



THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

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Scenes from TSOP-Halifax, 1998

The 15th Annual Meeting of TSOP, Halifax, Nova Scotia, Canada, July 26-30, 1998

Call For Papers! TSOP 1999
Snowbird, Salt Lake City, UT

The TSOP Newsletter

John C. Crelling / William W. Huggett
Co-editors

The *TSOP Newsletter* welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail file or as printed text via fax or regular mail. We do ask that any disk or e-mail file be written in **WordPerfect 6.1, 7, or 8.**

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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 international and is open to all individuals having an interest in the field of organic petrology. For more information on membership, Society activities, or to acquire membership packs, please call or write:

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Don't forget to check out TSOP's
WEBSITE!

www.tsop.org

You'll find the TSOP discussion forum, links to other related sites, schedules, dates, meeting updates, and tons of other useful information!

TSOP Archives

Now open for business!!

The official TSOP archival collection is now available for your use.

The collection contains all of the society's newsletters, publications, programs, field guides, short course notes, Research Committee reports, minutes of Council meetings, and member directories.

Photocopies of desired materials will be provided at a cost immediately upon approval of your request form. Sorry, but no copies of publications which are currently for sale by TSOP can be provided. Please make all inquires to:

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The 1998-99 TSOP Council

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TSOP Mugs for sale!

Help support TSOP activities and get an elegant, sporty and downright nifty genuine Louisville Stoneware mug for your coffee, tea or hot chocolate. At only \$10 these mugs are a terrific buy, and they make wonderful gifts too. Be sure to buy several, mugs get lonely too. To order please contact:

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Unsolicited endorsement #47 from a satisfied TSOP mug owner:

"Ever since my mug arrived on August 16, 1996, I have become a more productive person. With my mug by my side I am now able to write more effective proposals. My blood pressure and cholesterol have also gone down."

Going to a Meeting?

Why not spread the TSOP message?

A limited number of recent back issues of the *TSOP Newsletter* are available for members to take to conferences they are going to attend. Membership packs and application forms are also available for distribution to interested parties. TSOP is an all-volunteer organization that relies on an active growing membership base in order to remain healthy. Only through the efforts of all of its members can TSOP continue to meet its membership goals. If you are interested in promoting TSOP and need some handouts please contact the following individuals:

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Acknowledgment

The editors wish to acknowledge the support of John Mead, Director of the Coal Research Center at SIUC, and his staff for assistance in editing and printing this newsletter.



^Attention^

Deadline for June issue is

MAY 1



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The Society For Organic Petrology 16th Annual Meeting in Salt Lake City Utah

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President's Letter

Charles E. Barker

I believe that TSOP and organic petrology are at a crossroad. The critical choices facing organic petrology are indicated by recent events like Penn State dropping its coal petrography course of study, the GSA Coal Geology Division Medlin scholarship had no applicants last year and that few students attended our meetings. Our own membership may significantly decline this year. Without greater interest, the widespread practice of organic petrology could disappear within this generation.

To address these issues, I would like for you to provide me with your thoughts on possible future directions for our Society.

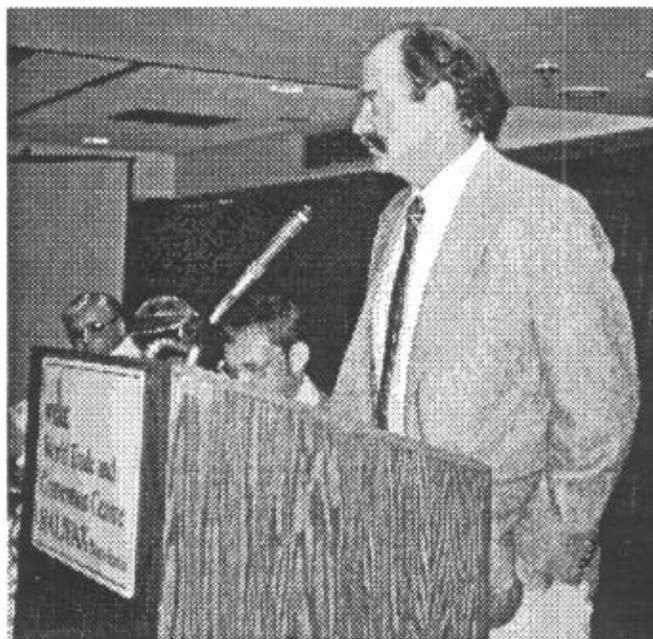
My thoughts are that it may be time for us to consider ways for TSOP to evolve, to avoid the general decline that seems to be taking place in ours and other organic petrology related organizations. The path I personally envisage is increasing cooperation with international organizations. We have already had joint meetings in North America with CSOP, ICCP and AAPG-EMD. In the near term, we are holding a joint meeting in Canada with CSCOP in 2001.

Yet, to truly be an international organization, we need to participate in meetings overseas as well as in North America. At this time, because our financial resources as a Society are limited, it does not seem possible to hold an independent TSOP annual meeting overseas. The obvious alternative is to hold technical sessions and field trips in conjunction with other petrography groups.

We also need to reduce the the duplication of effort in organic petrology, a Field having such a focused area of endeavor. In North America alone, we have TSOP, CSCOP, GSA Coal Geology Division, AAPG EMD, the USGS energy team sessions at the Pittsburgh coal conference and SME coal conferences. Such division of efforts will inevitably cause us all to remain small organizations with limited endowments, impact and cross-fertilization. What if TSOP and these related groups combined under one umbrella organic petrology organization as the world's organic geochemists are proposing to do? Under this umbrella we could have a formal mechanism for promoting joint sessions, such as we do on an informal basis now. Informal mechanisms are adequate, as long as we do not miss an opportunity to advance organic petrography.

Perhaps it's time to give up some of our autonomy for a greater impact in the world of science and possibly save the future of organic petrology as an academic discipline. We need to continue to address these issues beyond the boundaries of each organic petrology oriented society if we are to continue to be a viable discipline.

Charles E. Barker



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Cliff Lodge Snowbird Conference Center



**Site of the September 26-28 1999 TSOP
Annual Meeting**

Call For Papers!

TSOP '99 **SALT LAKE CITY, UTAH**

The Society for Organic Petrology
16th Annual Meeting, September 26-28, 1999

Please join our mountain rendezvous to swap research results, hear what your colleagues have been working on, and meet new friends who think about organic matter in rocks.

MEETING LOCATION

The 16th annual TSOP meeting will be held at the Cliff Lodge, Snowbird Conference Center, 45 minutes from Salt Lake City, International Airport. Airport shuttle service to and from the convention center is available.

The Cliff Lodge, Snowbird Conference Center is nestled between two 11,000 foot mountains in Little Cottonwood Canyon. The full-service conference center has restaurants, pubs, heated pools, spas and shops, all surrounded by the Wasatch-Cache National Forest.

Salt Lake City's central location to many of the west's scenic wonders makes pre- or post-meeting travel and recreation attractive and affordable. Salt Lake City also offers the Utah Symphony, Utah Opera, Utah Ballet, Repertory Dance Theater, and Pioneer Theater Company. In addition it is the world headquarters of the Church of Jesus Christ of Latter-day Saints. Tours of the church's temple grounds are possible as are visits to the Salt Lake City Family History Library (request a genealogical research package in advance for this self-guided activity).

PROGRAM

Sunday, September 26

Pre-meeting workshop:

Organic matter characterization by optical and molecular methods - Tools for the next millennium.

Instructor: R.V. Tyson

This workshop will include lecture and laboratory demonstration at the Energy and Geosciences Institute (EGI) at Research Park, University of Utah. (30-40 minute drive from Snowbird Resort)

Dr. Richard V. Tyson - Lecturer in Organic Petrology and Palynology at the University of Newcastle, UK and the sole author of a recent book (1995) "Sedimentary Organic Matter - Organic facies and Palynofacies" from Chapman & Hall. His research interests are palynofacies, organic facies, organic petrology, oxygen deficient environments and the origin of petroleum source rocks.

Evening Registration

Icebreaker Reception

Monday, September 27

Morning Registration

Poster / Technical Sessions

Theme: **Organic Matter Characterization by Optical and Molecular Methods - Tools for the next Millennium**

Monday's sessions will follow the pre-meeting workshop theme.

Group Photograph

Evening Dinner

Tuesday, September 28

Poster / Technical Sessions

Afternoon Luncheon

Wednesday & Thursday, September 29, 30

Post-meeting field trip: Uinta Basin rocks and hydrocarbons (asphalt, native bitumen, Green River Formation). Utah coalfields, (depositional systems, briquette manufacture, oil from coal).

CALL FOR PAPERS!

Meeting organizers are seeking oral presentations and posters on all topics related to organic petrology. Possible themes include: biomarkers, organic petrology of source rocks, reservoir bitumens, coal/kerogen petrology, environmental topics, industrial processes, and geographic information systems for organic petrology.

Abstracts due by June 1, 1999

ORAL AND POSTER PRESENTATIONS

Twenty minute oral presentations and extended poster sessions are scheduled for Monday, September 27 and Tuesday, September 28. Standard audiovisual support will be provided.

Specialized AV needs such as computer and videotape projectors should be discussed with the meeting organizers. **Abstracts are due June 1, 1999.** Submission of both paper copy and electronic format and is preferred. If you plan to present a technical paper or poster, please submit you proposed title on the expression of interest form included below.

In addition to the general papers, contributions on the following topics will be encouraged:

Coal Source Hydrocarbons: At least four oil seeps in coal mines in the Book Cliffs coalfield (oil resembling terrestrial oil from southeast Asia) and the recently developed, and nearby, Drunkards Wash CBM field suggests local interest in these topics.

Resinite in Coal: Efforts are underway to retrieve Utah's coal resinite industry - the occurrences of abundant bicadinanes in the oil seeps mentioned above suggest some crossover with the oil industry whereas papers on the biological origin and thermal maturation of resins should relate to current research on beneficiation techniques to isolate resin from Utah coals.

Bitumens: Papers on this topic will relate nicely to the post meeting field trip.

Organic Petrology and Global Warming: What can the organic petrologist do to understand the carbon cycle? We should work towards providing scientific data to allow informed public policy

Full manuscripts of research presented at the meeting are due December 1, 1999 and will be published in the International Journal of Geology.

Expression of Interest Form

If you plan to attend the meeting at Snowbird, want to present an oral or poster presentation, or just want to receive more information please fill out the form below and mail or fax it to:

**Jeff Quick Utah Geological Survey, 1594 West North Temple,
Suite 3100, Salt Lake City, Utah 84114, Fax: (801) 537-3400, e-mail:
nrugs.jquick@state.ut.us**

I Will • or may • attend

Name _____

Affiliation _____

Address _____

Phone _____

Fax _____

E-mail _____

I will • may • or will not • be able to present a talk or poster session.

Tentative title of my talk or poster:

Co-author's name, address, phone:

Are you interested in the field trip on Wednesday and Thursday?

Yes • No •

TSOP Research Committee Student Grants Program

Purpose: The Society for Organic Petrology (TSOP) Student Grants will help foster research in organic petrology (which includes coal petrology, kerogen petrology, organic geochemistry and related disciplines) by providing support to graduate students from around the world, who demonstrate the application of organic petrological concepts to research problems.

Grant Size: Monetary awards up to a maximum of \$1,000.00 will be granted. TSOP will also provide Merit Awards, in the form of certificates redeemable for TSOP publications, for top-ranking applicants not receiving grants. The program will be initiated with a maximum of two grants each year.

Use of Grant: Grants are to be applied to expenses directly related to the student's thesis work, such as summer fieldwork, laboratory analyses, etc. A portion (not to exceed 25%) of the funds may be used to attend TSOP Annual Meetings. Funds should not be used to purchase capital equipment, to pay salaries, tuition, room, or board during the school year. Funds must be spent within 18 months of receipt of the award.

Review and Evaluation Criteria: Three TSOP Research Committee members and/or TSOP Council members (and/or external experts when needed) will review each TSOP Student Grants application. Each reviewer will use the "application evaluation form" to score each application assigned to them, the cumulative score will be used to rank all of the applications. Proposals will be evaluated on the basis of scientific merit. Factors weighed in selection of successful applicants include: qualifications of the applicant as indicated by past performance, originality and research potential of the proposed project, support of the department in which the work is being done, and perceived significance of the project to organic petrology. At the conclusion of the research project, the awardees are required to publish an extended abstract in the TSOP Newsletter and will be encouraged to present their results at the TSOP Annual Meeting.

Eligibility: The TSOP Grant Program focuses on support of qualified candidates for masters or equivalent degrees. Qualified doctoral candidates with expenses beyond the

usual scope of funding by other agencies are also encouraged to apply. Only one grant will be awarded per proposal, with the possibility of one-year extensions awarded only in very special circumstances.

Application forms are available to all interested parties via the TSOP web page at: **www.TSOP.org** or by fax or mail. Please send your request to:

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Attach a copy of your college academic transcripts. (If your college does not issue transcripts, attach a signed statement from your professor commenting on your academic credentials.)

Obtain endorsements as indicated in PART 4 of the form. If your college department does not have an official stamp, attach a statement on department letterhead, signed by the department chairman, identifying you as a currently enrolled student of that school.

Mail or fax application form to:

TSOP Research Committee Student Grants
Program
c/o C. L Thompson-Rizer, Chairperson
Conoco Inc. PR 3072
P.O. Box 2197
Houston, TX 77252-2197 USA
FAX 281-293-3833

4) Applications are due by March 31. Grants will be announced in September of the same year with money (checks or bank transfers) available at that time. Announcements will be made in the TSOP Newsletter and at the TSOP Annual Meeting. The abstracts of the successful proposal(s) will be published in the TSOP Newsletter. All applicants will be informed by mail of the status of their applications.

American Chemical Society Symposium on Microscopic Studies of Coal and Carbon

Ilham Demir

Illinois State Geological Survey

A symposium on Microscopic Studies of Coal and Carbon was held at the American Chemical Society National Meeting, Boston, MA, August 23-27, 1998. The symposium presentations included the results of studies related to not only the use of microscopy but also other analytical techniques for understanding the microscopic and molecular structure of coal and carbon. Twelve out of sixteen papers that were submitted for inclusion in the symposium volume were orally presented at three separate sessions organized and chaired by Ilham Demir and Anthony A. Lizzio.

D. L. Wertz (University of Southern Mississippi) demonstrated the use of x-ray methods for measuring the short-range structural units in coal at the molecular level. Change in intra and inter molecular C-C distances with increasing coal rank were calculated. Application of the x-ray method that has traditionally been used for studying crystalline inorganic matter to characterize molecular structure of organic matter appeared to be an important accomplishment.

J. K. Verkade (Iowa State University) used the treatment of coal with a P compound followed by NMR analysis to differentiate types of moisture (freezable-bulk moisture and nonfreezable-pore moisture) in coal. He also explored the use of tributyl phosphine to remove organic sulfur from coal by taking advantage of the thermodynamically favored P=S bond. Although the process is successful in transferring S from coal to the P reagent, rigorous washing with different chemicals is required to separate the S-removing reagent from coal, making the process uneconomical.

P. Painter (Penn State University) challenged the past data on the solubility of coal in mixed solvents. He indicated that strong osmotic forces exerted by solvents on the coal gel appears to lead to fracture. As a result microscopic particles broken off from the samples were erroneously counted as true solutions in some past studies.

E. W. Hagaman (Oak Ridge National Laboratory) reported on the effect of the standard coal demineralization procedure of Bishop and Wand (consecutive exposure of the ground coal to 5N HCl, 48% HF, and 12N HCl, for 45-minute periods at 60°C) on the organic matter of coal. A lignin sample was used as a coal surrogate in the experiments, and the material characterization was accomplished through the use of NMR spectroscopy. The results indicated that the demineralization procedure causes polymerization by generating 1-2 cross-links per 100 C, thus making the organic material more refractory. Half of the cross linking occurred in 48% HF wash and half in the 12N HCl wash.

J. Crelling (Southern Illinois University) reviewed the application of optical microscopy to areas dealing with cokes, pitches, anode pastes, calcined/graphitized carbon, vapor carbon deposition, activated carbon, carbon fiber/carbon-carbon-composites, automobile and airplane brakes, coal combustion, blast furnace injection of coal, surface coal recovery, and forensic geology and archaeology. Optical microscopy yields information about the size and shape of coal and carbon and their association with other materials. It also enables quantitative measurements of the reflectance, anisotropy in polarized light, fluorescence, and response to etching and staining of the organic matter.

P. Rahimi (National Center for Upgrading Technology, Canada) examined the effect of minerals on the growth and coalescence of mesophase during the thermal hydrocracking of Athabasca bitumen vacuum bottoms using hot-stage microscopy. The addition of kaolinite hindered the mesophase growth rate while the addition of illite and montmorillonite did not. The reason for this observed difference was not evident from the data presented.

T. Gentzis (National Center for Upgrading Technology, Canada) investigated coker furnace foulants that form during commercial operations to convert Athabasca bitumen to synthetic crude oil. Temperature profile around the furnace tube walls was a very important factor for the types of foulants that formed. For example, the dominance of Fe-sulfide formation right on the tube wall resulted from the decomposition and reaction of soluble Fe-naphthenates or similar organics with H₂S from the heavy oil because higher temperature at the tube skin generates the greatest concentration of H₂S.

R. Menendez (Instituto del Carbon, Spain) demonstrated the use of optical microscopy for helping to understand pitch conversion to carbon materials and their potential applications. Polarized light, hot-stage microscopy yielded information on the development of mesophase (a liquid crystal stage formed by the polymerization of pitch components) which controls the structure of resulting carbon materials. In addition, the microscopy was used to determine the microstructural features (size, shape, orientation) of carbon materials obtained from the pitches.

R. B. Clarkson (University of Illinois) reported on the development of carbon char microparticles as paramagnetic sensors for the measurement of oxygen levels mainly in living tissues. Because the biological environment is aqueous and water interactions can affect oxygen sensitivity as well as chemical stability and toxicity, he first studied water interactions at the surface and porous structure of carbon char particles, using electron paramagnetic resonance, nuclear magnetic resonance, and dynamic nuclear polarization methods. The results were interpreted to indicate that the water-char particle interaction involved the overlap of unpaired electrons between the particle surface and water protons.

A. Tomita (Tohoku University, Japan) discussed the transformation of the crystallinity in coal char particles during high temperature gasification using transmission electron microscope (TEM) and x-ray diffraction (XRD). The authors developed an algorithm to extract information on the degree of orientation and the distribution of stack and size of the carbon particles from the TEM image. The information obtained by TEM analysis was different from the information obtained by the XRD analysis. One likely reason given for this observation was the inclusion of the mineral matter effect in the XRD analysis but not in the TEM analysis.

R. Hurt (Brown University) also used TEM to obtain quantitative features of carbon crystalline transformations of coal and bio-mass derived chars from high temperature combustion environments. A new algorithm was developed for **digital** analyses of fringe images to quantify changes in crystal structure between precursors and as a function of combustion residence time. Orientational orders in the graphene layers with respect to length (short/long range) and type (radial/concentric/nematic order) were determined.

P. Le Cloirec (Ecole des Mines de Nantes, France) used scanning electron microscopy (SEM) and atomic force microscopy (AFM) to characterize the cloths of activated carbon fibers. The result showed the creation of porosity by division of the original fibers into numerous microfibrils. The H₂O activation process was thought to create large pores at the fiber surface while CO₂ activation process induced micro porosity inside the fibers. The porosity data obtained by SEM and AFM were in good agreement with N₂ gas adsorption data.

All the symposium papers were published in the Preprints of Symposia, Division of Fuel Chemistry, 216th American Chemical Society National Meeting, Volume 43, No. 4. Copies of the individual papers may be obtained from the Library of the Institute of Gas Technology, 1700 South Mount Prospect Road, Des Plaines, IL 60018; Telephone: (847)768-0500.

REPORT ON THE 1998 CONFERENCE ON UNBURNED CARBON ON UTILITY FLY ASH

M. Mercedes Maroto-Valer
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Energy Research,**
2540 Research Park Drive, Lexington KY
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*now at Energy Institute, Pennsylvania State University,
State College, PA*

The 1998 Conference on Unburned Carbon on Utility Fly Ash was the 4th consecutive annual meeting organized by the Federal Energy Technology Center (FETC) to discuss the problem of Unburned carbon on fly ash and was held in Pittsburgh during May 19-20 of 1998. The wide interest on this issue was reflected in the fact that the conference gathered over 140 people from academia, DOE, entrepreneurial companies and industry.

A wide range of issues related to the control, processing, utilization and characterization of Unburned carbon were covered in the nineteen papers presented orally. The technical papers were divided into 7 sessions according to the topic discussed and they are summarized below in chronological order.

(1) *DOE Consortium initiative.* W. Aljoe (DOE) and C. Black (West Virginia University) presented a proposal to create an Emission Control Byproduct Consortium with members from government and industry with the purpose of providing a structure to address research needs about the utilization of coal combustion byproducts to DOE-FETC.

(2) *Experience and observations* issues included two papers. J. Welling (FLS miljø, Inc.) described the main factors that affect the quality of the fly ash and the impact of the installation of dynamic classifiers. E. Reicker, R. Beitel and T. Ake (DB Riley, Inc.) presented a commercial U-fired slag-tap firing system operating under low NO_x firing conditions.

(3) *Control measures* were addressed by P. Patterson (Ultramax Corporation), who presented a software based approach to tune the operation of boilers and that is being applied to the Hennepin Power Station (Illinois Power Company).

(4) *Processing and utilization of high-LOI fly ash* session comprised five papers that described different technologies to beneficiate fly ash. T. Frady (South Carolina Electric & Gas) and P. Hay (Progress Materials, Inc.) described a carbon burn-out technology that is being commercialized at South Carolina Electric & Gas' Wateree Station. Two papers in this session focused on triboelectrostatic beneficiation processes: S. Gasiorowski, J. Bittner and C. Willauer (STI Technologies, Inc.) presented results on the four STI separators that are operating at electrical utilities and T. Li, J. Schaefer, H. Ban, J. Neathery and J. Stencel (University of Kentucky - Center for Applied Energy Research) described the carbon-ash tribocharging and charge exchange phenomena. C. Koshinski and T. Weyand presented four processes for increasing consumption and value of high carbon fly ash, but their methodologies were not described thoroughly due to some patent pending. R. Amme (University of Denver), R. Pressey, K. Wier and D. Frey (RCC LLC) discussed a resonant shock compaction method for coal combustion product utilization.

(5) *Characterization of Unburned carbon* session also included 5 presentations. R. Brown presented a collaborative project between Iowa State University (R. Brown, K. Bergenson, A. Suby and M. Fan), Ametek Corporation (R. Novack), Chinese Academy of Sciences (Y. Zhuang) and the Chinese Henan Center for Comprehensive Utilization of Fly Ash (Z. Kang and L. Wang) to evaluate the use of fly ashes from the Henan province of China as concrete admixtures. J. Baltrus, M. Gray, W. Sands, J. Diehl, K. Champagne and D. Finseth (FETC) used X-ray photoelectron spectroscopy to

characterize the surface of carbon in fly ash in order to predict its potential separability from fly ash. R. LaCount, A. Beisel, K. Giles (Waynesburg College), D. Kern (ViRoLac Industries) and T. Banfield (Allegheny Power) presented a paper describing the characterization of differing carbon forms in fly ash using Controlled Atmosphere Programmed Temperature Oxidation (CAPTO). M. Maroto-Valer, D. Taulbee and J. Hower (University of Kentucky - Center for Applied Energy Research) presented a novel approach to separate the three petrographic different forms of Unburned carbon (isotropic coke, anisotropic coke and inertinite) in the fly ash using density gradient centrifugation and obtained fractions with purities over 70% of each carbon form. I. Kulaots, Y. Gao, R. Hurt and E. Suuberg (Brown University) discussed the surface characteristics of Unburned carbon in fly ash and their influence on foam index testing.

(6) *Instrumentation* issues session comprised four papers. B. Snowdon (Clyde Pneumatic Conveying Ltd, England) presented the "Sekam" on-line carbon-in-ash monitor that has been operating in British coal fired power plants since 1988. D. Trerice (CAMRAC Company, Inc.), A. DiGioia (GAI Consultants, Inc.) and J. Reid (Reid Associates, Inc.) described a microwaved-based system to measure the LOI in fly ash. R. Novack (Ametek Corporation) and R. Brown (Iowa State University) presented a photoacoustic based technology to monitor carbon-in-ash. M. Khesin (MK Engineering, Inc.), R. Sharbaugh and C. Clark (GPU Generation) described a continuous on-line system to monitor the Unburned carbon that is being used on a 650 MW coal-fired unit and it is based on analysis of flue gas turbulence in the post-flame zone.

(7) *Economics* issues were covered by J. Peetz-Schou (M&W Asketeknik ApS, Denmark) who discussed the economics of on-line ash, coal and Unburned carbon monitors in coal-fired power plants.

Even though the increasing amount of Unburned carbon in fly ash is known to impede the efficient use of ash in the cement industry, still very little is known about the characteristics and properties of the Unburned carbon. The broad range of research groups from both industry and academy that gathered at the 1998 *Conference on Unburned Carbon on Utility Fly Ash* at Pittsburgh have performed an intensive investigation into these issues, bringing further insight into this subject, but also revealing other unsolved aspects that will challenge future research. Hopefully, some of these topics will be

the focus of presentations in the next Conference on Unburned Carbon.

50th ICCP Meeting Notes

The 50th ICCP Meeting was held September 20-25, 1998, in Oporto, Portugal at the Faculty of Sciences of the University of Porto. There were more than 75 representatives from 21 countries for this six day conference and field trip.

The joint TSOP-ICCP classification of dispersed organic matter was presented by Adrian Hutton and Lavern Stasiuk. Much to my surprise the term Dispersed Organic Matter to a coal petrographer means "organic matter in the whole rock matrix in polished section" my definition and other paynologists, used DOM as "organic matter freed from a rock following acidization mixed with epoxy and polished for reflected light study". Once the definitions were clear the submitted classification was well received.

The goals of the classification committee is to photographically document various types of kerogen, describe their morphology and origin, and submit this next drat to both TSOP and ICCP in 1999.

The ICCP has in place an accreditation program under the chairmanship of Aivers Depers. Twenty six members have reported on the six standard samples and have been accredited, with permission to use this fact in their practice. The members will be issued numbered certificates good for specified term then they must be retested.

A proposal from Paul Lyons for a new working group on coal bed methane was submitted and approved in Commission II.

Rudi Schwab, Treasurer reported ICCP had 175 paid-up members in 1998. This number compared to TSOP's 274 for the same time period gives you relative membership of the two society's.

ICCP has a home page on the Web where important information about working groups, membership, contacts and addresses of members may be found. A demonstration of the program was made by Cariz Aroujo of Petrobras.

Jim Hower had supplied me with a beta copy of the new Coal Atlas on CD ROM from AAPG which was on a computer throughout the meeting and used by most of the members. Comments were very favorable, great teaching tool, must get one, and the price is right. Everyone interested in coal will find it useful.

Dr. J.G. Prado, Oviedo, Spain was this years 20th recipient of the Thiessen medal for outstanding contributions to coal petrology. For Trivia buffs: courtesy of Alan Davis the Thiessen medallion is made from "A finely ground mixture of anthracite, semianthracite and hard pitch was briquetted under high pressure and the resulting green cast calcined at 900 C". No sir, none of the common metals are used for coal petrographers awards.

The above has been my attempt to highlight some of the events at the recent ICCP meeting, and which are usually written by Paul Lyons who does a much better job.

Jack Burgess

Reflectance of Liptinites in Anthracite: Examples from the Southern Anthracite Field, Pennsylvania

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INTRODUCTION

Liptinite macerals are difficult to detect in higher rank coals due to the convergence of liptinite and vitrinite reflectances at the medium volatile/ low volatile bituminous rank boundary. The latter difficulties, particularly when using white-light illumination with uncrossed nicols, can lead to the exclusion of liptinites from studies of higher rank coals. Liptinite macerals are observed most reliably in anthracites through the use of crossed nicols.

In this study, conducted incidental to the study of vitrinite reflectance in oriented blocks, the reflectance of sporinite, cutinite, and resinite was determined along with the vitrinite reflectance. Two mutually perpendicular blocks of anthracite, PV-1 and PV-3, both perpendicular to the banding were examined from the 5-m thick Primrose coal bed, Tamaqua 7 1/2 minute quadrangle, Schuylkill County, Pennsylvania (Southern Anthracite Field). Hower and Davis (1981) discussed the orientation of the vitrinite reflectance indicatrix relative to the folding at this site. The plane of the maximum-intermediate reflectances has the same N66°E strike/ 64° SE dip orientation as the axial plane of the fold.

PROCEDURE

Anthracite samples were cut from a block of coal oriented with respect to the banding. Samples, representing mutually perpendicular orientations, were cut to less than 1 inch (2.54 cm) maximum dimension, mounted in epoxy, and polished to a final 0.05 µm finish.

Reflectance measurements were conducted using oil immersion optics at 546 nm. Reflectances of liptinites were measured using a spot size of 1 µm x 1 µm. Even at such a small spot size, measurements were limited by the small population of specimens of sufficient size. For every specimen, a maximum and minimum reflectance for that orientation, measured after a stage rotation of 90°, was recorded. The PV-1 and PV-3 measured minimum reflectances correspond to the actual minimum reflectances while the measured maximum reflectances correspond to the actual maximum or intermediate reflectances. The latter relationship varies between the individual macerals. The mathematical basis for the relationship between reflectance orientations was discussed by Hower et al. (1994).

DISCUSSION

Maximum, mean, and minimum reflectances of vitrinite, resinite, sporinite, and cutinite on the PV-1 and PV-3 blocks, perpendicular to each other and both perpendicular to the banding, are given in Table 1. Liptinite macerals were not found in the PV-T1 orientation parallel to the banding. For the sake of comparison, vitrinite reflectances from that orientation are also given in Table 1.

Liptinites in plane PV-3 all had maximum reflectances greater than the vitrinite reflectance; the intermediate vitrinite reflectance being measured in that block. The

liptinite bireflectances, the difference between the maximum and minimum reflectances, are all greater than the vitrinite bireflectance. The average reflectances of macerals in the PV-3 plane are all similar, differences within the range 4.23 to 4.31% R not being statistically significant. The plane PV-1 vitrinite and resinite maximum reflectances are greater than the PV-3 reflectances whereas the sporinite and cutinite reflectances decrease from PV-3 to PV-1. The random reflectances, the average of the maximum + intermediate + minimum reflectances, are similar for all of the macerals, ranging from **4.88% R** for resinite to **4.97% R** for vitrinite.

At lower ranks, reflectance differences between vitrinite and liptinite can be explained by known chemical differences between the maceral groups, liptinites having a more aliphatic molecular structure than the vitrinite group macerals. At higher ranks, molecular differences may play a lesser role. Instead, the differences observed here among the reflectances of anthracitic macerals, as well as the similarity of their random reflectances, suggest that the reflectances observed in polarized light are primarily the result of the orientation of similar molecules in the stress field at the time of metamorphism. Even though the liptinites are not easily distinguished visually from vitrinite through a wide rank range, their presence in anthracite indicates that they maintain their structural integrity throughout.

The divergence of reflectance values suggests that organic metamorphism within liptinite entities proceeded independently of vitrinite metamorphism although similar paths may have been followed. Vitrinite, although banded, is massive relative to the liptinites. As such, the vitrinite reflectance ellipsoid is probably the best indicator of the external stress field at the time of metamorphism. The studies of Hower and Davis (1981) and Levine and Davis (1989) in the Pennsylvania anthracite fields support the notion that vitrinite can be used as a tectonic fabric element in coal-bearing metamorphosed rocks. The orientation of molecules within the liptinites, however, was controlled not only by the external stress field, but also by the constraints of the maceral boundaries.

The mechanism for producing a preferred orientation in a maceral appears to be *mimetic polymerization* (after Spry, 1969, p. 219), whereby the orientation of metamorphic neofomed molecules is controlled in part

by the shape of the entity and in part by the orientation of the previously formed molecules. For example, resinite, the least flattened of the liptinites, also has the lowest maximum reflectance and the lowest bireflectance, the difference between the maximum and minimum reflectances. Cutinite, the flattest and most elongated of the liptinites, exhibits the greatest maximum reflectance. By virtue of its shape, cutinite experiences the greatest internal boundary effects. It is possible that the size and shape of the macerals is also responsible for the alignment of the cutinite and sporinite maximum reflectances in different directions than the resinite and vitrinite maximum reflectances.

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New Handbook on Organic Petrology

A new handbook incorporating some revised parts of Stach's Textbook of Coal Petrology, long a standard in the field, was released in 1998. This new book is entitled Organic Petrology (Published by Gebruder Borntraeger, 1998, 704p, \$116 US) and is authored by G. H. Taylor, M Teichmuller, A. Davis, C. F. K. Diesel, R. Littke, P. Robert, with contributions by D. C. Glick, M. Smyth, D. J. Swain, M. Vanderbrocke, and J. Espitalie. Because of the importance of this work and the involvement of a number of TSOP members in its preparation, we offer three different reviews below.

Review by James C. Hower

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Getting to the conclusion first and discussing the details later, this book is a necessary addition to the library of anyone dealing with the petrology and geology of coals or other organic facies or with the utilization of coals. The authors have done a credible job in updating *Stach's Textbook of Coal Petrology*. Redundancies prevalent in the third edition of the latter book have been eliminated whenever possible, creating a more accessible reference to a diverse subject. The addition of strong sections concerning the petrology and organic geochemistry of source rocks justifies the title change.

Chapters 2-5, cover the origin of organic matter, rank, macerals and minerals, and lithotypes and microlithotypes, respectively. The discussions of the origin of organic matter and of coal rank necessarily refer to individual macerals not defined until chapter 4. Organic petrographers will have no particular problem with this arrangement, but geologists and fuel scientists unfamiliar with the nomenclature will find themselves paging ahead to chapter 4.

Parts of the discussion of the origin of macerals are lacking substantial reference to North American examples. For example, no discussion of permineralized peat (p.

29) should ignore the extensive work of Phillips, DiMichele, and others in the Pennsylvanian of the eastern US. Similarly, no discussion of thoughts on the influence of pressure and folding on coal rank (p. 94), however discredited, should be complete without reference to David White, an influence on U.S. theories until the 1960's English publications of the Teichmüllers. A more serious omission concerns the lack of mention of the role of the lateral transmission of hydrothermal fluids on organic metamorphism. Studies in the foreland basins of the Canadian Rockies, the Appalachians, and elsewhere since the mid-1980's have demonstrated the importance of thermal waters.

Overall, chapter 4 provides an extensive discussion of macerals. Referring to the convergence of liptinite and vitrinite reflectance at the medium/low volatile bituminous boundary, the authors of the chapter state (p. 203) . . . Thus a kind of vitrinite originates as a coalification product of liptinite. (This is not to say that such vitrinite is identical to other vitrinites, but it may mean that it may be impossible to distinguish them through the use of light microscopy alone.)" However qualified, the first sentence gives hope to inexperienced users of data who have, for example, confused facies changes with an alleged transformation of vitrinite to Semifusinite with an increase in rank (Hower and Cardott 1998). Discussion of micrinite, a maceral difficult to isolate for chemical analysis, is lacking the alternative views of Faraj (1993), who considered the "micrinite" in the Triassic Callide coal to be kaolinite. Inclusion of the density gradient centrifugation studies of Taulbee [ref] could have supported the organic nature of micrinite. Not as fundamental an oversight, is the reference to the Indiana paper coal as subbituminous (p. 205 and 313). This may be a mis-statement passed on from the original paper, perhaps originating from the relatively unlithified appearance of the high volatile C bituminous paper coal.

Chapter 6 provides a discussion of some of the major types of coal as divided by age. Gondwana coals are discussed as part of this chapter, not as a separate chapter as in Stach's Textbook. The discussion follows an integration of coals into a somewhat continuous story based on changes in flora with some consideration to the changes in paleogeography as a consequence of plate tectonics. Chapter 6 cannot be left without mention of Appendix I, a geologic column with reference to major coal occurrences throughout the world. The casual user will be misled by the placement of "USA Illinois & Pennsylvania coalfields" in the Stephanian. For Pennsylvania, this is true for the Pittsburgh and higher coals, to the base of the Permian, but Illinois does not have any significant coals above the Westphalian. No notice is given to the Namurian and Westphalian coals of the Central and Southern Appalachians. The Mississippian-Pennsylvanian boundary falls within the Namurian, not the Westphalian, as shown on the chart. Cretaceous through Eocene "Western USA" and Eocene Texas, USA coal" should not be placed in the Oligocene.

Chapters 7 through 9 provide discussions of methods and procedures, geologic applications, and technologic applications, respectively. All three chapters offer substantial treatment of improvements in techniques and

applications since the publication of the third edition of Stach's Textbook, alone ample justification for the purchase of this book. Considerable changes in the understanding of fluorescence of macerals, as just one example, have occurred in the past two decades, and the appreciation of the applications of fluorescence microscopy appears in several places through the last three chapters. Coal carbonization, among the methods of coal utilization, is given extensive discussion.

As noted at the beginning of the review, this is a worthwhile addition to the library of any organic petrographer. Indeed, it is a book that will likely see frequent use as a resource in many research applications. -JH

Review by Adrian C. Hutton
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This preface states that this new book "Organic Petrology" is intended for use by all whose work is related to coal, source rocks for oil and natural gas and other rocks containing organic matter¹ - quite a tall order indeed. How well is this order met?

The reader immediately notices some dramatic and long awaited improvements over *Stach's Textbook of Coal Petrology* which it replaces. From the outset, one must can be excused for making comparisons between Stach *et al.* and Taylor *et al.*, all petrographers, experienced and inexperienced, will see *Organic Petrology* as a replacement for Stach's textbooks. Gone are the *ad hoc*, almost painful, addenda which are the major differences between the 2nd and 3rd editions. The inclusion of appendices, especially the coloured Appendix 1, are bright additions although the Stratigraphic columns are a little difficult to read. Unless one knows the age of a basin, considerable searching is needed to find it, and unless one is aware of the location of a particular basin, reference has to be made to the text or the index. In some cases the Stratigraphic column is a little confusing with general entries mixed with specific entries. For example, Fig A1 shows the following entries from Australia, youngest to oldest, Officer Basin oil, McArthur Basin oil/gas, Australia, Western Australia, Yilgam Block, Australia and Western Australia. The stratigraphy expert

would probably argue that some of the entries are either out of date or incorrect. Despite these deficiencies, which will be rectified in later editions, the appendix is a welcome addition.

A major feature of the book is the list of references - 62 pages in all. One minor criticism is that perhaps the list still has a European flavour but this probably results from the inclusion of the majority of, if not all, the references from the 2nd edition of *Stach's Textbook of Organic Petrology*. Any deficiencies are balanced by the number of entries which will prove to be very useful for younger researchers who sometimes do not appreciate that organic petrography is a mature and creditable discipline in the worlds of geology, coal utilisation and exploration.

The first five chapters deal with the nature, description and origin of organic matter. The historical survey in Chapter 1 is an important contribution, again especially for younger researchers who sometimes are not given an appreciation of the immense detail and volume of work that has been published since Mary Stopes introduced the concept of macerals, those many years ago. This section is a significant inclusion if for no other reason than it illustrates that a way forward in the science of organic petrography is through the development of new sophisticated equipment. We 'moderns' are not necessarily more observant nor better researchers than our predecessors, we have more sophisticated equipment which goes through the barriers faced by our predecessors.. This section could have been improved with the addition of photographs of imminent organic petrographers of the 1980s and 1990s.

Chapters 1 to 3, provide a useful overview of the preservation of organic matter, environments of deposition, coalification and maturation. Many new references have been added but a number of important publications dealing with peat formation and peat composition, especially from the newer generation of petrographers, are missing.

Although the book is titled *Organic Petrography*, the basics of organic petrography, macerals, minerals, microlithotypes and lithotypes are not introduced until Chapters 4 and 5. These chapters are much easier to read than the corresponding sections in the Stach textbooks, a welcome improvement for all organic petrographers, especially those who work in isolation and are without the benefit of fruitful discussions with

colleagues. Inclusion of the 1994 ICCP vitrinite nomenclature is excellent.

Although *Organic Petrography* recognises that petrography is no longer the study of coal, the treatment of oil shales and petroleum source rocks provides little more than an introductory appraisal of organic petrography applied to these rocks. More color plates are needed to effectively treat oil shales and source rocks but this would have added significantly to the cost of the book. The division of source rocks into lacustrine and marine is traditional but may possibly lead the inexperienced reader into believing that specific macerals are found in some source rocks and not in others. Coal and terrestrial organic matter, as a source of petroleum needs vigorous discussion.

Both source rocks and oil shales deserve a more comprehensive treatment. It could be argued they deserve to be the content of another book . If the treatment given here reflects the interests and backgrounds of the authors, for this they should not be criticised.

Chapter 6 is a much improved discussion of coals of various ages and other rocks containing organic matter. A very positive contribution is the treatment of coals by age, thus eliminating the need for a separate section on Gondwanan coals. It is probably in this section that the bias of many readers will surface. Given the volume of Permian coal exported from Australia and South Africa, and the fact that many Carboniferous coals are approaching, or have reached, the realm of historical importance only, the allocation of a mere eight pages to Southern Hemisphere Gondwanan coals is perhaps an injustice. The reference to changes in flora with some consideration paleogeography is useful.

Chapters 7 to 9 provide the technical backbone of the book. These chapters offer a comprehensive treatment of the methodologies of organic petrography. They deal with the traditional techniques as well as the improvements in techniques and applications that have become common place in the last 20 years. The treatment of fluorescence microscopy and the fluorescence of macerals should not only provide a good background for the inexperienced organic petrographer but also a mandatory revision for the more mature organic petrographer. Logically, a wide-ranging

discussion of carbonisation and coke is given and also to other uses of coal.

Organic Petrology is clearly a natural evolution of *Stach's Textbook of Coal Petrology* and is an easier-to-read, less restricted textbook. Professor Taylor has successfully assembled and directed his co-authors and contributors into producing a book of substance. There are deficiencies and it is probably true, as the Foreword states 'it is unlikely that our judgement will please everybody'. Nonetheless, one would be a very critical antagonist if this book did not constitute a necessary addition to the library of all organic petrographers and coal scientists. In summary, this book is value for money in an age when publishers require considerable return from their investments.

Is "Organic Petrology" a new book or another revision of *Stach's Textbook of Coal Petrology*? I leave this decision to the reader. Congratulations to Professor Taylor and his team for a worthwhile effort. *Organic Petrology* will be an important reference for many years.

-ACH

Reviewed by Lavern D. Stasiuk

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I am probably not alone when stating that I have been anxiously anticipating for several years now, the release of the newly revised and renamed edition of *Stach's Textbook of Coal Petrology* (1982). We as organic petrologists have all struggled with not having an up-to-date, 'all encompassing guide book'¹ to our science on our shelves, as have eager undergraduate and graduate students who are trying to learn the subject. *Organic Petrology* (1998), with all of its dated similarities and significant modifications to *Stach's Textbook of Coal Petrology*, will be a welcome and compulsory addition to personal, laboratory and institute libraries. Despite the fact that I am personally quite impressed with this volume, some will find certain aspects somewhat disappointing.

Organic Petrology (1998) consists of nine chapters with several being similar in format and logic to those in *Stach's Textbook of Coal Petrology* (1982), although all

are very well augmented with rewritten and new sections of well presented text, new tables, diagrams, photomicrographs and references (for a chapter-by-chapter summary of contents see also reviews of Hower, J.C. and Hutton, A.C., *above*). The topics covered are much more diverse compared with its predecessor, highlighting many new applications. This comparison demonstrates the substantial progress which has been made in the subject over the past 15 years. In my opinion Chapter 7 (*Methods and procedures*) is one of the stellar improvements in this book, with detailed, well referenced and diverse coverage of methods and procedures. An omission of alternative coke classifications (e.g. White, 1976; Grint and Marsh, 1981) would be a minor criticism.

Now I do appreciate the enormous task required to assemble and incorporate published literature into such a comprehensive book as *Organic Petrology*, but the readers should be aware that many key references, are, unfortunately, not always included in discussion (see also reviews of Hower, J.C. and Hutton, A.C., *above*). This appears to be particularly commonplace in sections dealing with the application of organic petrology to oil and gas studies. Many of the studies which are not cited are important because they commonly present alternative results and conclusions. For example where the reflectance of solid bitumen is discussed as a potential maturity parameter in chapter 2, only the work of Jacob (1989) is cited as a reference for calculating a vitrinite reflectance equivalent from solid bitumen reflectance; alternative equations such as those of Riediger (1993) and Landis and Castano (1995), are not mentioned. Similarly not all references to work utilizing chitinozoan reflectance as a maturity parameter are included (e.g. Tricker et al., 1992), nor works which indicate that the fluorescence properties of alginites do not always increase progressively with increasing thermal maturity (fig. 3.40), nor works which conclude that the temperature range for the onset of H₂S gas generation from thermochemical sulphate reduction is not 80° C but probably closer to 140 ° C (e.g. Worden et al., 1995). These are only a few examples.

The quality and coverage of macerals in the photomicrographs of this book varies from only average to good. The addition of two new color plates on dispersed organic matter within petroleum source rocks, and new plates of anisotropic cokes are a welcome addition. High quality photos of structured liptinite macerals in fluorescent light within both coal and

petroleum source rocks are however, almost completely lacking. I may be biased but it is hard to imagine a text on organic petrology without a series of high quality color photos illustrating the several varieties of vitally important alginite and acritarch components of petroleum source rocks and oil shales. Personally I would have preferred to see the authors place more emphasis on the all important 'visual aspect' of our science at the expense of topics such as fuel cells, magnetohydrodynamics, Fischer-Tropsch synthesis, methods of gasification & liquefaction, or the color Stratigraphic chart in Appendix 1.

Although I have concentrated on some of the negative aspects of *Organic Petrology*, "don't get me wrong", this is an impressive and landmark volume (see other reviews, above). I do highly recommend this book as a geoscience text or reference book, and congratulate and thank the authors. **-LDS**

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TSOP Research Committee Progress Report: ICCP & TSOP Join Forces On Kerogen Classification

By Adrian Hutton, Jack Burgess, Lavem Stasiuk, Brian Cardott, and Carolyn Thompson-Rizer

This work is in progress, please send your comments to Adrian Hutton (email: adrian_hutton@uow.edu.au). We want your input, reviews, ideas, and we want others to join us in the attempt to standardize kerogen classification.

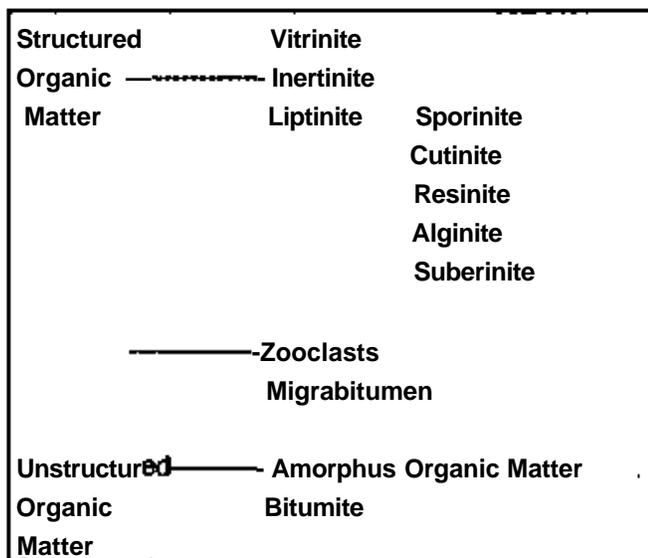
The traditional TSOP Research Committee Discussion was scheduled at the end of the John Castano Memorial Symposiums at the annual meeting in Halifax in July. The topic followed from the 1997 Research Committee Discussion topic led by Brian Cardott on the role of TSOP in visual kerogen standardization" [see TSOP website Discussion Forum for details <http://www.tsop.org>]. Jack Burgess helped reactivate the TSOP subcommittee on source rock dispersed organic matter [see Dec. 1997 TSOP Newsletter]. Jack attended the ICCP meeting in Wellington in October 1997 and helped establish the cooperative work between ICCP and TSOP on creating a standardized classification of dispersed organic matter. Adrian Hutton, Lavem Stasiuk, Jack Burgess, and Brian Cardott are the principal working members. Wolfgang Kalkreuth and Carolyn Thompson-Rizer, chairpersons of the respective ICCP and TSOP committees, facilitated the formation of the joint working group.

Previous ICCP Work

Over the past decade the ICCP has set up a number of working parties that extend beyond the traditional boundaries of coal petrography; example include thermal indices, environmental applications and the classification of dispersed organic matter (CDOM). The mandate of the latter working party overlaps, considerably, the mandate of the TSOP group investigating the classification of dispersed organic matter.

The ICCP CDOM working party was initially under the chair of Joe Senftle but then Joe relinquished the

chair to Jack Castano. During these early periods, a draft of a manuscript entitled "Sedimentary Organic Matter Working Classification" was produced following submissions from several members. Samples, including Pictou and Chattanooga samples, were circulated and used in round robins in 1993, 1994 and 1995. In this exercise the following classification was used:



In the round robins, both organic petrography and chemical techniques were used. Jack Castano produced a final report dated August 1994 and included a set of tables which show 9 labs undertook the exercises, although not all labs used each technique.

