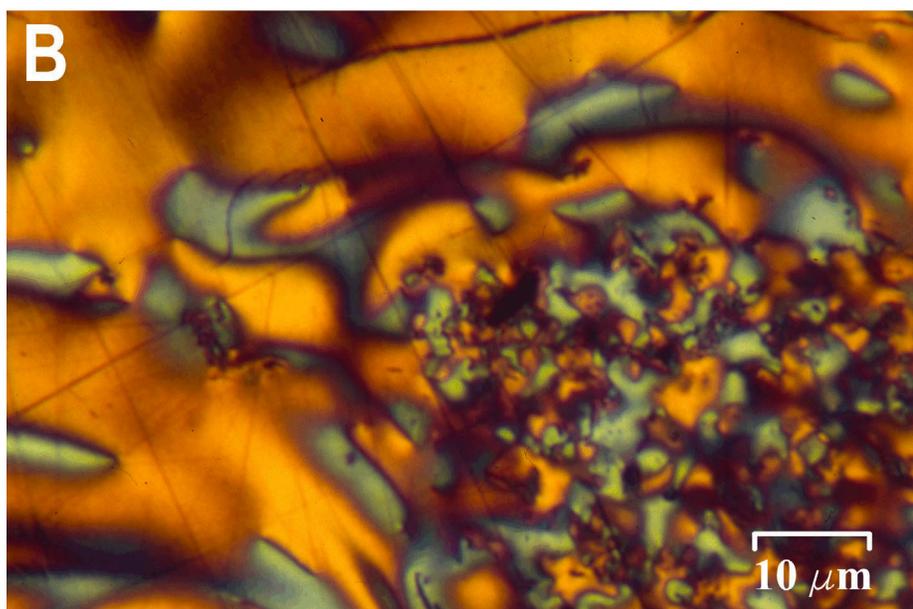
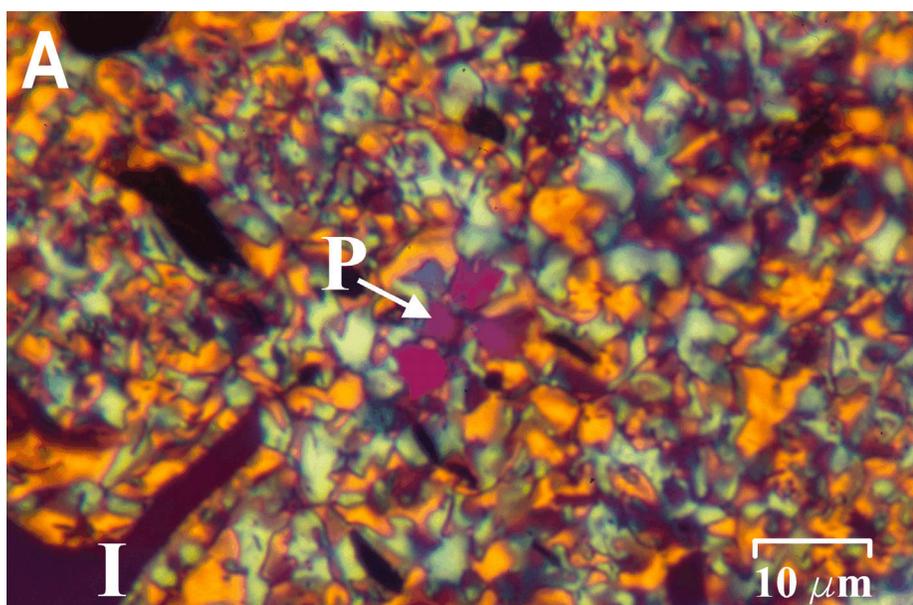
See the TSOP web site for updates

www.tsop.org

The Nature of Delayed Coke Using Petroleum Residua - Coal Blends

by Gareth Mitchell

Penn State has been working for more than a decade on the development of an advanced, thermally stable, coal-based jet fuel, JP-900. Currently work centers on several process routes to JP-900 including the addition of coal to a delayed coker. Because a refinery does not operate primarily for the production of jet fuel, determining the influence of coal-based materials on other refinery products, like coke, is necessary. Using a laboratory scale unit, blends of hot (440 C) decant oil and coal are pumped into the bottom of a heated cylindrical reaction chamber over a 6 hour period and allowed to coke. Deeply cleaned high volatile A bituminous coking coals that generally develop 1 – 2 micron diameter circular coke textures are blended with the highly aromatic residua from a catalytic cracking unit that typically generates isochromatic carbon textures in excess of 100 microns, i.e., needle coke.



As illustrated by the two photomicrographs (80 microns wide), a number of observations can be made by dissecting the 45 cm long, 8 cm diameter coke artifact generated from the coker. Even though the coal and decant oil are fluid at the same time, the higher viscosity of the coal particles causes their agglomeration and concentration in the lower 20 cm of the coke artifact. However, the size of the isochromatic textures derived principally from coal are enhanced during co-coking. Photograph A illustrates an area of carbon from between 1-2 cm from the coker inlet with 4-6 micron textures containing pyrrhotite (P, remnants of coal pyrite) and inertinite (I). From the 24-25 cm interval above the inlet, coke textures are large and predominantly derived from decant oil as compared with the edge of a remnant, small-size coal particle illustrated in the lower right quadrant of photograph B. Efforts continue to improve coal cleanliness, decant oil/coal homogenization, and the development of a uniform coke artifact. *