Following the death of Jack Castano, the CDOM working party lapsed until the ICCP meeting in Wellington, New Zealand where Jack Burgess and Wolfgang Kalkreuth produced a 6-point paper entitled "Problems and future directions of the Isolation of Organic Matter Working Group". The main points included the need to include photographs in future round robins, quantification of macerals has yet to be solved, vitrinite corrections may have to be applied to the Pictou sample and future round robins will need to find another lab for preparation of samples.

Concurrent with or part of the working party, an editorial group had a rough manuscript with the following chapters:

1. General description of occurrence and types of organic matter in sedimentary rocks
 2. Chapter on vitrinite and inertinite (A. Gomez)
 3. Chapter on liptinite, amorphous and other organic matter (W. Pickel/ I. Suarez-Ruiz)
 4. Chapter on vitrinite reflectance (W. Kalkreuth)
 5. Chapter on fluorescence (I. Suarez-Ruiz)
 6. Chapter on sampling procedures and sample preparation (M. Reinhardt)
 7. Comprehensive reference list on DOM plates (B. Cardott / W. Kalkreuth)
- Missing was a chapter on classification.

Jack Burgess, Lavern Stasiuk and Adrian Hutton were elected co-chairs. The three chairs expressed a desire to seek closer ties with TSOP. This seemed logical given that the two bodies were covering much the same work and many of the members were in both organisations.

The main aim of the Chairs at the ICCP meeting in Porto, Portugal in October 1998, will be:

1. to present the same equivalence table as presented at Halifax
 2. to devise a timetable that is compatible with the TSOP timetable
 3. discuss the Atlas of DOM
- Two hours has been allocated for discussion.

The Role of TSOP

Following consultation between Adrian, Jack, Carolyn and Lavern a large table, loosely termed a table of equivalence, for lack of a better term was presented at the TSOP meeting in Halifax. Lively discussion immediately ensued. TSOP members stated that observed morphologies are of more importance than genesis, and that ultimately the atlas or a catalog or CD ROM with photographic documentation of this work is desired. The use of polished thin section was also mentioned to help understand the relationships among isolated organic materials (Art Cohen has a source for about \$10 per slide). It was decided to produce an abridged version of the table for circulation to those members of TSOP interested in contributing. A draft version of the table will be published in the next TSOP

Newsletter. The current list of members, and apologies for any one whose name is missing (the final minutes of the TSOP meeting were rushed because we did not want to miss the lobster dinner) is:

Cole Robison
Wally Dow
Maria Mastalerz
Renee LaGrange
John Crelling
Martin Reinhardt
Tang Yuegang (stated the need for 6 major categories including bituminous groundmass)
Mary Ann Malinconico
Muki
Wolfgang Kalkreuth
Gary Mitchell

Other TSOP members are welcome to, and can join, by contacting us.

Additional comments from Brian Cardott:

Inertodetrinite was missing from the inertinite list. I recommend that fluorinite be included with the list of "coal" liptinite macerals (cutinite, resinite, suberinite) since fluorinite is a primary maceral and is as structured as resinite (e.g., fluorinite should not be included as unstructured organic matter). Based on this proposed classification, does this mean then that the kerogen classification will be divided into several classifications depending on the sample type and optical mode? How is this project different from what has been attempted in the past? What are the primary problems, and how will they be addressed? Do we plan to use coal maceral terms combined with "kerogen" terms. There will be an emphasis on strewn slide mounts and possibly polished thin sections. Will there be one classification, no matter which sample preparation type is used? [The ICCP SOM classification several years ago had two classifications, one for whole rock and one for strewn slide mounts. This is the approach that Teichmuller wanted. Furthermore, Teichmuller did not want to use maceral terms for dispersed organic matter] Maybe an initial step is to identify all of the potential problems, and what we can and cannot agree on.

Then we can resolve our differences, with compromise.

Additional comments from Lavern Stasiuk:

1. Introduction:

Brian Cardott's comment is very fitting and really reinforces the need to FULLY accomplish our task at hand, that is to propose, and then publish a DOM classification. I would like to remind our group and others that the final version of the classification will definitely not be perfect, and some aspects will be subject to future debate as well as future modifications. To achieve our ultimate objective we must ensure the process is not derailed because of dogma or objection to the elimination and/or modification of 'entrenched terms*' (e.g. replacing bituminite with amorphinite). Overall, even at this relatively early stage, I feel that the classification thus far proposed is practical and versatile for use with polished whole rock samples examined under incident light. As a further endorsement, the proposed classification for incident light microscopy is essentially what has been successfully used to characterize organic-rich Phanerozoic rocks from basins all over the world by several organic petrologists (e.g. F. Goodarzi, A. R. Cameron, T. Gentzis, L. D. Stasiuk, C.L. Riediger, J. Potter, M. Tomica, M. Obermajer, A. Beaton, D. Kirste, D. Marchioni) working at the Geological Survey of Canada's lab facilities in Calgary over the past 15 years.

2. Incident light microscopy of DOM in polished whole rocks versus transmitted microscopy of strewn mounts

Further to Brian Cardott's comments and previous comments by Carolyn Thompson-Rizer "why must the emphasis be on strewn slides and when was this conclusion reached? " I feel that the emphasis should actually be placed on the incident light component of the classification. In my opinion the incident light approach to DOM characterization is superior and more effective given that the whole rock samples are properly prepared with random orientations of macerals represented by crushed rock particulates, and parallel and perpendicular to

bedding views of macerals represented by oriented sections. Many would of course argue this point, but if one considers the future of DOM microscopy my bias may attract more supporters; bear with the following argument.

Incident light microscopic studies of DOM in the very near future will routinely incorporate a least one new technique: confocal laser scanning microscopy (and possibly deconvolution of digital images and subsequent modeling to produce 3D images obtained from conventional incident light microscopy). The former method is for example currently being used at the Geological Survey of Canada for detection of 'biological' features in fluorescing amorphinite macerals (Stasiuk et al poster at TSOP Halifax, 1998). The exciting part of this method is that the hardware required will be fitted to the incident light microscopes such as those we all use today. And, within a few years, superb 3D images of liptinite macerals embedded in rock matrix could be a reality (e.g. x-y-z resolution of about 0.1 mm) enabling in situ 'speciation of macerals' such as sporinites (or microfossils). This would be accomplished without any destructive treatment of the host rock (e.g. acid digestion). In addition laser 'etching' of macerals and laser alteration properties of macerals will enhance characterization and identification (e.g. to discriminate between true vitrinite and DOM which simply has vitrinite-like optical properties). Thus, for future purposes, I feel we should emphasize the reflected light aspect (or at least treat both strew mount and polished block methods with equal importance). The argument that these are/will be highly specialized systems with only a select few labs having such capabilities does not hold.

3. bitumen versus exsudatinite; amorphinite versus bituminite; secondary bitumen versus primary bitumen

I prefer bitumen over exsudatinite because even without a written standardized definition in hand, one can extract the gist of the term bitumen (e.g. latin roots); exsudatinite is an example of a poor scientific term with no linguistic root basis. A similar argument can be put forward when having to choose between bituminite and amorphinite. In this case, bituminite is the 'bad term', because the root of bituminite clearly implies a relationship to bitumen (perhaps even to

bituminization which would imply a coalification process), which genetically is clearly not the case. By using amorphinite, even without prior exposure to the term or its definition, one is still able to generally infer its meaning, or at least correctly speculate as to what the term may mean.

The definitions taken from the literature for bitumen, amorphinite and exsudatinite, at least for me, are totally inadequate from a petrographic and DOM classification perspective. Since optical properties and morphology are the basis for characterization and classification, an organic petrologist would not be able to recognize bitumen in a sample following these definitions; we must follow the example of the ICCP handbooks in this respect. New definitions may have to be included in appendices of the classification document along with definitions for those macerals whose previous definitions we conclude are inadequate.

4. primary and secondary bitumen

P. K. Mukhopadhyay's suggestion (Halifax TSOP Research Committee Meeting) of splitting bitumen into primary and secondary is good, and, in some cases where detailed studies of maceral changes and solid bitumen transformations are possible, also practical. However, since making the distinction between these two bitumen types (i.e. primary versus secondary) requires extensive detailed studies and interpretation of a source rock with consistent organic facies from the immature to overmature stage of maturity, this breakdown may simply not be suited for the classification. Currently our lab uses a bitumen classification scheme which is similar to what Muki has proposed. For those who are interested or vaguely care, the following summarizes the logic we employ at the GCS lab:

(i) a primary bitumen is used to define the initial semi-solid to solid bitumen formed within a source rock, prior to the formation of any crude oil. We further sub-divide primary bitumens into sub-macerals of bitumens depending on the source maceral from which it was derived (e.g. bitumen from an amorphinite precursor, bitumen from a sporinite precursor; etc.). At any given level of thermal maturity, especially in the immature to mature zone, the optical properties of the primary

bitumens can vary markedly because not all of the primary bitumens are derived from the same source macerals. For example, at a vitrinite reflectance of 0.60 %Ro a primary bitumen derived from a sporinite has a different reflectance than a primary bitumen derived from a fluorescing amorphinite. To discriminate between primary bitumens at this level can be an arduous task; the petrologist must track the formation of primary bitumens, their inter-source rock migration and 'mixing' products, and their optical and morphological change from the immature stage to the overmature stage of thermal maturity for a source rock of consistent organic fades.

(ii) a secondary bitumen can be produced in several ways and occurs in source, carrier bed, and reservoir rocks. It can be produced during thermal disproportionation of pre-existing primary bitumens within a source rock system, or from thermal disproportionation of a pre-existing liquid oil phase (either to a lighter oil or a gas; the later transformation commonly produces pyrobitumens) within source rocks, carrier beds or reservoir rocks. Secondary bitumens may also be produced during non-thermal 'fractionation processes' (e.g. migration of oils; gas charge, water washing, biodegradation) which alter a pre-existing crude oil (or bitumen).

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The Gupta Affair - No End In Sight by James Pontolillo

In a previous issue of the *TSOP Newsletter*, I reviewed the serious charges of scientific misconduct made against Dr. Vishwa Jit Gupta, a senior scientist at the Centre for Advanced Study in Geology, Panjab University of Chandigarh, India (Pontolillo, 1995). Over the course of a six-year period, investigations by 24 fellow researchers demonstrated that his entire career, from his M.Sc. thesis work forward, had been built on fraudulent data. Gupta was shown to have plagiarized illustrations and text, stolen specimens for use in spurious reports, recycled the same specimens in later reports for geographically widely-separated localities, given fictitious localities for alleged finds, and provided spurious fossil lists for localities he never visited. He also asserted that identifications had been confirmed by leading authorities who deny having seen the materials in question, made other researchers co-authors/co-editors of publications without seeking their approval, and greatly increased his apparent output by having himself listed as co-author on publications to which he made no significant contribution (Talent, 1995). The damage done by Gupta is unparalleled in the history of science: 455 publications (including 5 books) involving 128 apparently unwitting co-authors have buried Himalayan biostratigraphy under an avalanche of disinformation. The primary investigators of his work concluded that the Himalayan database was "so extensively marred by error, inconsistency and implausibility as to throw grave doubts on the scientific validity of any conclusions that might be drawn from it." (Talent et al., 1989). The aim of this article is to bring readers the latest developments in this sordid affair and to provide an updated bibliography of the pertinent literature.

Further investigations by Indian authorities revealed that Gupta performed virtually none of the fieldwork or associated research that he claimed as the basis for his data and publications. Additionally, all evidence indicates that his presence at some 70 international scientific congresses was purely a ruse. Gupta was typically only briefly seen at registration and

at those sessions where he was scheduled to give a presentation. He spent most of his time away from the meetings pursuing lucrative private business ventures: selling Kashmiri carpets and arranging deals with Indian cloth merchants. Gupta is estimated to have earned several million dollars from these trips that were funded by double- and triple-dipping from a broad spectrum of Indian and foreign agencies. Another impact of his overseas trips to scientific conferences was to effectively deprive upwards of 200 other Indian scientists of the chance for international exposure and experience. Regrettably, no in-depth study has been undertaken by University authorities to determine exactly what happened to the extensive funding that Gupta received from the University's Grants Commission, the Wadia Institute of Himalayan Geology, Panjab University, and the Indian National Science Academy.

Despite numerous scientific papers detailing his misconduct (see References) and a 151-page report prepared by Enquiry Officer M.S. Gujral (former Chief Justice of the Sikkim High Court) finding Gupta guilty of all charges, the Academic Senate of Punjab University essentially exonerated him on September 24, 1994. Of 55 members present at a special disciplinary session convened against Gupta, only 5 voted for his dismissal. The remainder, most of whom were Gupta cronies caring little for the extensive damage already done to the university's reputation, let him survive with only mild sanctions. Gupta was allowed to retain his Ph.D. and D.Sc. degrees and to continue supervising graduate students. He also retained his chair as head of the Geology Department. As the sole punishment he was banned from holding administrative positions in the university. Prior to being exposed as a charlatan, Gupta had been next in line to become Panjab's Vice-Chancellor, the top executive position at one of the largest universities in the world (~ 80,000 students).

Indian newspapers, without exception, expressed indignation and disgust over the University Senate's insulting decision. Following both this national outrage and numerous international protests concerning the university's inexplicable leniency in the Gupta affair, K.R.

Narayanan (India's vice-president and chancellor of the university) called a special meeting of the Academic Senate for March 17, 1996. Fearing dismissal, Gupta voluntarily retired from the university on March 1st and called on the Academic Senate to cancel its meeting. When it became clear, however, that the special session was going ahead as originally planned, he withdrew his resignation. The university ignored this retraction and Gupta then appealed to the Punjab and Haryana Court for protection. The court subsequently ordered Panjab University to restore Gupta to his position and to restrain from punishing him further. It now appears that any future attempts by authorities to remove Gupta will have to be resolved through the Indian legal system.

Since 1989 Gupta's publications have primarily been rambling, ill-advised attempts to divert attention from his critic's accusations, although he did have a manuscript published in Iran (Gupta, 1991). While he no longer receives funding to attend international conferences, Gupta has reconsolidated his power at Panjab University in the last two years. The Geology Department and the Academic Senate are packed with his supporters and nominally under his control. Gupta continues to maliciously interfere with the careers of those in Chandigarh who tried to have him removed for misconduct. In fact, at last notice Panjab University had set up a special committee to investigate those members of the Geology Department who supported the charges against him. The Indian Society for Scientific Values has petitioned the university to cease harassing these scientists. Some consolation can be taken, perhaps, from the fact that it is very doubtful that Gupta's power will ever extend beyond Panjab University to the Indian Academy of Science and other national bodies as it did in the 1970s and 1980s.

The extensive list of references cited for this article, 91 in all, are available to anyone by request. Please contact us with your fax number or address and we would be glad to send them to you.

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Editor-

Calendar of Events

1999

March 21 - 24 : 58th Ironmaking Conference, Chicago, IL. For information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

April 11-14: AAPG Annual Convention and Exhibition, San Antonio, Texas. For further information contact the AAPG Convention Department at 918-560-2679

Fall: International Committee for Coal and Organic Petrography, Bucharest, Romania.

August 22-26: American chemical Society National Fall Meeting, New Orleans, Louisiana

September: Sixteenth Annual Meeting of The Society for Organic Petrology, Salt Lake City, Utah. For further information, contact either Jeff Quick (801-585-7851 [phone], 801-585-7873 [fax], jquick@esri.utah.edu) or Dave Wavrek (801-585-7907 [phone], 801-585-7873 [fax], dwavrek@esri.utah.edu).

September 12 -15 : AAPG International Conference and Exhibition, Birmingham, England. For info, contact the AAPG Conventions Department at (918)-584-2555.

October 18 - 20: Third International Ash Utilization Symposium, Lexington, KY. For more information, contact Jim Hower at (606)-257-0261 [phone] / (606)-257-0302 [fax] or contact the web site address at <http://www.flyash.org>

October 25 - 28 : Annual Meeting of the Geological Society of America, Denver, Colorado. For additional information, contact GSA at (303)-447-2020 [phone] or (303)-447-6028 [fax].

2000

March 26 - 29 : 59th Ironmaking Conference, Pittsburgh, PA. For more information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

March 26-31: American Chemical Society Annual Spring Meeting, San Francisco, California

April 16-19: AAPG Annual Convention and Exhibition, New Orleans, Louisiana. For more information contact the AAPG Convention Department at 918 560-2679

August 6 - 11 : Eleventh International Peat Congress - "Sustaining the World's Peatlands", Quebec City, Quebec, Canada.

August 20-24: American Chemical Society Annual Fall Meeting, Washington D.C.

November 13-16: Annual Meeting of the Geological Society of America, Reno, Nevada. For further information, contact GSA at (303) 447-2020 or fax them at (303) 447-6028.

2001

April 1-5 American Chemical Society Annual Spring Meeting, San Diego, California

March 25 - 28 : 60th Ironmaking Conference, Baltimore, MD. For more information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

August 26-30: American Chemical Society Annual Fall Meeting, Chicago, Illinois

November 5-8: Annual Meeting of the Geological Society of America, Boston Massachusetts. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

2003

November 2-5: Annual Meeting of the Geological Society of America, Seattle, Washington. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

This list is compiled from various Internet sources as well as information submitted by individuals. Accuracy of information cannot be guaranteed. All submissions are welcomed Please notify the editor of any errors, changes, submissions, or deletions.

TSOP 1998 Annual Meeting

Sponsors

The Society would like to express our appreciation and also acknowledge the support of the following individuals and their companies who sponsored the 1998 annual meeting. These contributions were key elements in making the meeting a technical success and an outstanding scientific experience.

- M. F. Dashwood, Gulf Canada Ltd., Calgary, Alberta, Canada
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- Doug Gardner, Petro-Canada, Calgary, Alberta, Canada
- John Hogg, PanCanadian Petroleum Ltd., Calgary, Alberta, Canada
- James Mahar, Manager, Micro Division, Zeiss Canada Ltd., Ontario Canada
- Don Rae, Mobile Oil Canada, Calgary, Alberta, Canada
- R. K. Sawyer, Texaco Exploration, Bellaire, Texas, USA

TSOP-1998 Halifax, Nova Scotia, Canada

Notes from the 15th TSOP Annual Meeting in Halifax, Nova Scotia: a personal review

JØrgen A. Bojesen-Koefoed, Henrik I. Petersen & Erik Thomsen
Geological Survey of Denmark and Greenland

After the final lobster supper in Parrsboro, which concluded the scientific part of the field trip that followed the 15th TSOP annual meeting, the editor of this publication, Mr. William Andrews of the Kentucky Geological Survey solicited a "personal review" of the meeting and field trip from the "Danes."

For several reasons, this is not necessarily an easy task. First, selecting what to mention and what to leave untouched is a problem, since the space available will by no means permit inclusion of all deserving matters. Second, finding the proper balance between the "review" aspects and the "personal" aspects is difficult. However, since the "review" aspects (in a scientific sense) are well covered by the abstract volume and the excellent field guide, we have chosen to focus on the "personal" aspects.

The Prince George Hotel, which probably owes its name to the fact that it is situated between George Street and Prince Street, was well chosen as the preferred place

to stay during the meeting. The Hotel is in direct communication with the meeting venue, the World Trade and Congress Centre (WTCC), through a pedwalk, is situated in the middle of Halifax, and offers an excellent harbour view from many of the rooms. Hence, after 21 hours of travelling, it was a pleasure to check in and relax, knowing that the next morning you had to move only a few 100's of metres to reach the meeting venue.

The meeting started on Sunday, when Ian Kaplan led a short course on "forensic geochemistry". An interesting subject, demonstrating the wide applicability of geochemical techniques. After lunch, this was followed by a another short course on apatite fission tracks, led by Marcos Zentilli. However, being exhausted after a long journey, none of the Danish contingent were in a fit state to participate in the latter course

The "icebreaker" party took place on Sunday evening in the Highland Lounge of the WTCC, and co-chair John Calder added a gaelic flavour to the meeting by

appearing in kilt and bonnet, accompanied by a genuine piper, who played a number of "highland classics". Later, Michael Kruge entertained on "geochemical guitar" while people enjoyed their drinks and snacks.

On Monday morning, the meeting proper started with a "speakers breakfast", and the number of attendees served to demonstrate how many people actually were to contribute to the meeting. The morning session was on "environmental implications of fossil fuel use - geochemical and petrological perspectives" with contributions by P. K. Mukopadhyay (Muki), Ian Kaplan, Jim Hower, Hal Gluskoter, Mike Lewis and Bob Finkelman. After the coffee break, presentations continued with slightly changed foci, emphasizing more technical and applied aspects of coal petrography. This part of the session included presentations by D. Taulbee, G. Friedman, J. Crelling and P. Hacquebard, whereas a scheduled presentation by P. Hatcher was cancelled due to unforeseen circumstances.

Lunch was served during the TSOP general body meeting, and awards were presented to Alex Cameron (Hacquebard award), and Claus Diessel, for their outstanding contributions to our science. At an event, which had been kept secret to the convener, Muki was presented with a special award by John Calder on behalf of the Nova Scotia local government to acknowledge his efforts to "put Halifax on the map".

The first part of the afternoon session was dedicated to "New innovations in coal microscopy and petrology/geochemistry of coal and coke", and featured contributions by Alex Cameron, Yunxing Cao, David Bensley and Art Cohen. After the coffee break, a parallel session on "Eastern Canadian basins with implications for hydrocarbon resources" featured contributions by Dave Brown, John Calder, Paul Harvey, Al Grant, Bob Ryan, Tom Martel and P. K. Mukhopadhyay. Concurrently, the general session continued with contributions by Tim Moore, Maria Mastalerz, Deborah Skilliter, William Andrews and Therese Videm Buø.

Tuesday was dedicated to the "John Castano Memorial Symposium", with sessions on "organic petrology/geochemistry and petroleum system - world basin perspectives" and on "organic petrology/geochemistry and petroleum system: role of coal - world basin perspectives". The symposium was opened by Loretta Castano, who gave a short introduction, dedicated to the memory of our deceased friend and colleague John Castano. Afterwards, Wally Dow talked of his long-lasting friendship with John, and showed a video of John at DGS. Later followed contributions by Elisabeth Kosters, H. B. Lo, Charlie Barker, Nick Wilson, Mike Kruge, Vern Stasiuk and N. Tsuzuki. After the morning session, it was time for the group photo to be taken. After lunch the John Castano Memorial Symposium continued with contributions by David Mossman, Mark Obermaier, Jørgen Bojesen-Koefoed, Martin Reinhardt, Cindy Riediger, MaryAnn Malinconico, Adrian Hutton, Charlie Landis, Henrik I. Petersen, Claus Diessel, Wolfgang Kalkreuth and Yuegang Tang.

In the evening a Lobster dinner was held at Murphy's on the Water Restaurant. After dinner, a refreshing harbour cruise followed, offering an opportunity to enjoy Halifax by night at a distance, while listening to the soft tones of Mike Kruge playing his geochemical guitar.

The field trip, lead by John Calder, assisted by Martin Gibling, Bob Ryan, Muki, Bob Boehner, and Deborah Skilliter, started on Wednesday morning, with pick-up at the Prince George Hotel. After a pleasant ride across Nova Scotia, the first stop at the Falls Brook Quarry was reached. Here, Bob Ryan demonstrated the Horton Group clastics unconformably overlying the Meguma Group metasediments. Second stop was at the Horton Bluffs exposures, which after lunch were demonstrated by Martin Gibling. Third stop was at the exposures of the Windsor Group evaporites at Cheverie, where Bob Boehner offered his guidance, assisted by Muki, who covered the source rock aspects. The first day of the field trip ended at the Wandlyn Inn in Amherst, where we took our quarters, quite exhausted after a long day enjoying the beautiful landscape and geology of Nova Scotia, and after a late after-dinner wrap-up of the day by John Calder. The second day of the field trip was dedicated to the study of the famous Joggins outcrops, including the

classic exposures studied by Sir Charles Lyell and Sir William Dawson more than a century ago. On the way to the exposures we passed the home of Sir Charles Lyell's successor at the Joggins exposures and leader of our field trip, John Calder - did anyone else note a superficial resemblance to Sir Charles Lyell - in particular with respect to the style of whiskers and spectacles?

After a short ride we arrived at the Joggins section, which indeed offered a plethora of interesting and memorable sights, including petrified lycopsid-tree stumps, tetrapod-ichnofossils, traces of carboniferous horseshoe-crabs fornicating, and our Australian colleague Adrian Hutton wearing a bright yellow hard-hat on top of his bush-hat. Various portions of the section were commented upon by John Calder, Martin Gibling, Muki, and Deborah Skilliter. Furthermore, Mr. Brian Hebert of Lower Cove and Mr. Donald Reid of the Joggins Fossil Centre joined us, and put their expertise at our disposal.

The afternoon offered visits to the Joggins Fossil Centre, where an impressive collection of fossils from the Joggins outcrops are displayed, and to the Fundy Geological Museum.

Thus ended a most enjoyable and rewarding field trip, and we would like to extend our special thanks to John Calder, and to all the people who assisted him in making the field trip successful. A person who deserves special acknowledgment is our cheerful driver Don, who with the greatest dexterity maneuvered his coach on 4-lane highways as well as on dirt roads that sometimes appeared more suitable for furry animals than for wheeled vehicles. Courteously honking and waving at a careful selection of the females encountered on the way, he brought us safe and secure from outcrop to outcrop.

In conclusion, both the meeting and the subsequent field trip were very successful. We are sure that the well over one hundred participants from about a dozen different countries all had a tremendous experience to look back upon. Many people have contributed to the success of the meeting, but we feel that special thanks are due the organizing committee consisting of Muki, John Calder, Mike Avery, and Fari Goodarzi.



THE SOCIETY FOR ORGANIC PETROLOGY

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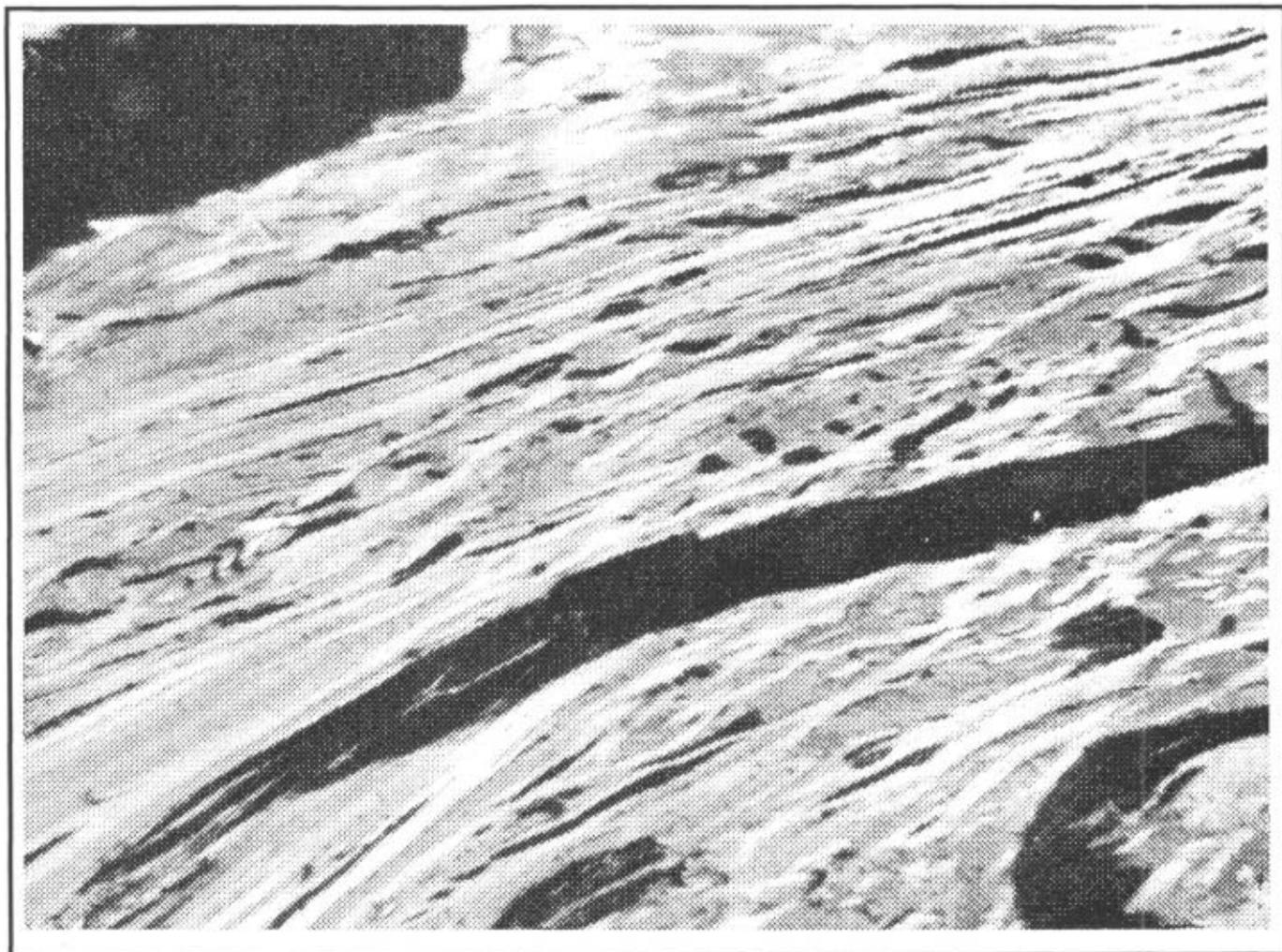
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Editors' Choice Photomicrograph: View of typical needle coke (delayed coke) derived from a petroleum feedstock. The parallel layers and linear fractures are distinctive and provide slip planes to relieve stress in the coke. This photomicrograph was taken with under vertical illumination with a 50x oil objective with the polarizer, analyzer, and retarder plate in the optical path. The width of the field (left to right) is 275 microns. [Photomicrograph courtesy of Ralph J. Gray]

Call for photomicrographs: The editors welcome contributions of photomicrographs of organic geological materials for future issues of the newsletter. At this time the photomicrographs should be of high contrast suitable for digitized reproduction.



THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

Vol. 16, No. 2

June 1999

ISSN-0743-3816



TSOP - Snowbird, Utah

16th Annual Meeting of TSOP at The Cliff Lodge, Snowbird Conference Center,
Snowbird Utah - September 26-30, 1999

The TSOP Newsletter

John C. Crelling/William W. Huggett
Co-editors

The *TSOP Newsletter* welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail file or as printed text via fax or regular mail. We do ask that any disk or e-mail file be written in **WordPerfect 6.1, 7, or 8.**

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Going to a Meeting?

Why not spread the TSOP message?

A limited number of recent back issues of the *TSOP Newsletter* are available for members to take to conferences they are going to attend. Membership packs and application forms are also available for distribution to interested parties. TSOP is an all-volunteer organization that relies on an active growing membership base in order to remain healthy. Only through the efforts of all of its members can TSOP continue to meet its membership goals. If you are interested in promoting TSOP and need some handouts please contact the following individuals:

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Unsolicited endorsement #41 from a satisfied TSOP mug owner:

"I was once pulled over by a state police officer for speeding. He started to write me a ticket but then noticed my TSOP coffee mug sitting on the dash board. He promptly tore up the ticket and told me to have a nice day!"

Acknowledgment

The editors wish to acknowledge the support of John Mead, Director of the Coal Research Center at SIUC, and his staff for assistance in editing and printing this newsletter.



=>Attention<=

Deadline for September issue is

AUGUST 1



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The Society For Organic Petrology and Related Future Meeting Schedule

Year	Meeting type	Location	Organizer	Status
1999	Annual	Snowbird, Utah	J. Quick	Definite
2000	Annual	Bloomington, IN	M. Mastalerz	Definite
2000	Joint AAPG/IPA	Bali	Katz	Definite
2001	Annual	Houston, TX	C.Robison	Definite
2001	Session @ ICCP	Copenhagen	C. Barker	Indefinite
2001	Session in NZ	Christchurch	T. Moore	Indefinite
2002	Joint CSCOP	Alberta	J. Potter	Definite
2003	Annual	Reston	P. Warwick	Definite

TSOP '99

The Society for Organic Petrology
16th Annual Meeting, September 26-30, 1999
The Cliff Lodge at Snowbird Conference Center, Snowbird Utah

AN INVITATION

On behalf of the TSOP '99 organizing committee please accept my invitation to join us for the 16th annual TSOP meeting. Consider attending the pre-meeting short course where Dr. Richard Tyson will present new perspectives on the inter-relationships between particulate sedimentary organic matter, depositional environments, and source rock potential. As always, the technical sessions will keep you informed of the latest developments in organic petrology. Sign-up for the post-meeting field trip and visit the Utah bitumen industry as well as exceptionally well exposed and scenic coal measures in Central Utah. Besides the short course, technical sessions, and post-meeting field-trip, perhaps the best part of a TSOP meeting is the chance to renew friendships and make new acquaintances with colleagues who share a common passion for organic matter in rocks. I look forward to seeing you all in Utah!

-Jeff Quick

MEETING INFORMATION

Pre-meeting Short Course
Sunday, 26 September 1999
The Cliff Lodge at Snowbird Conference Center

(preregister by August 23)

Palynofacies and Organic Facies: New Approaches for the Millennium

Instructor: Dr Richard Tyson

A full-day short course in seminar format will be illustrated with data from studies undertaken at the University of Newcastle, UK (lunch, refreshments, and notes provided).

Topics to be covered:

Kerogen classification in transmitted light
Palynofacies methodology
The proximal-distal concept
Sedimentology of microscopic phytoclasts
Fluorescence scale
Organic facies
Correlation with sequence stratigraphy

Course suitability: Palynologists, organic petrologists, organic geochemists, and sedimentologists interested in new perspectives on the inter-relationships between particulate sedimentary organic matter, depositional environments, and source rock potential.

Conference Technical Sessions

Monday, 27 September & Tuesday, 28 September
The Cliff Lodge at Snowbird Conference Center

New Item! FAMM Demonstration

Neil Sherwood and Joseph Kurusingal (CSRIO, Australia) plan to bring the latest version of their FAMM (Fluorescence Alteration of Multiple Macerals) Microprobe for demonstration during our technical sessions. If you have ever wondered what FAMM is all about - this is your chance to see it in action and talk to the experts!

Preliminary List of Research Presentations

The effects of surface area, grain size and mineralogy in organic matter sedimentation and preservation across the modern Squamish Delta, British Columbia. Adams R., and Bustin R.M.

The Effect of Supercritical Water on Vitrinite Reflectance as Observed in Contact Metamorphism and Pyrolysis Experiment. Barker C.E., Lewan M., and Bustin R.M.

Analysis of Microcracks in Artificially Coalified Peats. Cohen A.D., Prince C.M., Bailey A.M., Ho C.S., Riese W.C., and Thibodeaux, S.

Abundance, Distribution and Origin of Sulfur in Coals in Wuda Coalfield, Inner Mongolia, Northern China. Dai S., Tang Y., Peng S., and Hou H.

Predictive Organic Facies Analysis, Follows B., and Tyson R. V.

Aspects of Coal Sample Preservation. Glick D., and Mitchell G.D.

The Effects of Igneous Intrusions on Coalbed Methane Potential of the Gunnedah Basin, NSW, Australia. Gurba, L, Weber C, Bunny, M, and Ward C; or, *Elemental Carbon and Vitrinite Reflectance: Application of Electron Microprobe Technique in Regional Rank Studies*. Gurba L., and Ward C.

Artificial Coalification Study of Two Permian Coals. Han Z.

Further Examination of the Ragged Edge of the Herrin Coal Bed, Webster County, Western Kentucky Coal Field. Hower J.C., and Williams D.A.

Source Rock Organics and Reservoir Rock Facies Related to Oil in Coal Measures. Jin K. L.

Anthropogenic Organic Matter in the Great Marsh Area and its Implications. Mastalerz, M., Souch C, FilipPelli G, Dollar N., and Perkins S.

Surface Properties of Photo-oxidized Bituminous-Rank Vitrinite. Mitchell G.D., and Davis, A.

Organic Geochemistry of Crude Oils and Source Rocks from the Silurian Strata in Southern Ontario, Canada. Obermajer M., Fowler M.G., and Snowdon, L.R.

Coal Characterization Using Spin Electronic Resonance Spectroscopy. Panaitescu, C, Meghea, A., and Predeanu, G.

Relations between specific structural characteristics of Romanian coking coals. Panaitescu, C, and Predeanu, G.

Composition and Distribution Features of Fatty Acids in Salt-Lake Immature Oils, and, Biomarkers from Recent Salt Lake Sediments in Qaidaw Basin. Fan Pu.

Carbon Dioxide from Coal Combustion: Variation with Maceral Content. Quick J.C.

Natural Mixing of Crude Oils from Different Sources in the Bohai Bay Basin, China. Robison, CR.

Recent Developments in Fluorescence Analysis of Multiple Macerals (FAMM). Sherwood N., and Kurusingal J.

Enhanced Petroleum Potential of Marine-influenced Coals in Mangahewa Formation, Taranaki

Basin. Sykes, R, Bartram, K.M, Dow, M.J., and Suggate, R.P.

Relations Between Coal Petrology and Gas Content in the Upper Newlands Seam, Central Queensland, Australia. Walker R., and Glikson M.

Quantitative Mineralogical Analysis of the Argonne Premium Coals using Rietveld-based X-ray Diffraction Techniques. Ward C.R., Taylor J.C., Matulis C.E., and Dale L.S.

Characterization of Solid Reservoir Bitumen: Insights to Origin, Timing, and Correlation. Wavrek D.A., Jarvie DM., and Burgess J.D.

Low Ash Peat Deposits From a Dendritic, Intermontane Basin in the Tropics: A New Model For Good Quality Coals. Wüst R.A.J., and Bustin, R.M.

Post-Meeting Field Trip

Tentative Itinerary

Dave Tabet, Utah Geological Survey, Field Trip Leader

DAY 1 Wednesday, 29 September

- 9:00 am Vans depart the Cliff Lodge and follow road log to Soldier Summit ozokerite deposit.
- 10:30 am. Tour ozokerite deposit and talk about geology, chemistry, and mining history
- 11:30 am Follow roadlog to Price Utah and eat lunch (provided).
- 1:00 pm Drive to road cut at junction of Price River Canyon and Willow Creek to see and discuss geology of Spring Canyon Sandstone and Spring Canyon coals.
- 1:45 pm Drive to and walk up Gentile Wash to see cyclic geology of these units, including beach and near shore facies, and white cap development.
- 3:45 pm Drive to and walk up Hardscrabble Canyon to see geology of above mentioned units including compactional features under channel sandstones, dinosaur foot prints, oyster deposits in lagoonal or estuarine environment, and reclaimed old mine workings.
- 5:30 pm Check into motel in Price Utah (dinner, on your own, at local restaurants).

DAY 2 Thursday, 30 September

- 8:00 am Depart Price, and follow roadlog to Vernal, Utah.
- 9:30 am Tour tar sand mining and recovery operation at Asphalt Ridge.
- 11:30 am Lunch in Vernal (provided).

- 12:30 pm Follow roadlog to Bonanza, Utah.
- 1:15 pm Tour gilsonite plant and deposit.
- 3:15 pm Follow roadlog and arrive in Salt Lake City at 5:30 pm.

Hotel Registration

The Cliff Lodge at Snowbird Conference Center

Snowbird Conference Center
The Cliff Lodge
P.O. Box 929000
Snowbird, UT 84092
USA

Telephone 800-453-3000
Fax 801-947-8227
www.snowbird.com

Room costs for TSOP 1999 conference.

One bed, single occupancy	\$89
two beds, single or double occupancy	\$89
Suites, 1 parlor, 1 bedroom	\$179
extra roll-away bed (per person)	\$20
Dormitory accommodation for students	\$46

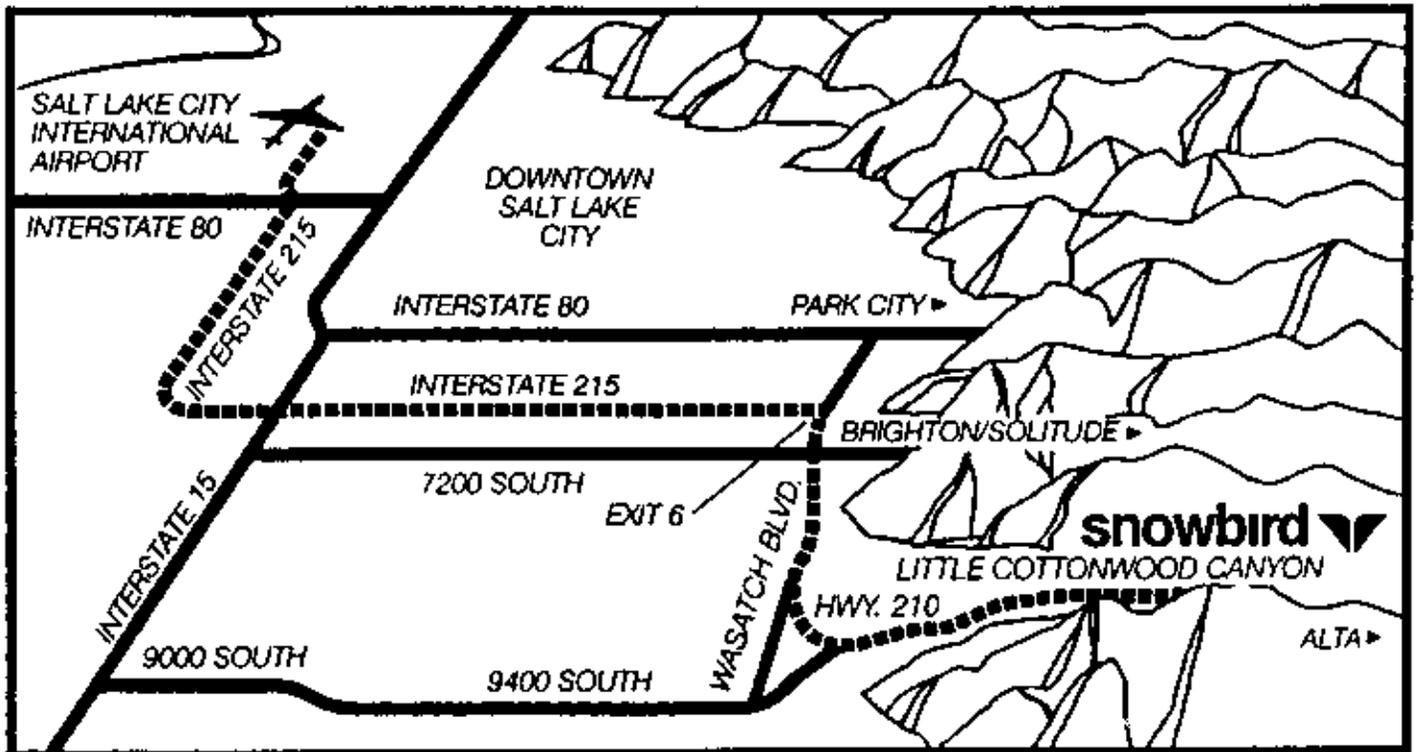
These prices do not include tax. To reserve a room at the Cliff Lodge at Snowbird Conference Center, tell the hotel that you are attending the TSOP conference, ***and make your hotel reservation before August 29, to guarantee a room at the reduced TSOP rate.*** A deposit, by credit card or personal check is required to hold a reservation beyond the 4:00 p.m. check-in. Deposits are refundable by calling the hotel 48 hours prior to scheduled arrival and obtaining a cancellation number.

Transportation

Express vehicle service from Salt Lake City International Airport to Snowbird (8 am to 10 pm) Canyon Transportation Inc. Telephone 800-255-1814 (outside Utah), 801-255-1841 (inside Utah), or 742-3401 from Snowbird Conference Center. E-mail: res@canyonytnsport.com. **For best service make reservations and tell Canyon Transport your name, flight number and time of arrival.** Round trip cost is about \$40. Upon arrival at the airport, proceed to the baggage

claim area where you will find the Ground Transportation Desk next to the luggage claim area. Before you claim your luggage check in with the Canyon Transportation representative.

If you drive, follow the map shown below and, upon reaching Snowbird take ENTRY 4 to the Cliff Lodge.



■ ■ ■ ■ ■ Recommended route from the airport to Snowbird.

Snowbird is only 25 miles (30 minutes) from downtown Salt Lake City and 29 miles (40 minutes) from the Salt Lake City International Airport.

Please Note: Due to major reconstruction of interstate 15 in Salt Lake County, we recommend using the following routes to Snowbird:

From the airport: Take I-80 East to I-215 South. Take exit 6 and go right at the light, toward the mountains. This road will lead you straight to Ut-210 and up to Snowbird.

From Downtown Salt Lake City: Take 700 East St. south to I-80 East to the I-215 Beltway South. Take Exit 6 and go left at the Light.

Weather

At the 8,100 ft. elevation of the convention center the mountain weather is unpredictable but you can expect cool days and chilly nights so bring a sweater and a jacket. To prepare for the typically bright sun, a hat and sunglasses are advised. Those going on the field trip should also wear sturdy shoes and bring a raincoat.

Questions?

If you have special food or physical requirements or simply want further information please contact any of the organizing committee members.

TSOP '99 Organizing Committee

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**William Spackman appointed
Founding Editor of the *International
Journal Of Coal Geology*.**

Editor's note: The following is reprinted in part from the International Journal of Coal Geology #39, (1999) p. v - vi.

Professor William Spackman was the first Editor-in-Chief of the *International Journal of Coal Geology*. He spent much time formulating the plan for the Journal and in assessing the need for such a publication. He put forth many of his thoughts along these lines in an Editorial published Volume 1, Number 1 of the *International Journal of Coal Geology*. He envisioned "the creation of an international, scholarly journal that will permit effective communication between the coal geologist and other scientists and engineers who are concerned with the nature of coal and coal seams as well as those concerned with coal utilization". Further, he felt that this publication has to "be broad in scope and it must stimulate the interdisciplinary thrusts that are required to advance coal science and technology."

Dr. Spackman received his associate's degree from North Park College and the BA degree from the University of Illinois. His master's and PhD degrees were granted by Harvard University. During World War II he worked in wood products research at the Philadelphia Naval Shipyard. From 1947-1949 he was a Teaching Fellow at Harvard University.

In 1949 Dr. Spackman joined the faculty of the Department of Geology at The Pennsylvania State University as an assistant professor. As his work progressed, he became more involved with coal research than he envisioned would be the case. He became director of the Coal Research Section at Penn State yet was able to maintain his teaching and research efforts. He was promoted to professor in 1960.

In 1960 he was the lead author on the paper "Coal and coal seam composition as related to preparation and carbonization". This paper was judged by the American Iron and Steel Institute

to be the Outstanding Research Paper of the year. In 1976 Professor Spackman was honored for his outstanding research efforts by the Ironmaking Division of the Iron and Steel Society They bestowed him with their highest honor, the Becker medal. In 1977 the Coal Division of the Geological Society of America honored him with the Gilbert H. Cady Award - their highest honor. The International Commission for Coal Petrology awarded Professor Spackman the Reinhart Theissen Medal in 1984.

Dr. Spackman has demonstrated leadership and vision in his research and teaching. His contributions in coal science have directly led and pointed the way for the establishment of industrial laboratories in North America. The widespread practical application of coal petrography and petrology has resulted from his initiative. His teaching has provided first, second, and third generation students to support these efforts.

The International Journal of Coal Geology wishes to acknowledge Professor Spackman and his efforts and add our congratulations and thanks for his monumental contributions to coal geology. It is with extreme pleasure that we announce his appointment as Founding Editor of the *International Journal of Coal Geology*. This designation will be noted henceforth in all issues of the Journal he founded.

Russell R. Dutcher
Honorary Editor

Report on the 58th Annual Ironmaking Conference

The 1999 Ironmaking Conference was held in Chicago from Sunday, March 21st to Wednesday, March 24 at the Hyatt Regency Hotel and Convention Center. Of interest to TSOP members were technical sessions on blast furnace injection of coal, coal and coke research, direct reduction of iron, non-recovery coke making, and coal and coke quality. Three TSOP members were on the program committee for the meeting including Gary Mitchell who is also on the vice chair of the ironmaking division, Jack Crelling, and H. S. Valia who received the Becker Award at this meeting. (See article in this issue).

In the Coal and Coke Research Sessions, Y. Shigeno of Tohoku University in Japan and J. W. Evens of the University of California, Berkeley presented a paper entitled *"Infiltration of Metallurgical Coke by Thermal Decomposition of Methane and its Effect on CSR Through Microstructural Changes"*. They showed that methane pyrolysis deposits carbon in the pores of the coke and thus restricts their reactivity during oxidation and this is responsible for the beneficial increase in the CSR (coke strength after reaction).

There were a number of papers on non-recovery coke making. This is a coking process in which none of the gasses and tars evolved from the coal during coking are recovered. All of the volatiles are burned in the process and what heat is not used in the coking process is used to generate electrical power. There are two such plants in operation in the U.S.A. now. One at Inland Steel in East Chicago just went on line. There is great interest in this process in the steel industry especially because it has much fewer environmental problems than the byproduct coking process.

Two ironmaking processes that use coal and can be studied using organic petrology are blast furnace injection where coal is injected with the blast air in an effort to reduce the demand for coke and the direct reduction of iron (done with out a blast furnace). In the session that dealt with blast furnace injection, two student papers from

the University of New South Wales in Sydney, Australia were of petrographic interest.

L. Lu, V. Sahaiwalla, and D.J. Harris discussed their work on the structure of coal chars related to coal injection. F. McCarthy, C. Wu, V. Sahaiwalla, and J. Hart discussed the effect of sulfur on the reactivity of coal-derived blast furnace char.

The papers in the session on direct reduction mainly dealt with the various processes that are being developed to reduce the iron ore directly, usually with a coal derived reducing gas. Very little petrographic work has been done in this area and it represents a research opportunity.

Hardarshan Valia Receives The 1999 Joseph Becker Award

Dr. Hardarshan Valia, a well known TSOP member, of Ispat Inland Inc., East Chicago, Indiana became the 37th recipient of the Joseph Becker Award at the 58th Ironmaking Conference held in Chicago in March. The Becker award is given annually by the Ironmaking Division of the Iron and Steel Society which is part of the A.I.M.E. The award is given for distinguished contributions in the field of coal carbonization. Dr. Valia has made contributions in a number of areas of carbonization and most recently he has been involved with the installation and start up of the new non-recovery coke oven battery at Inland Steel. The citation for the presentation of the award stressed the many contributions and persistent enthusiasm of Dr. Valia over his whole career in the steel industry

The Becker Award is one of the highest honors available in the steel industry, and has now been awarded to six TSOP members:

- 1976 - W. Spackman Jr.
- 1986 - R. J. Gray
- 1988 - R. R. Thompson
- 1990 - H. Marsh
- 1996 - L. G. Benedict
- 1999 - H. Valia

MaryAnn Malinconico Receives Chrysalis Scholarship Award

MaryAnn L. Malinconico, TSOP Outreach Chair, received a partial Chrysalis Scholarship this past April from the Association for women Geoscientists. The recipients of this award are free to use the funds in any manner they wish towards the completion of their thesis and Masters or PhD degree program in a geoscience field. The applicant must be a woman whose education has been interrupted for at least one year, and has contributed and will continue to contribute to

both the geoscience and the larger world community through her academic and personal strengths.

MaryAnn is currently a doctoral student at the Lamont - Doherty Earth Observatory of Columbia University, New York, New York and expects to complete her dissertation, entitled "Organic lacustrine sedimentation, organic metamorphism and thermal history of selected Early Mesozoic rift basins, eastern USA", in late fall 1999.

Availability of Reflectance Standards

Because reflectance measurements are an essential part of coal petrography and coal petrographic research, and because the older glass standards eventually break down, the availability of reflectance standards is of interest to the organic petrography community. At this time there appears to be four sources of standards.

Karthik Krishnamurthy of UEC Coal and Coke Laboratories in Monroeville, PA has announced the availability of a mounted three glass standard with reflectance in oil of approximately 0.50% (Glass #3 schott), 1.003% (Glass # 4 B&L), and 1.82% (Glass # 6 B&L). These standards are made up with the remains of the glass stock from U.S. Steel and the late Don Cole who provided reflectance standards in the past. The UEC standards are available for \$850.00 from:

Karthik Krishnamurthy
400 Tech Center Drive
MSC-96
UEC Coal and Coke Laboratories
Monroeville, PA 15146
Ph: 412-825-2055
Fax: 412-825-2727
e-mail: kkrishnamurthy@uss.com

A second source of standards is Klein & Becker GmbH & Co. in Germany. These standards are all mineral standards and cover a much higher range of reflectance (up to 7.0% in oil) than the familiar glass standards. These mineral standards

come well mounted and identified and have the advantage of being much more resistant to scratching than the glass standards. The standards available are:

Substance	Ro % (in oil)	Approx. Price
Diamond	5.25	\$880-\$1980
Cubic Zirconia	3.20	\$537
GGG*	1.70	\$553
YAG**	0.90	\$528
Leucosapphire	0.60	\$520

* Gadolinium-Gallium-Garnet
 ** Yttrium-Aluminum-Garnet

The delivery on these standards takes at least 6-8 weeks except for the diamond standard which takes four months or more. The price of the diamond standard varies with the size of the diamond used. Klein & Becker can be contacted at:

Klein & Becker GmbH & Co.
 Schjillingstrasse 8-10
 D-55743 Idar-Oberstein
 Germany
 Ph: 06781-42079
 Fax: 06781-42870

Leica Microsystems Inc. report that they have at least four reflectance standards available.

Substance	Ro% (in oil)	Approx. Price	Cat #
SiC	8.0	\$828	620615
Glass	1.25	\$691	620314
Leucosapphire	0.5	\$1,527	621061
NG4	0.0	\$535	620616

They can be contacted at:

Leica Microsystems Inc.
 111 Deer Lake Road
 Deerfield, IL 60016
 Ph: 847-405-0123
 Fax:847-317-7288

A fourth source for standards is Carl Zeiss Inc. Although information was difficult to obtain, they apparently have at least a SiC standard available

for about \$500. They can be contacted at:

Carl Zeiss inc.
 One Zeiss Drive
 Thornwood, NY 10594
 Ph: 914-747-1800
 Fax: 914-682-8296
 e-mail: micro@zeiss.com

The above compilation is the result of an extended search and should be current and accurate, except for the prices given which are only approximate. If any reader has additional or more accurate information, please send it to the newsletter editors and it will be included in a future newsletter issue.

Editor's Membership Notice

One of the sad parts of being any newsletter editor is receiving the inevitable, "**Return To Sender, Address Unknown**" after each mailing. Here at the TSOP editor's desk I have the misfortune of having a stack of orphaned Vol. 16, No. 1 Newsletters. Below is a list of the persons to whom they belong however due to any number of circumstances, did not reach their destination. If any member knows the whereabouts of these individuals please contact us with any updated information.

-editor

- Katherine Brown
- Brenda Claxton
- Cheryl Gullett
- Yingting Guo
- Jacek Jaminski
- Ganjavar K. Khorasani
- Dawn M. Kosloski
- Mark Pasley
- Ken Pratt
- Michael Smith
- Michelle Smythe
- Bruce E. Torkelson
- Harry Veld
- Yunhe Zhang

<u>Name of Publication</u>	<u>Price (USD)</u>
<i>Fluoreszenz von Liptiniten und Vitriniten in Beziehung zu Inkohlungsgrad und Verkokungsverhalten</i> - (in German with photomicrographs) M. Teichmüller, 1982	\$10
<i>Fluorescence - microscopical changes of liptinites and vitrinites during coalification and their relationship to bitumen generation and coking behavior</i> , TSOP Special Publication No. 1 (English translation by Neely Bostick, without photomicrographs) M. Teichmüller, 1984	\$ 5
<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
<i>Fluorescence Microscopy Workshop Lecture Notes</i> , 1989 TSOP Meeting	\$35
<i>Organic Geochemistry</i> , 2nd TSOP Meeting, Houston, TX, 1985; Vol. 11, No. 5, 1987	\$ 5
<i>Organic Geochemistry</i> , 3rd TSOP Meeting, Lexington, KY, 1986; Vol. 12, No. 4, 1988	\$ 5
<i>Organic Geochemistry</i> , 4th TSOP Meeting, San Francisco, CA, 1987; Vol. 14, No. 3, 1989	\$ 5
<i>Organic Geochemistry</i> , 5th TSOP Meeting, Houston, TX, 1988; Vol. 17, No. 2, 1991	\$10
<i>Organic Geochemistry</i> , 6th TSOP Meeting, Urbana, IL, 1989; Vol. 17, No. 4, 1991	\$10
<i>Organic Geochemistry</i> , 7th TSOP Meeting, Calgary, Alberta, 1990; Vol. 18, No. 3, 1992	\$10
<i>Organic Geochemistry</i> , 8th TSOP Meeting, Lexington, KY, 1991; Vol. 20, No. 2, 1993	\$10
8th TSOP Meeting Field Trip Guidebook, Lexington, KY, 1991	\$ 5
<i>Organic Geochemistry</i> , 10th TSOP Meeting, Norman, OK, 1993; Vol. 22, No. 1, 1994	\$10
12th TSOP Meeting Field Trip Guidebook, The Woodlands, TX, 1995	\$ 5
<i>Organic Geochemistry</i> , 11th TSOP Meeting, Jackson, WY, 1994; Vol. 24, No. 2, 1996	\$35
<i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997	\$15
IJCG, 13th TSOP Meeting, Carbondale, IL, 1996; Vol. 37, Nos. 1-2, 1998	\$15
IJCG, Special Issue: Appalachian Coalbed Methane; Vol. 38, Nos. 1-2, 1998	\$20

Make checks payable to TSOP and send orders to:

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Calendar of Events

1999

Fall: International Committee for Coal and Organic Petrography, Bucharest, Romania.

August 22-26: American Chemical Society National Fall Meeting, New Orleans, Louisiana

September: Sixteenth Annual Meeting of The Society for Organic Petrology, Salt Lake City, Utah. For further information, contact either Jeff Quick (801) 585-7851 [phone], 801-585-7873 [fax], jquick@esri.utah.edu) or Dave Wavrek (801) 585-7907 [phone], 801-585-7873 [fax], dwavrek@esri.utah.edu).

September 12 -15 : AAPG International Conference and Exhibition, Birmingham, England. For info, contact the AAPG Conventions Department at (918)584-2555.

October 18 - 20 : Third International Ash Utilization Symposium, Lexington, KY. For more information, contact Jim Hower at (606) 257-0261 [phone] / (606) 257-0302 [fax] or contact the web-site address at <http://www.flyash.org>

October 25 - 28 : Annual Meeting of the Geological Society of America, Denver, Colorado. For additional information, contact GSA at (303)-447-2020 [phone] or (303) 447-6028 [fax].

2000

March 26 - 29 : 59th Ironmaking Conference, Pittsburgh, PA. For more information contact ISS Headquarters at (412) 776-1535 [ext. 618] or visit <http://issource.org/>.

March 26-31: American Chemical Society Annual Spring Meeting, San Francisco, California.

April 16-19: AAPG Annual Convention and Exhibition, New Orleans, Louisiana. For more information contact the AAPG Convention Department at (918) 560-2679

August 6-11: Eleventh International Peat Congress - "Sustaining the World's Peatlands", Quebec City, Quebec, Canada.

August 20-24: American Chemical Society Annual Fall Meeting, Washington D.C.

November 13-16: Annual Meeting of the Geological Society of America, Reno, Nevada. For further information, contact GSA at (303) 447-2020 or fax them at (303) 447-6028.

2001

April 1-5 American Chemical Society Annual Spring Meeting, San Diego, California.

March 25-28 : 60th Ironmaking Conference, Baltimore, MD. For more information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

August 26-30: American Chemical Society Annual Fall Meeting, Chicago, Illinois

November 5-8: Annual Meeting of the Geological Society of America, Boston Massachusetts. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

2003

November 2-5: Annual Meeting of the Geological Society of America, Seattle, Washington. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

This list is compiled from various Internet sources as well as information submitted by individuals. Accuracy of information cannot be guaranteed. All submissions are welcomed Please notify the editor of any errors, changes, submissions, or deletions.



THE SOCIETY FOR ORGANIC PETROLOGY

**Instructions:**

- 1) Print out form and provide necessary information
- 2) Check box, or sign, at bottom of form
- 3) Mail to: Cortland Eble, TSOP Membership Chair
Kentucky Geological Survey, 228 MMRB
University of Kentucky, Lexington KY 40506

**Membership
Application Form
Please Print**

Questions?
606/257-5500
phone
606/257-1147
FAX

able@kgs.mmm.uky.edu

Name _____
Last _____ First _____ MI _____

Address _____

City _____ State/Province _____ Zip Code _____ Country _____

Business or Day Telephone Number _____ Fax Number _____

_____ E-mail Address _____

Education _____
degree _____ year _____ institution _____ major subject _____

Principal activities and interests _____
_____ Coal Petrology
_____ Organic Geochemistry
_____ Kerogen Petrology
_____ Other (please describe) _____

Professional experience and interests relative to organic petrology _____

Names and addresses of two people who are familiar with your interests/activities in organic petrology

	1	2
_____	_____	_____
_____	_____	_____

Membership category you are applying for _____
_____ full member (\$20.00 US. \$30.00 CN)
_____ student rate (\$15.00 US. \$23.00 CN)
_____ institutional member (\$75.00 US)

Payment must be in US or Canadian dollars, drawn from a US or Canadian bank. TSOP assumes no responsibility for cash lost in mail

I am familiar with the objectives of the Society, and agree to adhere to, and abide by, TSOP constitution and bylaws

agree/accept (please check box)

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Date:	_____	

_____ signature



Editors' Choice Photomicrograph: View of a true cannel coal (about 60% sporinite) showing a predominance of fluorescing macrospores and microspores in a non-fluorescing vitrinite matrix. This photomicrograph was taken under vertical illumination with a 50x oil immersion objective with blue light fluorescence illumination. The width of the field left to right is 300 microns. The sample is from the Armfield coal seam in eastern Tennessee and was provided by Professor Steven Shaver of Sewanee, The University of the South.

Call for photomicrographs: The editors welcome contributions of photomicrographs of organic geological materials for future issues of the newsletter. At this time the _____ photomicrographs should be of high contrast suitable for digitized reproduction _____



THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

Vol. 16, No. 3

September 1999

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The TSOP Newsletter

John C. Crelling / William W. Huggett
Co-editors

The *TSOP Newsletter* welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail file or as printed text via fax or regular mail. We do ask that any disk or e-mail file be written in **WordPerfect 6.1, 7, or 8.**

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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 international and is open to all individuals having an interest in the field of organic petrology. For more information on membership, Society activities, or to acquire membership packs, please call or write:

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WEBSITE!

www.tsop.org

You'll find the TSOP discussion forum, links to other related sites, schedules, dates, meeting updates, and tons of other useful information!

TSOP Archives

Now open for business!!

The official TSOP archival collection is now available for your use.

The collection contains all of the society's newsletters, publications, programs, field guides, short course notes, Research Committee reports, minutes of Council meetings, and member directories.

Photocopies of desired materials will be provided at a cost immediately upon approval of your request form. Sorry, but no copies of publications which are currently for sale by TSOP can be provided. Please make all inquiries to:

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"People come into my office say I look great and ask if I've lost weight. Little do they realize it's because my TSOP coffee mug is sitting right there!"

Going to a Meeting?

Why not spread the TSOP message?

A limited number of recent back issues of the *TSOP Newsletter* are available for members to take to conferences they are going to attend. Membership packs and application forms are also available for distribution to interested parties. TSOP is an all-volunteer organization that relies on an active growing membership base in order to remain healthy. Only through the efforts of all of its members can TSOP continue to meet its membership goals. If you are interested in promoting TSOP and need some handouts please contact the following individuals:

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Acknowledgment

The editors wish to acknowledge the support of John Mead, Director of the Coal Research Center at SIUC, and his staff for assistance in editing and printing this newsletter.



=> Attention <=

Deadline for December issue is:

November 5



TSOP Mugs!

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Research Committee Report

Four students submitted applications for the TSOP Student Grants Program by the March 31 deadline. They were:

- / Nadir Taskin Akpulat, University of Calgary, "Hydrocarbon generation kinetics of the Lower Cretaceous Ostracode Zone and quantitative basin modeling, Alberta Basin, Canada.
- / Nicole Heller, Southern Illinois University, "Diagenetic and industrial history of a peat core: Charles E Wheeler salt marsh, New Haven Co., Connecticut".
- / Shona Ness, University of Calgary "Hydrocarbon generation, expulsion and migration simulation within Triassic succession, Alberta Deep Basin".
- / Eric Zimmermann, Louisiana State University, "Provenance of the modern sediments of the Eastern Pontides Province, NE Turkey: mineral chemical evidence from heavy minerals.

Three reviewers, Brian Cardott, Suzanne Russell, and Maria Mastalerz, scored each proposal. The scores were combined to rank the proposals. The winner of the 1999 TSOP Student Grant of \$1,000.00 is **Nadir Taskin Akpulat** of the University of Calgary. He will be presenting a poster of his work at the 19th International Meeting on Organic Geochemistry in September and is not able to attend the TSOP annual meeting. His supervisor, Dr. Cynthia Riediger, is attending TSOP and presenting their paper and she will receive the check on his behalf.

The other students were thanked for their participation and were given the opportunity to select one TSOP publication.

All students were informed in writing when their applications were received and of their final status. The next round of applications is due before March 31, 2000 (see TSOP website for forms and details).

PROGRAM

**The Society for Organic Petrology
16th Annual Meeting, September 26-30, 1999
The Cliff Lodge at Snowbird Conference Center, Snowbird Utah**

Sunday 26 September 1999

8:00 - 9:00 am. **Registration and Coffee**

9:00 a.m. 4:00 p.m. **Short Course** Maybird Room

Palynofacies and Organic Facies: New Approaches for the Millennium

Instructor: Richard Tyson

10:30 Break

12:30 Box Lunch

2:30 Break

4:00 - 7:00 p.m. **General Registration**

5:00-8:00 p.m. **Poster set-up** Wasatch Room

6:00 - 9:00 p.m. **Reception** Golden Cliff Room

8:00 - 12:00 p.m. **Outgoing Council Meeting** Board Room

Monday 27 September 1999

Technical Session Wasatch Room

7:30 a.m. General Registration and Coffee

- 8:30 a.m. Welcome
- 8:35 a.m. Richard V. Tyson
Keynote Address: *Reinventing Palynofacies for the 21st Century.*
- 9:15 a.m. Ben Follows*, R. V. Tyson
Predictive Organic Facies Analysis.
- 9:40 a.m. Richard Doyle*. R.V. Tyson
Organic Facies Cycles in the Type Kimmeridge Clay Formation, Dorset, U.K.
- 10:05 am. Coffee Break
- 10:20 a.m. N.T. Akpulat, Cindy Riediger, L. R. Snowdon
Initial Results of Kinetic and Maturity Modeling of Hydrocarbon Source Rocks from Southern Alberta, Western Canada Sedimentary Basin.
- 10:45 a.m. David A Wavrek, DM. Jarvie, J.D. Burgess
Characterization of Solid Reservoir Bitumen: Insights to Origin, Timing, and Correlation.
- 11:15 a.m. Judith Potter
A Genetic Approach to the Characterization of "Microbitumens "; implications for thermal maturity determinations.
- 12:00 a. m. **Luncheon and TSOP General Meeting** Golden Cliff Room
- 2:00 p.m. **Technical Sessions** Wasatch Room
- Neil Sherwood, J. Kurusingal, N. Zhong
Advances in Microfluorescence and FAMM® Analyses for Source Rock Evaluation
- 2:25 p.m. **Posters and Demonstration**** Wasatch and Board Room
- Poster 1 Rupert S. Adams*, R.M. Bustin
The Effects of Surface Area, Grain Size and Mineralogy in Organic Matter Sedimentation and Preservation Across the Modern Squamish Delta, British Columbia.
- Poster 2 Takashi Iguchi

Relationship Between Degradinite Content and Source Rock Potential of Tertiary Coals of Hokkaido, Northern Japan.

** Joeseph Kurusingal and Neil Sherwood
FAMM Demonstration

Poster 3 Mark Obermajer, M.G. Fowler, L.R. Snowdon,
Organic Geochemistry of Crude Oils and Source Rocks from the Silurian Strata in Southern Ontario, Canada.

Poster 4 Cornelija Panaitescu, A. Meghea, G. Predeanu
Coal Characterization Using Spin Electronic Resonance Spectroscopy.

Poster 5 Cornelija Panaitescu, G. Predeanu
Relations Between Specific Structural Characteristics of Romanian Coking Coals.

Poster 6 Zhang Songlin, Cui Mingzhong, Li Zhenxi, Li Jinggui, Fan Pu
Distribution and Composition Features of Fatty Acids from Recent Salt-Lake Sediments in Qaidam Basin.

Poster 7 Zhang Songlin Cui Mingzhong, Li Zhenxi, Wang Youxiao, and FanPu
Composition and Distribution Features of Fatty Acids in Salt-Lake Immature Oils.

Poster 8 Cole R. Robison
Natural Mixing of Crude Oils from Different Sources in the Bohai Bay Basin, China.

3:15 p.m. **Break**

3:30 p.m. JR. Gibbins, John C. Crelling, M. Seitz, S. Kennedy
BRICCS: Bireflectance Imaging of Coal and Carbon Specimens

3:55 p.m. Lila W. Gurba, C. Weber, M. Bunny, C. Ward
The Effects of Igneous Intrusions on Coalbed Methane Potential of the Gunnedah Basin, NSW, Australia.

4:20 p.m. Rachael Walker*, and M. Glikson
Relations Between Coal Petrology and Gas Content in the Upper Newlands Seam,

Central Queensland, Australia.

- 6:00 p.m. **Dinner** Magpie A Room
- 8:00 p.m. **Incoming Council Meeting** Board Room

Tuesday 28 September 1999

Technical Sessions Superior Room

- 7:30 a.m. General Registration and Coffee
- 8:30 a.m. Announcements
- 8:35 a.m. Colin R. Ward, J.C Taylor, C.E. Matulis, L.S. Dale
Quantitative Mineralogical Analysis of the Argonne Premium Coals using Rietveld-based X-ray Diffraction Techniques.
- 9:00 a.m. Lila Gurba, C.R.Ward
Elemental Carbon and Vitrinite Reflectance: Application of Electron Microprobe Technique in Regional Rank Studies.
- 9:25 a.m. Zhiwen Han
Artificial Coalification Study of Two Permian Coals.
- 9:40 a.m. Coffee Break
- 9:55 a.m. Tim A. Moore, J.C. Shearer, K.N. Bassett, A. Nicol
Can Braided Rivers and Peat be Intimate?
- 10:20 a.m. Raphael A.J. Wüst*, R.M. Bustin.
Low Ash Peat Deposits From a Dendritic, Intermontane Basin in the Tropics: A New Model For Good Quality Coals.
- 10:45 a.m. James C. Hower, D.A. Williams
Further Examination of the Ragged Edge of the Herrin Coal Bed, Webster County, Western Kentucky Coal Field.
- 11:10 a.m. **Group Photograph**
- 11:30 a.m. **Lunch (on your own)**

- 1:00 p.m. **Awards Presentation and Technical Session** Superior Room
- 1:10 p.m. Arthur D. Cohen. CM. Prince, A.M. Bailey, C.S. Ho, W.C. Riese, S. Thibodeaux
Analysis of Microcracks in Artificially Coalified Peats.
- 1:35 p.m. Richard Sykes. KM. Bartram, M.J. Dow, R.P. Suggate
Enhanced Petroleum Potential of Marine-influenced Coals in Mangahewa Formation, Taranaki Basin.
- 2:00 p.m. Jin Kuili.
Source Rock Organics and Reservoir Rock Facies Related to Oil in Coal Measures.
- 2:25 p.m. Break
- 2:40 p.m. Maria Mastalerz. C. Souch, G. FilipPelli, N. Dollar, S. Perkins
Anthropogenic Organic Matter in the Great Marsh Area and its Implications.
- 3:05 p.m. Shifeng Dai. Yuegang Tang, Suping Peng, Huimin Hou
Abundance, Distribution and Origin of Sulfur in Coals in Wuda Coalfield, Inner Mongolia, Northern China.
- 3:30 p.m. Jeffrey C. Quick
Carbon Dioxide from Coal Combustion: Variation with Maceral Content.
- 3:55 p.m. Closing Remarks
Instructions for Field Trip

DAY 1 FIELD TRIP (sold out)
Wednesday 29 September

- 8:00 a.m. Load Vans
- 8:30 a.m. Depart Snowbird

Soldier Summit
Lunch (provided)
Hardscrabble Canyon
Gentile Wash

Thursday 30 September

Breakfast (on your own)

8:30 a.m.: Depart Price Utah

Willow Creek Canyon

Asphalt Ridge Tar Sands

Lunch (provided)

American Gilsonite Co.

6:00 p.m.: Salt Lake City area, drop off at:

Airport

Snowbird Convention Center

Other area lodging

Editor's Choice Photomicrograph: We are always looking for new and interesting photomicrographs to grace the back page of our newsletter. If you have any such photos of past or current work that you think might qualify, please send them into the editor.

Thanks

First Announcement
The Society for Organic Petrology
17th Annual Meeting
Bloomington Indiana
Indiana University
September 17-20, 2000

Members of the organizing committee of the 17th Annual Meeting of the Society for Organic Petrology extend a warm invitation to attend the meeting at Indiana University in Bloomington Indiana.

Conference Highlights

- In-situ Analysis of Organic Matter - a pre-meeting short course the includes hands-on exercises.
- Special sessions on surface expressions of hydrocarbons and sedimentology of organic matter-rich sequence.
- General session on organic petrology and organic geochemistry-related subjects.
- Field trip to examine organic-rich rocks in the Eastern Interior Basin.

Also...

- Special student conference registration rates.
- All sessions, lodging, and social events are conveniently located in the campus conference hotel: the Indiana Memorial Union.

Online registration and comprehensive conference information will be available soon at the Indiana University Conference Bureau Web Site. (luconfs@indiana.edu)

For program information:

Dr. Maria Mastalerz
(812)855-9416
Mmastale@indiana.edu

For logistical information:

Conference Registrar
(800)933-9330
luconf@indiana.edu

**Frank Derbyshire
1945-1999**

Frank Derbyshire, a longtime director of the University of Kentucky's Center for Applied Energy Research and a Professor in the College of Engineering, Department of Chemical and Materials Engineering passed away Tuesday, August 17 1999, from complications associated with a short illness.

Derbyshire graduated with a first class Honors B.Sc. In Chemical Engineering from Manchester University, England followed by a M. Eng. From McMaster University, Ontario and subsequently a Ph.D. from Imperial College, London. Dr. Derbyshire's career spanned nearly a thirty year period and concerned primarily with research in the coal and fuel sciences, carbon materials and associated environmental concerns.

His experience in coal research commenced in 1975 with the Coal Research Establishment of the National Coal Board at Stoke Orchard, Cheltenham. This was followed by a period of research with Mobile R & D Corporation, Central Research Division in Princeton, New Jersey. In 1982 he moved to the Pennsylvania State University as Associate Professor in Fuel Science for the department of Materials Science and Engineering where he developed his interests in the use of carbon as a catalyst support. In 1986-87 he spent a year as a Visiting Research Fellow with the Carbon Research Group In the Department of Chemical Engineering at Loughborough University. He later joined Sutcliffe Speakman Carbons as Research Director with responsibility for the analytical and research departments before, in 1989, becoming Director of the University of Kentucky Center for Applied Energy Research.

During the past ten years, Professor Derbyshire continued to distinguished himself as a truly international recognized expert in coal science and carbon materials, and an effective and capable administrator of the coal research program at University of Kentucky.

Professor Derbyshire was an active member of

several divisions of the American Chemical Society, and several of the Advisory Boards of the American Chemical Society and the Pittsburgh Coal Conference. In addition he was Co-Vice Chairman of the 1992 Gordon Conference on the Science of Hydrocarbon Resources and Chairman of the Steering Committee for the 1992 Conference. In 1987 he was awarded the Richard A. Glenn Award by the Bituminous Coal Research Association. In 1997 he was the recipient of the Henry H. Storch Award in Fuel Chemistry from the American Chemical Society - among the list of 31 distinguished recipients of this award. Professor Derbyshire published extensively and authoritatively on various aspects of coal liquefaction and on the production and properties of activated carbons, including 150 scientific papers and 13 patents.

Frank supported TSOP through contributions from University of Kentucky's Center for Applied Energy Research for the 1991 and 1997 meetings as well as the TSOP participation in the Atlas of Coal Geology project.

TSOP Election Results

Below are the results of the 1999 TOPS Election. The following individuals will serve in the following positions.

President-Elect - Prasanta K. Mukhopadhyay
Vice-President - David C. Glick
Councilor - Jeff C. Quick
Editor - John (Jack) C. Crelling

The new council members will assume their duties at the upcoming annual meeting in Salt Lake City. At that time President Charles Barker will pass the duties of the president over to the current president-elect, Cole R. Robison. Jeff Quick will take over Maria Mastalerz's position as one of the two councilors, and Peter Warwick will continue doing a fine job as Secretary/Treasurer. Jack Crelling and Bill Huggett take over duties as newsletter co-editors.

Uinta Basin Solid Hydrocarbons: New Data and New Insights

Tim E. Ruble¹, Michael D. Lewan² and Brian J. Cardott³

¹CSIRO Petroleum, Box 136, North Ryde, NSW, 1670, Australia

²U.S. Geological Survey, Box 25046, MS 977, Denver, CO, 80225, USA

³Oklahoma Geological Survey, 100 E. Boyd St., Norman, OK, 73019, USA

A number of terms have been used in the literature for allochthonous, semi-solid or solid hydrocarbons (e.g., migrabitumen, solid hydrocarbon, solid bitumen, native bitumen, asphaltite, asphaltic pyrobitumen, and asphalt). Migrabitumen (preferred by Jacob, 1989), solid hydrocarbon (preferred by Landis and Castaño, 1995), and solid bitumen (preferred by Curiale, 1986) refer to amorphous, secondary macerals that occur either massive (vein fillings in fractured rocks) or dispersed in hydrocarbon source rocks and reservoirs. Names for substances grouped under asphaltite (soluble in organic solvents) or asphaltic pyrobitumen (insoluble in organic solvents) are used strictly for vein deposits. These terms have propagated confusion on the origin and significance of solid hydrocarbons.

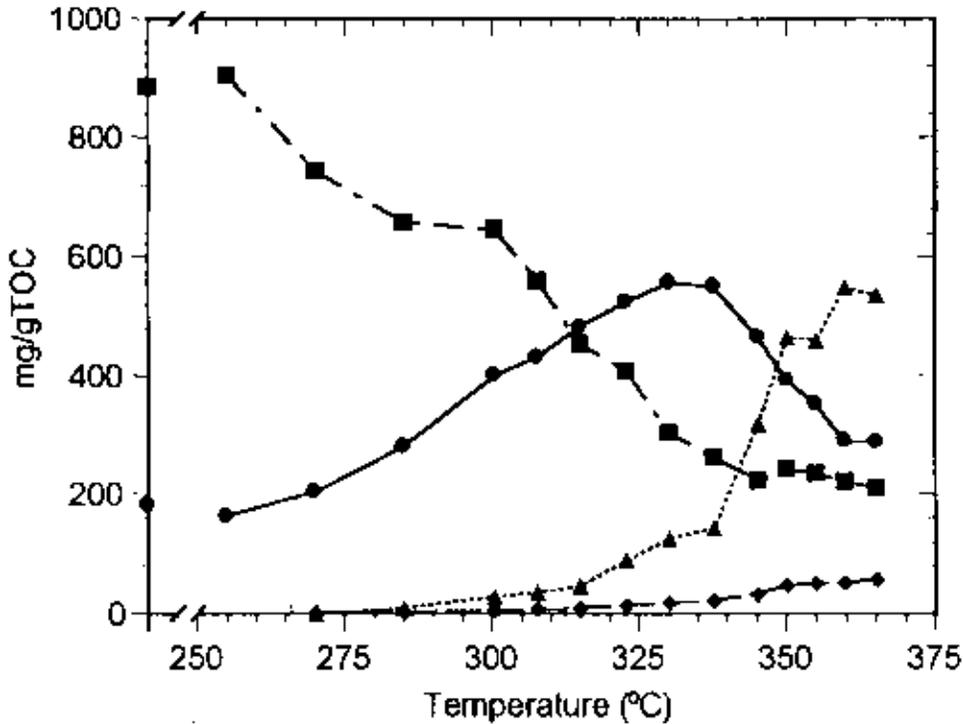
Abraham (1918, 1960) developed a generic classification for solid hydrocarbons based on physical and chemical properties. Three categories of native allochthonous substances found as vein deposits were defined: mineral wax (ozocerite), asphaltite (gilsonite, glance pitch, grahamite), and asphaltitic pyrobitumen (wurtzilite, albertite, imponite). Jacob (1967, 1989, 1993) modified Abraham's classification and distinguished solid hydrocarbons optically by bitumen reflectance, fluorescence intensity, micro-flowpoint, and micro-solubility. In Jacob's genesis scheme, three parallel maturation series were suggested for the formation of various bitumen types, with convergence of two of the series into epi-, meso-, and cata-imponite in the bitumen reflectance range of 0.7-10% Rm. Gilsonite and ozocerite are members of the

groups associated respectively with asphaltene and paraffin-rich "prebitumens" (Jacob, 1989). Jacob conceded that nothing was known regarding the alteration pathway of ozocerite, but that gilsonite was thought to transform into grahamite with increased thermal alteration (although no documentation of this transition was provided). The classification scheme proposed by Jacob (1989) emphasizes thermal processes in the formation of various solid hydrocarbons and discounts the importance of other factors, such as weathering and source facies variability, for the formation of solid hydrocarbons with distinct chemical/physical properties.

In contrast, Hunt *et al.* (1954), Bell and Hunt (1963) and Hunt (1963) used a variety of geochemical methods to clearly document and develop a facies association in the lacustrine source-rocks of the Uinta Basin for the distinct solid hydrocarbons present in this petroleum system. Ozocerite was thought to originate from low-grade oil shales in the basal Green River Formation, while gilsonite was correlated with the rich oil-shales associated with the mahogany zone of the upper Green River Formation. Other solid hydrocarbons, such as the pyrobitumen wurtzilite, were thought to originate from saline facies source-rocks and were distinguished by their high sulfur content (Hunt *et al.*, 1954). Subsequent experimental results from hydrous pyrolysis of a variety of distinct source facies in the Uinta Basin (Ruble, 1996) have confirmed

many of the original associations proposed by Hunt *et al.* (1954). In addition, recent work by Verbeek and Grout (1993) has provided detailed documentation of the processes which led to the formation of the large hydraulic fractures in the Uinta Basin that are currently filled with solid hydrocarbons. However, some questions remain with regard to the exact mechanisms of formation and emplacement of the various solid hydrocarbon species within these veins.

Curiale (1986) proposed a preliminary genetic classification (based on origin) for solid hydrocarbons, with two categories: pre-oil and post-oil



13Figure 1. Evolution of organic phases during artificial maturation of Green River oil-shale. Quantitative yields of hydrocarbon gases (□), immiscible oil (Δ), bitumen (●), and kerogen (◆) from the 72 h temperature series hydrous pyrolysis experiments for the mahogany shale. See Ruble (1996) for additional details.

. Names are not given to the solid hydrocarbons in this scheme, but pre-oil solid bitumens refer to early-generation products of rich source-rocks which were likely extruded as viscous fluids and migrated minimum distances prior to filling fractures and voids (Curiale, 1986). In contrast, post-oil solid bitumens are alteration products of conventional crude oils which may have undergone considerable post-generation transport via secondary migration from their original mature source-beds. Following generation and expulsion, both pre-oil and post-oil solid bitumens are subject to modification via biodegradation, devolatilization and thermal alteration (Curiale, 1986). In principle, such a genetic classification scheme is preferable over the traditional generic schemes because it incorporates all processes operative in the

petroleum system, including: source variability, thermal maturity, primary and secondary migration effects, and alteration phenomena (e.g. biodegradation, devolatilization). Within the context of the Uinta Basin solid hydrocarbons, new information has recently been acquired which appears to document the formation of both pre-oil and post-oil solid bitumens within a single petroleum system. The new experimental data which has provided these insights comes from a series of hydrous pyrolysis experiments involving two distinct facies in the Green River Formation. Quantitative generation curves (mg/gTOC) for four different organic phases were followed with increasing thermal maturity throughout a 72 h hydrous pyrolysis temperature maturation series (Fig. 1). These four phases represent (1) the total hydrocarbon gases, (2) the immiscible oil floating on the water layer, (3) the solvent extractable bitumen from the rock chips, and (4) the insoluble residual kerogen. The maturity trends are characterized by an early zone of bitumen generation, which is coincident with a significant decrease in kerogen content within the source rock (Fig. 1). This low maturity bitumen generation stage is followed by a main zone of immiscible oil generation. The zone of bitumen

generation maximizes at 330°C/72 h, then shows a sharp decline as the yields of immiscible oil rapidly increase (Fig. 1). These observations strongly support a product-precursor relationship between the immiscible oil and bitumen phases (Lewan, 1994) and illustrates how a continuum exists between the probable starting material for the formation of pre-oil and post-oil bitumens.

Fractional composition of the experimentally derived organic phases collected during hydrous pyrolysis of Green River oil shale clearly distinguish between the immiscible oils, which are enriched in saturates, and the extracted bitumens, which are enriched in polars and asphaltenes (Fig. 2). Comparison of these experimental results with the fractional compositions of two different types of Uinta Basin solid hydrocarbons provides new insights into their likely origin. Gilsonite has been previously suggested to originate as a pre-oil and contains biomarker evidence indicating a very low thermal maturity (Curiale, 1986). Fractional composition of the Uinta Basin gilsonites compares well with experimentally derived bitumens and supports a pre-oil origin which has been further modified by devolatilization and possibly limited biodegradation to enhance the relative abundance of asphaltenes in comparison to fresh experimental bitumens (migration effects should also not be discounted). In contrast, the fractional composition of ozocerite solid bitumen samples compare more favorably with the composition of immiscible oils generated during hydrous pyrolysis, suggesting that these solid hydrocarbons are post-oil in origin and are likely derived from devolatilization of a conventional high-wax crude oil which migrated from moderately mature basal lacustrine units in the Uinta Basin source kitchen (see Ruble, 1996 for further details). Geochemical evidence in support of such an origin is the higher maturity level of ozocerite in comparison to gilsonite, with the 14b,17b/(14b,17b+14a,17a)-C₂₉ sterane ratio of 0.52 in ozocerite indicating an early oil-window maturity, while the ratio of ~0.24 for gilsonites illustrating a pre-oil maturity level.

In the Uinta Basin there is clearly a source control on the nature of the hydrocarbons generated and on the type of solid bitumens

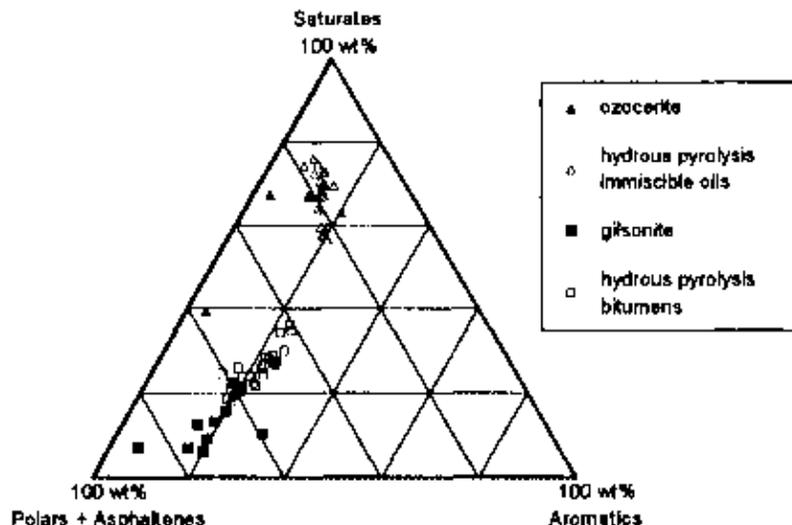


Figure 2. Ternary diagram comparing the fractional composition of the products from artificial maturation of Green River oil-shale to solid hydrocarbon samples from the Uinta Basin, Utah.

which are ultimately derived from such hydrocarbons. Low grade oil shales from nearshore open lacustrine depofacies with predominantly benthic algal source material appear to be the origin of high-wax crude oils and are also the likely source facies responsible for the formation of ozocerite. This solid hydrocarbon is found in fractures and in brecciated zones within the basal Green River Formation and the predominance of extremely high molecular weight branched, mono- and bicyclic alkanes up to C₁₁₀ in ozocerite (del Rio and Philp, 1999) is apparently due to enhancement of such compounds as a consequence of devolatilization of a crude oil precursor. The vein forming gilsonite deposits in the Uinta Basin appear to originate from very organic-rich offshore open lacustrine source facies deposited in a stratified lake with predominantly algal and bacterial biomass (Shoell *et al.*, 1994). This solid hydrocarbon was emplaced as an immature pre-oil into large hydraulic fractures which formed as a probable consequence to overpressures generated during an early stage of bitumen

generation as the Uinta Basin source kitchen was buried to its maximum depth. The viscous bitumen which filled the veins subsequently solidified as a consequence of devolatilization and limited but variable biodegradation, forming distinct gilsonite types that can be recognized based on their physical (melting point) and geochemical characteristics.

Clearly understanding the processes which control the types of dispersed and massive solid hydrocarbons requires input from both petrographic and geochemical analyses and most importantly integration into the petroleum system framework. The terminology associated with generic classification schemes is too ingrained within the historical literature to be abandoned at this stage and it may still have utility for those interested in technological uses of solid hydrocarbons. However, adoption and refinement of a genetic classification of solid hydrocarbons by incorporating both experimental and natural data sets appears to offer an avenue for better understanding the origin and role of these materials in petroliferous basins and should be a focus area for continuing research.

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**CONFERENCE ON THE HISTORY OF
GEOLOGIC PIONEERS**

This meeting will be held in North America, the homeland of our geologic pioneers, from August 3-5,2000, and will combine theme-oriented and volunteer papers with visits to their favorite exposures.

The field trip will include ceremonies (memorial plaques will be installed at several sites) at the graves of founders of the Geological Society of America, the American Association for the Advancement of Science, and the American Association of Petroleum Geologists.

The meeting is being hosted by the Rensselaer Center of Applied Geology located at 15 Third Street in (downtown) Troy, New York (see below). This center has been named in honor of Jeremias Van Rensselaer (1783-1871), respected geologist whose book Lectures on Geology (1825) has popularized the science.

Call for papers: Please send title for theme-oriented or volunteer paper/poster to:

Dr. Gerald M. Friedma

Rensselaer Center of Applied Geology
(c/o Brooklyn College of the City University of
New York, Brooklyn, New
York)

15 Third Street, P.O. Box 746,
Troy, NY 12181-0746

gmfriedman@juno.com
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1st ANNOUNCEMENT

**Southeast Asian Coal Geology
Conference**

Where: Bandung, Indonesia

When: 19-20 June 2000

Conference Abstracts due: 15 January 2000
Conference Proceedings papers due: 1 April 2000
Papers for published book due: 15 August 2000

TOPICS:

exploration case studies
geological influences on rank
coal as a source rock for oil
tectonic/structural setting of coal deposits
coal quality modeling
resource estimates
modern analogue studies
sedimentological controls on coal distribution
coal palynology

ADDITIONAL ACTIVITIES:

Pre-conference workshops
Post-conference field trip to an operating mine
Proceedings volume of papers
International keynote speakers

HOSTED BY:

Indonesian Association of Geologists (IAGI)
Ministry of Mines and Energy
Bandung Institute of Technology (ITB)

FOR MORE AND UPCOMING INFORMATION

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<http://www.cri.co.nz/seacgc> (online after 13 August 1999)

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TSOP PUBLICATIONS

<u>Name of Publication</u>	<u>Price (USD)</u>
<i>Fluoreszenz von Liptiniten und Vitriniten in Beziehung zu Inkohlungsgrad und Verkokungsverhalten</i> - (in German with photomicrographs) M. Teichmüller, 1982	\$10
<i>Fluorescence - microscopical changes of liptinites and vitrinites during coalification and their relationship to bitumen generation and coking behavior</i> , TSOP Special Publication No. 1 (English translation by Neely Bostick, without photomicrographs) M. Teichmüller, 1984	\$ 5
<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
<i>Fluorescence Microscopy Workshop Lecture Notes</i> , 1989 TSOP Meeting	\$35
<i>Organic Geochemistry</i> , 2nd TSOP Meeting, Houston, TX, 1985; Vol. 11, No. 5, 1987	\$ 5
<i>Organic Geochemistry</i> , 3rd TSOP Meeting, Lexington, KY, 1986; Vol. 12, No. 4, 1988	\$ 5
<i>Organic Geochemistry</i> , 4th TSOP Meeting, San Francisco, CA, 1987; Vol. 14, No. 3, 1989	\$ 5
<i>Organic Geochemistry</i> , 5th TSOP Meeting, Houston, TX, 1988; Vol. 17, No. 2, 1991	\$10
<i>Organic Geochemistry</i> , 6th TSOP Meeting, Urbana, IL, 1989; Vol. 17, No. 4, 1991	\$10
<i>Organic Geochemistry</i> , 7th TSOP Meeting, Calgary, Alberta, 1990; Vol. 18, No. 3, 1992	\$10
<i>Organic Geochemistry</i> , 8th TSOP Meeting, Lexington, KY, 1991; Vol. 20, No. 2, 1993	\$10
8th TSOP Meeting Field Trip Guidebook, Lexington, KY, 1991	\$ 5
<i>Organic Geochemistry</i> , 10th TSOP Meeting, Norman, OK, 1993; Vol. 22, No. 1, 1994	\$10
<i>Energy & Fuels</i> , ACS symposium on kerogen/macerals; Vol. 8, No. 6, 1994	\$10
12th TSOP Meeting Field Trip Guidebook, The Woodlands, TX, 1995	\$ 5
<i>Organic Geochemistry</i> , 11th TSOP Meeting, Jackson, WY, 1994; Vol. 24, No. 2, 1996	\$35
<i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997	\$15
IJCG, 13th TSOP Meeting, Carbondale, IL, 1996; Vol. 37, Nos. 1-2, 1998	\$15
IJCG, Special Issue: Appalachian Coalbed Methane; Vol. 38, Nos. 1-2, 1998	\$20
IJCG, 14th TSOP Meeting, Lexington, KY, 1997; Vol. 39, Nos. 1-3, 1999	\$25

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Calendar of Events 1999

September : Sixteenth Annual Meeting of The Society for Organic Petrology, Salt Lake City, Utah. For further information, contact either Jeff Quick (801-585-7851 [phone], 801-585-7873 [fax], jquick@esri.utah.edu) or Dave Wavrek (801-585-7907 [phone], 801-585-7873 [fax], dwavrek@esri.utah.edu).

September 12 -15 : AAPG International Conference and Exhibition, Birmingham, England. For info, contact the AAPG Conventions Department at (918)-584-2555.

October 18 - 20 : Third International Ash Utilization Symposium, Lexington, KY. For more information, contact Jim Hower at (606)-257-0261 [phone] / (606)-257-0302 [fax] or contact the web-site address at <http://www.flyash.org>

October 25 - 28 : Annual Meeting of the Geological Society of America, Denver, Colorado. For additional information, contact GSA at (303)-447-2020 [phone] or (303)-447-6028 [fax].

2000

March 26 - 29 : 59th Ironmaking Conference, Pittsburgh, PA. For more information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

March 26-31: American Chemical Society Annual Spring Meeting, San Francisco, California

April 16-19: AAPG Annual Convention and Exhibition, New Orleans, Louisiana. For more information contact the AAPG Convention Department at 918 560-2679

August 6 - 11 : Eleventh International Peat Congress - "Sustaining the World's Peatlands", Quebec City, Quebec, Canada.

August 20-24: American Chemical Society Annual Fall Meeting, Washington D.C.

November 13-16: Annual Meeting of the Geological Society of America, Reno, Nevada. For further information, contact GSA at (303) 447-2020 or fax them at (303) 447-6028.

2001

April 1-5 American Chemical Society Annual Spring Meeting, San Diego, California

March 25 - 28 : 60th Ironmaking Conference, Baltimore, MD. For more information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

August 26-30: American Chemical Society Annual Fall Meeting, Chicago, Illinois

November 5-8: Annual Meeting of the Geological Society of America, Boston Massachusetts. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

2003

November 2-5: Annual Meeting of the Geological Society of America, Seattle, Washington. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

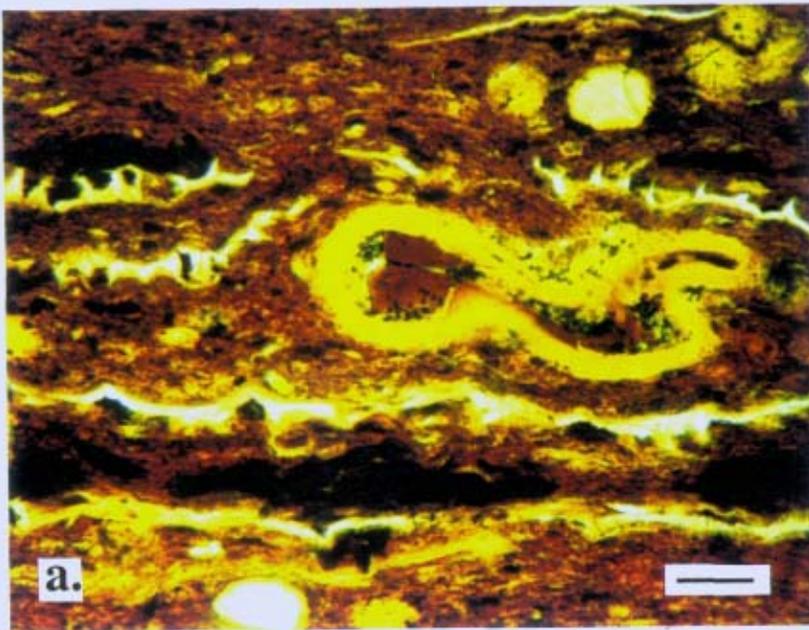


Fig. a. Artificially coalified, baytree peat from the Okefenokee Swamp of Georgia at an early stage of alteration (2-week experiment at 60 C, 2100 psi). Note numerous leaf cuticles (serrated), seed coat (yellow, collapsed object, center-rt), resin spheres, and masses of dark microbiologically-produced pseudomicrinite (funginite?). (All figures taken in TL and at same scale; scale bar = 100 microns.

Fig.b. Same peat as in fig. a., but now coalified for 4 weeks at 175 C, 5,000 psi. Note color changes, serrated cutinite, resin spheres, and dark, fine-grained pseudomacrinite (funginite) in matrix.

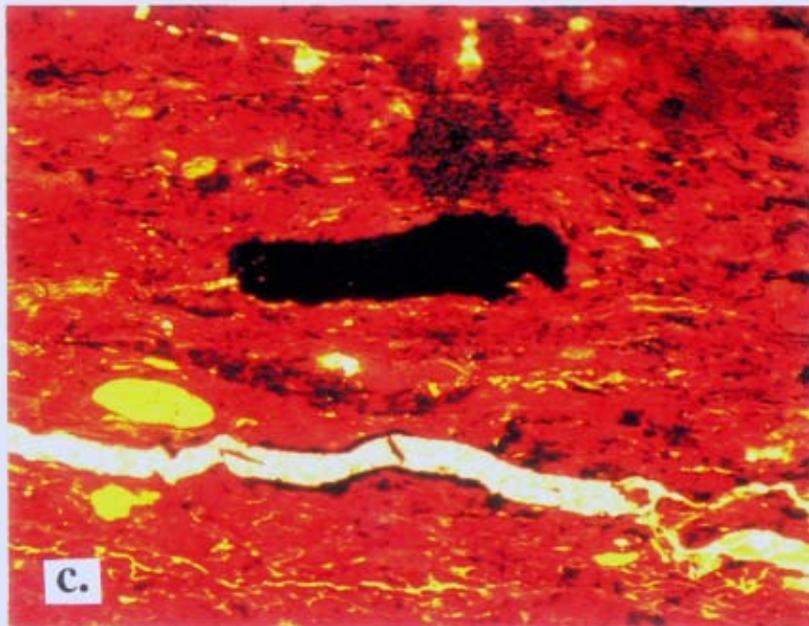
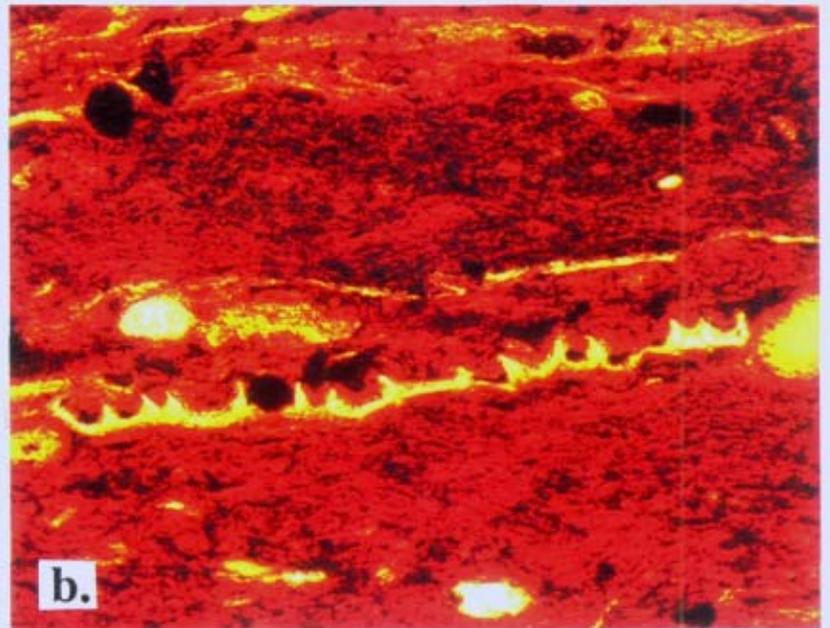


Fig. c. Same peat type and coalification stage as in Fig. b. Note relatively uncompressed Semifusinite (center), Several resin spheres, and scattered pseudomicrinite and funginite within matrix. For more details on this work see Cohen and Bailey (1997): *Int. J. Coal Geology.*, 34 (3-4): 163-194 and at the TSOP Annual meeting.



THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

Vol. 16, No. 4

December 1999

ISSN-0743-3816



"Macerals on Fire"

by Jeff Quick

Sample from the Ohai Coalfield, New Zealand, displaying a siderite nodule adjacent to a coal particle.

The TSOP Newsletter

John C. Crelling/William W. Huggett
Co-editors

The *TSOP Newsletter* welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail file or as printed text via fax or regular mail. We do ask that any disk or e-mail file be written in **WordPerfect 6.1, 7, 8, or 9.**

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For purposes of registration of the TSOP Newsletter a permanent mailing is: The Society for Organic Petrology; c/o American Geological Institute, 4220 King Street, Alexandria, VA 22302-1502

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 international and is open to all individuals having an interest in the field of organic petrology. For more information on membership, Society activities, or to acquire membership packs, please call or write:

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Don't forget to check out TSOP's
WEBSITE!

www.tsop.org

You'll find the TSOP discussion forum,
links to other related sites, schedules,
dates, meeting updates, and tons of other
useful information!

TSOP Archives

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The official TSOP archival collection is now available for your use.

The collection contains all of the society's newsletters, publications, programs, field guides, short course notes, Research Committee reports, minutes of Council meetings, and member directories.

Photocopies of desired materials will be provided at a cost immediately upon approval of your request form. Sorry, but no copies of publications which are currently for sale by TSOP can be provided. Please make all inquires to:

Kenneth W. Kuehn
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Geology, Western Kentucky University
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The 1999-00 TSOP Council

President	Cole Robison
Vice President	Dave Glick
President Elect	Prasanta Mukhopadhyay
Secretary/Treasurer	Peter Warwick
Editors	John C. Crelling William W. Huggett
Councilor (1998-00)	Carolyn Thompson-Rizer
Councilor(1999-01)	Jeff Quick

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Going to a Meeting?

Why not spread the TSOP message?

A limited number of recent back issues of the *TSOP Newsletter* are available for members to take to conferences they are going to attend. Membership packs and application forms are also available for distribution to interested parties. TSOP is an all-volunteer organization that relies on an active growing membership base in order to remain healthy. Only through the efforts of all of its members can TSOP continue to meet its membership goals. If you are interested in promoting TSOP and need some handouts please contact the following individuals:

For Newsletters

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<www.tsop.org> stop by for a visit!

Acknowledgment

The editors wish to acknowledge the support of John Mead, Director of the Coal Research Center at SIUC, and his staff for assistance in editing and printing this newsletter.



^Attention^

Deadline for March issue is:

February 11



December Contents

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Book Review

A Petrographic Atlas of Canadian Coal Macerals and Dispersed Organic Matter, edited by Judith Potter, Lavern D. Stasiuk and Alexander R. Cameron, Canadian Society for Coal Science and Organic Petrology/Geological Survey of Canada (Calgary)/Canmet Energy Technology Centre, 1999, 105pp, 24Pl.

The Atlas is an extraordinary collection of fine photomicrographs, presented in a format which makes it especially useful as a teaching tool for students of coal and organic petrology, or as an authoritative reference for perplexed or argumentative experts. Apparently, the planners of the Atlas decided to employ a format that addresses the need for an aid to the recognition of macerals and dispersed organics by those working at the microscope. The plates are large (12x9 in.), glossy and heavy, with up to 26 individual color or black and white photomicrographs to each plate. They are spiral-bound in a hard cover. The organization of the 24 plates is unusual for this subject matter, the usual grouping for which is according to maceral group. For the coal macerals, covered in the first section, the primary basis for grouping the photomicrographs is by rank (followed in some plates by geographic region) and then maceral group. This is a convenient arrangement for those wishing to concentrate on the constituents occurring in a narrow rank range before advancing to another level of coalification. Those who are more interested in accessing the rank-wide range of an individual maceral, however, will have to do a little searching (unfortunately there is no alphabetical index). This section of the Atlas also contains a plate of black and white photomicrographs of coles and covers a few common minerals. A special bonus is an informative series of maps, Stratigraphic sections and correlations of coal measures in the Canadian coal regions.

The second section deals with dispersed organic matter and bitumens, organized into plates covering herbaceous macerals; amorphous

macerals; alginite; acritarchs and algal mat microtextures; organic fossils; and bitumens. The excellent photomicrographs of the whole rock specimens in this section favor the fluorescence mode. Whereas the macerals illustrated in the first section are quite commonly encountered by organic petrologists world-wide, much of the material presented in the second section could lie outside the experience of many; consequently the Atlas will be of benefit to the experienced petrologist as well as the neophyte. It is not clear why the editors have avoided using the now commonplace telalginite/lamalginite subdivisions of alginite.

This reviewer has encountered some minor errors during a reading of the Atlas, many of which could have been avoided by careful coordination and editing. The greatest problem foreseen is the lack of sufficient background to the terminologies employed in the descriptions. The introduction states that it is not the purpose of the book to revisit basic principles; moreover, very comprehensive lists of full references are included throughout. However, the maceral and dispersed organic matter classifications given in the introduction do not cover many of the terms employed in the descriptions. There is also some inconsistent usage of terms and a few questionable identifications.

The problem in no way will overshadow the visual impact and utility of this book. The price, at CA\$138, reflects the expense of the reproducing photographic plates, especially in color. Already petrologists have recognized the advantages in cost and convenience of sharing their images through electronic media. Nevertheless, a strong need remains for another kind of convenience, that of high quality print images in a format that can be immediately available to the petrologist as he plies his profession. This Atlas amply fills that need.

-Alan Davis

**New Electronic Journal
CALL FOR PAPERS**

GEOCHEMICAL TRANSACTIONS

Geochemical Transactions, a new, all-electronic journal is now accepting manuscripts for review. The journal is published by the Royal Society of Chemistry, in collaboration with the Division of Geochemistry of the American Chemical Society, and is devoted to all areas of geochemical research. *Geochemical Transactions* coverage includes the following:

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**Review of Outgoing and
Incoming 1999 TSOP Council
Meetings**

Outgoing Council Meeting

The 1998-1999 Outgoing TSOP Council met September 26, during the Annual TSOP meeting that was held at the Cliffs Lodge in Snowbird, Utah. The meeting was called to order by outgoing President Charlie Barker with eleven TSOP Council members and committee chairs in attendance. TSOP Annual meeting chairs presented reports of past and upcoming meetings and plans which included the 1998 Halifax, 1999 Snowbird, 2000 Bloomington, 2001 Houston, 2002 Banff, and the 2003 Washington, D.C. (Reston) meetings. TSOP Committee reports were given by the Annual Meeting Advisory Committee which discussed TSOP-sponsored sessions held in conjunction with upcoming AAPG, ICCP, New Zealand Mining Conference, and regional GSA meetings.

The Awards Committee reported that a certificate and \$250 check for the 1998 Best Student Award was presented to Nick Wilson and a certificate was presented to honor past TSOP Presidents K. Kuehn and J. Levine. Charlie Barker presented the results of the

1999 Ballot Committee which are as follows P. Mukhopadhyay - President-elect, D. Glick - Vice President, J. Quick - Councilor, and J. Crelling - Editor. There were no new nominations from the Honorary Membership Committee. The Membership Committee report included a summary of the current TSOP membership (178) provided by P. Warwick. A motion was passed to establish a TSOP Friendship Scheme to allow current members to sponsor new members from developing countries.

The Internet Committee reported updates to the TSOP web site <www.tsop.org> which included notices of the TSOP Annual meetings, new bibliographic references, instructions for the TSOP Student Grants Program, new publications, and links to related sites. Access to the web page ranges from 300 to more than 400 visits per month. The Publications Committee reported that 1998-1999 publication orders totaled \$320. An updated TSOP Publication List was presented to the Council. The Outreach Committee reported that by the close of 1998 TSOP had five Industrial Sustainers which contributed a total of \$2,600, and in 1999 (as of September) TSOP had four Industrial Sustainers that had contributed a total of \$2,100 to support TSOP activities. A summary of expenses (\$630) for 1998-1999 advertising and announcements was presented. The Research Committee reported the 1999 \$1000 Student Grant Winner to be Nadir Akpulat from the University of Calgary.

A discussion of 1998-1999 TSOP activities followed with: 1) a request from the TSOP Archivist for Council members to submit old TSOP related files to the Archives, 2) a report from the TSOP Editor about the progress and expenses of the 1999 TSOP Newsletter. By September the Newsletter expenses totaled \$3,725. 3) The TSOP Secretary reported the financial state of the organization. In September, TSOP had a checking account balance of \$8,781.09 and Vanguard Funds at a value of \$16,378.15. The total assets of the society on that date were \$25,159.24. From October 1998 to September 1999, TSOP

income was \$10,744 and expenses were \$8,952. Charlie Baker concluded the meeting with discussions on TSOP's role in the proposed Organization of Coal Geologists, TSOP credit card acceptance, and AAPG and AGI activities.

Incoming Council Meeting

The 1999-2000 Incoming TSOP Council met September 27, at the Cliffs Lodge in Snowbird, Utah. The meeting was called to order by incoming President Cole Robison with nine TSOP Council members and committee chairs in attendance. The council passed a motion for the Secretary to explore the options available to TSOP 1) to accept credit cards and 2) to identify several mutual fund investment opportunities for the organization. The Council approved changes in the TSOP Committee chairs to be as follows: Nominating - Barker, Honorary Membership - Glick, Membership chair - Warwick.

Seven new members that applied for TSOP membership in 1999 were approved by the Council. The following TSOP members were approved to continue or begin serving as TSOP Liaisons to other organizations: Liaison Committee chair - Glick; AASP - Demchuk; AAPG-EMD - Hower and Cardott; Am. Chem. Soc. Fuel Div. - Schobert; Am. Chem. Soc. Geochem. Div. - Crelling; AGI - Barker; ASTM Stanton, Canada liaison - P. Mukhopadhyay; Canadian Soc. Coal Sci. - Potter; Eastern Canada - Dawson; European Asso. Organic Chemists - Eglinton; GSA Coal Div. - Eble; ICCP - Burgess; South America - Kalkreuth; Standards - Hutton; New Zealand - Moore; China - Kuili Jin; India - Varma. TSOP Council approved a new operating budget for 1999 - 2000 and agreed to hold a midyear meeting in late March 2000.

**1999 TSOP Student Grant
Winner**

HYDROCARBON GENERATION KINETICS
OF THE LOWER CRETACEOUS
OSTRACODE ZONE AND QUANTITATIVE
BASIN MODELING, ALBERTA BASIN,
CANADA

N. T. Akpulat
University of Calgary

SUMMARY OF INVESTIGATION

The Lower Cretaceous Ostracode Zone is the only proven hydrocarbon source rock of Cretaceous age that has contributed significant quantities of high gravity, low sulphur oil (oil family Q) to Lower Cretaceous Mannville Petroleum Systems (Riediger et al., 1997; Karavas et al., 1998). An Ostracode Zone contribution to any given Mannville oil is readily recognized by the presence of the so called "Q" compounds, whose biological precursor compound(s) remain unknown.

The Devonian-Mississippian Exshaw Formation is the dominant source for Mannville oils in the southern Alberta, yet these oils are generally of lower quality, and are commonly biodegraded, relative to oils from other source rocks. Mixing of Exshaw oils with Ostracode Zone-oils (Family EQ) is well documented (Karavas, et al., 1998, Riediger et al., in press), and results in an improvement in oil quality. Family EQ oils are rarely biodegraded.

The Ostracode Zone is heterogeneous in both lithology and organic geochemical characteristics, reflecting fluctuating depositional conditions, which is estuarine-brackish marine in general. The Ostracode Zone generally contains oil-prone Type I and Type II kerogen, however, there are a few intervals containing gas-prone Type III kerogen (Riediger, et al. 1997).

The purpose of this study is (1) to characterize the oil-prone facies using organic petrography

and organic geochemistry, (2) to map the distribution of these facies in order to highlight areas most prospective for high quality Ostracode oils, (3) to determine the timing of hydrocarbon generation from the Ostracode Zone based on kinetic and maturity modeling data and generation from other known sources, (4) to understand the distribution of Ostracode Zone oils (Q family) and mixed Ostracode-Exshaw oils (EQ family) in southern Alberta, and the migration of Q oils relative to trap formation for the future hydrocarbon exploration activities in the Mannville Group of southern Alberta.

Methods

1. Outcrop and core description and sampling.
2. Rock-Eval / TOC analysis of potential source rock zones
3. Organic petrographic study of selected samples to characterize the source rock kerogen and determine the thermal maturity.
4. Rock-Eval VI to obtain S2 data that will be used for kinetic modeling.
5. Input results into both 1-D and 2-D basin models (BasinMod) to get timing of hydrocarbon generation relative to other source rock horizons (e.g. Exshaw Formation)

When the project is completed, we will know the characteristics and the distribution of the oil-prone facies within the Ostracode Zone in southern Alberta. Understanding of the kinetics, timing and the migration of hydrocarbons will provide a significant contribution to the exploration activities ongoing in the Lower Cretaceous reservoirs in southern Alberta.

REFERENCES

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Riediger, C.L., Fowler, M.G., and Snowdon, L.R., 1997. Organic Geochemistry of the Lower Cretaceous Ostracode Zone, a blackish/non-marine source for some lower Mannville oils in Southeastern Alberta. *In: Petroleum Geology of the Cretaceous Mannville Group, Western Canada*. S.G. Pemberton and D.P. James (eds.). Canadian Society of Petroleum Geologists, Memoir 18, 93-102

Riediger, C.L., Fowler, M.G., and Snowdon, L.R., MacDonald R., Sherwin, M.D., in press. Origin and Alteration of Lower Cretaceous Mannville Group oils from the Provost oil field, east central Alberta, Canada. *Bulletin of Canadian Petroleum Geology*.

Kuehn Wins Award

TSOP Past President Kenneth W. Kuehn ('97-'98) was recently honored by Western Kentucky University's Ogden College of Science, Technology, and Health as recipient of their 1999 Award for Outstanding Public Service. He was selected from among 300 faculty within the College by a committee of peers and administrators. A TSOP member since the 1984 charter year, Ken served on the governing Council for a total of eight years.

"My years with TSOP Council were very busy ones but very rewarding ones as well. Thankfully, our Society's diverse mix of specialties and workplace cultures always kept business matters lively and interesting. I encourage every member to participate in Society leadership in some way.

Aside from my professional service activities, I am most proud of having obtained a substantial grant to preserve an historically significant, 350-year-old oak in my home town of Bowling Green, Kentucky. Our great 'Bent Tree' has received special recognition by the state and is undergoing a similar process with the federal government. Thanks to the grant, our community's most famous landmark should survive another 100 years of human endeavor."

A Professor of Geology, Ken has been employed by Western Kentucky University since 1984. In 1990 he won the Ogden College annual award for Outstanding Teaching, and in 1997 he was honored by the Kentucky Society of Professional Geologists with their Distinguished Service Award. Ken is presently enjoying a sabbatical leave of research, travel, visiting friends, and creative writing. He looks forward to many more years of association with TSOP and his many friends and colleagues there.

OPINION

TEACHING VS. RESEARCH

A number of TSOP members have academic affiliations and an issue that is becoming a problem on campuses across the country is a push by misguided administrators and state legislatures to pit research and teaching against each other. They end up downgrading research to the point that some faculty are asking if research is still a respectable activity on their campuses.

Although teaching alone may be the main objective of most small colleges, research leading to the development of new knowledge and concepts is the other fundamental objective of universities. This is not a new idea. Over the centuries universities have preserved and disseminated the accumulated knowledge of past scholarship as well as generated new knowledge from research. Research and teaching are complementary to each other and form an inherent part of the idea of a university. This is reflected in the work assignments of most science faculty which tend to be split equally between teaching and research.

Graduate education in science requires research. The goal of graduate education is to educate students to identify, analyze and resolve scientific problems. For this reason an essential part of a science degree at the master's and doctoral level is the defense of a completed research project in the form of a thesis or dissertation. As a consequence, in graduate education teaching and research are often the same thing.

Teaching and research are related in other ways.

Teachers without research quickly become obsolete, while teaching professors involved in research tend to be on the frontiers of their fields. They are aware of the current literature in their area of interest, they are in communication with other scientists in their field, and they get their students involved in these activities. Significant student learning in science takes place outside of the classroom; it takes place at the side of the professor in the laboratory, in the field, at professional meetings, research conferences, and informal gatherings. Both TSOP and the Coal Geology Division of GSA recognizes this fact in sponsoring of student research grants and meeting subsidies for students. Another relationship between teaching and research is that good researchers are very enthusiastic about the problems they are working on and this enthusiasm carries over into the classroom. Enthusiasm is an essential of good teaching.

The research induced interaction between university, industry and government research agencies is another example of the beneficial relationship between research and teaching. Direct help from industry and government agencies is very common in the form of access to samples and data, permission to visit facilities, the analysis of research samples, and even summer employment of some students. Similar indirect help in the form of donated used equipment and teaching materials is also common. Also of considerable value to the student is the contact with other non-university professionals. Such contact gives the students a clear view into the realities of a professional career in their chosen field and may even open up permanent job opportunities. TSOP is an ideal vehicle for this kind of interaction and has a history of fostering this very thing.

A very important aspect of the relationship between research and teaching is external funding. Federal and state governmental agencies and industrial and other private concerns provide grants and contracts to some university faculty to conduct research in selected areas and on specific projects. These grants and projects are awarded on a competitive basis.

These funding awards come from outside normal university funding channels and not from university funds. In fact, the universities charge the grant or contract a fee, called overhead, which usually amounts to more than forty percent of the funding received. Millions of dollars come into university

accounts every year by this means. The individual researcher has no control over this fee and, indeed, is responsible for completing the objectives of the project without access to it. The remaining funds that the researcher receives are used to pay students and technicians to help conduct the research, to purchase any supplies that will be used in the research, and to pay for any required services. Thus, there are usually no direct costs to the university for the research. There are, however, a number of benefits from this funding to teaching. First, students, both undergraduate and graduate, can get paid from these funds so that they gain both financial aid and work experience. Second, various kinds of scientific equipment can be obtained from these funds. This allows students to learn on the latest equipment and to work on a wider variety of problems.

In summary, research is an inherent part of the idea of the university. Graduate education requires research. Research keeps faculty at the frontiers of their fields and enhances their teaching abilities. The research induced interaction between university, industry, and government research agencies provides opportunities for student support and participation. Outside funding for research covers the actual cost of that research, pays students and technicians, allows the purchase of equipment, and provides an additional source of funds to the university. Research and teaching are not mutually exclusive; they are, in fact, complementary. A university science professor cannot teach well without research and a good researcher needs to teach and to interact with young and questioning minds.

Jack Crelling
Professor of Geology
Southern Illinois University at Carbondale
Carbondale, IL 62901

CALL FOR PAPERS

TSOP - Bloomington 2000

The Organizing Committee of the 17th Annual Meeting of the Society for Organic Petrology in Bloomington invites you to submit an abstract.

Abstract deadline: April 1, 2000

Abstract should be written in English, single-spaced and in 11 point font. Please use the example below for abstract formatting, or refer to *Abstracts and Programs*, vol. 15 , TSOP - Halifax'98.

Characteristics of Block Coals from Indiana; Inferences on Changing Depositional Environment

MASTALERZ, M. and PADGETT, P.L., Indiana Geological Survey, Indiana University, Bloomington, IN, 47405-2208, EBLE, C, Kentucky Geological Survey, University of Kentucky, Lexington, KY 40506

The purpose of this study is to investigate differences in petrology, palynology, and coal quality between the Lower Block and the Upper Block Coal Members of the (Pennsylvanian)

Abstracts can be up to 5 pages in length, including figures and tables.

Abstracts can be sent by post (including a diskette in Microsoft Word or WordPerfect) or electronically by e-mail to: mmastale@indiana.edu. The Organizing Committee will make final decisions about the acceptance or rejection of abstracts by April 15, 2000.

For information about the conference visit our website: <http://adamite.igs.indiana.edu/tsop/>

For information about the program contact: Maria Mastalerz at (812) 855-9416, e-mail: mmastale@indiana.edu

PROGRAM

The Society for Organic Petrology 17th Annual Meeting, September 17-20, 2000 Bloomington, IN

17 September - Sunday

Short course: In-situ Elemental Analysis of Organic Matter

Instructors: R. M. Bustin, The University of British Columbia; M. Mastalerz, Indiana University; L. Gurba and C. Ward, The University of New South Wales; and M. Dorais, Indiana University

The short course will present recent advances in electron microprobe analysis of organic matter with a special reference to light elements: C, O, and N. It will consist of three parts: 1) presentations discussing methodological aspects of the technique as well as those showing examples of the applications and their significance; 2) demonstration of the technique and hands-on exercise using the instrument; and 3) discussion on the advantages, limitations, and further direction. Instructions will be given by a group of researchers actively involved in electron microprobe studies representing different laboratories worldwide.

Limit: 20 persons

18 September - Monday

Special Session I - Surface Expressions of Hydrocarbons

Chairs: L. Pratt and J. Rupp, Indiana University

Numerous occurrences of liquid and gaseous hydrocarbons at the surface of the earth indicate that petroleum-bearing systems are dynamic and many processes that control hydrocarbon distribution are at work. In addition to naturally occurring hydrocarbons, numerous accumulations of manmade petroleum and related products are found at the surface of the earth. This session will address recent studies of the various occurrences of hydrocarbons at the surface of the earth and how these occurrences contribute to our understanding of petroleum systems in the geological context. The role of bacteriological degradation of both natural and manmade petroleum products will be addressed, including new developments in the area of bioremediation, and how the knowledge of surface hydrocarbon chemistry can be applied toward environmental restoration.

Special Session II - Sedimentology of Organic Matter-bearing Sequences

Chair: E. P. Kvale, Indiana University

Organic geochemistry and petrology techniques combined with clastic sedimentology can be valuable in the determination of the character of the depositional system of an organic matter-bearing deposit. This session will explore transport and depositional processes as well as water chemistry of a variety of modern and

ancient organic matter-bearing depositional systems spanning lacustrine and fluvial to marine.

Poster Session

19 September - Tuesday

General Technical Session

20 September - Wednesday

Field Trip

A one-day field trip will examine exposures of organic-rich Paleozoic sedimentary rocks in the Eastern Interior Basin of the United States. This trip will focus on the middle Carboniferous sedimentary sequence that is composed of carbonate rocks. These rocks form a shallowing-upward sequence that ranges from subtidal wackestones with echinoderm assemblages and silica concretions (geodes) to supertidal sedimentary units that include high TOC algal laminae in a dolomitic section. Organic matter found in a massive shoal facies of a thick grainstone, the famous "Indiana limestone" building stone, is also host to liquid hydrocarbon seeps that will be examined.

Limit: 20 persons

Calendar of Events

2000

February 28 - March 1 : 13th Utility Coal Conference, St Louis Mo.

March 6-9 : 25* International Technical Conference on Coal Utilization and Fuel Systems, Clearwater, Florida

March 26 - 29 : 59th Ironmaking Conference, Pittsburgh, PA. For more information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

March 26-31: American Chemical Society Annual Spring Meeting, San Fransisco, California

April 16-19: AAPG Annual Convention and Exhibition, New Orleans, Louisiana. For more information contact the AAPG Convention Department at 918 560-2679

May 7-11 : 22nd Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, TN

May 8-11 : Effects of Coal Quality on Power Plant Performance: Ash Problems, Management and Solutions, Park City Utah

March 26-30: 219th National Meeting of the American Chemical Society, Fuel Division, San Francisco.

July 3-6 : International Symposium on Alcohol Fuels, Stockholm Sweden

August 6 - 11 : Eleventh International Peat Congress - "Sustaining the World's Peatlands", Quebec City, Quebec, Canada.

August 13-16: Fifth International Conference on Greenhouse Gas Control Technologies, Cairns, Australia

August 20-24: American Chemical Society Annual Fall Meeting, Washington D.C.

September 17-20: Seventeenth Annual Meeting of The Society for Organic Petrology, Bloomington Indiana. For further information contact Dr. Maria Mastalerz at (812) 855 9416 or e-mail at: mmastale@indiana.edu

October 9-12 : Mine Expo 2000, Las Vegas Nevada

November 13-16: Annual Meeting of the Geological Society of America, Reno, Nevada. For further information, contact GSA at (303) 447-2020 or fax them at (303) 447-6028.

2001

January 22-26 : 14th International Symposium on Management and Use of Coal Combustion Products, San Antonio Texas

April 1-5 American Chemical Society Annual Spring Meeting, San Diego, California

March 25 - 28 : 60th Ironmaking Conference, Baltimore, MD. For more information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

August 26-30: American Chemical Society Annual Fall Meeting, Chicago, Illinois

September: Eighteenth Annual Meeting of The Society for Organic Petrology, Houston

November 5-8: Annual Meeting of the Geological Society of America, Boston Massachusetts. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

2002

September: Nineteenth Annual Meeting of The Society for Organic Petrology

October 27-30: Annual Meeting of the Geological Society of America, Denver, Colorado. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

2003

September: Twentieth Annual Meeting of The Society for Organic Petrology, Reston VA

November 2-5: Annual Meeting of the Geological Society of America, Seattle, Washington. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

TSOP PUBLICATIONS

<u>Name of Publication</u>	<u>Price (USD)</u>
<i>Fluoreszenz von Liptiniten und Vitriniten in Beziehung zu Inkohlungsgrad und Verkokungsverhalten</i> - (in German with photomicrographs) M. Teichmüller, 1982	\$10
<i>Fluorescence - microscopical changes of liptinites and vitrinites during coalification and their relationship to bitumen generation and coking behavior</i> , TSOP Special Publication No. 1 (English translation by Neely Bostick, without photomicrographs) M. Teichmüller, 1984	\$ 5
<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
<i>Fluorescence Microscopy Workshop Lecture Notes</i> , 1989 TSOP Meeting	\$35
<i>Organic Geochemistry</i> , 2nd TSOP Meeting, Houston, TX, 1985; Vol. 11, No. 5, 1987	\$ 5
<i>Organic Geochemistry</i> , 3rd TSOP Meeting, Lexington, KY, 1986; Vol. 12, No. 4, 1988	\$ 5
<i>Organic Geochemistry</i> , 4th TSOP Meeting, San Francisco, CA, 1987; Vol. 14, No. 3, 1989	\$ 5
<i>Organic Geochemistry</i> , 5th TSOP Meeting, Houston, TX, 1988; Vol. 17, No. 2, 1991	\$10
<i>Organic Geochemistry</i> , 6th TSOP Meeting, Urbana, IL, 1989; Vol. 17, No. 4, 1991	\$10
<i>Organic Geochemistry</i> , 7th TSOP Meeting, Calgary, Alberta, 1990; Vol. 18, No. 3, 1992	\$10
<i>Organic Geochemistry</i> , 8th TSOP Meeting, Lexington, KY, 1991; Vol. 20, No. 2, 1993	\$10
8th TSOP Meeting Field Trip Guidebook, Lexington, KY, 1991	\$ 5
<i>Organic Geochemistry</i> , 10th TSOP Meeting, Norman, OK, 1993; Vol. 22, No. 1, 1994	\$10
<i>Energy & Fuels</i> , ACS symposium on kerogen/macerals; Vol. 8, No. 6, 1994	\$10
12th TSOP Meeting Field Trip Guidebook, The Woodlands, TX, 1995	\$ 5
<i>Organic Geochemistry</i> , 11th TSOP Meeting, Jackson, WY, 1994; Vol. 24, No. 2, 1996	\$35
<i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997	\$15
IJCG, 13th TSOP Meeting, Carbondale, IL, 1996; Vol. 37, Nos. 1-2, 1998	\$15
IJCG, Special Issue: Appalachian Coalbed Methane; Vol. 38, Nos. 1-2, 1998	\$20
IJCG, 14th TSOP Meeting, Lexington, KY, 1997; Vol. 39, Nos. 1-3, 1999	\$25
IJCG, Special Issue: Applied Topics in Coal Geology; Vol. 41, Nos. 1-2, 1999	\$25

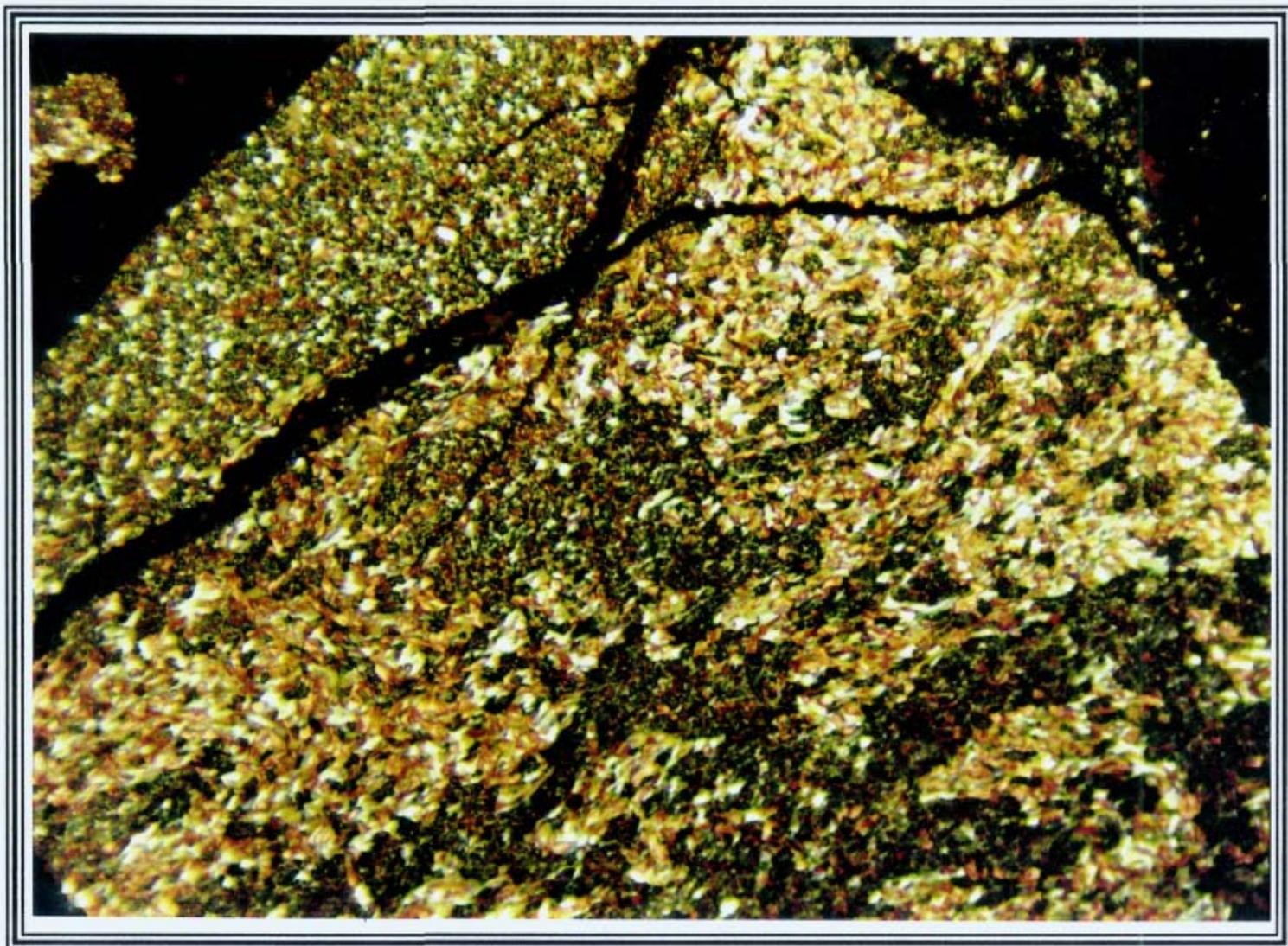
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Editors' Choice Photomicrograph



Editors' Choice Photomicrograph: View of a Pre-Cambrian meta-anthracite of algal origin, Michigamme Formation, Michigan, in polarized light with analyzer and retarder plate showing anisotropic graphite crystals of two sizes. Width of field left to right is 250 micrometers. Sample courtesy of Dr. James Hower, Center for Applied Energy Research, Lexington, Kentucky

Call for Photomicrographs: The editors welcome contributions of photomicrographs of organic geologic materials for future issues of the newsletter.



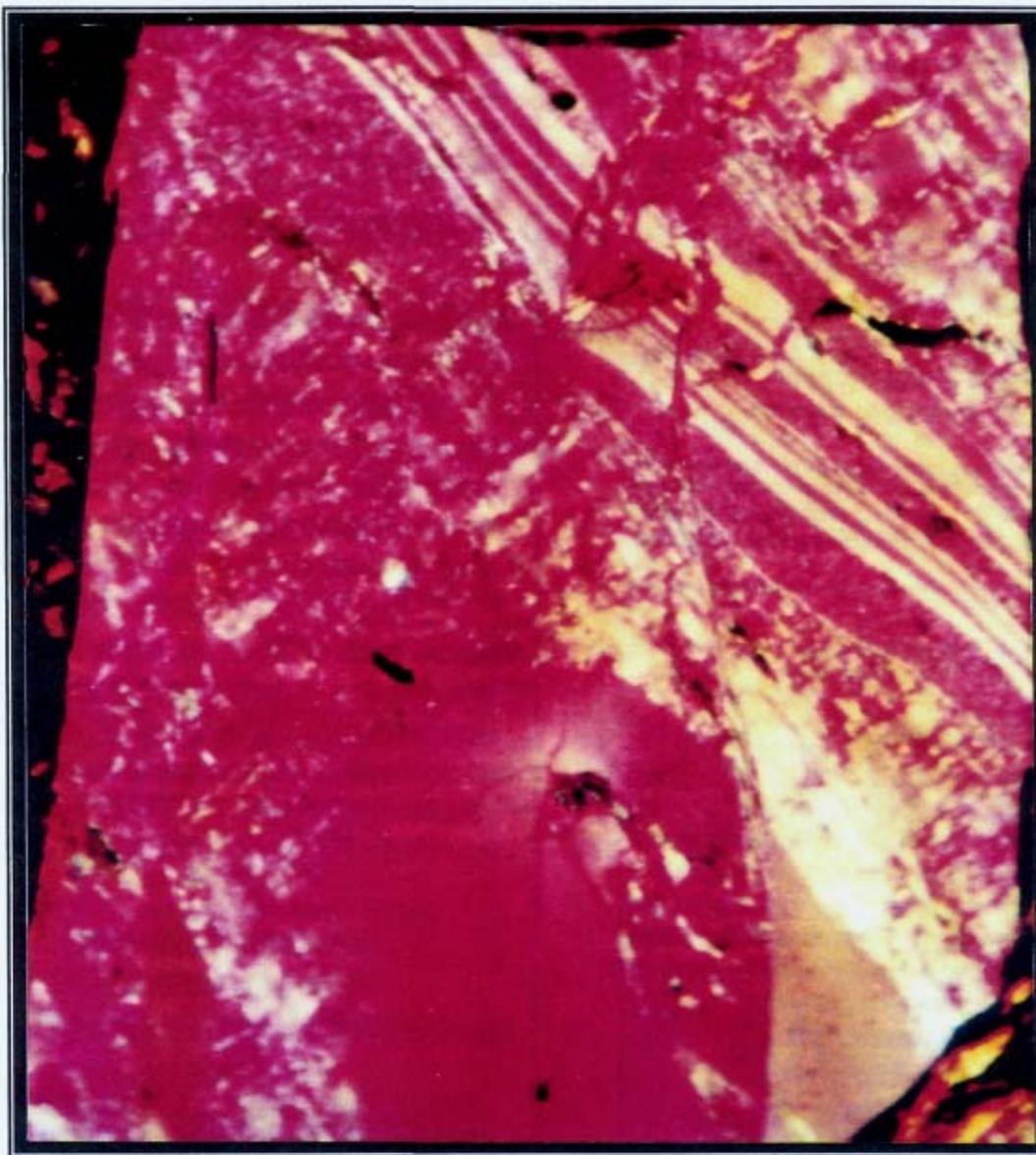
THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

Vol. 17 No. 1

March 2000

ISSN-0743-3816



Korean Bongmyung Anthracite, courtesy Ralph Gray

The TSOP Newsletter

John C. Crelling / William W. Huggett
Co-editors

The *TSOP Newsletter* welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail file or as printed text via fax or regular mail. We do ask that any disk or e-mail file be written in **WordPerfect 6.1, 7, 8, or 9.**

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For purposes of registration of the TSOP Newsletter a permanent mailing is: The Society for Organic Petrology; c/o American Geological Institute, 4220 King Street, Alexandria, VA 22302-1502

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 international and is open to all individuals having an interest in the field of organic petrology. For more information on membership, Society activities, or to acquire membership packs, please call or write:

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956 National Center
Reston, VA 20192

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Don't forget to check out TSOP's
WEBSITE!

www.tsop.org

You'll find the TSOP discussion forum, links to other related sites, schedules, dates, meeting updates, and tons of other useful information!

TSOP Archives

Now open for business!!

The official TSOP archival collection is now available for your use.

The collection contains all of the society's newsletters, publications, programs, field guides, short course notes, Research Committee reports, minutes of Council meetings, and member directories.

Photocopies of desired materials will be provided at a cost immediately upon approval of your request form. Sorry, but no copies of publications which are currently for sale by TSOP can be provided. Please make all inquiries to:

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Bowling Green, KY 42101
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kenneth.kuehn@wku.edu

Got Coal? Check us out: www.tsop.org

The 1999-00 TSOP Council

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Going to a Meeting?

Why not spread the TSOP message?

A limited number of recent back issues of the *TSOP Newsletter* are available for members to take to conferences they are going to attend. Membership packs and application forms are also available for distribution to interested parties. TSOP is an all-volunteer organization that relies on an active growing membership base in order to remain healthy. Only through the efforts of all of its members can TSOP continue to meet its membership goals. If you are interested in promoting TSOP and need some handouts please contact the following individuals:

For Newsletters

John C. Crelling or William Huggett

Phone:(618)453-3351

Fax: (6180 453-7393

jcrelling@geo.siu.edu or huggett@geo.siu.edu

For membership information **Including a downloadable membership application:**

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..or contact membership chairman:

Peter Warwick

(703) 648-6469

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TSOP Mugs!

Help support TSOP activities and get an elegant, sporty and downright nifty genuine Louisville Stoneware mug for your coffee, tea or hot chocolate. At only \$10 these mugs are a terrific buy, and they make wonderful gifts too. Be sure to buy several, mugs get lonely too. To order please contact:

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Unsolicited endorsement #59 from a satisfied TSOP mug owner:

"TSOP coffee mugs actually increase in value over time, so the sooner you get one, the more it will be worth."

Acknowledgment

The editors wish to acknowledge the support of John Mead, Director of the Coal Research Center at SIUC, and his staff for assistance in editing and printing this newsletter and directory.



Attention



Deadline for June issue is:

May 26



March Contents

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20th International Meeting On Organic Geochemistry

Nancy 6-11 September 2001

Scientific Program

Oral and poster presentations on the following topics:

- ✓ Petroleum Geochemistry
- ✓ Biogeochemistry
- ✓ Environmental Geochemistry
- ✓ New Techniques and Developments
- ✓ Hot and Controversial Subjects

(This is not a complete list, and other suggestions are welcome)

Abstracts

Abstract forms and instructions can be downloaded from the web:

<http://www.imoq.uhp-nancy.fr>

Abstracts should be submitted electronically on a 3.5" disk or by e-mail. A hard copy should also be sent to:

IMOG

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 BP239
 54506 Vandoeuvre Cedex France**

Fax:(33) 3 83 91 38 01

e-mail:lmog2001@g2r.uhp-nancy.fr

**Deadline for submission of
 abstracts is
 December 1st 2000**

For information, please feel free to contact us by e-mail or at the addresses above or visit the web-site.

Honorary Member Nominations Solicited

The Honorary Membership Selection Committee solicits nominations for TSOP Honorary Member. This is the Society's most prestigious award and shall be limited to a select few, with no more than two awards being made each year. 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.

A nominee must be a living person distinguished in a scientific discipline of significance to the Society. Nominees do not need to be former or current members of TSOP, but must be sponsored by a TSOP member, who will supply a letter of nomination (or a brief vita) detailing how and why the nominee qualifies for the award. Nominees will not be asked to supply their own vita. The letter should address how the nominee has demonstrated contributions in one or more of the following categories:

- A. **Research Contribution:** 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.

OR

- 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.

OR

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.

Letters of nomination should be submitted by May 15 to the Committee Chair:

David Glick
209 Spring Lea Dr.
State College, PA 16801
e-mail: xid@psu.edu
phone: 814 237-1094

Attention:

New fellowships are now available for minority students (african-americans, native-americans, hispanic-americans, etc.) seeking Ph.D degrees in palynology, Paleoecology, coal petrology or related topics at the University of South Carolina. Requirements include: An MS degree in geology or biology or a related field, a GPA of at least 3.00, and a GRE score of at least 1050.

This fellowship will pay a stipend of \$15,000 per year, plus \$10,000 per year for additional expenses, including tuition, books, health care, a computer or lab equipment, and travel expenses to attend a professional conference.

For application forms and further information, contact Dr. Art Cohen, Dept. of Geological Sciences, University of South Carolina, Columbia, SC 29208 (cohen@geol.sc.edu). For further information regarding potential thesis topics check out:

www.geol.sc.edu/COHEN/COHEN/COHEN.HTM

Dr. Arthur D. Cohen
Professor of Geological Sciences and Marine Sciences
University of South Carolina
Columbia, SC 29208
(Tele: 803-777-4502 FAX: 777-6610)

ASPHALTENE AS A STANDARD FOR
FLUORESCENCE ALTERATION STUDIES

Ronald W. T. Wilkins¹, Xiao Xianming² and
Lui Zufa²

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China

For laser fluorescence alteration studies on macerals it is essential to use a standard material to check instrumental operating settings and for instrumental cross-calibration. Although laser power can be monitored, as many factors contribute to the intensity measurements - such as beam alignment and spot size at focus on the maceral surface - checks by standard materials cannot be dispensed with.

At present wholly suitable standards are not available for the measurement of either fluorescence intensity or fluorescence alteration of macerals. The desirable properties of a fluorescence intensity standard have been listed by Vieth-Redeman (1990) and amplified in the ICCP Handbook Supplement (ICCP, 1993):

1. The standard should be a solid with a fluorescence emission in the visible part of the spectrum.
2. The fluorescence intensity should be of the same order as coal macerals.
3. The depth of penetration of the excitation radiation should be similar to coal macerals.
4. The fluorescence emission should be broad band so that the material is useful for a range of wavelengths.
5. The fluorescence properties should not alter during storage or prolonged radiation.

An additional important property is homogeneity. All of the above criteria apply to fluorescence alteration, except, of course, alteration standards should have a strong positive or negative (Ottenjann, 1988) alteration on irradiation. It is important to note that for laser fluorescence alteration studies, the determination of

fluorescence intensity relative to a standard is not sufficient, because the alteration curve shape varies with the laser power. Establishing the correct level of laser power is therefore an important part of instrumental calibration for fluorescence alteration studies on macerals. In practice, for instrumental cross calibration, we search for the level of laser power which gives the correct alteration curve shape for both low and high rank reference standards, then adjust the fluorescence intensity level to match the primary instrument value by adjusting the photomultiplier tube voltage.

Although uranium-doped glasses, which serve as relative standards, have been an essential aid in modern fluorescence intensity studies of macerals, they are not ideal according to the above criteria. Some strongly absorbing glasses manufactured by Schott Mainz and tested by Vieth-Redeman (1990) showed promise but their alteration characteristics, of quite different origin to those of macerals, caused measurement problems.

In our own work (e.g. Veld, 1997; Wilkins et al., 1992, 1995, 1998) the preferred standard materials have been two reference coals * containing relatively homogeneous telovitrinites, one with a strongly positive and the other with a strongly negative alteration pattern. The laser beam at focus on the maceral surface leaves a tiny burn mark, which enables the previously irradiated areas to be readily located. The epoxy resin blocks containing the coal grains are stored in a vacuum desiccator when not in use. However, both coals are susceptible to atmospheric oxidation with loss of fluorescence intensity, requiring the surface to be cut back and re-polished every few weeks or months according to the extent of use. Residual uncertainty about the homogeneity of the samples requires many measurements to be averaged.

During a recent study (Xiao et al., 1998) it was noted that pure samples of asphaltene have properties which make them attractive candidates as fluorescence alteration standards. Xiao et al. (1998) have described a method of preparation of asphaltene for optical measurements, by petroleum ether precipitation from crude oil, or coal and source rock extracts. A most important

part of the process, as far as the fluorescence properties are concerned, is the removal of traces of free hydrocarbons from the asphaltene by exhaustive washing with petroleum ether. A minimum of 8 washes is required. A well-prepared asphaltene sample is vitrinite-like under the microscope but without structure and with a high degree of optical homogeneity. The fluorescence alteration of such an asphaltene sample is typically positive.

A Permian coal from Leping, China containing > 90% suberinite was used to prepare approximately 1 gram of asphaltene which was subsequently heated to 320°C and mounted in epoxy resin blocks. The reflectance in air ($R_a\%$) of the asphaltene is 6.1 ($R_o\%$ is approximately 0.31) and the fluorescence alteration is moderately positive. Fig. 1 shows the results of variation in laser power on the fluorescence alteration. There is a linear relationship between initial (0s) and final (400s) fluorescence intensities and laser power and a slight increase in the fluorescence alteration ratio (final/initial fluorescence intensity) for calculated laser power values between 0.15 and 0.6 mW at the surface of the sample. Standard operating conditions for the laser Raman microprobe on which these measurements were made are listed in Wilkins et al. (1992, 1995).

To test for the stability of the Leping asphaltene in air, one block was stored in a vacuum desiccator and another was exposed to air for a period of 6 months. Stains develop on the surface of asphaltene that have not been well washed during preparation, but the exposed Leping asphaltene surface remained clean and fluorescence alteration measurements taken from time to time showed no clear evidence of the progress of oxidation. Table 1 compares mean fluorescence alteration parameters on the stored and exposed samples, based on ten measurements per sample. The fluorescence intensities and alteration ratios are similar to many vitrinites with an equivalent vitrinite reflectance of about 0.65%.

Although differences between the different sets of measurements are evident, it is just as likely that they are due to difficulties in maintaining experimental conditions over such a period, as

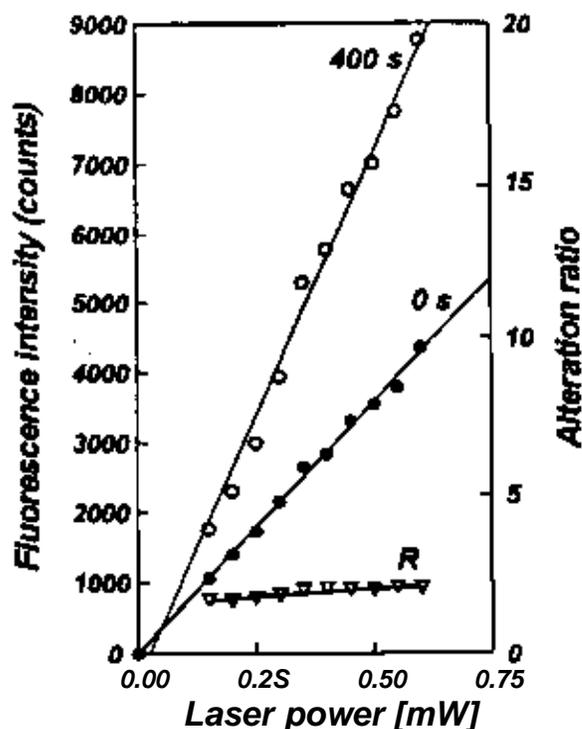


Figure 1. Effect of level of laser power on fluorescence alteration of asphaltene from Leping coal. The alteration ratio (R) is the ratio of final (400s) to initial (0s) fluorescence intensity

due to changes in the fluorescence properties of the asphaltene. We conclude that at least there are no important changes in the fluorescence of the asphaltene sample caused by atmospheric oxidation under ambient laboratory conditions over a period of months, though the sample should be kept in a desiccator when not in use and lightly repolished from time to time.

Unfortunately in one respect the Leping asphaltene sample is not ideal as a standard. In contrast to many previously studied asphaltene (Xiao et al., 1998) the Leping sample is less homogeneous. Typically fluorescence alteration ratios measured on a single grain have a standard deviation of .05 but if the measurements are made on several grains this figure increases to about 0.15. The origin of this variation is not understood. Blocks of the Leping asphaltene are available from the authors for interlaboratory

Table 1. Fluorescence alteration results on Leping asphaltene

Block	Comments	F 400s*	F 0s*	F 400s/F 0s*
1	After first polish	7875	4087	1.93
1	Exposed to air 6 months	7720	4180	1.85
1	Exposed to air 6 months; re-polished	7410	3769	1.97
2	Stored in vacuum desiccator 6 months	7621	4012	1.90

*For measurements on the same grain, standard deviations for F 400s, F 0S and F 400s/F 0s are approximately 180, 100 and 0.05.

comparisons of fluorescence alteration studies on macerals.

We thank Walter Pickel, Joseph Kurusingal and Neil Sherwood for valuable discussions.

References

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Wilkins, R. W. T., Wilmshurst, J. R., Hladky, G., Ellacott, M. V. and Buckingham, C. P. 1995 Should fluorescence alteration replace vitrinite reflectance as a major tool for thermal maturity determination in petroleum exploration? *Org. Geochem.* 22, 191-209.

Wilkins, R. W. T., Buckingham, C. P., Sherwood, N., Russell, N. J., Faiz, M. and Kurusingal, J. 1998 The current status of the FAMM thermal maturity technique for petroleum exploration in Australia. *APPEA Journal* 38, 421-437.

Xiao Xianming, Wilkins, R. W. T., Lui Zufa and Fu Jiamo 1998 A preliminary study of the optical properties of asphaltene and their application to source rock evaluation. *Org. Geochem.* 28, 669-676.

TSOP 2000!

*The 17th Annual Meeting of The Society For Organic
Petrology*

Bloomington, Indiana

September 17-20, 2000

The Organizing Committee of the 17* Annual Meeting of the Society for Organic Petrology in Bloomington invites you to submit an abstract.

Abstract deadline: April 1, 2000

Abstracts can be up to 5 pages in length, including figures and tables.

Abstracts can be sent by post (including a diskette in Microsoft Word or Wordperfect) or electronically by e-mail to: mmastale@indiana.edu. The Organizing Committee will make final decisions about the acceptance or rejection of abstracts by April 15, 2000.

For information about the conference visit our website: <http://adamite.igs.indiana.edu/tsop/>

For information about the program contact: Maria Mastalerz at (812) 855-9416, e-mail: mmastale@indiana.edu

Conference Highlights

In-Situ Analysis of Organic Matter, a pre-meeting short course including hands-on exercises.

The short course will present recent advances in electron microprobe analysis of organic matter with a special reference to light elements: C, O, and N. It will consist of three parts: 1) presentations discussing methodological aspects of the technique as well as those showing examples of the applications and their significance; 2) demonstration of the technique and hands-on exercise using the instrument; and 3) discussion on the advantages, limitations, and further direction. Instructions will be given by a group of researchers actively involved in electron microprobe studies representing different laboratories worldwide.

Limit: 20 persons

18 September - Monday

Special Session I - Surface Expressions of Hydrocarbons

Chairs: L. Pratt and J. Rupp, Indiana University

Numerous occurrences of liquid and gaseous hydrocarbons at the surface of the earth indicate that petroleum-bearing systems are dynamic and many processes that control hydrocarbon distribution are at work. In addition to naturally occurring hydrocarbons, numerous accumulations of manmade petroleum and related products are found at the surface of the earth. This session will address recent studies of the various occurrences of hydrocarbons at the surface of the earth and how these occurrences contribute to our understanding of petroleum systems in the geological context. The role of bacteriological degradation of both natural and manmade petroleum products will be addressed, including new developments in the area of bioremediation, and how the knowledge of surface hydrocarbon chemistry can be applied toward environmental restoration.

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Chair: E. P. Kvale, Indiana University

Organic geochemistry and petrology techniques combined with clastic sedimentology can be valuable in the determination of the character of the depositional system of an organic matter-bearing deposit. This session will explore transport and depositional processes as well as water chemistry of a variety of modern and ancient organic matter-bearing depositional systems spanning lacustrine and fluvial to marine.

Poster Session

19 September - Tuesday

General Technical Session

20 September - Wednesday

Field Trip

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Limit: 20 persons

THE SOCIETY FOR ORGANIC PETROLOGY
17th Annual Meeting, September 17-20, 2000
Indiana University, Bloomington, Indiana USA

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A block of hotel rooms has been reserved in the conference headquarters hotel, the Indiana Memorial Union, located on the 900 block of East Seventh Street. Please make your reservations directly by calling 800-209-8145 or by faxing your reservation request to the IMU at 812-855-3426. Please identify yourself as a member of the TSOP conference, #401-00.

Conference Registration includes conference materials, an Opening Reception, one luncheon, daily refreshments and two continental breakfasts. We have also scheduled a banquet to conclude the conference.

FOR MORE INFORMATION

Questions about registration, housing, and transportation should be addressed to IU Conferences at (812) 855-4224 or e-mail the conference registrar at hginter@indiana.edu.

Questions about the program should be addressed to Dr. Maria Mastalerz, mmastale@indiana.edu or by calling (812) 855-9416.

Visit our conference website:
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Web registration is encouraged. For those who cannot register online, the registration form and payment should be sent to the Conference Registrar. =>

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	By Sept. 1	After Sept. 1	Amt. Paid
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Member	\$145.00	\$160.00	\$ _____
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Post-conference Field Trip	\$50.00	\$50.00	\$ _____
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IN MEMORY OF RAYMOND "PUTT" M. PATALSKY

Mr. Raymond M. Patalasky, a well known, industrial coal petrographer and coal scientist died of liver cancer on December 17, 1999 at his home in Monroeville, Pennsylvania. Ray was part owner and president of Coal Petrographic Associates (CPA). His company was probably the largest independent coal and coke petrographic laboratory in the United States. Ray graduated from Duquesne University. His experience with coal began in 1957 when he was employed at U. S. Steel's Research Laboratory in Monroeville where he worked with the group that developed the prediction of coke stability, carbonization pressure and volume change from petrographic analyses which incorporated vitrinoid reflectance with maceral and mineral analyses. He developed his skills in the application of microscope techniques in investigations of coke structure, carbon microtextures, roof carbon, form cokes, carbon anodes, tars, pitches, mesophase and other materials including ore pellets, flue dust slags, etc. In 1968 he was assigned to a group that provided technical assistance to coke plants where he worked on bulk density control, stage charging and steam aspiration of coke ovens to improve coke quality and reduce emissions. He also worked in improved coke quenching. In 1972 he left U. S. Steel to set up a coal petrographic laboratory for J & L Steel Corporation, where he was a Senior Research Engineer engaged in coal exploration work related to mine development and in the improvement of coal beneficiation and the formulation of coking coal blends. He was responsible for the acquisition and allocation of coals for all of the coke plants. When J & L was purchased by LTV, Ray continued his work with LTV until he formed his own company together with some associates from W. F. Berry Associates in 1988. Under Ray's guidance, the new

company, Coal Petrographic Associates, grew to employ 10 full time and 5 part time employees that service the petrographic requirements of most of the major metallurgical coal producers in the United States. Ray and his group were also active in characterizing coals and chars for use in the production of ferrosilicon and silicon in electric arc furnaces. Ray published on a wide variety of subjects that are related to coal, coke and other carbons. He was a member of TSOP, and ICCP and was very active in ASTM where he worked on standards related to coke reactivity, coal oxidation as well as maceral and vitrinite reflectance analysis.

Ray is survived by his wife, Mary Louise; a sister, Helen; two stepchildren; three children, Terry, Ray and Lynn, and seven grandchildren. Ray will be missed by all of those that knew him in a personal or professional capacity. Both his golf buddies and his professional associates held Ray in high esteem. The very large number of persons from mining operations, coke plants and laboratory facilities that attended his last services attest to his enormous popularity and respect as a special person and an expert in his field.

Kevin DeVanney of Coal Tech will combine his company with CPA and assume Ray's position and continue his work in servicing the needs of those that explore, develop and use coal. The new company is called Coaltech Petrographic Associates, Inc.

By Ralph J. Gray

Calendar of Events**2000**

March 26 - 29 : 59th Ironmaking Conference, Pittsburgh, PA. For more information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

March 26-31: American Chemical Society Annual Spring Meeting, San Francisco, California

April 16-19: AAPG Annual Convention and Exhibition, New Orleans, Louisiana. For more information contact the AAPG Convention Department at 918 560-2679

May 3-4 :North American Coalbed Methane Forum - Spring Session at Holiday Inn at Meadow Lands PA. For more information contact

Ihor Havryluk at (412) 798-1391 or Kashi Aminian at (304) 293-7682 Ext. 3406

May 7-11:22nd Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, TN

May 8-11 : Effects of Coal Quality on Power Plant Performance: Ash Problems, Management and Solutions, Park City Utah

July 3-6: International Symposium on Alcohol Fuels, Stockholm Sweden

August 6 -11: Eleventh International Peat Congress - "Sustaining the World's Peatlands", Quebec City, Quebec, Canada.

August 13-16 : Fifth International Conference on Greenhouse Gas Control Technologies, Cairns, Australia

August 20-24: American Chemical Society Annual Fall Meeting, Washington D.C.

September 17-20: Seventeenth Annual Meeting of The Society for Organic Petrology, Bloomington Indiana. For further information contact Dr. Maria Mastalerz at (812) 855 9416 or e-mail at: mmastale@jndiana.edu

October 9-12: Mine Expo 2000, Las Vegas Nevada

November 13-16: Annual Meeting of the Geological Society of America, Reno, Nevada. For further information, contact GSA at (303) 447-2020 or fax them at (303) 447-6028.

2001

January 22-26:14th International Symposium on Management and Use of Coal Combustion Products, San Antonio Texas

April 1-5 American Chemical Society Annual Spring Meeting, San Diego, California

March 25 - 28 : 60th Ironmaking Conference, Baltimore, MD. For more information contact ISS Headquarters at (412)-776-1535 [ext. 618] or visit <http://issource.org/>.

August 26-30: American Chemical Society Annual Fall Meeting, Chicago, Illinois

November 5-8: Annual Meeting of the Geological Society of America, Boston Massachusetts. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

2002

September: Nineteenth Annual Meeting of The Society For Organic Petrology, Alberta

2003

November 2-5: Annual Meeting of the Geological Society of America, Seattle, Washington. For further information contact the GSA at (303) 447-2020 or fax them at (303) 447-6028

<u>Name of Publication</u>	<u>Price (USD)</u>
<i>Fluoreszenz von Liptiniten und Vitriniten in Beziehung zu Inkohlungsgrad und Verkokungsverhalten</i> - (in German with photomicrographs) M. Teichmüller, 1982	\$10
<i>Fluorescence - microscopical changes of liptinites and vitrinites during coalification and their relationship to bitumen generation and coking behavior</i> , TSOP Special Publication No. 1 (English translation by Neely Bostick, without photomicrographs) M. Teichmüller, 1984	\$ 5
<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
<i>Fluorescence Microscopy Workshop Lecture Notes</i> , 1989 TSOP Meeting	\$35
<i>Organic Geochemistry</i> , 2nd TSOP Meeting, Houston, TX, 1985; Vol. 11, No. 5, 1987	\$ 5
<i>Organic Geochemistry</i> , 3rd TSOP Meeting, Lexington, KY, 1986; Vol. 12, No. 4, 1988	\$ 5
<i>Organic Geochemistry</i> , 4th TSOP Meeting, San Francisco, CA, 1987; Vol. 14, No. 3, 1989	\$ 5
<i>Organic Geochemistry</i> , 5th TSOP Meeting, Houston, TX, 1988; Vol. 17, No. 2, 1991	\$10
<i>Organic Geochemistry</i> , 6th TSOP Meeting, Urbana, IL, 1989; Vol. 17, No. 4, 1991	\$10
<i>Organic Geochemistry</i> , 7th TSOP Meeting, Calgary, Alberta, 1990; Vol. 18, No. 3, 1992	\$10
<i>Organic Geochemistry</i> , 8th TSOP Meeting, Lexington, KY, 1991; Vol. 20, No. 2, 1993	\$10
8th TSOP Meeting Field Trip Guidebook, Lexington, KY, 1991	\$ 5
<i>Organic Geochemistry</i> , 10th TSOP Meeting, Norman, OK, 1993; Vol. 22, No. 1, 1994	\$10
<i>Energy & Fuels</i> , ACS symposium on kerogen/macerals; Vol. 8, No. 6, 1994	\$10
12th TSOP Meeting Field Trip Guidebook, The Woodlands, TX, 1995	\$ 5
<i>Organic Geochemistry</i> , 11th TSOP Meeting, Jackson, WY, 1994; Vol. 24, No. 2, 1996	\$35
<i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997	\$15
IJCG, 13th TSOP Meeting, Carbondale, IL, 1996; Vol. 37, Nos. 1-2, 1998	\$15
IJCG, Special Issue: Appalachian Coalbed Methane; Vol. 38, Nos. 1-2, 1998	\$20
IJCG, 14th TSOP Meeting, Lexington, KY, 1997; Vol. 39, Nos. 1-3, 1999	\$25

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Editors' Choice Photomicrograph



Editors' Choice Photomicrograph: Fusinite from an Eastern Kentucky Clean Coal. This is also an excellent example of the phenomenon known as "Excessive Retro Reflectance" whereby a complete image of the petrographer is reflected back *into* the camera. Sample courtesy of Dr. James Hower, Center for Applied Energy Research, Lexington, Kentucky Field of view approximately 225 microns left to right.



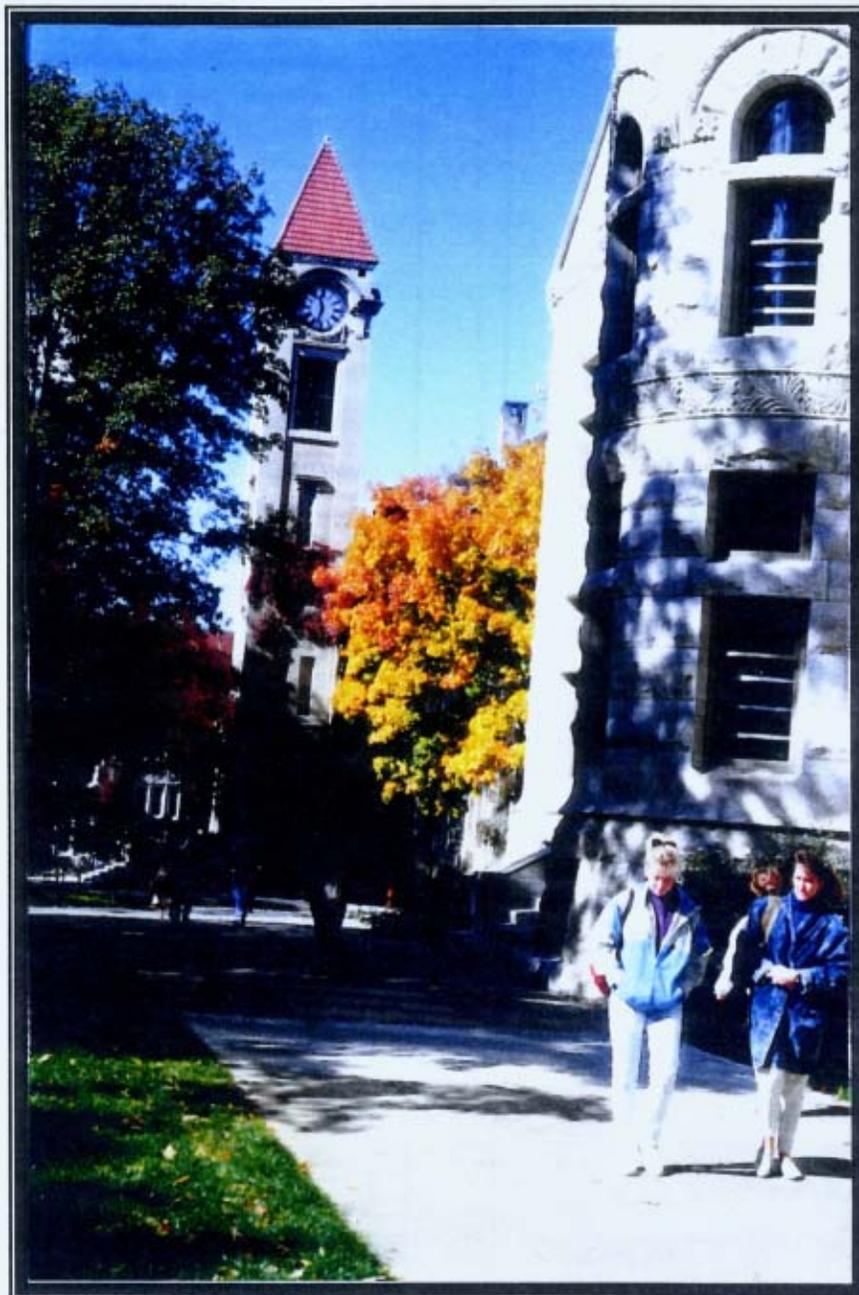
THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

Vol. 17 No. 2

June 2000

ISSN-0743-3816



Indiana University, Bloomington Indiana
The 17th Annual Meeting of The Society For Organic Petrology

The TSOP Newsletter

John C. Crelling / William W. Huggett
Co-editors

The *TSOP Newsletter* welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail file or as printed text via fax or regular mail. We do ask that any disk or e-mail file be written in **WordPerfect 6.1, 7, 8, or 9.**

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For purposes of registration of the TSOP Newsletter a permanent mailing is: The Society for Organic Petrology; c/o American Geological Institute, 4220 King Street, Alexandria, VA 22302-1502

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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 international and is open to all individuals having an interest in the field of organic petrology. For more information on membership, Society activities, or to acquire membership packs, please call or write:

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The official TSOP archival collection is now available for your use.

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Why not spread the TSOP message?

A limited number of recent back issues of the *TSOP Newsletter* are available for members to take to conferences they are going to attend. Membership packs and application forms are also available for distribution to interested parties. TSOP is an all-volunteer organization that relies on an active growing membership base in order to remain healthy. Only through the efforts of all of its members can TSOP continue to meet its membership goals. If you are interested in promoting TSOP and need some handouts please contact the following individuals:

For Newsletters

John C. Crelling or William Huggett
 Phone:(618)453-3351
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jcrelling@geo.siu.edu or huggett@geo.siu.edu

For membership information Including a downloadable membership application:

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"TSOP coffee mugs are without a doubt THE beverage container of the new Millennium.

Acknowledgment

The editors wish to acknowledge the support of John Mead, Director of the Coal Research Center at SIUC, and his staff for assistance in editing and printing this newsletter and directory.



Attention



Deadline for September issue is:

August 25th



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Limit: 20 persons

The Society for Organic Petrology
17th Annual Meeting, September 17-20
Bloomington, Indiana

General Program

Sunday

17 September 2000

8:00 - 9:00 am Registration and Coffee, Indiana Geological Survey 201
9:00 am - 4:00 pm Short course: *In-situ elemental analysis of organic matter*
Instructors: Bustin, R.M., Mastalerz, M., Gurba, L., Ward, C. and Walker, R. I., Geology Building

12:00-6:00 pm General Registration, Conference Lounge, Indiana Memorial Union (IMU)
3:30-5:00 pm Poster set-up, Walnut Room, IMU
6:00 - 9:00 pm Reception, University Club, IMU
8:00- 12:00 pm Outgoing Council Meeting, Charter Room, IMU

Monday

18 September 2000

7:00 - 8:15 am Continental Breakfast served in Conference Lounge, IMU
7:00 am -12:00 General Registration, Conference Lounge, IMU
8:15-8:30 am Welcome, Oak Room, IMU

8:30-12:00 Special Session I - *Organic matter and metals* - L. Pratt and J. Rupp
10:00 -10:30 Break and poster session
12:00-1:30 pm Luncheon and TSOP General Meeting, Frangipani Room, IMU
1:30-5:00 pm Special Session II - *Sedimentology of organic matter-bearing sequences* - E. Kvale and E. Elswick
3:00 - 3:30 pm Break and poster session

7:00 pm Banquet, Frangipani Room, IMU
8:00 - 12:00 pm Incoming Council Meeting, Charter Room, IMU

Tuesday

19 September 2000

7:00-7:55 am Continental Breakfast served in Conference Lounge, IMU

8:00-12:00 am General Technical Session, Oak Room, IMU
10:00 - 10:30 am Break and Group Photo
12:00-1:30 pm Lunch (on your own)
1:30-5:00 pm General Technical Session, Oak Room, IMU
3:00-3:30 pm Break and Poster Session
5:00 pm Presentation of TSOP Awards, Oak Room, IMU
Closing Remarks
Instructions for Field Trip

Wednesday

20 September 2000

7:30 am - 4:30 pm Fieldtrip, meet at the Indiana Geological Survey
Leaders: L. Pratt, J. Rupp, and B. Keith

COAL SAMPLE BANKS IN THE USA

Because carefully collected and properly handled coal samples are essential for research in organic petrology, the editors of the Newsletter thought that a review of the three major coal sample banks in the USA would be useful. The oldest and largest coal sample bank is the one at Penn State University. The premium sample bank at Argonne National Laboratory contains eight samples that have been collected, processed, and stored in the most pristine conditions and the sample bank of the Illinois Basin Coal Sample Program (IBCSP) contains twelve samples from the Illinois Basin.

The Penn State Coal Sample Bank and Database

For nearly 35 years various government agencies have funded the operation of a sample bank and gradual expansion of a collection of coals from around the United States. These grants and contracts also helped to provide more than basic characterization of each coal, making the collection an extremely valuable asset to Penn State's coal research programs. With permission or by contractual agreement, small subsamples of these coals have been made available, upon request, to any researcher in need of coal. For a small reimbursement, to recover the cost of time involved in dealing with specific requests, samples and analytical data have been provided to many thousands of governmental, university and private researcher through out the world. At the time of this writing, The Penn State Coal Sample Bank and Database continues to exist much as it has for the past 10 years.

Until April of last year, Penn State maintained a suite of 56 coals and a corresponding computerized database for use by DOE contractors and grantees. This includes 33 well-preserved DECS samples, collected in an ongoing effort begun in 1989, and 23 older PSOC samples. These samples and many of those collected over the entire lifetime of the project have been abandoned in place to The Energy Institute at The Pennsylvania State University by The Department of Energy. The coals represent a wide spectrum of the major coalfields of the United States and were selected in order to achieve a useful distribution of

important coals by rank, geologic province, maceral composition, sulfur content and forms, and ash yield and composition. Due consideration was also given to the prior use of these coals by researchers and to their economic importance. Most were collected as full-seam channel samples; however, drill cutting, working section of seam, bench, lithotype and run-of-mine samples were also acquired.

Sample Collection and Processing - DECS series samples are the newest and best preserved samples in the collection, and should be chosen when possible for research requiring moderate quantities of sample. They were collected in 180 kg (400 lb.) quantities from recently exposed areas of active mines, where they were placed in 113 L (30 gal.) steel drums with high-density gaskets and purged with argon. As soon as feasible after collection, processing was performed in order to obtain representative subsamples. These were sealed under argon in foil multilaminar bags, which have been shown by annual monitoring to preserve samples very well, and are kept in refrigerated storage (3°C). DECS samples are available in packages for three nominal sizes: 70 g (2.47 oz.) at minus 0.20 mm (-60 mesh), 300 g (2/3 lb) at minus 0.85 mm (-20 mesh) and 2.3 kg (5 lb) at 6 mm (-1/4 inch). The 300g containers are the ones most often requested by research agencies. Also, some non-representative blocks of coal, sealed in argon and refrigerated, are also available for certain coals in the Sample Bank. Older PSOC samples were collected similarly, but 300 g samples were sealed under argon in polyethylene bags which were then sealed in steel cans. Larger quantities were stored in polyethylene buckets or drums.

Analysis - Each of the Sample Bank coals has been subjected to the following analytical procedures: proximate analysis, ultimate analysis, sulfur forms, calorific value, maceral analysis, mean maximum vitrinite reflectance (VR₀), ash fusion determination, free swelling index, Hardgrove grindability, major inorganic and trace elements, equilibrium moisture, and CO₂. Gieseler plastometry and a standardized liquefaction test were performed on appropriate samples. NMR, py/gc/ms and additional trace element results were obtained on selected DECS samples.

Sample	Seam	Rank	Type	State	Ash	Sulfur	Vit	Vit Ro
DECS-1	Bottom	subC	C/S	TX	15.8	0.99	78	0.36
DECS-2	Illinois #6	hvCb	C/S	IL	16.2	4.52	87	0.52
DECS-3	Coal Basin M	mvb	C/S	CO	5.4	0.65	94	1.28
DECS-4	Blue	hvCb	C/S	NM	6.2	0.46	88	0.51
DECS-5	Hiawatha	hvCb	C/W	UT	8.5	5.6	66	0.59
DECS-6	Blind Canyon	hvAb	C/W	UT	5.8	0.40	69	0.66
DECS-7	Adaville #1	hvCb	C/S	WY	4.2	0.98	95	0.45
DECS-8	Smith -Roland	subC	ROM	WY	13.8	0.73	79	0.37
DECS-9	Dietz	subC	D/S	MT	6.4	0.41	88	0.38
DECS-10	Rosebud	subC	C/W	MT	12.6	1.16	74	0.42
DECS-11	Beulah	ligA	C/S	ND	9.6	0.74	74	0.35
DECS-12	Pittsburgh	hvAb	C/S	PA	10.3	1.12	83	0.87
DECS-13	Sewell	mbv	C/S	WV	4.2	0.62	77	1.35
DECS-14	Upper Kittanning	hvAb	C/W	WV	10.5	1.80	89	1.07
DECS-15	Lower Sunnyside	hvAb	S/S	UT	10.1	1.67	77	0.80
DECS-16	Blind Canyon	hvAb	C/W	UT	13.9	0.47	77	0.64
DECS-17	Blind Canyon*	hvAb	C/S	UT	6.6	0.44	80	0.59
DECS-18	Kentucky #9	hvBb	C/S	KY	12.3	4.24	86	0.56
DECS-19	Pocahontas #3	lvb	C/S	VA	4.6	0.74	89	1.71
DECS-20	Elkhorn #3	hvAb	C/S	KY	5.5	0.97	78	0.87
DECS-21	Lykens- Valley #2	an	C/S	PA	11.2	0.50	87	5.19
DECS-22	Upper Kittanning	hvAb	C/L	PA	23.3	1.71	30	0.77
DECS-23	Pittsburgh	hvAb	C/S	PA	9.4	3.87	79	0.73
DECS-24	Illinois #6	hvCb	C/S	IL	13.4	5.53	90	0.49
DECS-25	Pust	LigA	C/S	MT	11.9	0.72	74	0.28
DECS-26	Wyodak	subB	ROM	WY	7.6	0.43	86	0.29
DECS-27	Deadman	subA	D/S	WY	13.9	0.72	74	0.46
DECS-28	Green	hvCb	C/S	AZ	6.1	0.40	76	0.43
DECS-29	Upper Banner #3	hvAb	C/S	VA	6.4	0.59	71	1.00
DECS-30	Splash Dam	mvb	C/S	VA	3.9	0.79	77	1.16
DECS-31	Pond Creek	hvAb	C/S	KY	10.9	0.60	73	0.99
DECS-32	Stockton-Lewiston	hvAb	C/S	WV	20.3	0.73	68	0.90
DECS-33	Ohio #4a	hvBb	C/S	OH	12.0	3.74	77	0.51

* Limited availability, C/S=Chan. Seam, C/W=Chan. Work, ROM=Run of Mine, D/S=Drill Seam

Sample Availability - Coal samples from the Sample Bank are available to all members of the coal research community. Assistance can be given in identifying samples that match specifications or that best suit the research needs of the requestor. A nominal cost plus shipping and handling is charged for samples up to 1 kg of -0.85 mm (-20 mesh) coal or 300 g of -0.25 mm (-60 mesh) coal. Beyond this limit and for larger quantities or special preparation of samples, provision will be at cost to the requestor for preparation, mailing and handling.

Penn State currently maintains a Sample Bank that contains over 1000 samples in addition to the 56 coals. If a researcher's needs cannot be met from the 56 coals, then suitable samples can be provided from the larger bank; there is a charge for this service. A booklet describing the entire

Penn State Coal Sample Bank and Database is available from the Coal and Organic Petrology Laboratories.

Coal Database. Printouts and Searches - The data that have been assembled by Penn State on the Sample Bank of 56 coals have been computerized and are available for a fee. In addition to the analytical data described above, the Coal Database includes details on sample history, location, geology, and seam strata information. Full (four page) printouts of data in 8 1/2 by 11" format can be provided for any sample. A staff of professionals at Penn State can undertake Database searches to identify samples meeting specified criteria. Simple searches resulting in tables of data or a set of printouts or for more extensive searches, statistics or electronic transmission of data sets

can be performed for a fee. Investigators can perform their own simple searches on our web site (<http://www.ems.psu.edu/COPL>). It includes limited data for all DECS samples and a selected subset of other Penn State samples.

Ordering and Assistance - Request forms, a booklet describing the entire Penn State Coal Sample Bank and Database, and assistance in acquiring samples and data can be obtained from:

Coal and Organic Petrology Laboratories
The Pennsylvania State University
105 Academic Projects Building
University Park, PA 16802-2300
Phone: (814) 865-654
Fax: (814) 863-7432
Email: n8h@psu.edu
<http://www.ems.psu.edu/COPL>

The Argonne Premium Coal Sample Program

The purpose of the Argonne Premium Coal Sample Program is to supply highly uniform, premium (unexposed to oxygen) coal samples to researchers investigating coal structure, properties and behavior, and to maintain accessible databases of published reports describing work carried out with Argonne Premium Coal Samples. By ensuring sample uniformity and maintaining premium quality the Argonne Program assures researchers that results generated from analysis of Argonne Premium Coal Samples are comparable with results generated by other workers using premium coal samples. Hence, by maintaining long term supplies of high quality coal samples, the APCS program is intended to allow researchers to develop, over time, a comprehensive data base of information for a carefully selected suit of U.S. coal samples. To date, more than 22,000 coal samples have been shipped to 876 Government, Academic and Industrial researchers all over the world.

The premium coal samples produced from each coal and distributed through this program are chemically and physically as identical as possible, have well-characterized chemical and physical properties, and will be stable over long

periods of time. To achieve these goals, coals have been mined, transported, processed into the desired particle and sample sizes, packaged in humid nitrogen environments as free of oxygen as possible, and carefully characterized by a variety of techniques.

Selection of the Coals - It was decided to include a set of eight coals in the program. The selection of these eight coal samples was based on those parameters which would represent significant differences among the available coal types mined in the United States and maximize our understanding of the fundamental properties of coal. A cluster analysis of whole coal seam data from the Pennsylvania State Coal Sample Data Base was carried out with data from 200 samples to establish desirable choices in terms of the significant compositional parameters, C, H, O and S. Using increasing carbon and decreasing oxygen on one axis and hydrogen and sulfur content on the other, the cluster analysis provided identification of compositional characteristics for eight coal samples. With help from the U. S. Geological Survey, individual coals were identified for collection. The compositional characteristics, primarily carbon content, were used to guide the selection of five of the coals. These provided a rank range from lignite through low volatile bituminous. Anthracites were not included because of their low reactivity and relative scarcity. The other three were selected to give a range of sulfur contents, a larger content of macerals other than vitrinite, and a range of bituminous coals with varied Paleobotanical source material. Within the compositional constraints from the cluster analysis one of the samples was selected for its known coking properties.

Sample Descriptions - The full set of eight coals for the Premium Coal Sample Program includes a lignite, subbituminous, high volatile, medium volatile and low volatile bituminous, as well as a liptinite-rich, an inertinite rich and a coking coal. The coals were selected on the basis of C, H, S and O contents as well as maceral content and geological age. Ampoules containing 5 grams of -100 mesh or 10 grams of -20 mesh material from each sample are available. Some analytical information is available. The methods of selection, collection, transportation, processing,

packaging, distribution and characterization are summarized. The eight samples were each collected in about 1 to 1 1/2 ton quantities, placed in steel drums, purged with argon and taken to Argonne National Laboratory (ANL) for processing. After transfer to a nitrogen-filled enclosure, they were crushed, pulverized, mixed and packaged in sealed amber borosilicate ampoules. Five-gallon carboys hold about 80% of the batch in reserve for filling more ampoules after the original samples (about 5,000 of -20 mesh or 10,000 of -100 mesh) are depleted.

The **first sample** is an Upper Freeport seam, medium-volatile bituminous coal which was collected from an underground mine near Homer City (Indiana County) Pennsylvania in January 1985. The seam was 4' thick where it was sampled. The sample was collected in special double-plastic bags and transferred to the stainless steel drums at the surface. The **second sample** is from the Wyodak-Anderson seam, a subbituminous coal collected about 6 miles northeast of Gillette, (Campbell County) Wyoming in October 1985. The seam was about 120' thick at the collection site. The sample for processing consisted of a 6" core sample through the entire seam. The **third sample** is a high-volatile bituminous coal, from the Illinois #6 or Herrin seam, and was collected about 60 miles southeast of St. Louis in St. Clair County in Illinois in December 1985. The 55-gallon drums were taken into the underground mine for this and all subsequent underground mines because the seam was 7' thick at the Illinois site and at least 6' thick for all other underground samples. The **fourth sample** (high-volatile bituminous) was obtained underground from the Pittsburgh seam (sometimes referred to as Pittsburgh #8) and was collected about 60 miles south of Pittsburgh in Greene County, Pennsylvania in March 1986. This seam was 6' thick at the collection site. The sample drums were taken into the mine for loading. The **fifth sample** is a low-volatile bituminous from the Pocahontas #3 seam, collected underground in Buchanan County, Virginia in June 1986. This seam was 6' thick at the collection site and the drums were loaded in the mine. The **sixth sample** (high-volatile bituminous) is an underground Blind Canyon seam sample collected in Emery County, Utah about 150 miles southeast of Salt Lake City in

August 1986. The seam was about 7' thick at the collection site. Drums were loaded in the mine. The seventh **sample** (high-volatile bituminous) is from the Lewiston-Stockton seam of the Kanawha formation. This was collected underground about 20 miles east of Charleston in Kanawha County, West Virginia in October 1986. The seam was about 6' thick at the collection site and the drums were loaded in the mine. The **eighth sample** is a lignite from the Beulah-Zap seam collected in Mercer County, North Dakota, about 8 miles northwest of Beulah in November 1986. The seam was about 18' thick at the collection area. Collection was done by accumulating about 50 3" core samples spaced about 20' apart in each direction.

Ordering and Assistance - To make information concerning the Argonne Premium coals more accessible to researchers, a World Wide Web home page was created in 1995 to provide access to APCS information available via the internet. The APCS Home Page can be reached via the Argonne National Laboratory World Wide Web Home Page at : <http://www.anl.gov/PCS/pcshome.html>. The WWW home page provides complete access to essentially all of the information currently contained in the APCS Users Handbook. Fully searchable bibliographic information for all of the references currently in the citations database is also available on-line via the APCS Home Page. A facility for on-line users to submit references for inclusion in the APCS bibliographic databases has recently been added to help ensure that the databases are as complete and up-to-date as possible.

Illinois Basin Coal Sample Program

The major objective of the IBCSP is to provide reproducible coal samples that facilitate comparisons of results among laboratories studying Illinois Basin coals. The IBCSP provides for the distribution of samples of coal from its storage, tips on how to use the samples, and information developed over the years on the properties of these coals. A 5-year minimum lot life cycle was the program's objective from the beginning. The amounts used initially for coal cleaning projects resulted in 3 tons becoming the standard lot size. The IBCSP maintains multi-ton

quantities of a few coals under conditions that minimize their deterioration in storage. Coals are selected primarily to meet the needs of coal research projects funded by the Illinois Coal Development Board (ICDB, previously the Illinois Coal Research Board) through the Illinois Clean Coal Institute (ICCI). The ICCI requires its contractors to use at least one coal from the IBCSP. This requirement provides a common coal through which to link the results with other research funded by the ICCI. To maintain this link with previous research, samples of the same coal should be available for a number of years. The goal of a 5 to 10 year lot life cycle has been achieved.

Sample Descriptions -

IBC-101: High Organic Sulfur Herrin Coal (Illinois No. 6) - This Herrin (Illinois No. 6) coal, obtained in 1983 from a commercial preparation plant in west-central Illinois, has the highest organic sulfur content of any coal in the program and one of the lowest pyritic sulfur values for a conventionally washed coal.

IBC-102: High Pyritic Sulfur Colchester Coal (Illinois No. 2) - This Colchester (Illinois No. 2) coal was obtained in 1983 from a western Illinois preparation plant at a mine that is now closed. This coal is low in organic sulfur and high in pyritic sulfur. Its pyrite is oxidized to sulfate at an unpredictable rate when the coal is exposed to air. Sulfatic sulfur content as high as 0.2% to 0.3% has been observed in samples dried overnight in air.

IBC-103: Typical 1:1 Ratio of Pyritic to Organic Sulfur Coal (Mixed Springfield [Illinois No. 5] and Herrin [Illinois No. 6] Coals) - This blend, 80% Springfield (Illinois No. 5) coal and 20% Herrin (Illinois No. 6) coal, was taken in 1983 from a southern Illinois washing plant. It is the highest rank coal in the program. The supply is nearly depleted, and the amount remaining is reserved for previous users. See IBC-106 for another 1:1 pyritic to organic sulfur coal (although lower in rank).

IBC-104: High Ash, High Sulfur Herrin Coal; (Illinois No. 6) - This run-of-mine Herrin (Illinois No. 6) coal was obtained from a southwestern Illinois mine in 1984. It was selected as a feed for physical cleaning tests. About 60% of its sulfur is pyritic. The supply of this coal is depleted.

IBC-105: Near-Pristine Coal; Channel Sample of Herrin (Illinois No. 6) - Selection of the

source of this Herrin (Illinois No. 6) coal was by the U.S. DOE funded APCSP. The IBCSP objective was to make larger samples of a near pristine Illinois coal available for engineering projects. The coal was obtained in 1985 from the same block where Argonne collected its lot. It was blanketed with argon at the mine to provide an inert environment and processed under nitrogen at ANL in a controlled humidity environment.

IBC-106: Typical 1:1 Ratio Pyritic to Organic Sulfur Illinois Basin Coal; Springfield (Indiana V) Coal - This Springfield (Indiana V) coal was obtained in 1987 from a southwestern Indiana washing plant. It is the first 100% Springfield Coal in the program. The Indiana V seam is called Illinois No. 5 in Illinois. This lot is nearly depleted and the remainder is available only to previous users. The lot was replaced by IBC-110.

IBC-107: 34S/32S Isotopically Characterized Coal; Herrin (Illinois No. 6) - This Herrin (Illinois No. 6) coal has a significant difference in the ratio of 34S/32S isotopes in the organic and pyritic forms of sulfur. It is recommended for researchers who propose to follow the fate of forms of sulfur in chemical reactions of coal by monitoring the ratio of sulfur isotopes in the products.

IBC-108: Very Low Pyrite and Ash, Micronized Coal; Mixed Springfield (Illinois No. 5) and Herrin (Illinois No. 6) coal - This state-of-the-art physically cleaned blend of Herrin (Illinois No. 6) coal and Springfield (Illinois No. 5) coal (80% and 20%, respectively) is a micronized coal with low pyritic sulfur. It was produced by an advanced froth flotation process (microbubble column flotation) in 1988. It is delivered to requesters as a filter cake (approximately 45% ± 5% moisture). It is ideal for users wanting an Illinois coal deep-cleaned with respect to pyrite and other mineral matter.

IBC-109: Low Sulfur, High Chlorine Coal; Herrin (Illinois No. 6) - This relatively low sulfur Herrin (Illinois No. 6) coal was obtained in 1988 from a southern Illinois preparation plant. It is useful for those seeking a high chlorine content coal. This coal is a good choice for those wanting to study a coal that will meet 1.2 pounds of sulfur dioxide per million Btu after deep cleaning to remove pyrite.

IBC-110: Typical 1:1 Ratio Springfield Coal (Indiana V) - This Springfield (Indiana V) coal

was obtained in October 1991 from a southwestern Indiana washing plant (jig) as a replacement for IBC-106.

IBC-111: Danville (Indiana VII) Coal (Illinois No. 7) - This lot of Danville (Indiana VII) coal was obtained in November 1992 from a product stream out of a Baum jig water-washer plant at a surface mine in western Indiana. This seam is equivalent to the Illinois No.7 in Illinois.

IBC-112: Typical 1:1 Ratio of Pyritic to Organic Sulfur Illinois Basin coal; Herrin (Illinois No. 6)

Coal - This coal is from an underground mine in southern Illinois where it was washed in a conventional preparation plant. The sulfur content of this float is typical of much of the high sulfur coal in the Illinois Basin.

Ordering and Assistance - Information on ordering and sample availability can be obtained from:

Manager, IBCSP
 Phone:(217)244-4990
 Illinois State Geological Survey
 Fax:(217)333-8566
 615 East Peabody Drive
 E-mail: coalbank@geoserv.isgs.uiuc.edu
 Champaign, IL 61820

MERGER

COALTECH USA and **COAL PETROGRAPHIC ASSOCIATES** (both Pennsylvanian Corporations) merged on January 1,2000. This enabled the new company to expand it's technical expertise and services offered in the field of coal, coke and specialty carbon evaluations.

The history of the company dates back to the early 1970's when Bill Berry left Bituminous Coal Research (BCR) to form **W.F. Berry Associates** and provide petrographic and consulting services to the coal and steel industries. By the mid 70's, the company expanded it's testing capabilities and continued involvement in petrographic consulting projects. The company rapidly gained a reputation for expertise in the field of applied coal petrography. In 1981, SGS bought W.F. Berry Associates. The following year, SGS purchased CT&E. W.F. Berry Associates

retained its name and operated as CT&E's American coal petrography laboratory. The next major change in the company came in 1989. In that year the business was purchased from CT&E by Ray Patalsky to form **Coal Petrographic Associates (CPA)**. Ray Patalsky ran this company until his death in late 1999.

Effective January 1, 2000, **CoalTech USA** and **Coal Petrographic Associates** merged to form **COAL TECH PETROGRAPHIC ASSOCIATES, INC.** The new company is now headed by Kevin DeVanney (President and majority shareholder).

COAL TECH PETROGRAPHIC ASSOCIATES, INC. currently has a staff of thirteen full time employees with college degrees in geology, chemistry, biology, and business. The company also uses several independent consultants to enhance its services. The main clientele are companies in the USA, however over the past few years the client base has expanded internationally. The company is now one of the top three largest independent metallurgical coal and coke specialty laboratories in North America.

The company, located at, 3100 Braun Avenue, Murrysville PA 15668, and provides **coal and coke microscopy** and **testing** as well as **specialty carbon microscopy**. **Technical consulting** and **expert witness** services along with **coal/coke laboratory quality audits** and **forensic work pertaining to carbon smelting and reduction** are also available. The company also offers **technical training and seminars**.

For more information you may contact them at:
(724) 327-2866 ph
(724) 733-4484 fax
Coalpetr@nb.net



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TSOP PUBLICATIONS

<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. 1 (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	\$35
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	\$10
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	\$35
17.	<i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997	\$15
18.	IJCG, 13th TSOP Meeting, Carbondale, IL, 1996; Vol. 37, Nos. 1-2, 1998	\$15
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	\$25

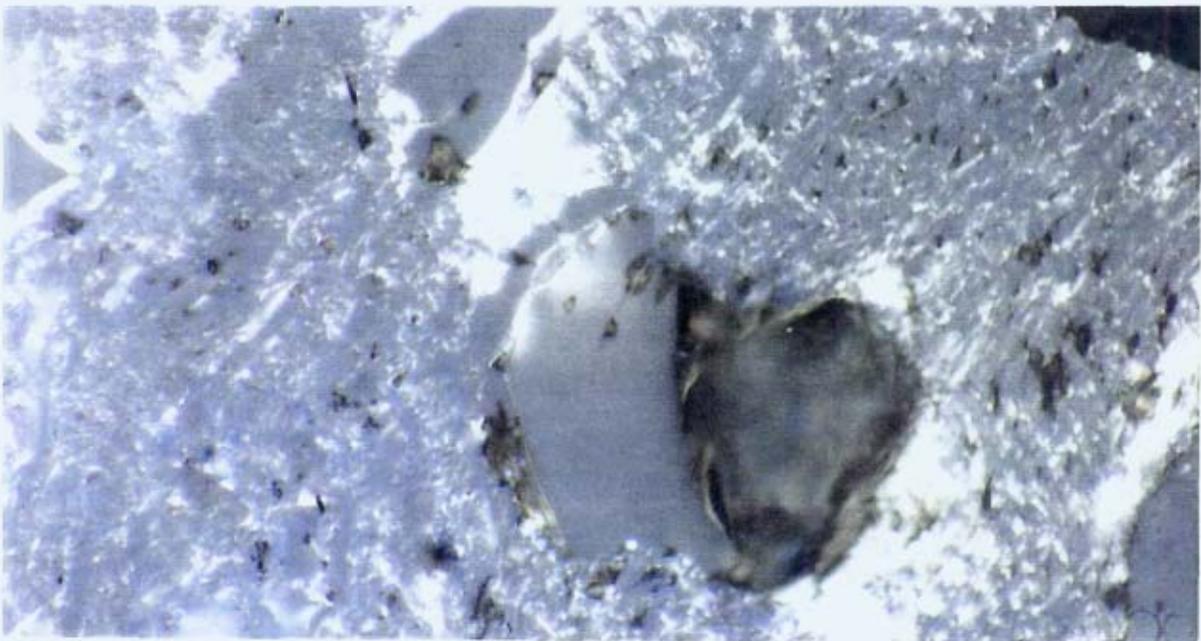
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Editor's Choice Photomicrograph



Editor's Choice Photomicrograph: *Top* Early carboniferous Chinese Anthracite from Jinzhushan, Hunan. *Bottom*: Russian Anthracite from the Gertowski Basin. Photomicrographs courtesy of Dr. Barbara Kwiecinska, Institute of Geologic and Mineral Deposits, Academy of Minerals and Metallurgy, Krakow, Poland.



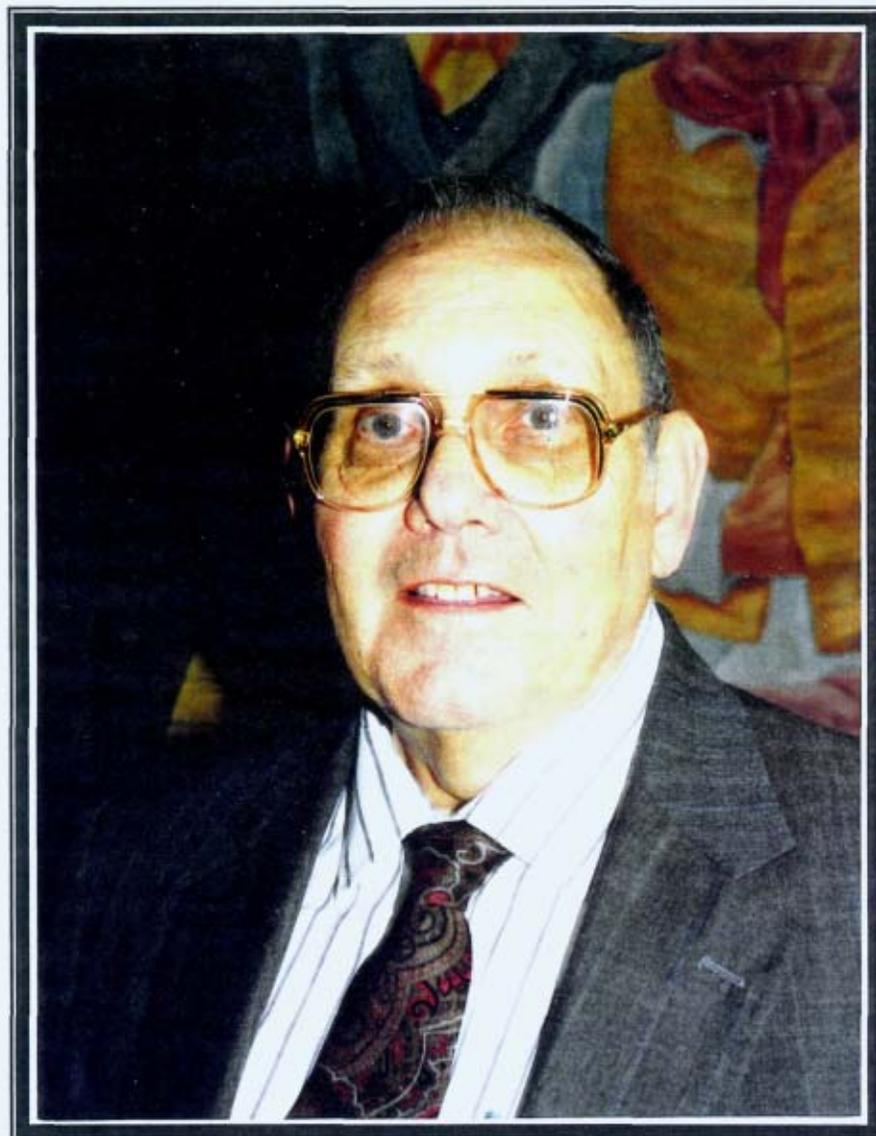
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NEWSLETTER

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Thiessen Medal Awarded To Ralph J. Gray

The TSOP Newsletter

John C. Crelling / William W. Huggett
Co-editors

The *TSOP Newsletter* welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail file or as printed text via fax or regular mail. We do ask that any disk or e-mail file be written in **WordPerfect 6.1, 7, 8, or 9.**

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For purposes of registration of the TSOP Newsletter a permanent mailing is: The Society for Organic Petrology; c/o American Geological Institute, 4220 King Street, Alexandria, VA 22302-1502

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 international and is open to all individuals having an interest in the field of organic petrology. For more information on membership, Society activities, or to acquire membership packs, please call or write:

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U.S. Geological Survey
956 National Center
Reston, VA 20192

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Fax:(703) 649-6419
e-mail: pwarwick@usgs.gov

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www.tsop.org

You'll find the TSOP discussion forum, links to other related sites, schedules, dates, meeting updates, and tons of other useful information!

TSOP Archives

Now open for business!!

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The collection contains all of the society's newsletters, publications, programs, field guides, short course notes, Research Committee reports, minutes of Council meetings, and member directories.

Photocopies of desired materials will be provided at a cost immediately upon approval of your request form. Sorry, but no copies of publications which are currently for sale by TSOP can be provided. Please make all inquires to:

Kenneth W. Kuehn
TSOP Archivist
Geology, Western Kentucky University
1 Big Red Way
Bowling Green, KY 42101
Phone: (502) 745-3082
Fax:(502)745-6410
kenneth.kuehn@wku.edu

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www.tsop.org

The 1999-00 TSOP Council

President	Cole Robison
Vice President	Dave Glick
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Going to a Meeting?

Why not spread the TSOP message?

A limited number of recent back issues of the *TSOP Newsletter* are available for members to take to conferences they are going to attend. Membership packs and application forms are also available for distribution to interested parties. TSOP is an all-volunteer organization that relies on an active growing membership base in order to remain healthy. Only through the efforts of all of its members can TSOP continue to meet its membership goals. If you are interested in promoting TSOP and need some handouts please contact the following individuals:

For Newsletters

John C. Crelling or William Huggett

Phone:(618)453-3351

Fax: (618) 453-7393

jcrelling@geo.siu.edu or huggett@geo.siu.edu

for membership information **Including a downloadable membership application:**

www.tsop.org

.. or contact membership chairman:

Peter Warwick

(703) 648-6469

pwarwick@usgs.gov

TSOP Mugs!

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Acknowledgment

The editors wish to acknowledge the support of John Mead, Director of the Coal Research Center at SIUC, and his staff for assistance in editing and printing this newsletter and directory.



Attention



Deadline for December issue is:

November 17th



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Announcement

The North American Coalbed Methane Forum, Inc.

Will hold it's fall session on October 31-November 1, 2000:
at the Lakeview Conference Center near Morgantown W.V.

For information please contact:

Ihor Havryluk at
412-798-1391

-or-

Kashi Aminian at
304-293-7682 ext. 3406

Thiessen Medal Awarded to Ralph. J. Gray

The Thiessen Medal for the year 2000 has been awarded to Ralph J. Gray by the International Committee for Coal and Organic Petrology for his distinguished achievements in the application of organic petrology to industrial problems. The Thiessen Medal is the highest international recognition for organic petrologists.

Ralph J. Gray received a B.S. degree in Geology in 1950 and the M.S. degree in Geology in 1951 at West Virginia University where he studied under Dr. Auriel T. Cross. He worked with Dr. James M. Schopf from 1952 to 1956 he worked as a geologist for the U.S. Geological Survey at Ohio State University relating transmitted light to reflected light techniques for coal petrographic analysis. For most of his professional career from 1957 until 1983 he was a Research Consultant for U. S. Steel Corporation where he worked on a variety of projects including the development of a microscope system for the analysis of coal, coke and carbons; the development of a petrographic technique for the prediction of metallurgical coke quality that is still used widely; the reactivity of metallurgical coke; and the formulation of coking blends. It is for this coke quality work that he is best known. However, he was one of the earliest workers to use reflectance analysis in studies of dispersed vitrinites and he related coke carbon forms and microstructures to coke reactivity in CO₂ and developed systems for predicting pressure and volume changes from petrographic data. His studies of weathered coal resulted in a petrographic technique for its detection and quantification and in an alkali extraction and solvent transmission technique for quantifying the extent of coal oxidation which is now an ASTM standard. His expertise in the petrography of graphites, baked anodes and other industrial carbons is recognized internationally. He has also made major contributions to the development of automated coal petrography and the petrographic selection of coal for use in electric furnaces for the production of silicon and ferrosilicons.

Perhaps his greatest contribution to the field is his skill and enthusiasm as a teacher. He is a patient and inspired teacher and he has been teaching the skills of critical observation in organic petrology for fifty years and many past and current members of TSOP have benefited from his instruction.

His professional accomplishments and enormous contributions have also been recognized by the Iron and Steel Society of the American institute of Mining, Metallurgical, and Petroleum Engineers with the Joseph

Becker Award, by the Coal Division of the Geological Society of America with the Gilbert H. Cady Award, and by the American Society for Testing and Materials with the R. A. Glenn Award.

Ralph J. Gray is an original member of The Society for Organic Petrology and he has also been awarded the Society's highest recognition of Honorary Member status.

Membership Directory Updates

Roger Trader
U.S. Geological Survey
2775 Altamesa Blvd.
Fort Worth Texas 76132

Stan Teerman
Chevron
Chevron Park B2340
6001 Bollinger Canyon Blvd.
San Ramon CA 94583-0592
Ph: 925-842-0592

Any any changes need to be made to the membership directory, please bring them to the attention of the Co-editors

-Thank you

William Huggett: huggett@geo.siu.edu

-or-

Jack Crelling: jcrelling@geo.siu.edu

Election Results

2000

President-elect: ELECTED-Tim Moore

Vice President: ELECTED-Neil Sherwood

Councilor: ELECTED-MaryAnn Malinconico

Editor: ELECTED-Jack Crelling

TSOP and ICCP Suggested Classification of Organic Matter in Coal and Isolated Kerogen

Over the past few years both TSOP and the ICCP have been grappling with amorphous organic matter classification. A preliminary presentation was made to each organization in 1998. At both meetings there was support for the proposal presented and agreement that TSOP and ICCP should work together on the project. The March 1999 TSOP Newsletter contained a lengthy discussion of this topic. A table showing the correlation between organic matter in polished block and organic matter in strewn mounts was revised by Jack Burgess, Carolyn Thompson-Rizer, Lavern Stasiuk, and Adrian Hutton. It was circulated to members of ICCP for comment, earlier this year. The table was devised to show the equivalence of the recognisable organic matter groups in reflected light microscopy and with transmitted light microscopy (strewn mounts). We suggest that the classification of amorphous organic matter in strewn mounts now use the term "amorphinite" (after Van Gijzel, 1982 and Senftle et al., 1987). Amorphinite is equivalent to alginite, although we recognize that some workers might use amorphinite as equivalent with bituminite. Please see the table. The possible use of the term was canvassed at ICCP in 1998. The use of the amorphinite classification is for organic matter in strewn mounts. Alginite classification, such as lamalginite and telalginite (Hutton and Cook, 1980), is for organic matter in polished mounts.

One comment about the suggested table is that the vitrinite terms should be in line with those accepted by the ICCP. We welcome more comments. Following additional input, the table will be finalized and an accompanying text prepared for presentation to both TSOP and ICCP. Jack, Carolyn, Lavern, and Adrian welcome your comments. Please forward comments to Adrian by email to adrian_hutton@uow.edu.au.

At the ICCP meeting in Bucharest in 1999, Lavern Stasiuk canvassed the idea that an atlas or CDROM of photographs of dispersed organic matter should be compiled and he agreed to coordinate such a project. Lavern would like to start compiling photographs now from both whole rock and isolated kerogen samples. Please send images and sample information directly to Lavern. His email address is: LStasiuk@jNRCan.gc.ca

Jack Burgess suggested that we should include information with each image, where available:

- Brief description, as seen by the operator, should be included as this would help in classifying the organic matter maturity of the sample.
- Rock-Eval analysis would also be useful in order to correct for vitrinite reflectance suppression
- geologic age
- formation
- lithology
- type of sample
- well depth
- other relevant information

References Cited

Hutton, A.C. and Cook, A.C., 1980, Influence of alginite on the reflectance of vitrinite from Joadja, NSW, and some other coals and oil shales containing alginite. *Fuel*, 59, pp. 711 - 714.

Senftle, J.T., Brown, J.H., and Larter, S.R., 1987, Refinement of organic petrographic methods for kerogen characterization. *Int. J. Coal Geology*, 7, pp. 105- 117.

Van Gijzel, P., 1982, Characterization and identification of kerogen and bitumen and determination of thermal maturation by means of qualitative and quantitative microscopical techniques. In: F.L. Staplin, W.G. Dow, C.W.D. Miner, D.I. O'Connor, S.A. J. Pocock, P. Van Gijzel, D.H. Welte and M.A. Yukler (Eds.), *How to assess maturation and paleotemperature, SEPM Short Course No. 7, Soc. Econ. Paleont. Mineral., Tulsa*, pp. 159-216.

**TSOP and ICCP Suggested Classification of Organic Matter in Coal and Isolated Kerogen
from Petroleum Source Rocks, Oil Shale, Clastics, and Carbonate Rocks¹**

Type of Sample:	Whole Rock Sample	Isolated Kerogen ²	
Preparation:	Polished Mount	Polished (Pellet) Mount	Strewn Slide
Microscope Illumination:	Reflected White or Blue	Reflected White or Blue	Transmitted and Reflected White or Blue
VITRINITE	Telinite Collinite Vitrodetrinite	Telinite Collinite Vitrodetrinite	Telinite Collinite Vitrodetrinite
LIPTINITE	Alginite Lamalginite ⁴ Telalginite ⁵ Bituminite Exsudatinitite Fluorinite Liptodetrinite Sporinite Cutinite Suberinite Resinite	Alginite Lamalginite ⁴ Telalginite ⁵ Bituminite (Amorphinite)* Exsudatinitite Fluorinite Liptodetrinite Sporinite Cutinite Suberinite Resinite	Amorphinite ³ Bituminite (Amorphinite)* Exsudatinitite Fluorinite Liptodetrinite Sporinite Cutinite Suberinite Resinite
	Bitumen Oil	Bitumen Oil	Bitumen Oil
INERTINITE	Fusinite Semifusinite Funginite Secretinitite Macrinite Micrinite Inertodetrinite	Fusinite Semifusinite Funginite Secretinitite Macrinite Micrinite Inertodetrinite	Fusinite Semifusinite Funginite Secretinitite Macrinite Micrinite Inertodetrinite
ZOOCLASTS	Scolecodonts Graptolites Chitinozoans	Scolecodonts Graptolites Chitinozoans	Scolecodonts Graptolites Chitinozoans

Footnotes

1. Outcrop, core, side-wall core, well cuttings samples at moderate thermal maturity (within the oil window 0.5 to 1.3% Ro).
2. Sample processed with HCl and HF acids.
3. When structures are identifiable, may be classified as an alginite type.
4. Examples of lamalginitite genera or organisms include: *Pediastrum*, *Nostocopsis*, Dinoflagellates & Acritarchs.
5. Examples of telalginite genera or organisms include: *Botryococcus*, *Gloeocapsomorpha*, & Tasmanitids

* new term needed

~~First Announcement~~ First Announcement

The Society for Organic Petrology 18th Annual Meeting

You are invited to Houston, Texas,
for TSOP's 18th Annual Meeting
23-26 September 2001

Conference Highlights:

- * All sessions conveniently located on Houston's west side at the Westchase Hilton Hotel and Conference Center
- * Joint TSOP/HOGS (Houston Geochemical Society) technical session on Gulf of Mexico geochemistry
- * General technical sessions on organic petrology and organic geochemistry
- * Special student registration rates
- * Post-conference fieldtrip (still being planned)

(for more information contact C. R. Robison at (713) 432-6828 or by e-mail at robiscr@texaco.com)



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October 8-14, 2000

Join the celebration and

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Earth Science Week
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Alexandria, VA 22302
Phone: (703) 379-2480
Fax: (703) 379-7563





THE SOCIETY FOR ORGANIC PETROLOGY

**Instructions:**

- 1) Print out form and provide necessary information
- 2) Check box, or sign, at bottom of form
- 3) Mail to: Cortland Eble, TSOP Membership Chair
Kentucky Geological Survey, 228 MMRB
University of Kentucky, Lexington KY 40506

**Membership
Application Form
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Questions?
606/257-5500
phone
606/257-1147
FAX

eble@kgs.mm.uky.edu

Name _____
Last First MI

Address _____

City State/Province Zip Code Country

Business or Day Telephone Number Fax Number

E-mail Address _____

Education _____
degree year institution major subject

Principal activities and interests _____
Coal Petrology
Organic Geochemistry
Kerogen Petrology
Other (please describe) _____

Professional experience and interests relative to organic petrology _____

Names and addresses of two people who are familiar with your interests/activities in organic petrology

1 _____ 2 _____

Membership category you are applying for _____
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student rate (\$15.00 US, \$23.00 CN)
institutional member (\$75.00 US)

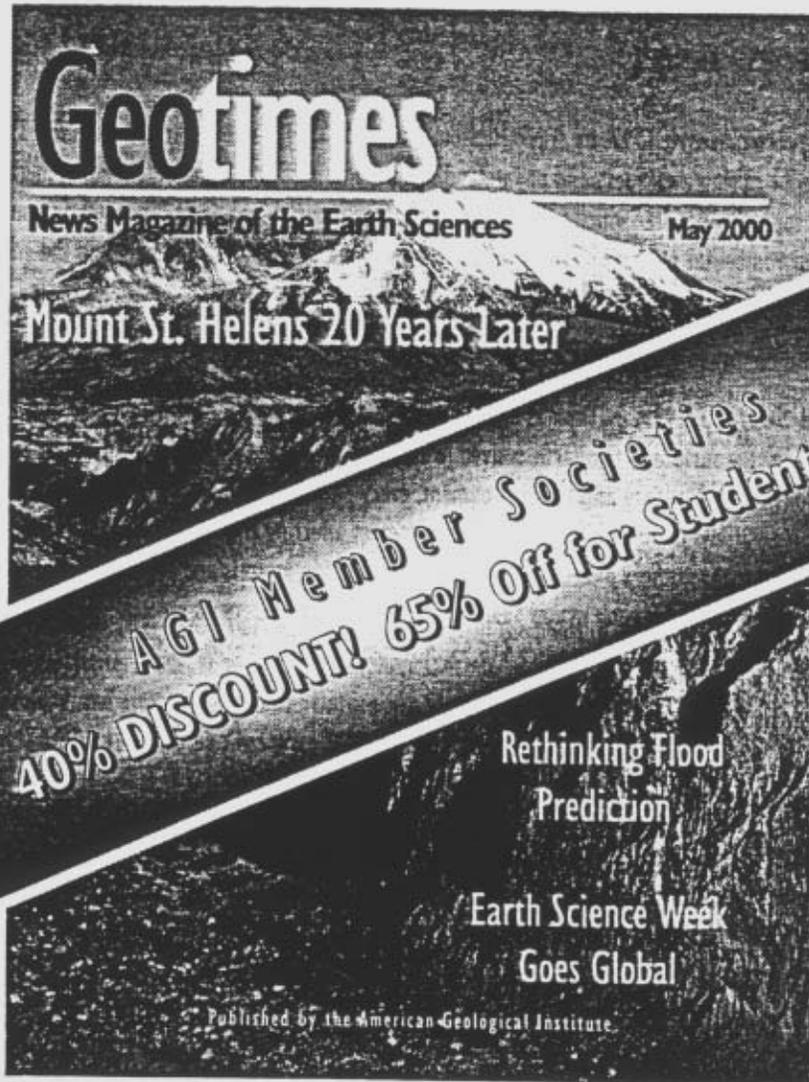
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I am familiar with the objectives of the Society, and agree to adhere to, and abide by, TSOP constitution and bylaws

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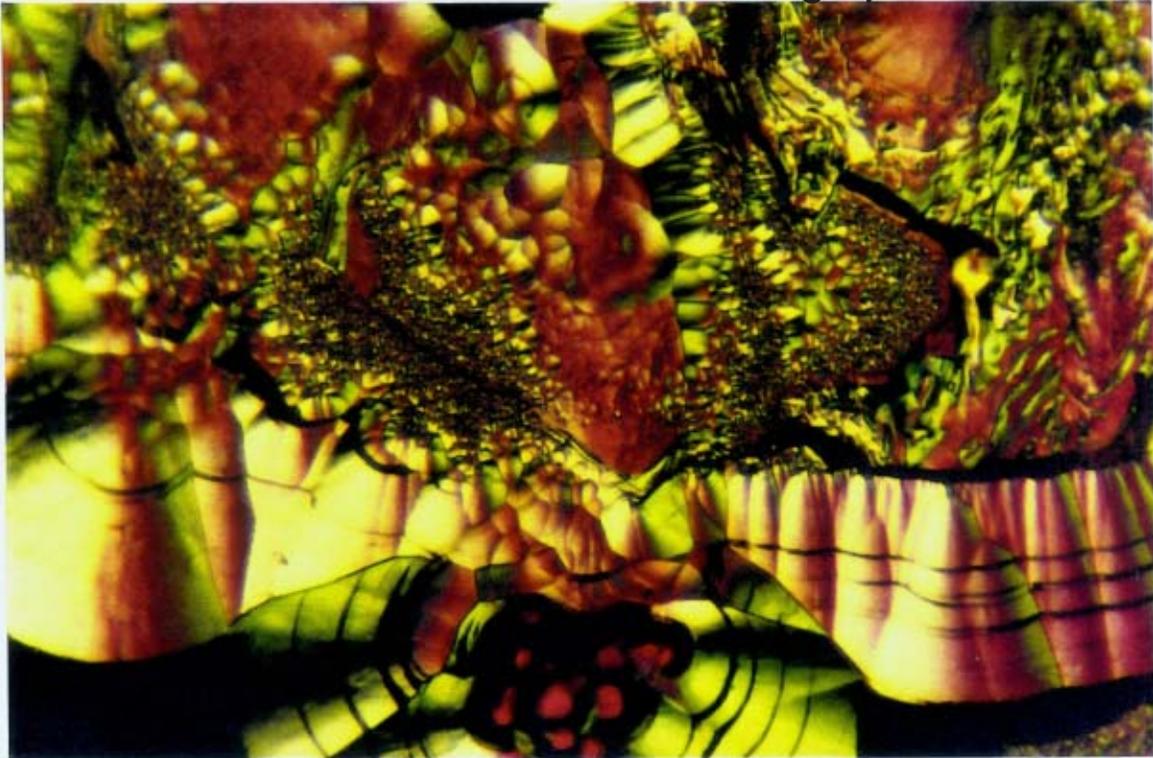
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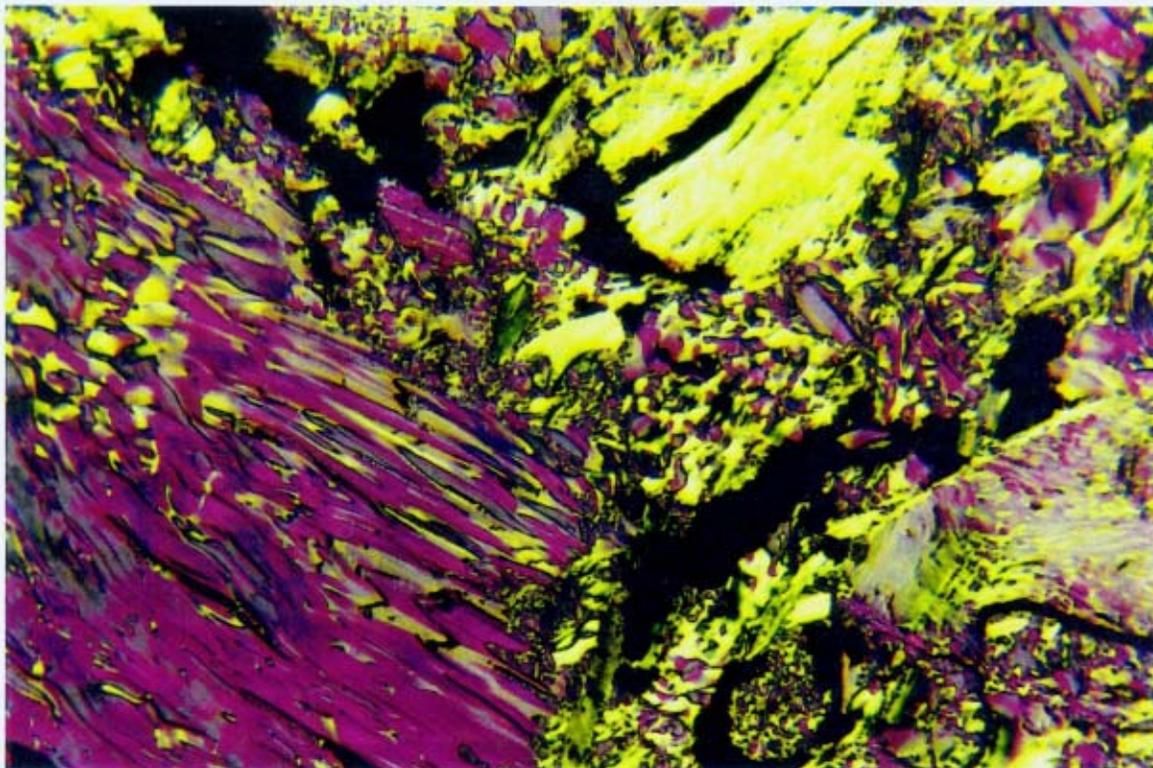
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Editors' Choice Photomicrograph



Pyrolytic carbon from a by-product coke oven roof. Photomicrograph taken in reflected light with polarizer and interference plate. Width of field approximately 300 microns



Baked carbon anode. Large particle on left is calcined petroleum coke and finer grained matrix material is carbonized coal tar pitch binder.

Photomicrographs courtesy of Ralph J. Gray



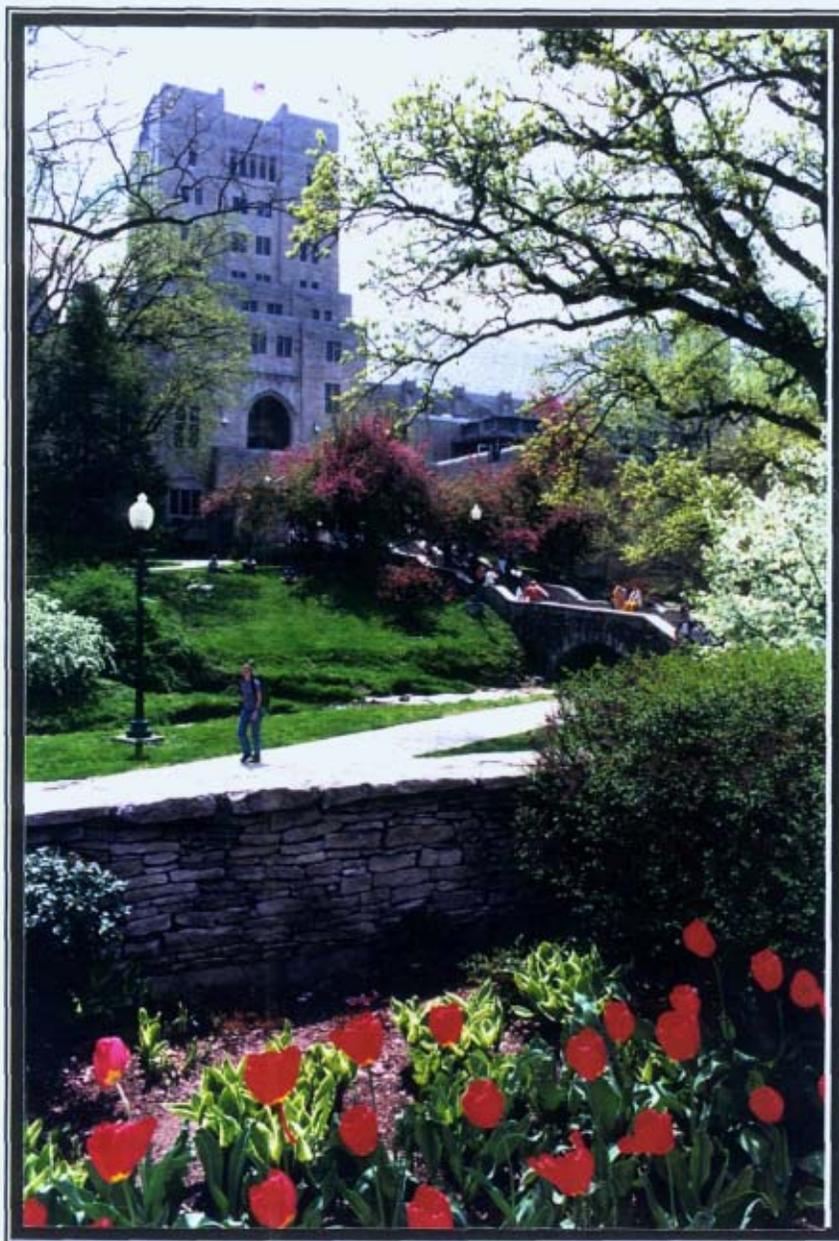
THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

Vol. 17 No. 4

December 2000

ISSN-0743-3816



**Memorial Union, Indiana University, Bloomington Indiana
Site of the TSOP 2000 Annual Meeting**

TSOP Conference

Bloomington, Indiana

September 2000



First row, l-r: Jenny Wong, Suzanne Russell, Sue Rimmer, P. K. Mukhopadhyay (Muki), Miryam Glickson, Maria Mastalerz, Sarah Pietraszek-Mattner, MaryAnn Malinconico, Takashi Hasegawa

Second row l-r: Nelson Shaffer, Art Cohen, Colin Ward, Lila Gurba, Abhilit Basu, Michelle Hawke, Ivana Sykorva, Raymond Pheifer, Tanaporn Sakulpitakphon, Zhongsheng Li

Third row, l-r: Zhiwen Han, Tim Moore, Bill Huggett, Jim Hower, Lavern Stasiuk, Jack Crelling, Erwin Zodrow, Erika Eiswick, Jack Burgess, Carolyn Thompson-Rizer, Andrzej Radlinski

Fourth row, l-r: Jeff Quick, Cole Robison, Peter Warwick, Chen-Lin Chou, Dave Glick, Neil Sherwood, Cortland Eble, Juergen Schieber, Tracy Branam, Brian Cardott, Marc Bustin, John Comer, Michael Kruge, Kenneth Kuehn

The Society For Organic Petrology

The Society for Organic Petrology: c/o American Geological Institute, 4220 King Street, Alexandria, VA 22302-1520

Co-editors:

John C. Crelling & William W. Huggett

The TSOP Newsletter welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail attachment or as printed text via fax or regular mail. The format may be in either MS word or WordPerfect.

Please sent to:

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Department of Geology
Southern Illinois University
Carbondale Illinois 62901-4324
Phone:(618)453-7381
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E-mail: icrelling@geo.siu.edu
huggett@geo.siu.edu

Society Membership

The TSOP Newsletter (ISSN-0743) 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 international and open to all individuals having an interest in the field of Organic Petrology. For more information on membership, Society activities or to inquire about membership packs please contact:

Peter Warwick
U. S. Geological Survey
956 National Center
Reston VA 20192

Tel: (703) 648-6469

Fax: (703)648-6419

e-mail: pwarwick@usgs.gov

Additional Information may also be obtained on our website:
www.tsop.org

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- 8. **Article - Brian Cardott:** American Association of Petroleum Geologists and Energy Minerals Division Liaison.
- 9. **Call for research proposals**
- 11. **2000 TSOP Graduate Student Research Grants**
- 16. **Annual Meeting Review**
- 17. **Obituary:** Marlies Teichmuller
- 19. **TSOP - Houston 2001:** Call For Papers
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- 28. **Editors' Choice Photomicrographs**

President's Column

Beginning of a New Millennium: New Directions for TSOP

Prasanta K. Mukhopadhyay (Muki)

(e-mail: muki@ns.sympatico.ca).

This is my first column in the Newsletter as the President of TSOP. I wish you all a Happy and Prosperous New Year and a New Millennium. Recently, TSOP Secretary-Treasurer Peter Warwick has informed me that eight new members have joined TSOP since September 19, 2000. These new members are Elvira Barcelona, Gareth Chalmers, R. Vance Hall, Maria Hamor-Vido, Christopher M. Kravits, Tanaporn Sakulpitakphon, Li Zhongsheng, and Erwin L. Zodrow. I congratulate them all for becoming TSOP Members. I also welcome all members of TSOP for their active support for the society. TSOP is in its eighteenth year and has already become a global society. If you look at the current characteristics of the TSOP council, it will reveal the global locations of various members. Therefore, I would like to encourage and request all members, especially our student members and the members outside North America to participate in various TSOP activities.

I thank Cole Robison, former President (1999-2000) of TSOP for his excellent service to TSOP during his Presidency. Our annual meeting is a great place to meet new and old friends, acquire many new ideas for future research, and participate in entertaining discussions during the scientific sessions and TSOP Council Meetings. The 17th Annual Meeting of TSOP was held in Bloomington, Indiana during September 17-20, 2000. The meeting was excellent and very well organized. I thank Maria Mastalerz and her team of volunteers and scientists for organizing the meeting very well. Please join us in our annual meeting in Houston, Texas next year. For any information regarding the 18th Annual Meeting (September 23-26, 2001) of TSOP in Houston, Texas, please contact Cole Robison (e-mail: robiscr@texaco.com). All members are welcome to join next year's Midyear Meeting (tentatively scheduled during the 3rd week of March, 2001) in Reston, Virginia and the Outgoing Council Meeting of TSOP in Houston, Texas at their own expenses. If you are interested in joining the TSOP Midyear Meeting in Reston, please contact Peter

Warwick, US Geological Survey (e-mail: pwarwick@usgs.gov)

This year, Suzanne Russell has accepted the position of Chair of the Research Committee. I congratulate Suzanne for taking this position. It delights me to see Suzanne has accepted the challenges of co-ordinating the future research goal of our whole group. In order to diversify organic petrology and conduct research in new frontiers of science in the 21st Century, I have proposed three new research topics to the Research Committee at the Bloomington Meeting. These topics include:

- "Organic Matter in Meteorites and Other Planets: Fingerprinting Origin of Life and Hydrocarbons in Extraterrestrial Environment". For this topic, we may communicate the astrogeology groups in other societies to get samples from various carbonaceous meteorites. We plan to request NASA to send a part of the sample from *Mars* at a certain point in time, when the samples are made available in the future. Accordingly, this year (2000-2001), we might begin a round robin study on petrology of the organic matter in Carbonaceous Meteorites;
- "The relationship and genesis of reflectance of the humic vitrinite, suppressed vitrinite, and solid bitumen especially under variable depositional environment". We plan to commence some form of round robin analysis next year
- "Evaluation of Global Climate Change in the Quaternary by studying the petrology of the peat and early lignite (if available) comparing the deposits from cold arid to humid tropical environments". This would be quite topical at this stage of controversy on global climate change. We plan to begin some round robin analysis sometime soon.

I would, therefore, request the members who are either interested in participating in any of these research projects or planned to send a new research proposal, to contact Suzanne Russell,

Chairperson, Research Committee (e-mail: srussell@shellus.com). Along with these research topics, we have also planned to pursue the publication of a book on "Source Rocks for Petroleum - Examples from the North and South America" jointly with AAPG.

Carolyn Thompson-Rizer, Past Chairperson of the TSOP Research Committee has resigned this year from her position as Chairperson of the research committee. Under Carolyn's leadership, the research committee has done an excellent job over the past several years. I thank Carolyn for her dedicated service to TSOP. A research subcommittee (includes Jack Burgess, Adrian Hutton, Lavern Stasiuk, and Carolyn Thompson-Rizer) has completed their work last year on the classification of dispersed organic matter. An unmodified version of the classification has been included in the last issue of TSOP Newsletter (volume 17, no.3). The modified version of the classification of dispersed organic matter will be published in the future issue of the Newsletter.

At the incoming council meeting in Bloomington, Indiana, the 2000-2001 TSOP council has set up a new TSOP Committee on Geochemistry to bridge the gap between the TSOP members specialized in geochemistry and those specialized in organic petrology. I congratulate Michael A. Krueger who has accepted the position of the Chairperson for Geochemistry Committee for this year (2000-2001).

Currently, TSOP is affiliated with the American Association of Petroleum Geologists (AAPG) as an "Associated International Organizations" (see AAPG Bulletins) and with the American Geological Institute (AGI) as a "Member Society" (see GEOTIMES). In this December, 2000 issue of the Newsletter, Brian Cardott (e-mail: bcardott@ou.edu), a liaison for TSOP with AAPG, has written a short article about the status of our affiliation with AAPG. As a liaison person for TSOP in AGI, I will address only the following issues concerning AGI. In the future issue of TSOP Newsletter, I will include some details about the activities of AGI.

- The American Geological Institute (AGI) will release the ninth edition of the GeoRef Thesaurus in November 2000. The ninth edition contains approximately 28,000 terms, of which nearly 1,500 are new additions.
- Recently, AGI has invited their member societies to write something about their organization in the special issue of the *GEOTIMES* magazine on the

"*Technology in the Earth Sciences*". According, TSOP Council has chosen to place a color advertisement in the *GEOTIMES*. If you are interested in this color Advertisement, please look at page 61 of the November, 2000 issue of *GEOTIMES*. I thank MaryAnn L. Malinconico and Dave Glick for their excellent work on this issue.

- The American Geological Institute now has on its web site 'The Geosciences Calendar' containing entries submitted by organizers of meetings of interest to geoscientists. Its coverage is broad, and primarily focuses on the earth sciences but also includes other physical sciences, engineering, instrumentation, and pertinent aspects of education, law, and social sciences. The amount of detail for each meeting is determined by the organizers' submission. Dave Glick (e-mail: xid@psu.edu) has included a link to AGI's calendar at the top of the TSOP web site's calendar page; to go to AGI's directly, use <http://calendar.agiweb.org/>. TSOP's own calendar endeavors to include concise listings for meetings of specific interest to organic petrologists and organic geochemists, with a link to the meeting or organizer web page. Organizers of organic petrology and geochemistry meetings are encouraged to submit a posting to the AGI calendar, as well as notifying Dave Glick of the details for inclusion on TSOP's calendar (ubs@aqiweb.org). I thank Dave who has written this part of the information concerning AGI.

At this stage, TSOP Newsletter requires your contribution to make its future issues more attractive and interactive. Therefore, I request all members to contribute some news or short articles or photographs to the TSOP Newsletter. If you planned to send some articles or information, please contact TSOP Newsletter Editors Jack Crelling (e-mail: jcrelling@geo.siu.edu) or Bill Huggett (e-mail: huggett@geo.siu.edu).

Finally, I thank C. Barker, B. Cardott, J. Hower, C. Robison, C. Thompson-Rizer, and all the 2000-2001 TSOP Council Members for their help on various issues that I have confronted until now.



ANNOUNCEMENT

53rd International Committee for Coal and Organic Petrology (ICCP) Annual Meeting
including
The Society for Organic Petrology (TSOP)/ICCP one-day session

August 12-19, 2001

organised by the

Geological Survey of Denmark and Greenland (GEUS)
Copenhagen, Denmark



GEUS

The organising committee of the 53rd ICCP annual meeting, including the one-day TSOP/ICCP session, extends an invitation to attend the meeting hosted by the Geological Survey of Denmark and Greenland, Copenhagen, Denmark.

We cordially invite you to submit an abstract and present an oral presentation and/or poster at the TSOP/ICCP session. All subjects dealing with organic petrography are welcome, but we particularly welcome presentations focusing on 'Organic petrology applied to petroleum and Coalbed methane studies'.

More comprehensive information will be supplied by mail to members of ICCP and TSOP and will be available on www.geus.dk/ICCP2001 or contact

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P. Rosenberg:

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Call for papers !

⚡ **one-day TSOP/ICCP SESSION, 15th August 2001** ⚡

at the 53rd ICCP meeting, 12-19 August 2001, Copenhagen, Denmark

The 53rd ICCP meeting includes a one-day TSOP/ICCP session, which has been organised together with Dr. Charley Barker.

All kind of topics dealing with organic petrography are welcome, although we will in particular welcome presentations dealing with

"Organic petrology applied to petroleum and Coalbed methane studies".

We encourage you to take the opportunity to make a presentation, either as an oral presentation or as a poster. The oral presentations are scheduled to 25 min., including some minutes to questions.

X Deadline for submission of abstracts is **April 1st 2001**

Abstracts up to 4 pages (including figures) will be accepted. Leave 2 cm margins on both sides, use VA line spacing and a 12-point GC Times Roman (or similar) font. Title of abstract should be in 12-point bold and include names of authors (12-point) and affiliations (10-point).

Example:

Hydrocarbon traces in the Tertiary basalts of the Faeroe Islands

T. Laier^a, H. P. Nytoft^a, O. Jørgensen^b and G. H. Isaksen^c

^aGeological Survey of Denmark and Greenland,

^bNational Institute of Occupational Health,

^cExxon Production Research Co.....

Hydrocarbons in the form of.....

Please enclose a copy of your abstract on a diskette (Word, WordPerfect) or send an e-mail with the abstract attached to: hip@geus.dk

It is planned to publish the papers presented at the TSOP/ICCP session as a special issue of the International Journal of Coal Geology. Please consider submitting a paper for this publication and, if so, we would encourage you to submit your manuscript at the meeting.

X Deadline for submission of manuscripts will be **November 1st 2001**

! For information about the ICCP/TSOP meeting, visit our website: www.geus.dk/ICCP2001

**American Association of Petroleum Geologists
and Energy Minerals Division Liaison**

Brian J. Cardott

TSOP was approved as an "Associated Society" of the American Association of Petroleum Geologists (AAPG) on June 12, 1994 (TSOP Newsletter, v. 11, nos. 3-4, p. 5). An Associated Society of AAPG is defined as "duly organized groups or societies which serve the needs of members of the Association in topically and/or geographically defined areas and which by objects, aims, constitutions, bylaws, or practice are functioning in harmony with the objects and aims of the Association." Benefits for AAPG Associated Societies include the following: (1) free 1/4-page black and white ad annually in AAPG Explorer; (2) twenty percent discount off published ad rates in Explorer and Bulletin; (3) annual meeting listing on the Bulletin meetings calendar; (4) Associated Society members pay AAPG Member rate on pre- and on-site registration at annual AAPG convention and other AAPG meetings for which AAPG is financially responsible (e.g., selected sectional meetings); (5) access to AAPG mailing lists at Affiliated Society rate (approximately cost + 10%), subject to approval of material to be mailed; (6) priority consideration of proposed technical sessions at AAPG meetings; (7) priority treatment of requests for business meetings and social functions at AAPG meetings; (8) priority access to utilization of AAPG services (membership maintenance, directories, composition and printing, meetings management, etc.) through contractual agreements; and (9) cooperative continuing education, publishing and marketing ventures. TSOP is listed in the "Directory of Associated and Affiliated Societies" in the AAPG Bulletin. More information about the AAPG can be obtained from their website at www.aapg.org.

The Energy Minerals Division (EMD) is one of three divisions in the AAPG. The other two divisions are the Division of Professional Affairs (DPA) and Division of Environmental Geosciences (DEG). Membership in the divisions is in addition to membership in the AAPG.

The EMD was established in 1977 "as an international forum for those working in the exploration, development, and production of energy sources other than conventional oil and natural gas. The purpose of EMD is to advance the science of geology as it relates to remote sensing and to any earth materials capable of being used for energy production, to provide a forum for addressing developments in mineral and energy economics and in fuels supply and utilization technology, and to promote the integration of geoscientific knowledge with those in related professions and activities" (from EMD website). Technical committees of the EMD include: coal, Coalbed methane, oil shale, tar sands, remote sensing, geothermal, nuclear minerals, gas hydrates, and energy economics and technology. EMD certifies coal professionals through the "Certified Coal Geologist" program.

Regular EMD functions at the AAPG annual convention are oral and poster sessions, short courses, field trips, business meetings, and a luncheon. Themes of EMD-sponsored sessions at the 2000 AAPG annual convention in New Orleans were: sequence stratigraphy of coal-bearing strata; growth industries and applications for the 21st century: gas hydrates, oil shales, tar sands, Coalbed methane, and geothermal reservoirs; and environmental and geohazard implications of gas hydrates. TSOP cosponsored a theme with AAPG and SEPM on "Petroleum systems: new insights related to organic maturity indicators."

The EMD website (www.emdaapg.org) contains general information on EMD technical areas and regional sections. The website is still in the early planning stages. Future additions to the website will include several items in the Members Only section (member directory; EMD procedures manual; technical article, references, and web links for each EMD technical area).

EMD is a cosponsor of the journal "Natural Resources Research." The "Atlas of Coal Geology" (AAPG Studies in Geology 45) was a joint project between TSOP and EMD. As an officially recognized Associated Society of AAPG, TSOP has the opportunity for further collaboration with AAPG through joint sessions and publications. TSOP also benefits from the publicity that AAPG provides.

Call for Research Proposals

The Research Committee chairmanship has recently passed from Carolyn Thompson-Rizer to me. Carolyn has provided much appreciated assistance in this transition and I gratefully acknowledge it. Supporting the Research Committee are Tim Moore, President-Elect, and Jeff Quick, Councilor.

We presently have one working subcommittee, Kerogen Classification, with members Jack Burgess, Adrian Hutton and Vern Stasiuk (see the President's message in this issue and also the September 2000 Newsletter). Ideas for additional subcommittees were proposed by Muki and Jack Crelling at the Annual Business Meeting in Bloomington. The subjects proposed are listed below:

1) "Organic Matter in Meteorites and on Other Planets: Fingerprinting the Origin of Life and Hydrocarbons in the Extraterrestrial Environment"

This subcommittee could communicate with NASA and existing astrogeology groups in other societies to obtain samples from various carbonaceous meteorites and from the Mars Probe when it will be recovered in the future. A round robin study on the petrology of the organic matter in Carbonaceous Meteorites could be conducted. Recent ACS Geochemistry Division abstracts show that geochemists have already started this type of work.

2) Compile a volume in association with AAPG publication on "Source Rocks for Petroleum in a Sequence Stratigraphic Framework: Examples from North and South America". This could be broadened to a world perspective if enough data and samples were available from other parts of the world. Muki has already discussed this concept with the AAPG Editor at the AAPG Annual Conference this year in New Orleans. The initial concept for the volume is to include aspects of the sedimentary environment of source rock deposition and geochemical data. Both transmitted and reflected light microscopy would be incorporated. Collaboration with AAPG would be similar to the Coal Atlas where TSOP is benefiting from AAPG sales.

3) Evaluate more precisely the relationship between vitrinite and solid bitumen reflectance, especially when vitrinite reflectance is suppressed and the solid bitumens have various compositions.

4) Evaluate global climate change in the Quaternary period by studying the petrology of peat and early lignite (if any) deposits, comparing those from cold, arid climates to those from humid, tropical environments.

5) A study of pre-Silurian "vitrinitic" material (proposed informally by Ray Pheifer)

These topics are offered with the intent of interesting TSOP members in submitting a formal proposal to pursue one of these or other ideas. Starting a subcommittee is a simple process. A proposal is submitted using the format provided in this Newsletter. Council will approve proposals at their spring and fall meetings. Monetary grants are available through Council to pursue subcommittee activities. A subcommittee chairman will be nominated by the research committee chairman (volunteers are encouraged) and approved by Council. A subcommittee is discontinued when there has been no activity for two years.

Those wishing to start a subcommittee or working group should complete the enclosed form and send to

Suzanne J. Russell
Shell E&P Technology, Applications and Research
3737 Bellaire Blvd.
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Phone: 713-245-7603
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**TSOP Research Committee Proposal Form
For Subcommittees and/or TSOP Sponsored Projects**

Title of subcommittee:

Title of project:

Why is this project of benefit to TSOP? (use additional paper where needed)

Goal(s):

Approach or method(s):

Anticipated products:

Suggested subcommittee chairman:

Suggested subcommittee members:

Estimated time for completion of project:

Estimated cost of project:

2000 TSOP Graduate Student Research Grants

This year's competition for the TSOP Graduate Student Research Grant resulted in two \$1000 awards. The two grant recipients are listed below:

Michelle Hawke, University of British Columbia, for "Anthropogenic trace metals in peats in the environs of industrial point sources-a combined geochemical and petrographic approach."

Rachel Walker, Indiana University, for "Elemental composition of coal macerals; distribution of nitrogen as determined from an electron microprobe".

A total of nine applications from five countries (Brazil, Canada, Greece, Spain and USA) were received. The applicants were four Master's candidates and five PhD candidates. TSOP grant application reviewers were Sharon Crowley, U.S. Geological Survey; Dave Glick, Penn State (retired); and Ken Kuehn, Western Kentucky University.

Other applicants and their research topics follow:

Marleny Blanco, Universidade Federal do Rio Grande do Sul (Brazil), "Organic Petrology, Organic Geochemistry and Palynofacies of Jurassic Sediments from the Tectono-Stratigraphy Unit Placetas, Cuba".

Angel Francisco Callejon, University of Houston, "Oil generation potential of coals and coaly shales in the Eastern Venezuelan Basin".

Tara Curtin, University of Arizona, "Seasonal climate signals preserved in laminated lacustrine rocks in Triassic Lake Ischichuca in the Ischigualasto Basin, NW Argentina".

Beatriz Gomez Vicente, Instituto Nacional del Carbón (Spain), "Chemical and energy potential of shales".

Andreas Iordanidis, Aristotle University of Thessaloniki, Organic Geochemistry of Greek lignites from Florina-Amynteon-Ptolemais Basin, Northern Greece".

Heidi Anne Justman, New Mexico Institute of Mining and Technology, "An Evaluation of the source rock, reservoir rock and sequence stratigraphy for the Brushy Canyon Formation's hydrocarbon accumulations of the Delaware Basin, Southeastern New Mexico".

Thomas Kastner, University of South Carolina, "Organic geochemistry of Amazon deep sea fan sediments-an investigation of tropical climate change during the last glacial-interglacial cycle".

This year's awardees have provided synopses of the research projects supported by the TSOP grant.

The use of peatlands in monitoring heavy metals in the environs of point sources-methods, advantages, and future approaches.

Hawke, M.I., and Bustin, R.M., Department of Earth and Ocean Sciences, University of British Columbia, Vancouver, BC, V6T 1Z4 and Goodarzi, F., Geological Survey of Canada-Calgary, 3303 3rd St. NW, Calgary, AB, T2M 2A7

Many aspects of trace element partitioning in the environment are poorly understood, and thus it is difficult to accurately assess the impact that an anthropogenic source of heavy metals will have on the surrounding environment. The capacity for organic sediments to sequester and retain metals has long been recognized, and the potential for peatlands to act as sinks for atmospheric and groundwater contamination in areas of elevated pollution has been discussed by several authors (e.g. Mathews and Bustin, 1994; Görres and Frenzel, 1997; West et al., 1997). Measuring the emissions released from a given source and determining the impact on the surrounding environment remains difficult. In particular, many of the environmental trace element studies conducted to date have ignored the impact of naturally-occurring geogenic trace elements, or have made erroneous or questionable oversimplifications in calculating "background" levels. Clearly, a better understanding of the fate

of fugitive trace metals in the surrounding environment is needed. A combination of chemical and organic petrological techniques may yield a great deal of information concerning the processes responsible for the partitioning of trace elements within peatlands. A study of peatlands in the environs of point sources of trace element contamination offers an opportunity to develop methodologies to use peatlands to monitor the distribution of trace metal pollutants, and to develop an understanding of the role of organic deposits in sequestering geogenic and anthropogenic trace elements.

The objectives of this research are 1) to measure the concentration of selected environmentally-significant trace elements (Sb, As, Cd, Cu, Pb, Ni and Zn) in peat profiles from the area surrounding the point sources, and to determine the source (geogenic or anthropogenic or both) and b) to determine the mode of occurrence of the trace metals, through the combined use of sequential extraction techniques and microscopy.

Two types of point sources were selected: a lead-zinc smelter and a group of coal-fired power plants. Both types of industries have been cited as major sources of atmospheric trace metal pollution. A series of sampling sites were selected from the area surrounding the point sources, based on the availability of organic sediments, distance from the point source, and direction of prevailing winds. A profile was sampled from each site, along with mineral soil from nearby. In the case of the smelter, two sites were in close proximity to the smelter, and two "background" sites were located over 10 km away, and were underlain by different bedrock from the sites near the smelter. In the case of the generating stations, one site was located near the four power plants, and one site was 13 km upwind of the plants. The underlying geology differed between the two sites. Total trace elemental concentrations were measured by INAA and ICP-MS from bulk samples taken from varying depths within each profile. This data was compared with atmospheric deposition data obtained from moss monitoring stations, which are part of a concurrent Geological Survey of Canada study, under the direction of Dr. F. Goodarzi. The moss monitoring stations consist of flat square mesh bags stuffed with acid-washed *Sphagnum* moss, which are mounted in frames on top of 2 m poles, and are

exposed to the air for three months. Approximately 30 moss monitoring stations are located in each field area, and are situated in order to delineate the impact of atmospheric fallout throughout the area.

Peat elemental data was also compared to that of mineral soils. The ash content and mineralogy of the peat ash were also considered in this comparison of data. Methodologies that have been commonly employed in environmental studies, such as normalization to "conservative" elements, and calculations of element ratios with published abundance ratios, were also employed, but were found to be of little value.

The smelter site is situated in an area in which the bedrock is highly variable over short lateral distances. Elemental concentrations vary throughout the vertical peat profiles, indicating that there is post-depositional mobility of atmospherically deposited trace elements, and that bedrock geochemistry exerts a major influence on peat chemistry. One background site, for example, has considerably different ash mineralogy and patterns of trace element distribution from the more heavily impacted sites located near the smelter. Trace elemental concentrations increase with depth at the background site, while the concentration of trace elements are much higher and generally decrease with depth at the sites located close to the smelter. Arsenic, however, was often found to increase in concentration with increasing depth, suggesting that it forms a mobile species in the peat profiles. Peat trace metal concentrations are extremely high near the smelter and decrease rapidly with distance.

The trace elemental concentrations from the power plant sites indicate that the power plants are not major sources of trace elements to the surrounding environment and that most of the measured trace elements are geogenic in origin. Trace element concentrations are typically higher at the background site (arkosic sandstone bedrock) than at the site located near the power plants (calcareous sandstone bedrock).

The peat results were compared to atmospheric deposition values measured by moss monitoring stations, and to the bulk trace elemental contents of the mineral soils. It was found that high values for atmospheric metal deposition correlated with the occurrence of high peat metal values, while the

areas near the background sites were subject to very little atmospheric deposition. At the highly impacted sites close to the smelter, metal concentrations were found to be much higher in the peats than in the nearby mineral soils, indicating that preferential sequestration occurs within the organic sediments, and that the high concentrations of trace elements are attributable to anthropogenic factors. At the smelter background sites and the power plant sites, the trace metal concentrations are higher within the mineral soils, which suggests that the majority of the metals are geogenic in origin.

In order to further distinguish between geogenic and anthropogenic inputs, the peats were examined with reflected light microscopy. The morphology of the particles can frequently be used to identify origin, as fly ash particles are commonly spherical or rounded in shape, while detrital mineral matter is more typically angular. Highly reflecting circular or spherical fly ash particles were found within the upper portions of the peat profiles closest to the smelter, while these particles are absent from the sites farther away. No fly ash particles were found within the peats from the environs of the power plant. The highly contaminated smelter sites show evidence of permineralization in association with organic matter (commonly within cell walls or within cell lumina). The importance of organic matter in the precipitation of certain mineral phases, particularly sulphides and Fe-Mn hydrous oxide species, is well known. An examination of peats containing high concentrations of trace elements and sulphides using coal petrographic techniques will provide insight into the neoformation of mineral matter. Further investigations, using SEM-EDX to identify the elemental composition of discrete particles, are planned.

Sequential extraction requires the use of a series of reagents that selectively extract a given phase from the sample, allowing for the determination of the concentration of the elements present in each phase. In this way, it can be determined which elements are readily mobile, which elements are in less mobile forms, and which elements are associated with the mineral fraction. The sequential extraction procedure used in this research was developed from methods described in

Tessier et al., (1977), Hall et al., (1996a,b), Land et al., (1999), Clark et al., (1997), and Kersten and Förstner (1987). Phases of elemental association extracted are: water soluble, exchangeable, associated with carbonates, associated with oxides of iron and manganese, associated with organic matter and bound in mineral matter. Elemental analysis of the extracts was performed by ICP-MS. This phase of the study is currently in progress.

Although there has been considerable research directed towards measuring trace metals around point sources such as smelters and thermal generating stations, the approach used in this study encompasses a broader range of detection methods than has been used previously. The ability to differentiate between geogenic and anthropogenic inputs has presented a major problem in environmental studies, particularly in areas with complex bedrock geology. The concurrent use of several different detection methods may provide information which, when combined, can eliminate much of the uncertainty that has plagued previous studies.

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Elemental composition of coal macerals; distribution of nitrogen as determined from an electron microprobe.

Rachel Walker

Department of Geological Sciences, Indiana University.

1.0 Introduction to problem

The elemental composition of coal is commonly determined using bulk coal samples (e.g.: CHN analysis, with O determined by difference), which provide data representing an average of all macerals present. Although some macerals (usually vitrinite) may be separated by hand and analysed, this is a time consuming process, which may still result in mixed samples, especially when macerals are finely interspersed. Most macerals occur only in association with other macerals and cannot be successfully separated by hand. Density gradient centrifugation (DGC) has been applied with

some success in these situations, with maceral groups separating out during centrifugation due to inherent density differences. Careful application of DGC can also yield concentrations of subsets of macerals e.g.: cutinite from liptinites in general (Stankiewicz, B. A., 1995). However, even this method cannot produce entirely pure sets of macerals but a sample which is dominated by the particular maceral wanted, with some degree of contamination from other maceral fragments.

Recent research has looked to applying electron microprobe technology to the question of maceral chemical composition (Bustin et al., 1993; Mastalerz & Bustin, 1993a, b; Bustin et al., 1996). The advantages of this technique include the ability to determine the composition of specific macerals in-situ, with an electron beam size of several mm. In this technique both definite identification and elemental compositions of individual macerals can be obtained.

Although results from the microprobe have been proven reliable for elements such as C, O, and S, it has not been so for nitrogen (Bustin et al., 1993, Ward & Gurba, 1998). Nitrogen has proven difficult to accurately measure due to low peak to background ratios and its high volatility, along with interference from other elements including carbon. The unreliable results gained for N has often led to it not being included in published studies utilising the electron microprobe for coal composition (Stankiewicz et al., 1996, Stankiewicz, Kruge & Mastalerz, 1996, Gurba & Ward, 1998). The ability to precisely determine the nitrogen content of macerals is very important. Very little is known about the variation in N content both between and within macerals. C/N ratios are also important in discriminating between marine and terrestrial origins for kerogens (Meyers, 1994). The ability to determine N would make the electron microprobe fully applicable to organic matter studies.

2.0 Proposed Research

The purposes of this study are 1) to resolve the nitrogen problem and propose a technique that would lead to reliable and precise determination of this element and 2) to study nitrogen variation within vitrinites covering a range of ranks.

The microprobe nitrogen standard currently used is boron nitride, with approximately 56 wt % N, which may not be suitable for analyzing organic matter, which typically contains only a few percent N. Prospective new standards chitin (6.8 wt% N) and asphalt (2.3 wt% N), which exhibit similar nitrogen peaks to coals and kerogens, will be tested in order to determine their usefulness. A search will also be made for other suitable standard materials, with appropriate testing carried out on any found to be promising. Preliminary observations suggest great potential for these two standards. After the tests on these two standards have been completed, a recommendation will be made about the final standard choice and its incorporation into a light element analysis routine.

The second objective will involve mapping the variation in N content within vitrinites from a range of coal ranks. Seven samples of hand-separated vitrinite, originating from coals with ranks ranging between 0.5% and 5.3% have been obtained, along with corresponding ultimate analysis of the separates. From these vitrinites, polished pellets will be made and prepared for use in the electron microprobe. Twenty-five analyses per sample will be obtained under the microprobe to achieve an average composition for the samples. In addition, transects will be made across single vitrinite layers in order to investigate N variation within individual vitrinites of various ranks.

3.0 Significance

The ability to determine the light element composition of individual macerals will contribute greatly to understanding the influence of rank upon each maceral group as well as helping to explain, on a more detailed level, coking properties and hydrocarbon generation. The ability to accurately determine N within macerals is central to this, as it then allows, along with knowledge of C, O, S and minor elements, better calculation of H contents. This would then be applied to ongoing research aimed at characterizing the chemistry of individual macerals within the Lower Block Coal Member of

southern Indiana, in order to fully understand its behaviour in coking applications.

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Suzanne Russell and Carolyn Thompson-Rizer

17th Annual Meeting of the Society for Organic Petrology, Bloomington, IN

The 17th Meeting of the Society for Organic Petrology was held at the Indiana University campus in Bloomington from September 17 to 20, 2000. Sixty participants attended the meeting from the following countries: Australia, Canada, Czech Republic, Japan, New Zealand, and the United States.

The meeting began with a short course on "***In-situ analysis of organic matter; application of electron microprobe technique***" held at the Indiana Geological Survey and the Department of Geological Sciences. The short course was taught by Marc Bustin from the University of British Columbia, Canada; Lila Gurba and Colin Ward from the University of New South Wales, Australia; and Maria Mastalerz from Indiana University. It included oral presentations as well as a demonstration of the electron microprobe technique. The short course was attended by fifteen participants.

The oral presentations took place on September 18 and 19. The first day included two special sessions: **Organic Matter and Metals** chaired by Lisa Pratt and Barry Maynard, and **Sedimentology of Organic Matter-bearing Sediments** chaired by Erik Kvale and Erica Elswick. On the second day there was a general session chaired by Maria Mastalerz and Miryam Glikson. A poster session was also held during these two days of the conference. In total, thirty eight papers were presented during the conference.

Six papers; two oral presentations and four posters were delivered by students who came from the University of British Columbia, Indiana

University-Purdue University, University of Kentucky, and Indiana University. The winner of the Best Student Paper Award and recipient of a check for \$250 was Michelle Hawke from UBC for her poster "The use of peatlands in monitoring contaminant heavy metals in the environs of point sources - methods, advantages, and future approaches." The winners of the Furthest Travel Award were Lila Gurba, Colin Ward, and Neil Sherwood from Sydney, Australia.

The conference concluded with a field trip that analyzed the Lower Pennsylvanian sediments in Indiana. The field trip was organized and led by Erik Kvale and Maria Mastalerz. Fifteen participants attended the field trip.

Maria Mastalerz,
17th Annual Meeting Organizing Committee, Chair

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Marlies Teichmüller (1915-2000)

A Tribute to an Organic Petrologist

P.K. Mukhopadhyay (Muki)

*Global Geoenergy Research Ltd., PO Box 9469, Station A, Halifax, NS, Canada B3K 5S3
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Marlies Teichmüller, a legendary organic petrologist and a geologist died on September 12, 2000 at the age of 85. It is a great loss for the societies that are dealing with organic matter in sediments and to her broader friend circle in earth sciences community. I lost one of my mentors and friend of 25 years.

During my stay in Aachen, Germany between 1975-1976, I first met her and Mr. Teichmüller in Krefeld, Germany at a special meeting honoring Prof. E. Stach. During that period of my stay in Germany, I had several microscope sessions with Marlies addressing various issues on the organic matter fluorescence. Those sessions have thrown new light on my views about maceral identification and have changed some of my earlier concepts on maceral genesis. During 1980-1985, I used to visit her in Krefeld occasionally. During that time, she also used to visit the institute (ICH-5) in KFA, Juelich, Germany. I will always cherish my moments about

her especially with respect to our discussions on various aspects of organic petrology. I have always enjoyed sitting down with her at the microscope and discussing various aspects of amorphous organic matter. I had observed her passion to build new dynamic concepts on organic petrology. During my short stay in Juelich in 1999, I wanted to visit to her on her 85th birthday. I was unable see her due to strict restrictions from her doctor for visitors. However, I was extremely delighted to know later when I heard from her relatives that she had asked about me and sent good wishes to me. As a person she had always been a very gentle, kind-hearted, and a wonderful human being.

In her early days (1930's through 1950's), Marlies was associated with two renowned organic petrologists in Krefeld, Germany. One of them is the famous coal petrologist Prof. E. Stach and the other is the well-known palynologist Dr. R. Potonie. Between 1950 and 1993, she became one of the most prolific writers in the science of

coal and organic petrology and their applications to various aspects of earth sciences. During that time, she had published innumerable articles on that subject in both English and German languages. She was one of the main driving forces for the publications of three editions of coal/organic petrology and ICCP Handbook. At the age between 80 and 83, she worked extremely hard in contributing and pushing for the publication of "Organic Petrology" (Publ. Gebruder Borntraeger, Berlin-Stuttgart) that came out in 1998. Her intuitive vision has inspired innumerable organic petrologists, geologists, and organic geochemists of the world throughout her working career (1950-1999).

She was one of the founding members of the International Committee of Coal and Organic Petrologists (ICCP) and an Honorary Member of the Society for Organic Petrology (TSOP). In

1984, TSOP has published an English (translated by N. Bostick) version of one of her most outstanding papers on fluorescence microscopy as a special issue. The 'International Journal Coal Geology' has already dedicated one volume (volume 13) as a tribute to her and her husband. Another short tribute to both of them was written by W. Kasig (1992; Int. Jour. Coal Geol. v. 21, p. 99-112).

As discussed earlier, she had published some outstanding papers on coal and organic petrology and their application to basin evolution and petroleum or coal exploration. Therefore, in memory of Marlies Teichmuller, I would like to mention some of these outstanding publications. These publications have pointed to new directions in the science of organic petrology that could be useful to all scientists throughout the world in the future. The publications that I like to mention are:

- Teichmuller, M. 1962. Die Genese der Kohle. C. R. 4th Congr. Int. Strat. Geol. Carbonifere, Heerlen 1959, 3, pp. 699-722.
- _____. 1974. Generation of petroleum-like substances in coal seams as seen under the microscope. In: Tissot, B. and Biener, F. (Eds), *Advances in Organic Geochemistry 1973*, Technip Paris, pp. 321-348.
- _____. 1975. Origin of petrographic constituents of coal. *Stach's Textbook on Coal Petrology*. Gebruder Borntraeger, Berlin-Stuttgart, pp. 219-294.,
- _____. 1982. Fluoreszenzmikroskopische Anderungengen von Liptiniten und Vitriniten mit zunehmenden Inkohlungsgrad und ihre Beziehungen zu Bitumenbildung und Verkokungsverhalten. Edited by Geol. Landesamt Nordrhein -Westfalen, Krefeld, 119 pp.
- _____. 1982. The importance of coal petrology in prospecting for oil and natural gas. *Stach's Textbook of Coal Petrology*, 2nd Edition, Gebruder Borntraeger, and Berlin-Stuttgart, pp. 339-412.
- _____. 1986. Organic Petrology of source rocks, history, and state of the art. *Org. Geochem.* 10, 581-599.
- _____. 1987. Recent advances in coalification studies and their application to geology. In: Scott, A. C. (ed.): *Coal and Coal-Bearing Strata: Recent Advances*. Geol. Soc. Spec. Publ., Blackwell Sci. Publ., Oxford, 32, pp. 127-170.
- _____. 1989. The genesis of coal from the viewpoint of coal petrology. *Int. Jour. Coal Geol.* 12,1-87.
- _____and Ottenjann, K. 1977. Art und Diagenese von Lipniten und lipoiden Stoffen in einem Erdolmuttergestain auf Grund fluoreszenzmikroskopischer Untersuchungen. *Erdol und Kohle* 30,387-398)
- _____and Teichmuller, R. 1968. Geological aspect of coal metamorphism. In: Murchison, D. and Westoll, T.S (Eds) *Coal and Coal-bearing Strata*, Oliver and Boyd Publications, Edinburg and London, pp. 233-267).
- _____and Teichmuller, R.. 1979. Diagenesis of Coal (Coalification). In: Larsen G. and Chilingir, G. V. (Eds), *Diagenesis of Sediments and Sedimentary Rocks*, Elsevier, Amsterdam, pp. 207-246.
- _____and Wolf. M. 1977. Application of fluorescence microscopy in coal petrology and oil exploration. *Jour. Micros.* 109,1, 49-73.
- Ottenjann. K. Teichmuller, M., Wolf, M. 1974. Spektrale Fluoreszenzmessungen an Sporiniten mit Auflicht-Anregung, eine mikroskopische Methode zur Bestimmungengen des Inkohlungsgrades gering inkohlter Kohlen. *Fortschr. Geol. Rheinld. U. Westf.* 24,1-36.
- Taylor, G. H., Liu, S. Y. and Teichmuller, M. 1991. Bituminite - a TEM view. *Int. J. Coal Geol.* 18,71-85.
- Taylor, G.H., Teichmuller, M. 1993. Observations on fluorinite and fluorescent vitrinite with the transmission electron microscope (TEM). *Int. J. Coal Geol.* 22, 61-82.

(This same article will appear in a future issue of The International Journal of Coal Geology)

TSOP-Houston 2001

CALL FOR PAPERS

The Organizing Committee for the 18th Annual Meeting of The Society for Organic Petrology invites you to present a paper or poster at the meeting. Extended abstracts of your presentation are due by June 1, 2001. Abstracts should be written in English, single-spaced in 12-point font, and no more than 5 pages long, including figures and tables. For proper formatting, refer to the Abstracts and Programs, vol. 17, Bloomington 2000.

Abstracts can be submitted by mail (if a PC microdisk is included, the abstract must be in Microsoft Word or WordPerfect format). Electronic submission of abstracts is preferred, and the abstract should be sent as an attached file to an e-mail message to robiscr@texaco.com. The Organizing Committee will make final decisions about acceptance or rejection of abstracts by June 15, 2001.

PROGRAM

Sunday. September 23

Short course: **Biomarkers in Oil-Source Rock and Oil-Oil Characterizations and Correlations**

Instructor: Dr. Marcio Rocha Mello, Petroleum and Environmental Geo-Services Ltda., Rio de Janeiro, Brazil

This course is a daylong presentation focusing on recent developments in the use of saturated and aromatic hydrocarbon biomarkers in oil exploration and production.

Class Size Limit: 25 persons

Monday. September 24 (morning)

Special Session - Co-sponsored by the Houston Organic Geochemical Society (HOGS) --
The Organic Geochemistry of the World's Deepwater Areas

Monday. September 24 (afternoon)

Monday. September 24 (afternoon)

General Technical Session: Coal/Organic Petrology and Geochemistry

Tuesday. September 25

General Technical Session: Coal/Organic Petrology and Geochemistry

Sunday evening, Sept. 23 through Tuesday noon, Sept. 25

Poster Session

Wednesday. September 26

Field Trip - This is a daylong field trip to the Offshore Drilling Platform Museum in Galveston, Texas.

Limit: 20 persons

For information about the conference, visit the TSOP website: <http://www.tsop.org>. For information about the program, contact Cole Robison (713) 432-6828 or e-mail robiscr@texaco.com.

Venue:

The meeting will be held at the Westchase Hilton and Towers in west Houston. The hotel is equidistant from both of the city's major airports (George Bush Intercontinental and Houston Hobby Airport). Express Shuttle Bus provides reasonable cost transportation between the hotel and the airports. The hotel is just a few blocks east of the Sam Houston Tollway and convenient to shopping in the Galleria and only about 10 miles from the Museum District and the Texas Medical Center. Excellent restaurants and entertainment are within walking distance of the hotel.

Review of Outgoing and Incoming 2000 TSOP Council Meetings

Outgoing Council Meeting

The 1999-2000 Outgoing TSOP Council met September 17, during the Annual TSOP meeting that was held at the Indiana Memorial Union on the campus of the University of Indiana, Bloomington. Outgoing President Cole Robison called the meeting to order with twelve TSOP Council members committee chairs, and members in attendance. TSOP Annual meeting chairs presented reports of past and upcoming meetings and plans which included the 1999 Snowbird, 2000 Bloomington, 2001 Houston, 2002 Banff, 2003 Washington, D.C., 2004 Louisville, Cincinnati, Covington(?), and the 2005 Halifax(?) meetings. TSOP Committee reports were given by the Annual Meeting Advisory Committee, which discussed TSOP-sponsored sessions held in conjunction with upcoming AAPG, ICCP, New Zealand Mining Conference, and regional GSA meetings. The Awards Committee reported that a certificate and \$250 check for the 1999 Best Student Award was presented to Ben Fellows. Cole Robison presented the results of the 2000 Ballot Committee, which are as follows Tim Moore - President-elect, N. Sherwood - Vice President, MaryAnn Malinconico - Councilor, and J. Crelling - Editor. There were no new nominations from the Honorary Membership Committee. The Membership Committee report included a summary of the current TSOP membership (189) provided by P. Warwick. The Publications Committee reported that 1999-2000 publication orders totaled \$45. An updated TSOP Publication List was presented to the Council and Council decided to present new members to the Society with copies of overstocked items in the publications inventory, until the inventory is reduced to a manageable size. The Internet Committee reported updates to the TSOP Web site <www.tsop.org> that included notices of the TSOP Annual meetings, new bibliographic references, and instructions for the TSOP Student Grants Program, new publications, and links to related sites. Monthly access to the Web page average about 600 visits per month. The Outreach Committee reported that TSOP had four Industrial Sustainers, which contributed a total of \$2,000 (as of September). A summary of expenses for 1999-2000 advertising and announcements was presented to the Council. TSOP materials were

distributed at the International Geological Congress in Rio de Janeiro and the AAPG International meeting in Bali. The Research Committee reported that two Student Grant Awards (\$1,000 each) were presented to and Michelle Hawke (Geological Survey of Canada) and Rachel Walker (Indiana Geological Survey). A discussion of 1999-2000 TSOP activities followed with a report from the TSOP Newsletter Editor about the progress and expenses of the 2000 TSOP Newsletter. By September the Newsletter expenses totaled \$2,578. This year the Membership directory, ballots, and dues notices were sent with the Newsletter. The TSOP Secretary reported the financial state of the organization. In September, TSOP had a checking account balance of \$11,946.34 and Vanguard Funds at a value of \$16,980.30. The total assets of the Society were \$28,926.64. From October 1999 to September 2000, TSOP income was \$12,152 and expenses were \$8,987. In 2000, TSOP started to accept credit card payments. The Vice President reported on updates to the TSOP Procedures Manual. Cole Robison concluded the meeting with discussions of the staffing of current Liaison Committees.

Incoming Council Meeting

The 2000-2001 Incoming TSOP Council met September 18, at the Indiana Memorial Union on the campus of the University of Indiana, Bloomington. Incoming President P. Mukhopadhyay (Muki) called the meeting to order with eleven TSOP Council members, committee chairs, and members in attendance. The council passed a motion to create a new Geochemistry Committee with Mike Kruge as chair. The committee would prepare a coal, petroleum, and environmental activities report for the 2001 Annual Meeting. Mike Avery was approved to serve member of a Special Ad Hoc Committee for TSOP activities. The Council also approved free Annual Meeting registration and TSOP publications (overstock only) for new student members who join TSOP during the previous year, and free TSOP publications (overstock only) for all new regular members. There was a discussion of having the 2004 Annual Meeting in Australia. TSOP Council approved a new operating budget for 2000 - 2001 and agreed to hold a midyear meeting in late March 2000, possibly by video or teleconference methods.

**TSOP Council Members and Committee Chairs
2000 - 2001**

COUNCIL MEMBERS

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Vice-President

Neil Sherwood

President-Elect

Tim Moore

Secretary-Treasurer

Peter Warwick

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John Crelling

William Huggett

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Jeff Quick (1999 -2000)

MaryAnn Malinconico (2000 - 2001)

Committee

Neil Sherwood

Internet Committee

David Glick

Meeting Committees

Advisory: Jim Hower

2001 Houston, TX: Cole Robison

2002 Banff, AB (Joint meeting
with CSCOP): Lavern Stasiuk

2003 Washington, DC: Peter
Warwick

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Peter Warwick

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MaryAnn Malinconico

Publications Committee

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Research Committee

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Liaison Committee

David Glick / Jim Hower

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Archives Committee

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Awards Committee

Maria Mastalerz

Ballot & Election Committee

Roger Trader

Geochemistry Committee

Mike Kruge

Honorary Member Selection

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TSOP Publications

1. *Fluoreszenz von Liptiniten und Vitriniten in Beziehung zu Inkohlungsgrad und Verkokungsverhalten* - (in German with photomicrographs) M. Teichmüller, 1982 \$10
2. *Fluorescence - microscopical changes of liptinites and vitrinites during coalification and their relationship to bitumen generation and coking behavior*, TSOP Special Publication No. 1 (English translation by Neely Bostick, without photomicrographs) M. Teichmüller, 1984 \$ 5
3. *Influence of Kerogen Isolation Methods on Petrographic and Bulk Chemical Composition of a Woodford Shale Sample*, TSOP Research Committee Report, October 1989 \$20
4. *Fluorescence Microscopy Workshop Lecture Notes*, 1989 TSOP Meeting \$35
5. *Organic Geochemistry*, 2nd TSOP Meeting, Houston, TX, 1985; Vol. 11, No. 5, 1987 \$ 5
6. *Organic Geochemistry*, 3rd TSOP Meeting, Lexington, KY, 1986; Vol. 12, No. 4, 1988 \$ 5
7. *Organic Geochemistry*, 4th TSOP Meeting, San Francisco, CA, 1987; Vol. 14, No. 3, 1989 \$ 5
8. *Organic Geochemistry*, 5th TSOP Meeting, Houston, TX, 1988; Vol. 17, No. 2, 1991 \$10
9. *Organic Geochemistry*, 6th TSOP Meeting, Urbana, IL, 1989; Vol. 17, No. 4, 1991 \$10
10. *Organic Geochemistry*, 7th TSOP Meeting, Calgary, Alberta, 1990; Vol. 18, No. 3, 1992 \$10
11. *Organic Geochemistry*, 8th TSOP Meeting, Lexington, KY, 1991; Vol. 20, No. 2, 1993 \$10
12. 8th TSOP Meeting Field Trip Guidebook, Lexington, KY, 1991 \$ 5
13. *Organic Geochemistry*, 10th TSOP Meeting, Norman, OK, 1993; Vol. 22, No. 1, 1994 \$10
14. *Energy & Fuels*, ACS symposium on kerogen/macerals; Vol. 8, No. 6, 1994 \$10
15. 12th TSOP Meeting Field Trip Guidebook, The Woodlands, TX, 1995 \$ 5
16. *Organic Geochemistry*, 11th TSOP Meeting, Jackson, WY, 1994; Vol. 24, No. 2, 1996 \$35
17. *International Journal of Coal Geology (IJCG)*, 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997 \$15
18. IJCG, 13th TSOP Meeting, Carbondale, IL, 1996; Vol. 37, Nos. 1-2, 1998 \$15
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 \$25
22. IJCG, 15th TSOP Meeting, Halifax, Nova Scotia, 1998; Vol. 43, Nos. 1-4, 2000 \$25

Call for slides

There is a possibility that a second, expanded edition of the *Atlas of Coal Geology* will be produced.

I am requesting photos of macerals and minerals (in coal) for possible inclusion in the second edition. I would prefer contributions from non-Pennsylvanian, non-North American coals, but anything will be welcome.

The best format for submission is 35-mm slides, preferably an original slide taken with a low-ASA film. High quality prints, either black & white or color, and high-resolution digital images are also welcome. Please contact me before sending digital images.

Please include a brief description of the image, including, if known, the age, rank (either ASTM name or as the vitrinite reflectance), seam name, sample location, any identifying sample numbers, notation of the macerals or minerals of particular interest, and any reference to a publication in which the coal was discussed in detail.

Jim Hower
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Center for Applied Energy Research
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859-257-0261 (phone)
859-257-0360 (fax)
hower@caer.uky.edu

Special Subscription Offer for the International Journal of Coal Geology

We are pleased to announced an agreement between TSOP and Elsevier to offer the International Journal of Coal Geology at special price of US \$80.00 per year.

For 2001, volumes 45-48 will be published (note that the first issue of volume 45 will appear in Fall 2000). Each volume consists of four numbers, some combined into larger issues. For more information, please check the journal's web site at: <http://www.elsevier.com/locate/coal>

This offer is for paid-up TSOP members only. If not currently a member of TSOP, we invite you to fill out a membership form which can be found on

our web site at: www.tsop.org or by contacting Peter Warwick (see below).

If you are interested in subscribing, please send an e-mail to Peter Warwick (pwarwick@usgs.gov) including your contact information:

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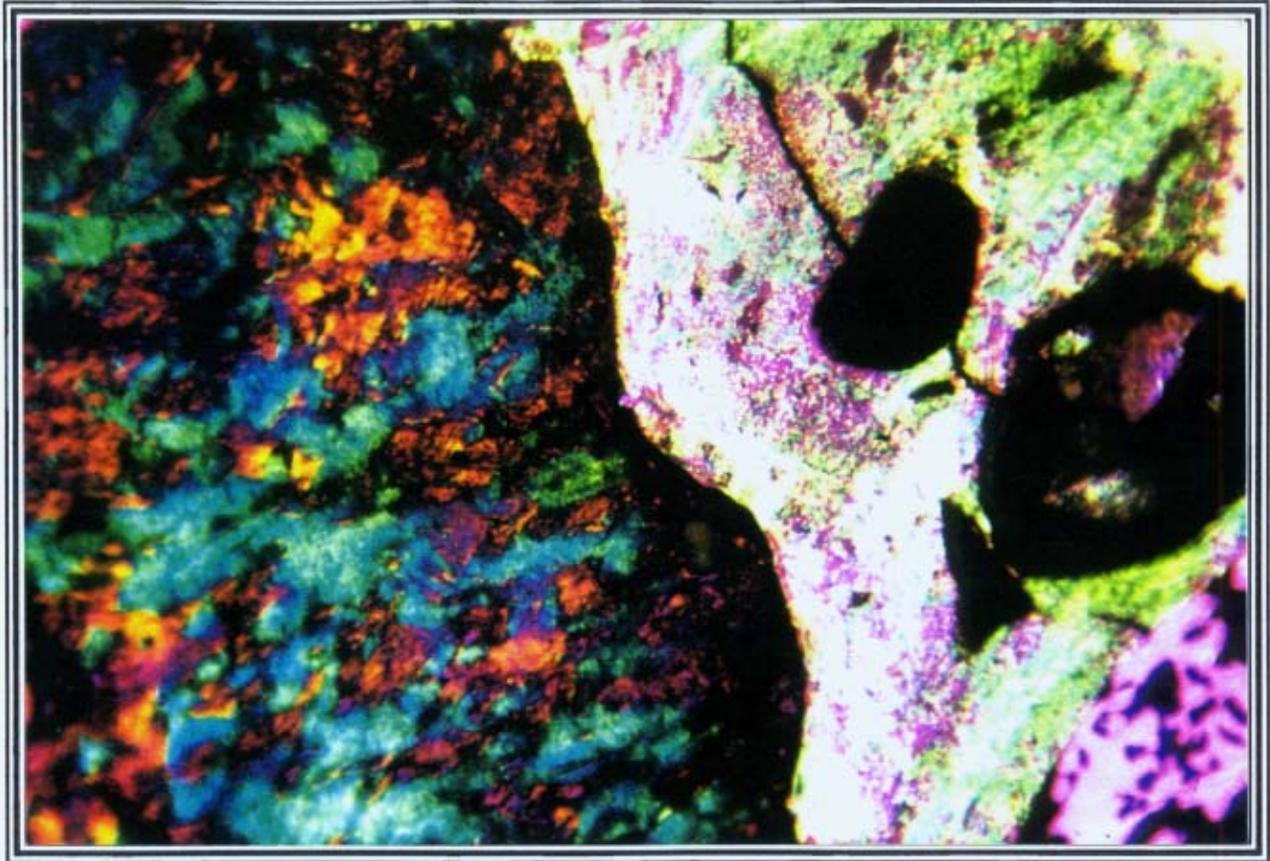
TSOP Archives

The official TSOP archival collection is available for you use. The collection contains all of the society's newsletters, publication, programs, field guides, short course notes, Research Committee reports, minutes of Council meetings, and member directories.

Photocopies of desired material will be provided at a cost immediately upon approval of your request form. Sorry, but no copies of publications which are currently for sale by TSOP can be provided. Please make all inquires to:

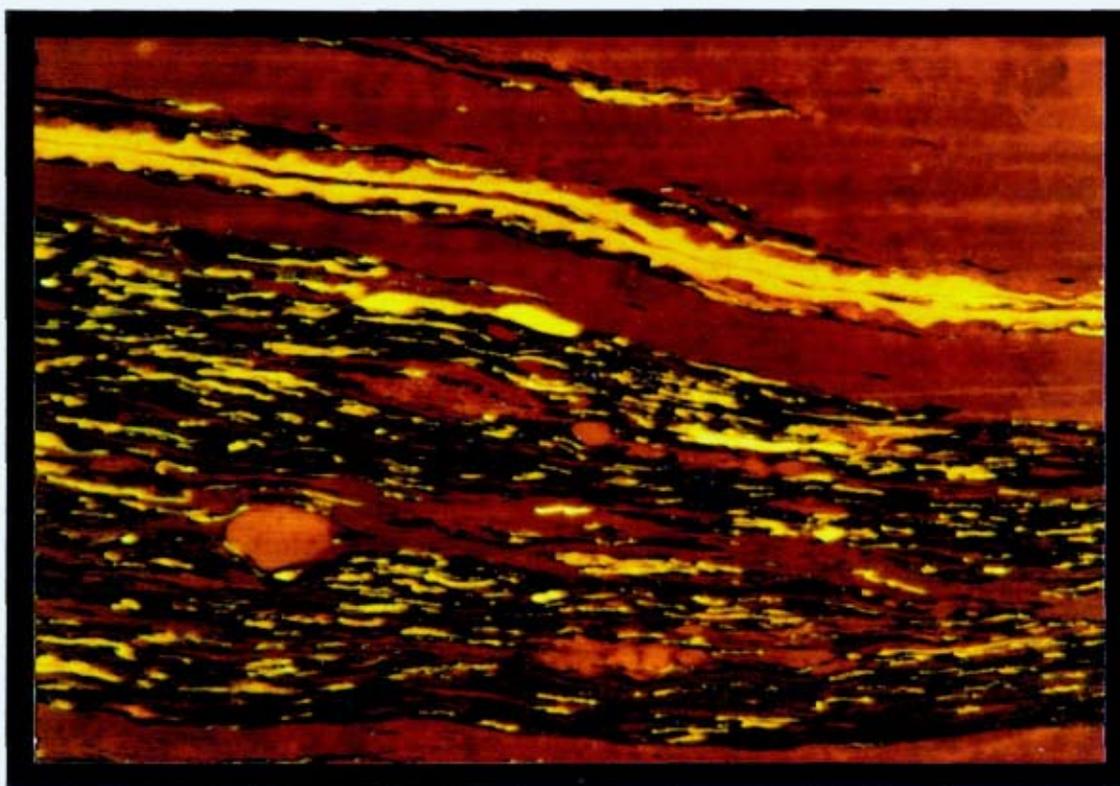
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Editors' Choice Photomicrograph



Editors' Choice Photomicrograph: A portion of an automobile brake pad as seen under polarized light. The entire left side of the frame is synthetic graphite, while the right half of the frame consists of metallurgical coke. The small pink particle in the bottom-right corner is a steel chip. Width of field is approximately 350 micrometers. Photomicrograph by William Huggett

The editors welcome contributions of photomicrographs of organic geologic materials for future issues of this newsletter



Coal In Thin Section

Thin section photomicrograph of Harlan Seam, Kentucky, USA showing fusinite (black), exinite (yellow), and vitrinite (red). Width of field is 850 micrometers. Photomicrograph courtesy of Ralph J. Gray

Call for Papers

RS·C
ROYAL SOCIETY OF CHEMISTRY
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Geochemical Transactions, published by the Royal Society of Chemistry in collaboration with the Division of Geochemistry of the American Chemical Society, is an electronic journal for the rapid publication of high impact articles from all areas of geochemistry.

Making full use of the latest web-based technology, Geochemical Transactions enables you to publish '3D' interactive figures, movies, etc, as well as allowing unrestricted use of colour. Use of the electronic medium from start to finish also results in very rapid times to publication. The journal is fully archived.



Submissions for Geochemical Transactions are now being sought, for example, in the following areas:

- Organic geochemistry
- Inorganic geochemistry
- Aquatic geochemistry
- Marine chemistry and chemical oceanography
- Biogeochemical investigations of organic, inorganic and biogeochemical processes
- Molecular and isotopic analyses
- Chemical and elemental cycles
- Geochemical aspects of global change
- Instrumental or analytical techniques applying to the above
- Numeric or computational models of geochemical processes

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Submissions can be sent via e-mail to the Managing Editor at geochem@rsc.org or via the web site at

www.rsc.org/geochem

The web site also contains further details, including instructions for authors, etc

The Society For Organic Petrology

The Society for Organic Petrology: c/o American Geological Institute, 4220 King Street, Alexandria, VA 22302-1520

Co-editors:

John C. Crelling & William W. Huggett

The TSOP Newsletter welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail attachment or as printed text via fax or regular mail. The format may be in either MS word or WordPerfect.

Please sent to:

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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 international and open to all individuals having an interest in the field of Organic Petrology. For more information on membership, Society activities or to inquire about membership packs please contact:

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Additional Information may also be obtained on our website:
www.tsop.org

March Contents

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- 2. **Call for papers:** Geochemical Transactions
- 4. **TSOP annual meeting announcement and call for papers**
- 5. **TSOP 2001 Student Grant Information**
- 6. **Cady Award:** Russ Dutcher latest recipient.
- 7. **Gondwana 11:** Announcement and Registration
- 10. **Announcement:** 53rd ICCP Annual Meeting
- 12. **Editors' Choice Photomicrograph**

Announcement

North American Coalbed Methane Forum

The North American Coalbed Methane Forum, Inc. will hold it's Spring Session on April 25-26, 2001 at the Holiday Inn, Meadow Lands, Washington, PA. For information please contact Ihor Huvryluk at 412-798-1391 or Kashi Aminian at 304-293-7682, ext. 3406.

On Wednesday April 25, 2001 Holditch - Schlumberger will be offering a short course on Coalbed methane. For information please contact Mike Zuber or Chuck Boyer at 412-787-5403.



THE SOCIETY FOR ORGANIC PETROLOGY (TSOP)

AAPG ASSOCIATED SOCIETY
AGI MEMBER SOCIETY

ANNUAL MEETING ANNOUNCEMENT AND CALL FOR PAPERS

SEPTEMBER 23- 26, 2001

HOUSTON, TEXAS

MEETING PROGRAM

SUNDAY, SEPTEMBER 23: Pre- meeting **short course** on "Biomarkers in Oil-Source Rock and Oil- Oil Characterizations and Correlations". Instructor: Dr. Marcio Rocha Mello

MONDAY- TUESDAY, SEPTEMBER 24- 25: Oral and poster presentations. General technical sessions plus special session co-sponsored by Houston Organic Geochemical Society (HOGS) on "Geochemistry of the Deep- Water Gulf of Mexico.

WEDNESDAY, SEPTEMBER 26: Field trip to Offshore Drilling Platform Museum, Galveston, Texas.

TSOP PRESENTS A \$250 STUDENT PAPER AWARD.

**SUBMIT ABSTRACT BY JUNE 1, 2001, TO COLE ROBISON (ADDRESS BELOW).
SEE WEBSITE FOR FORMAT AND DETAILS.**

MEETING INFORMATION:

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VISIT US ON THE INTERNET

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Meeting details
Society and membership information
Student Research Grant
(Deadline May 15, 2001)



The Society for Organic Petrology (TSOP)

Student Grants 2001

Purpose: The Society for Organic Petrology (TSOP) grants foster research in organic petrology which includes coal petrology, kerogen petrology, organic geochemistry and related disciplines) by providing support to graduate students from around the world, who demonstrate the application of organic petrology concepts to research problems.

Grant Size: Monetary awards up to a maximum of US \$1,000.00 will be granted. TSOP will also provide Merit Awards, in the form of certificates redeemable for TSOP publications, to top-ranking applicants not receiving grants. The program awards a maximum of two grants each year.

Use of Grant: Grants are to be applied to expenses directly related to the student's thesis work, such as summer fieldwork, laboratory analyses, etc. A portion (not to exceed 25%) of the funds may be used to attend TSOP Annual Meetings. Funds should not be used to purchase capital equipment, to pay salaries, tuition, room, or board during the school year. Funds must be spent within 18 months of receipt of the award.

DEADLINE: May 15, 2001

Application and further information available on the Internet at
<http://www.tsop.org/grants.htm>

OR

TSOP Research Committee Student Grants Program
S.J. Russell, Chairperson
Shell International E&P, Inc.
3737 Bellaire Blvd., Houston, TX 77025, USA
phone: 713-245-7603; fax: 713-245-7599;
e-mail: srussell@shellus.com.

Russ Dutcher Receives the Cady Award.

At the most recent annual meeting of the Geological Society of America the Gilbert H. Cady award was presented to Russell R. Dutcher by the GSA Coal Geology Division. Russell R. Dutcher received his B.A. from the University of Connecticut in 1951 and his M.S. from the University of Massachusetts in 1953. He received his Ph.D. from The Pennsylvania State University in 1960 and concurrently became assistant director of the Coal Research Section at Penn State and in 1963 he became a faculty member in the Department of Geology and Geophysics at Penn State. In 1970, he joined the faculty of Southern Illinois University Carbondale (SIUC) as chair of the Department of Geology. He established the Coal Characterization Laboratory in that department. From 1984 to his retirement from SIUC in 1993 Dutcher served as Dean of the College of Science. Russ is in the good company of other TSOP members who have also received the Cady Award including Bill Spackman, Peter Hacquebard,, Ralph Gray, John Ferm, Marlies Teichmuller, Lou Benedict, Dick Thompson, Alan Davis, and Alex Cameron



geology and coal petrology. As a researcher he has made many contributions in the areas of applied coal petrology, coal metamorphism, and Coalbed methane. He has published nearly forty papers and edited four books including a GSA Special Paper and an ASTM Special Technical Publication.

As a university administrator he helped lead the legendary Coal Research Section at the Pennsylvania State University. At Southern Illinois University he developed the very successful and widely recognized coal research program in the Department of Geology and he also established and initially lead

the multidisciplinary Coal Research Center. He has been a great advocate of coal research and has been instrumental in obtaining millions of dollars of research funding.

As an editor he took over the *International Journal of Coal Geology* after the retirement of William Spackman, the founder of the journal. He was Editor-in Chief of 29 volumes (64 issues) of the journal including 14 special issues covering a wide variety of topics in coal geology. He added a number of talented editors and reviewers, encouraged industrial contributions, and maintained the international nature of the journal.

By virtue of his many accomplishments and his life-long commitment to the field of coal geology he is a deserving recipient of the Gilbert H. Cady Award.

Signed,

Alex R. Cameron
James R. Staub
John C. Crelling

GILBERT H. CADY AWARD CITATION

The Gilbert H. Cady Award is presented this year to Russell R. Dutcher to acknowledge his outstanding contributions to the field of coal geology. In a career spanning four decades he has made significant contributions as a professor and researcher, as a university administrator, and as an editor.

As a professor he has been a gifted and inspiring teacher who demanded the best from his students. Under his guidance seventeen students completed their M. S. degrees and three completed their Ph. D. degrees in coal

Gondwana 11

Correlations and Connections

Venue:

University of Canterbury, Christchurch, New Zealand.

The University is set in pleasant surroundings on the outskirts of Christchurch. It has first class, modern lecture facilities that are fully equipped with dual slide projectors, overhead projector and power point facilities. Three large linked lecture theatres form a central block in the campus and provide an excellent focus for large conferences. A central foyer within the lecture block is ideal for posters and refreshments. The large campus contains coffee bars, and facilities for lunch and dinner.

Christchurch is the largest city in South Island with excellent cultural, sporting and social opportunities. It is renowned for its wide range of restaurants and cafes that cater for all tastes and budgets.

Dates:

Sunday 25th August to Friday 30th August 2002

Convenor:

Bryan C Storey

Accommodations:

A large variety of accommodation is available within short distances of the University campus ranging from luxury hotels to budget motels. Halls of Residence have been reserved. They provide excellent cheap accommodation within five minutes walk of the conference venue. The rooms are fully equipped with telephone and computers links.

Conference programme:

The advent of precise dating techniques over the past decade has enabled new and exciting Stratigraphic and event correlations to be drawn across the once large Gondwana supercontinent. High precision geochronology has revolutionized the way we explore the connections between the biological and geological record with precise temporal constraints. The dispersed fragments of the Gondwana supercontinent contain a remarkable record of how the Earth system has changed through time including the spectacular diversification of life that occurred just after the amalgamation of Gondwana ,the catastrophic extinction event not long before the collapse of the supercontinent, and the

massive volcanic episode that heralded the demise of Gondwana. Connections that were not previously possible, can now be made between the evolution of the Gondwana lithosphere, biosphere and atmosphere, and important events and markers to be dated with high precision. The time is right to collectively reconsider and document these correlations and connections and explore how the Gondwana Earth System has evolved through time. This will form the central theme of Gondwana 11.

Sub themes will focus on:

Neoproterozoic basins

Amalgamation of Gondwana

Gondwana's evolving margins

Gondwanan paleogeography and palaeoclimatology

Event stratigraphy within Gondwana basins

Patterns of Gondwana colonization and diversification

Gondwana deformation, breakup and dispersal.

Parallel sessions will be kept to a minimum to allow a more multi and inter disciplinary approach to understanding Gondwana geology and to interpreting palaeoenvironments.

Conference proceedings will be published as thematic sets in an international journal.

Conference fieldtrips:

New Zealand contains a host of striking geological features that relate both to its Gondwana heritage and to its location on an active plate boundary.

One-day trips in the middle of the conference will provide opportunities to either explore the massive intraplate Miocene volcanoes of the Banks Peninsula, or traverse from the Canterbury Plains to the spectacular spine of the southern Alps at Arthurs Pass crossing Gondwana fore-arc terranes.

Pre and Post conference field trips will focus on:

1. Collage of Gondwana Terranes: A summary of the 8 major terranes that record the active margin of Gondwana from Cambrian to Cretaceous.
2. North Island Volcanic Province: The Taupo Volcanic Zone of North Island with emphasis on the caldera structures, physical volcanology and petrology.
3. Permian to Jurassic rocks, Southland: Examination of the extremely thick mainly marine arc, forearc and backarc volcanic and volcanoclastic deposits and their mutual relationships.
4. Neotectonics of South Island: Dynamics and landscape evolution of the Pacific-Australian plate boundary in transition from the Hikurangi subduction zone to the Alpine Fault transpressive structure.

5. Geology of the Chatham Islands: A stratigraphic journey from Mesozoic basement schists to Pliocene volcanics on the New Zealand continental margin
6. Geology of Stewart Island: The anatomy of a Palaeozoic-Mesozoic batholith
7. Mesozoic-Cenozoic coal geology: Sedimentological, tectonic and economic aspects of New Zealand Cretaceous and Tertiary coal deposits

Bryan Storey
Professor of Antarctic Studies, Gateway Antarctica
University of Canterbury

GONDWANA 11

RESPONSE FORM

Name: _____

Address: _____

Telephone Number: _____ Fax Number: _____

Email Address: _____

I would like to receive second circular yes / no

I plan to attend GONDWANA 11: **Yes • No •**

I am interested in field trip number : **1, 2, 3, 4, 5, 6, 7**

(See above for number code and circle accordingly)

Please return the response form before 1 June 2001 to :

Susannah Hawtin
Administrator
Gateway Antarctica
University of Canterbury
Private Bag 4800
Christchurch
New Zealand

Telephone +64-3-364 2136
Fax +64-3-364 2197
Email: s.hawtin@anta.canterbury.ac.nz
Website www.anta.canterbury.ac.nz



ANNOUNCEMENT

53rd International Committee for Coal and Organic Petrology (ICCP) Annual Meeting
including
The Society for Organic Petrology (TSOP)/ICCP one-day session

August 12-19, 2001

organised by the

Geological Survey of Denmark and Greenland (GEUS)
Copenhagen, Denmark



GEUS

The organising committee of the 53rd ICCP annual meeting, including the one-day TSOP/ICCP session, extends an invitation to attend the meeting hosted by the Geological Survey of Denmark and Greenland, Copenhagen, Denmark.

We cordially invite you to submit an abstract and present an oral presentation and/or poster at the TSOP/ICCP session. All subjects dealing with organic petrography are welcome, but we particularly welcome presentations focusing on 'Organic petrology applied to petroleum and Coalbed methane studies'.

More comprehensive information will be supplied by mail to members of ICCP and TSOP and will be available on www.geus.dk/ICCP2001 or contact

H.I. Petersen:	e-mail: hip@geus.dk	Phone: +45 3814 2455
P. Rosenberg:	e-mail: pro@geus.dk	Phone: +45 3814 2454

Call for papers !

≧ one-day TSOP/ICCP SESSION, 15th August 2001 ≧

at the 53rd ICCP meeting, 12-19 August 2001, Copenhagen, Denmark

The 53rd ICCP meeting includes a one-day TSOP/ICCP session, which has been organised together with Dr. Charley Barker.

All kind of topics dealing with organic petrography are welcome, although we will in particular welcome presentations dealing with

"Organic petrology applied to petroleum and Coalbed methane studies".

We encourage you to take the opportunity to make a presentation, either as an oral presentation or as a poster. The oral presentations are scheduled to 25 min., including some minutes to questions.

X Deadline for submission of abstracts is **April 1st 2001**

Abstracts up to 4 pages (including figures) will be accepted. Leave 2 cm margins on both sides, use 1 1/2 line spacing and a 12-point GC Times Roman (or similar) font. Title of abstract should be in 12-point bold and include names of authors (12-point) and affiliations (10-point).

Example:

Hydrocarbon traces in the Tertiary basalts of the Faeroe Islands

T. Laier^a, H. P. Nytoff, O. Jørgensen^b and G. H. Isaksen^c

^aGeological Survey of Denmark and Greenland,

^bNational Institute of Occupational Health,

^cExxon Production Research Co.,

Hydrocarbons in the form of

Please enclose a copy of your abstract on a diskette (Word, WordPerfect) or send an e-mail with the abstract attached to: hip@geus.dk

It is planned to publish the papers presented at the TSOP/ICCP session as a special issue of the International Journal of Coal Geology. Please consider submitting a paper for this publication and, if so, we would encourage you to submit your manuscript at the meeting.

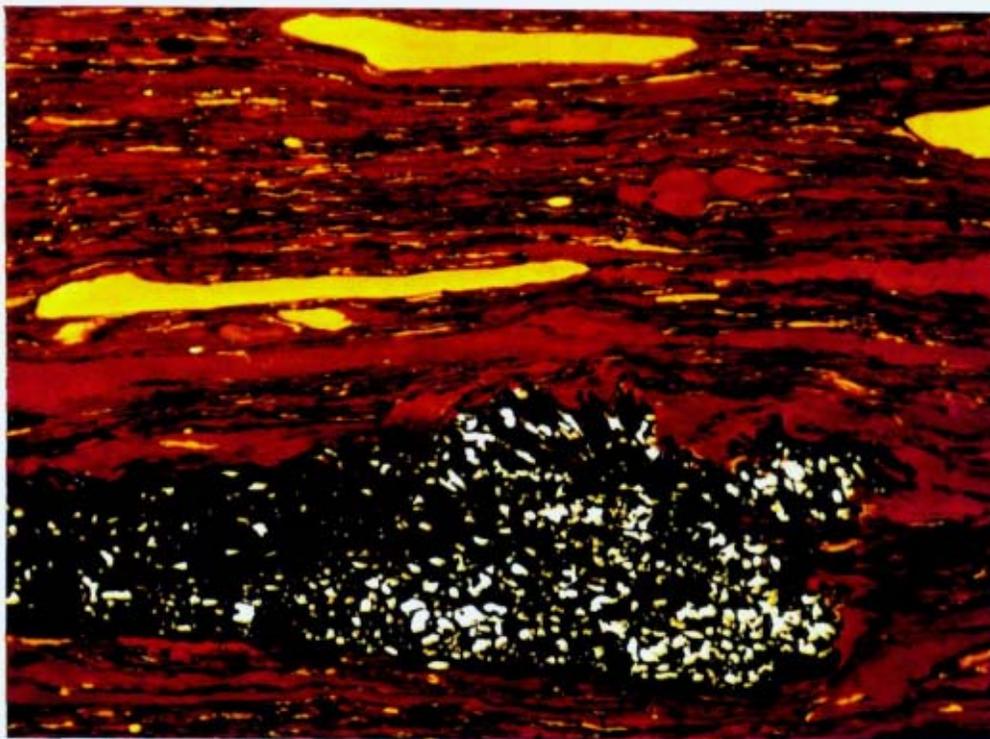
X Deadline for submission of manuscripts will be **November 1st 2001**

! For information about the ICCP/TSOP meeting, visit our website: www.geus.dk/ICCP2001

Editors' Choice Photomicrograph



Thin section photomicrograph of Harlin, Kentucky, USA showing a megaspore (yellow) surrounded by vitrinite (red) with some fusinite (black). Width of field is 850 micrometers.



Thin section photomicrograph of Harlan Seam, Kentucky, USA showing two stringers of yellow cutinite in a vitrinite matrix (red) with inertinite particles (black). Width of field is 550 micrometers



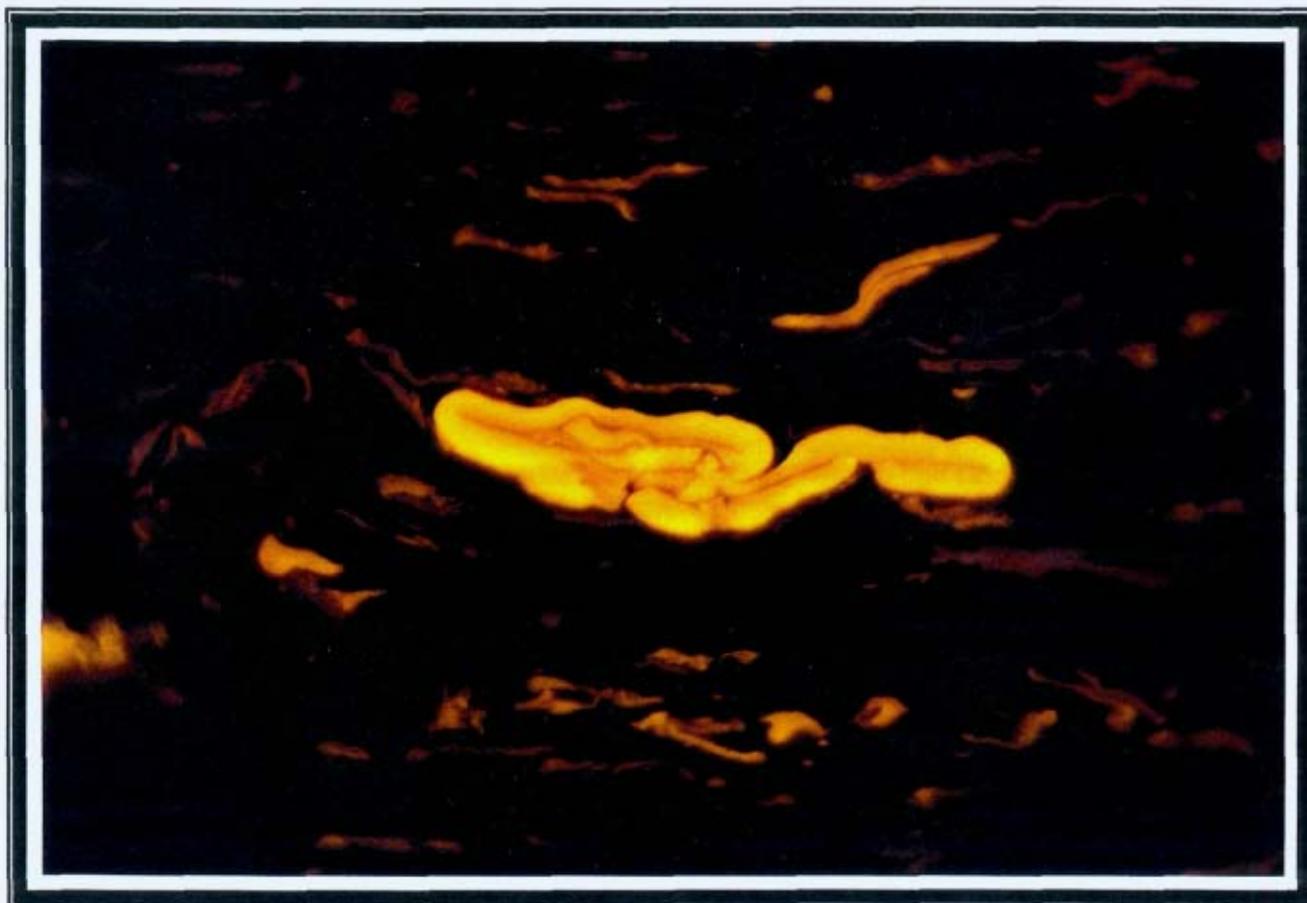
THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

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Photomicrograph in blue light fluorescence of a sporinite maceral in a sapropelic coal from the Upper Silesian Coal Basin, Czech Republic. Width of field is approximately 200 micrometers. Photomicrograph by William Huggett

TSOP Midyear Meeting - Reston, Virginia



Six TSOP Council members and committee chairs were present at the TSOP 2000-2001 midyear meeting that was held April 20, 2001, at the U.S. Geological Survey, in Reston, Virginia. Those present include (from the left) Peter Warwick (Secretary-Treasurer), MaryAnn Malinconico (Councilor), Jeff Quick (Councilor), Tim Moore (President-Elect), Dave Glick (Internet Committee Chair), and P. K. (Muki) Mukhopadhyay (President). MaryAnn Malinconico holds the speakerphone that was used for teleconferences with Bill Huggett (Newsletter Co-Editor) and Neil Sherwood (Vice-President).

Review of TSOP's Midyear Council Meeting

The TSOP 2000-2001 midyear meeting was held April 20, 2001, at the U.S. Geological Survey, in Reston, Virginia. Six council members and committee chairs were present (see photo). Teleconferences were also held with Bill Huggett (TSOP Newsletter Co-Editor) and Neil Sherwood (TSOP Vice-President). Items discussed include officer's and committee reports and past and upcoming TSOP scientific meetings. The slate of upcoming TSOP annual meetings include: 2001 Houston; 2002 Banff, 2003 Washington D.C., and 2004 Sydney. Significant outcomes of the meeting include: a change in status for the annual meeting advisory and publication committees; a call for nominations for TSOP Honorary Membership; approval of new member applications; a discussion of plaque and certificate presentations to past TSOP officers and annual meeting organizers; and a discussion of how to increase co-sponsored sessions at other geological scientific meetings. TSOP Council also approved the

2001 nominees for office and proposed the following amendment to Article 7 of the Election By Laws:

The three-year term of the Secretary-Treasurer may be extended one year by the President with the approval of Council for a maximum total term of six years.

The amendment was sent to TSOP membership for approval. In addition, the Council voted to recognize past TSOP presidents by presenting them plaques at the upcoming Houston Annual meeting. After the meeting, TSOP midyear meeting attendees were treated to a dinner hosted by TSOP member Jingle Ruppert.

The Society For Organic Petrology

The Society for Organic Petrology: c/o American Geological Institute, 4220 King Street, Alexandria, VA 22302-1520

Co-editors:

John C. Crelling & William W. Huggett

The TSOP Newsletter welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail attachment or as printed text via fax or regular mail. The format may be in either MS word or WordPerfect.

Please sent to:

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Southern Illinois University
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E-mail: jcrelling@geo.siu.edu
huggett@geo.siu.edu

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 international and open to all individuals having an interest in the field of Organic Petrology. For more information on membership, Society activities or to inquire about membership packs please contact:

Peter Warwick
U. S. Geological Survey
956 National Center
Reston VA 20192

Tel: (703) 648-6469
Fax: (703)648-6419
e-mail: pwarwick@usgs.gov
Additional Information may also be obtained on our website:
www.tsop.org

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Alexander Rankin Cameron 1927-2000

As we move forward in our chosen professions, we meet many colleagues who become friends, professionally and oftentimes socially. Geology and closely allied fields seem to attract a large number of folks who are in their chosen field because they like the subject and in turn they enjoy imparting their knowledge to others—sometimes in a formal fashion through teaching and in publications. Genuine friendships develop. Every once in a while we meet someone who exhibits all of the traits that we hope all of us admire. A human being that we just know makes life a bit better for all of us and makes by their very presence the world a better place. Such a person was Alex Cameron.

Alex Rankin Cameron was born on January 24, 1927, in Toronto, Canada. At an early age Alex and his family moved to Nova Scotia, specifically to Cape Breton. He received his Bachelor of Science degree from St. Francis Xavier University, Cape Breton, in 1952. In the 1950s he worked as a student assistant for the Geological Survey of Canada. In 1954 he received his Master of Science degree from The Pennsylvania State University. His Ph.D. degree was conferred by Penn State in 1961. He had started full-time employment with the GSC in 1960.

With the exception of two years, his entire professional career was with the Geological Survey of Canada. He was a Visiting Professor at Southern Illinois University for a year and one half and a visiting scientist at Penn State for a six-month period. When he retired, Alex was head of the Coal Geology sub-division of the Survey. He retired with the rank of Emeritus Scientist in the GSC.

Dr. Cameron covered an extensive amount of territory while pursuing field work, primarily in Canada but also a fair amount in the U.S.A. He worked in almost all of the coal-bearing areas of Canada and many of his 80-odd publications were to report the result of field investigations. Many of us knew tales about adventures in the field. The one that Alex would retell if prodded was returning to his helicopter with the pilot and field assistant to find a grizzly bear with an enormous interest in their transportation. They were downwind and a fair distance across open ground. They waited and

finally were able to get safely to the aircraft.

While coal was the focal point for his geological efforts, his interests were wide ranging and varied. Topics ranged from geochemistry, paleogeography, and coal resources to carbonization, sampling techniques, and palynology.

Alex was pleased to share his knowledge and expertise with students at many colleges and universities. He served on graduate committees and worked with industrial representatives who were anxious to seek his help and insight regarding their problems. He did this willingly and effectively. His expertise and talents were recognized by many people and their organizations. From 1984 through 1989 he served as president of the Canadian Society of Coal Science and Organic Petrology. He was associate editor of the International Journal of Coal Geology from its inception in 1983 through 1995. The Hacquebard Medal was awarded to Alex by the Canadian Society of Coal Science and Petrology. The International Committee for Coal Petrology presented Alex with the Thiessen medal and the Coal Division of the Geological Society of America honored Alex with the Gilbert H. Cady award in 1997.

The Canadian Society of Coal Science and Organic Petrology established The Cameron Award in honor of the outstanding contributions made to his profession. Further recognition of Alex Cameron's contributions came with the special symposium held in his honor upon his retirement from the Geological Survey of Canada. The proceedings of this meeting were published as the Cameron Volume of the International Journal of Coal Geology, Vol. 24, numbers 1-4, 1993. In addition, Alex was editor of the Hacquebard volume of the International Journal of Coal Geology, vol. 19, 1991.

In 1955 Alex married Catherine McDonnell of Sunbury, Pennsylvania. Alex was a devoted family man—very proud of all the family but never one to bore a group with tales of accomplishments. Alex Cameron was a special person—anyone who knew him misses him.

Russ Dutcher, Geology, SIUC

TSOP-Houston 2001

Final CALL FOR PAPERS

The Organizing Committee for the 18th Annual Meeting of The Society for Organic Petrology invites you to present a paper or poster at the meeting. Extended abstracts of your presentation are due by **July 1, 2001**. Abstracts should be written in English, single-spaced in 12-point font, and no more than 5 pages long, including figures and tables. For proper formatting, refer to the Abstracts and Programs, vol. 17, Bloomington 2000.

Abstracts can be submitted by mail (if a PC microdisk is included, the abstract must be in Microsoft Word or WordPerfect format). Electronic submission of abstracts is preferred, and the abstract should be sent as an attached file to an e-mail message to robiscr@texaco.com. The Organizing Committee will make final decisions about acceptance or rejection of abstracts by **July 15, 2001**.

PROGRAM

Sunday, September 23

Short course: **Biomarkers in Oil-Source Rock and Oil-Oil Characterizations and Correlations**

Instructor: Dr. Marcio Rocha Mello, Petroleum and Environmental Geo-Services Ltda., Rio de Janeiro, Brazil

This course is a daylong presentation focusing on recent developments in the use of saturated and aromatic hydrocarbon biomarkers in oil exploration and production.

Class Size Limit: 25 persons

Monday, September 24 (morning)

Special Session -- Co-sponsored by the Houston Organic Geochemical Society (HOGS) - **The Organic Geochemistry of the World's Deepwater Areas**

Monday, September 24 (afternoon)

General Technical Session: Coal/Organic Petrology and Geochemistry

Tuesday, September 25

General Technical Session: Coal/Organic Petrology and Geochemistry

Sunday evening, Sept. 23 through Tuesday noon, Sept. 25

Wednesday, September 26

Field Trip - This is a daylong field trip to the Offshore Drilling Platform Museum in Galveston, Texas.

Limit: 20 persons

For information about the conference, visit the TSOP website: <http://www.tsop.org>. For information about the program, contact Cole Robison (713) 432-6828 or e-mail robiscr@texaco.com.

Venue:

The meeting will be held at the Westchase Hilton and Towers in west Houston. The hotel is equidistant from both of the city's major airports (George Bush Intercontinental and Houston Hobby Airport). Express Shuttle Bus provides reasonable cost transportation between the hotel and the airports. The hotel is just a few blocks east of the Sam Houston Tollway and convenient to shopping in the Galleria and only about 10 miles from the Museum District and the Texas Medical Center. Excellent restaurants and entertainment are within walking distance of the hotel.

Housing Information:

Accommodations are in the Hilton Westchase & Towers. The hotel will hold a block of rooms for reservations as follows: Saturday, 09/22/01, 20 rms; Sunday, 09/23/01, 60 rms; Monday, 09/24/01, 60 rms; Tuesday, 09/25/01, 30 rms; Wednesday, 09/26/01, 15 rms. Check in Time 3:00PM; Check Out Time 12:00PM. The Hotel will hold the rooms until September 1, 2001. After this date, rooms not covered by rooming list or individual reservations shall be released from TSOP's block and the hotel may contract with other parties for the use of the rooms. The hotel will continue to accept reservations from TSOP meeting attendees after September 1, 2001, at the prevailing room rate and subject to availability. The contracted room rate is \$129 Single and Double (until Sept. 1). **Reservations:** Individual Reservations - **Each individual guest must make their own reservations by calling 1-800-HILTON (or 713-974-1000).** Individual must identify him(her)-self as a member TSOP or an attendee of the TSOP meeting. All reservations must be guaranteed and accompanied by a first night room deposit or guaranteed with a major credit card.

Travel Information:

The Hilton Westchase & Towers is located on the SE corner of the intersection of Westheimer and Briarpark in west Houston (hotel address-9999 Westheimer). Two major airports serve Houston: Houston Hobby and Bush Intercontinental. Taxi services are available at both airports. However, a good way to arrive at the hotel is to take the **Express Shuttle Bus** from either airport. Tickets for the shuttle can be purchased (roundtrip available) at the Express Shuttle service counters in the Baggage Claim/Ground Transportation levels of either airport. The cost is approximately \$15.00 one-way and \$24.00 roundtrip. If two or more attendees share a taxi, however, it may be cheaper than the shuttle.

International Visitors:

If you need a personal letter of invitation to obtain travel funds or a USA visa, please indicate on the bottom of your registration form that you wish to have such a letter. You can also e-mail the meeting Chairperson at robiscr@texaco.com and request such a letter in advance of mailing in your registration.

All non-immigrant visa holders are advised to have health and accident insurance that covers the time they will be in the USA. J-1 and J-2 visa holders are required by law to have this insurance, which must be set at least to a minimum of \$50,000 per accident or illness and include medical evacuation and repatriation of remains. Your travel agent can assist you with obtaining this insurance coverage.

It is recommended that you obtain sufficient US currency for your trip before departure. However, there are currency exchange facilities at Bush Intercontinental Airport and at several banks in the Houston.

18th Annual TSOP Meeting,
Houston, Texas

REGISTRATION FORM

Please complete Registration Form and Return with Remittance (in U.S. Funds) to:

Dr. C. R. Robison
7702 Soledad Dr.
Houston, TX 77083-4900

NAME: _____

ADDRESS: _____

City: _____ State: _____ Postal Code: _____ COUNTRY: _____

AFFILIATION (if not given in address): _____

TELEPHONE: (work) _____ (home) _____

FAX NUMBER: _____ E-Mail Address: _____

Please state if you will need services to accommodate a disability: _____

Short Course: "Biomarkers in Oil-Source Rock and Oil-Oil Correlations",

Pre-registration by September 1)	@ \$ 60.00	\$ _____
Late Registration (until Sept. 12)	@ \$ 70.00	\$ _____

Meeting (September 23-26):

Pre-registration (by September 1)			
TSOP Member	Professional	@ \$150.00	\$ _____
	Student	@ \$ 50.00	\$ _____
Non-Member		@ \$175.00	\$ _____
Late Registration (after Sept. 1)			
TSOP Member	Professional	@ \$175.00	\$ _____
	Student	@ \$ 75.00	\$ _____
Non-Member		@ \$200.00	\$ _____

Field Trip (September 26) Offshore Drilling Platform Museum, Galveston, Texas

(Limit 20 persons)	@ \$ 65.00	\$ _____
Late Registration (after Sept. 1)	@ \$ 75.00	\$ _____

Proceedings Volume (to be published in the International Journal Of Coal Geology

@ \$ 30.00/copy \$ _____

TOTAL: \$ _____

(PAYMENT IN U.S. FUNDS ONLY; MAKE CHECKS PAYABLE TO *TSOP-2001, Houston*)

TSOP Council Members 1984-Present

	1983-1984	1984-1985	1985-1986
President	John Clendening	William Spackman	John Castano
Vice President	John Castano	John Crelling	Neely Bostick
Sec./Treas.	Ann Brooke Reaugh	Ann Brooke Reaugh	Ann Brooke Reaugh
Councilor (2nd yr)	John Shane	John Shane	Karl Schwab
Councilor (1st yr)	Joseph Senftle	Joseph Senftle	Richard Thompson
Editor	Margaret Hildick	Margaret Hildick-Pytte	Carolyn Thompson-Rizer
	1986-1987	1987-1988	1988-1989
President	John Crelling	Neely Bostick	John Burgess
Vice President	Stan Teerman	Richard Harvey	James Hower
Sec./Treas.	Sue Rimmer	Sue Rimmer	Sue Rimmer
Councilor (2nd yr)	Richard Thompson	Wolfgang Kalkreuth	Jeffrey Levine
Councilor (1st yr)	Wolfgang Kalkreuth	Jeffrey Levine	Dennis Kaegi
Editor	Carolyn Thompson-Rizer	Eileen Williams	Eileen Williams
	1989-1990	1990-1991	1991-1992
President	Art Cohen	Joseph Senftle	Sue Rimmer
Vice President	Sue Rimmer	Dick Harvey	Brian Cardott
Sec./Treas.	Renee McLaughlin	Renee McLaughlin	Renee McLaughlin
Councilor (2nd yr)	Dennis Kaegi	Scott Stout	Kenneth Kuehn
Councilor (1st yr)	Scott Stout	Kenneth Kuehn	Martin Reinhardt
Editor	Jeff Levine	Jeffrey Levine	Jeffrey Levine

	1992-1993	1993-1994	1994-1995
President	Suzanne Russell	James Hower	Renee Symanski
Vice President	Renee McLaughlin	P.K. Mukhopadhyay	John Crelling
Sec./Treas.	Kenneth Kuehn	Kenneth Kuehn	Kenneth Kuehn
Councilor (2nd yr)	Martin Reinhardt	Charles Landis	Cole Robison
Councilor (1st yr)	Charles Landis	Cole Robison	Stephen Bend
Editor	Neely Bostick	Neely Bostick	James Pontolillo
	1995-1996	1996-1997	1997-1998
President	Brian Cardott	Jeffrey Levine	Kenneth Kuehn
Vice President	Kenneth Kuehn	Charles Landis	Sharon Crowley
Sec./Treas.	Lorraine Eglinton	Lorraine Eglinton	Lorraine Eglinton
Councilor (2nd yr)	Stephen Bend	Ganjavar Khorasani	Dave Glick
Councilor (1st yr)	Ganjavar Khorasani	Dave Glick	Maria Mastalerz
Editor	James Pontolillo	James Pontolillo	William Andrews
	1998-1999	1999-2000	2000-2001
President	Charles Barker	Cole Robison	P.K. Mukhopadhyay
Vice President	Timothy Moore	David Glick	Neil Sherwood
Sec./Treas.	Peter Warwick	Peter Warwick	Peter Warwick
Councilor (2nd yr)	Maria Mastalerz	Carolyn Thompson-Rizer	Jeffrey Quick
Councilor (1st yr)	Carolyn Thompson-Rizer	Jeffrey Quick	MaryAnn Malinconico
Editor	John Crelling William Huggett	John Crelling William Huggett	John Crelling William Huggett

SOME INDUSTRIAL APPLICATIONS OF ORGANIC PETROLOGY

John C. Crelling¹ and Ralph J. Gray²

¹Department of Geology, Southern Illinois University, Carbondale, IL 62901

²Ralph Gray Services, 308 Drexel Drive, Monroeville, PA 15146

Organic petrology of industrial carbons yields information about their size, shape, and association with other materials, as well as the quantitative measurements of reflectance, anisotropy in polarized light, fluorescence and response to etching and staining. This information allows a wide variety of carbons to be identified and characterized even though they all have the same simple chemical composition. These optical techniques provide the solutions to many types of problems in the selection of carbon raw materials and the production of industrial carbon materials. Examples of the effective use of the optical microscope can be found in the production of delayed petroleum coke, fluid petroleum coke, coal tar pitches, anode paste, calcined carbon, vapor deposited carbons, activated carbons, carbon fibers/carbon-carbon composites, and automobile and aircraft brakes.

DELAYED PETROLEUM COKE: Petrographic techniques can be used to characterize delayed petroleum coke products. The delayed coker produces various amounts of cokes with needle, mixed layered, granular, sponge and shot microtextures. An abundance of one or another of these microtextures can render a product desirable or undesirable for a specific use. Polarized light microscopy is ideal for grading delayed petroleum cokes.

FLUID PETROLEUM COKE: Fluid petroleum cokes are concentric or shot shaped structures that vary in the number of centers, the distinction between the onion skin plies and the degree of aggregation and included gross porosity. All of these features can be determined microscopically, and such optical analysis is useful in grading fluid petroleum cokes for specific uses.

COAL TAR: Microscopy is used to determine the amount and size of carbon forms in tars. The two basic forms are Normal and "Carry Over" solids

like coal and coked cenospheres. Miscellaneous materials such as minerals from louting are also determined. A chemical analysis would see the bulk of these materials solely as solids.

COAL TAR PITCH: Microscopy is used to determine the amount of continuous phase and the amount of Normal QI, "Carry Over" QI and Mesophase, when it occurs in pitches. Heat treating of pitches to increase Beta Resins cause the Normal QI to aggregate and on further heating the aggregates are transformed to embryonic mesophase and even mesophase, all of which are microscopically detectable. Due to the shortage of coal tar pitch in the USA, other sources are being considered as electrode binder, and petroleum derived materials are used as coal tar pitch extenders and carbon blacks are being added to simulate Normal QI. Optical microscopy can be used as a detective tool in selecting pitch sources for specific uses.

GREEN ANODE PASTE: Microscopy of anode paste can be used to determine the amount of binder and filler used to make the paste. In addition, the various forms of filler such as recycle, petroleum coke, anthracite and metallurgical coke can be detected and quantified in terms of their amount, shape and size. The filler distribution, degree of mixing and penetration can also be determined. The microscopically detected microtextures and microstructures seen in green anode paste are useful predictors of the same or similar features in baked anodes.

BAKED ANODE PASTE: Microscopy of baked anodes can be used to determine if the formulation used to produce the product is mixed properly and if it is under-pitched or over-pitched or even properly pitched. The impact of recycled materials can also be detected. The micro structure and micro texture impact the product quality and performance.

SODERBERG PASTE: The Soderberg Paste used in green electrodes consists of coal tar pitch and filler carbons. The filler, which may consist of calcined anthracite, petroleum coke or even metallurgical coke, makes up about 30% of coarse materials (up to about 12mm diameter). Finely sized solids, together with the pitch, form the binder phase. Optical microscopy techniques can be used to detect both the degree of calcination of the filler and the thoroughness of mixing.

CALCINED/GRAPHITIZED CARBON:

Microscopy of calcined carbons can be used to identify and quantify the microstructures and microtextures that calcination/graphitization imparts to the feed carbon materials. Anthracites, petroleum cokes, metallurgical cokes and recycled materials are used in mixes to produce green, baked, calcined and graphitized carbon forms. Calcined anthracites and petroleum cokes, which are widely used in specialty carbons, undergo changes as the degree of calcination advances. They become softer and there is a marked change in their optical reflectance between the maximum and minimum reflectance. It has been demonstrated that the reflectance values can be used to calculate Young's Modulus of Elasticity. The elasticity of the carbon forms not only determine the physical properties but also relate to the electrical properties.

VAPOR CARBON DEPOSITION: Microscopy can be used to detect and study a wide variety of forms of carbon deposition. Carbon deposits range from sooty and thermal-fine-particulates to spherulitic aggregates formed when volatile carbonaceous materials are processed. The carbon deposition in the roof of coke ovens is a problem while carbon black is purposely produced as a product. However, even in the production of carbon blacks, there are extraneous carbons produced that detract from the product value. Microscopy is valuable in studies of carbon deposition.

ACTIVATED CARBON: Coals and organic materials are treated thermally and chemically to produce porous materials with enormous surface areas and active properties which filter materials such as gas and liquids and selectively absorb materials from gases. Many of the features that

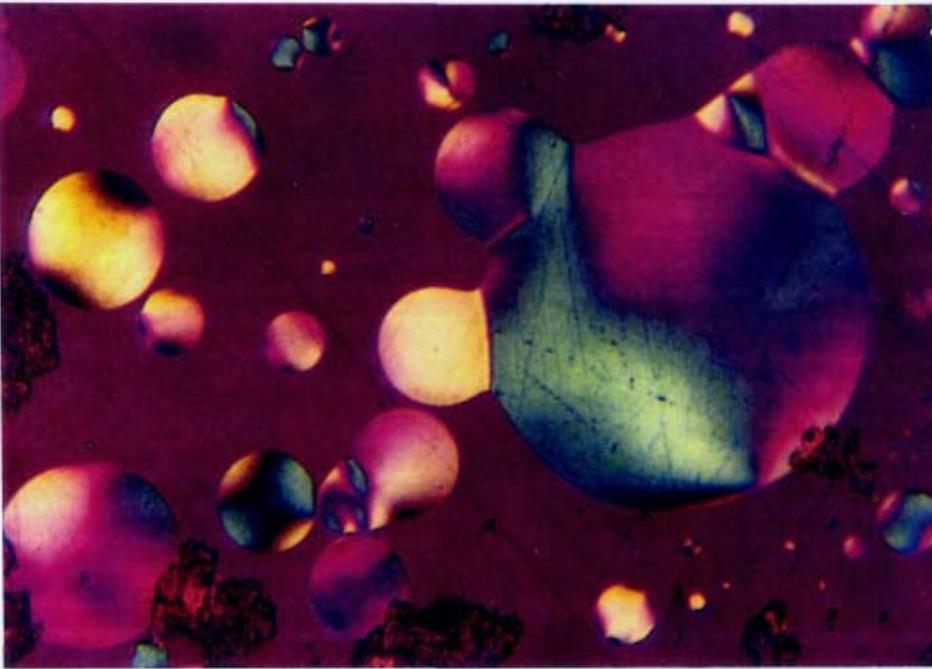
are characteristic of activated carbons can be identified microscopically. Microscopy has been used to predict the CO₂ reactivity of cokes for blast furnace use and reactivity of carbons to SiO in electric arc furnaces used to produce ferroalloys and silicon.

CARBON FIBERS/CARBON-CARBON

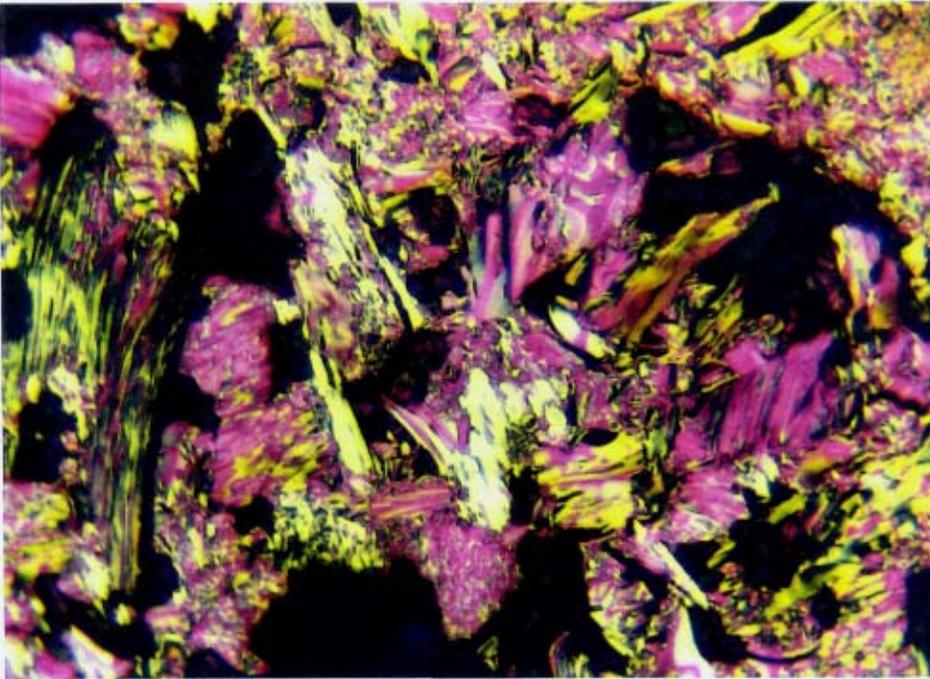
COMPOSITES: Optical microscopy has been used to determine the size of carbon fibers, the degree of anisotropism and the length and width of anisotropic domains. All of these features relate to the quality and ultimate use of the fibers. The defects in structures are usually well displayed in polarized light microscopy. Optical microscopy of carbon-carbon composites can reveal the nature of the matrix carbon and the degree of bonding with the fibers as well as the nature and distribution of vapor deposited carbon.

AUTOMOBILE AND AIRCRAFT BRAKES:

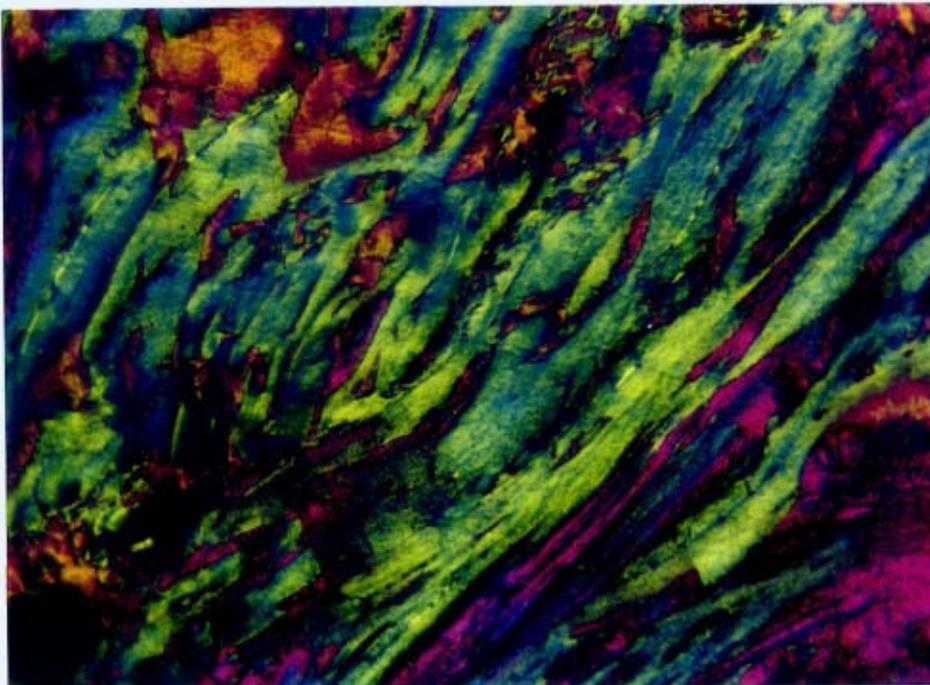
Because coal, coke, graphite, char, and carbon fibers are used in a wide variety of modern brakes for automobiles, trucks and aircraft, there are applications for petrographic analysis in the manufacture and use of these materials. Brakes for automotive and light aircraft use generally consist of a mixture of particles of metal (iron, steel, copper, brass), crystalline compounds (antimony trisulfate, potassium titanite, magnesium oxide, elemental sulfur), non-crystalline compounds (glass and plastic), fibers (aramid polymers, cellulose, carbon) and carbonaceous materials (metallurgical coke, petroleum coke, graphite, coal, and char) set in a phenolic resin. The composition of these brakes is characterized by a petrographic point-count analysis in both white light and blue light. The blue light analysis is both necessary and possible because many of the plastics and fiber components, which are difficult to observe in white light, fluoresce distinctively when excited with blue light. The various carbonaceous components, particularly the cokes and graphites, can only be distinguished by petrographic techniques including viewing in polarized light with both analyzer and retarder plates to produce characteristic interference colors and patterns. Other applications of organic petrology are found in the use and manufacture of Carbon-Carbon composite brakes used on commercial and military aircraft. These brakes are made up of



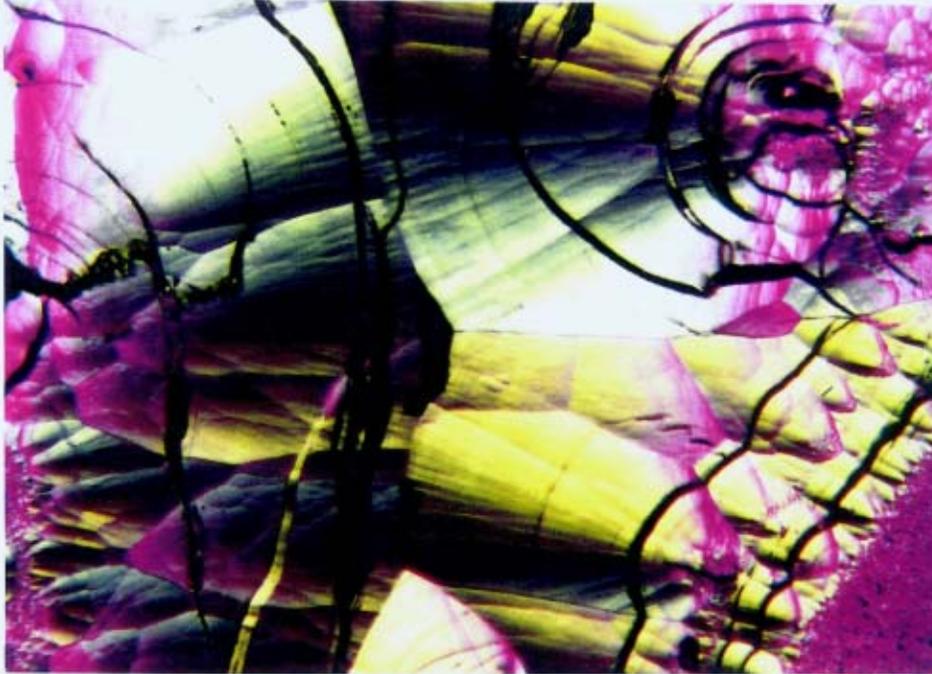
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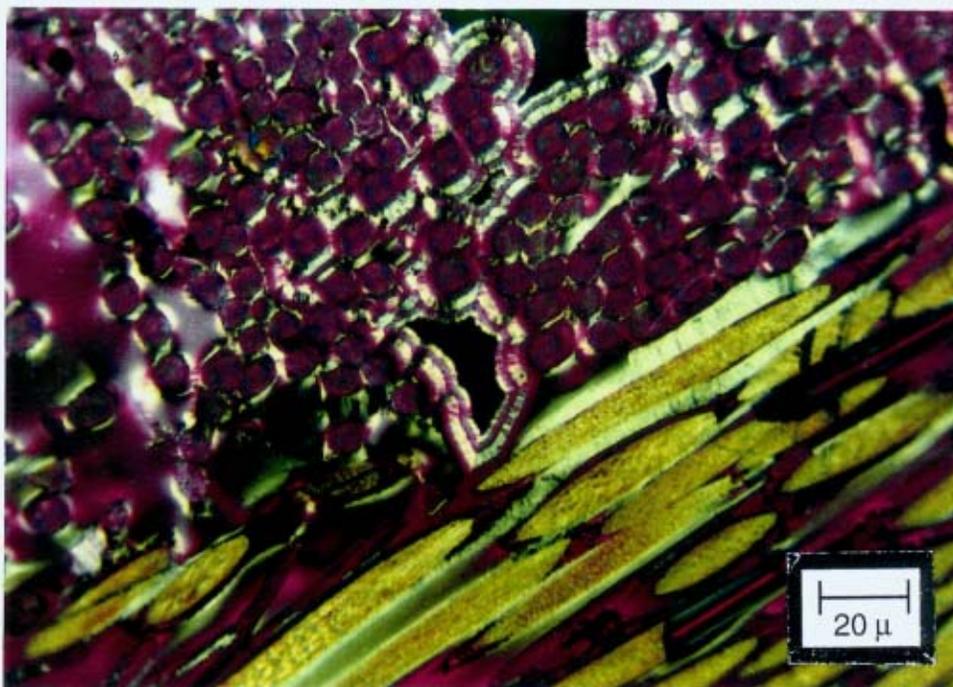
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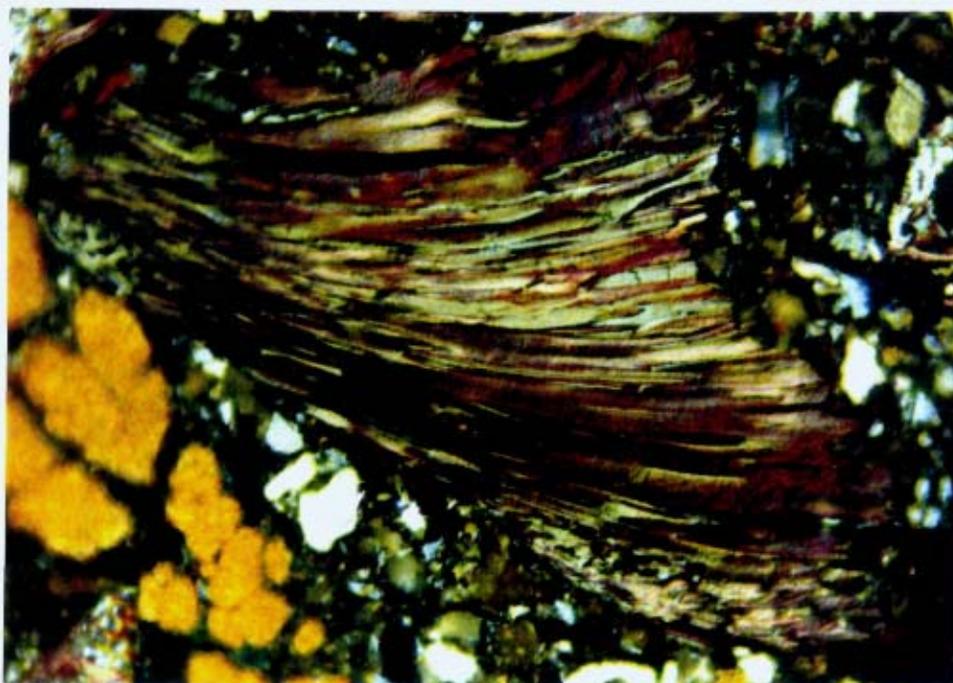
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carbon fibers in a matrix carbon composed of graphitized pitch, resin, and vapor deposited carbon. Optical microscopy is used for quality control and troubleshooting in the production of these brakes in such applications as determining the nature of bonding between the matrix and the fibers, the distribution and amount of pore volume and the nature and distribution of the vapor deposited carbon. Optical microscopy is also extensively used in the study of brake wear debris. Petrographic methods are used to examine the nature of the wear surfaces as well as the debris particles themselves.

SUMMARY:

In summary, optical microscopy is a versatile and reliable tool for the characterization of coals and carbons. It allows a wide variety of carbons to be identified and characterized even though they all have the same simple chemical composition. Optical microscopy techniques provide the solution to many types of problems in the selection of carbon raw materials and the production of industrial carbon materials. Another aspect of the optical microscopy of coals, cokes, graphites, carbons and chars is the opportunity for the optical petrologist to appreciate the intrinsic beauty of these natural and man made materials.

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Photos

1. Mesophase in pitch.
2. Under-pitched calcined carbon anode. Under-pitched condition produces excessive pores as seen here, resulting in a weak structure.
3. Graphitized needle coke from graphite carbon electrode.
4. Pyrolytic carbon from coke oven.
5. Carbon-carbon composite with fibers running in different directions. Note carbon vapor deposits surrounding voids.
6. Automobile brake showing particle of petroleum coke in epoxy matrix.

TSOP Councilor attends Science- Engineering- Technology Congressional Visits Day

By MaryAnn L. Malinconico

As part of the contingent from American Geological Institute member societies, I participated in the 6th annual Science-Engineering- Technology Congressional Visits Day (CVD), May 1- 2, 2001. The purpose of the event, as described on the AGI CVD webpage (www.agiweb.org/cvd) was to "underscore long-term importance of science, engineering and technology to the Nation through meetings with congressional decisionmakers". The event was sponsored by the Science- Engineering-Technology Work Group, of which the American Geological Institute (AGI) and the American Geophysical Union (AGU) are members, and the Coalition for Technology Partnerships. Over 200 scientists and engineers from academia and industry attended, including sixteen geoscientists.

Participating scientists visited their elected Representatives and Senators in the United States Congress to convey support for increased

federal funding of non- defense and non- health science basic research, specifically the National Science Foundation (NSF), National Oceans and Atmospheres Administration (NOAA), National Aeronautic and Space Administration (NASA), and research programs in the Departments of Energy (DOE), Agriculture, Interior, and Commerce. The core message to be conveyed to Congress is that increased and balanced federal investment in research and development is the nation's foundation for future innovation and economic growth. Although this event may not appear to be of interest to non- U.S. citizen members of TSOP or other geoscience societies, various U. S. federally funded research programs are international in scope or collaboration, two of many examples being the MARGINS initiative at NSF (www.ideo.columbia.edu/margins) and the Ocean Drilling Program (www.oceandrilling.org) in which several TSOP members of various nationalities have participated.

The current concern about U. S. science funding is that, although proposed federal investment for fiscal year 2002 in basic research is up about 6%, this increase is mostly due to an increase of about

13% in the budget for the National Institutes of Health (NIH), which funds U. S. health and medical research programs. The increase in NIH funding is certainly important for all of us, but in the meantime, non- defense research funding in non- health agencies is lower than in 2001. NSF did get an increase of ca. \$56 million, but a new, and also important, \$200 million science and math education initiative is to come out of the NSF total budget which leaves less money for research grants. Of particular concern to geoscientists, are proposed funding cuts to the U. S. Geological Survey (USGS). Energy programs, like coal, are not affected: the cuts are primarily in water resources, toxic hydrology, mapping and hazards. Some of these affected programs are currently cost- shared with states and other agencies, which may not be able to majority fund them if federal support is withdrawn.

Background briefings for participants took up the first day, Tuesday, May 1. Briefings that afternoon for all participants included budget overviews from administrative representatives of NASA ; NSF; DOE which, besides responsibility for nuclear and fossil fuel energy, administers the Oak Ridge, Lawrence Livermore, Los Alamos, and Argonne national laboratories; the National Institute of Standards and Technology (Dept, of Commerce); and the Office of Management and Budget which puts together the national budget in detail. Background on the protocol of congressional visits was provided mostly by House and Senate science committee staff members who are also scientists. From the House Science Committee, the chair, Sherwood Boehlert of New York, and the ranking minority member, Ralph Hall of Texas, both addressed the group. There was also a briefing that morning at AGU headquarters specifically for geoscientists on the effect of budget cuts on earth science programs. Presentations were made by Charles Groat, Director of the USGS, and representatives from DOE, NASA, NOAA, and NSF.

AGI provided folders of information materials to be left with the members of Congress visited. Besides a page illustrating the core science

message and information on the organizers of the CVD, there was a copy of a letter to colleagues from Senators Christopher Bond (Missouri) and Barbara Mikulski (Maryland) encouraging support for a doubling of the NSF budget over five years, and a pamphlet on natural hazards research. The Bond- Mikulski letter emphasized the importance of basic non- health research to health- related issues and technology. I also added a copy of a letter from Marcia McNutt, AGU president, to U.S. President Bush on the relevance of geophysical research to defense, and small maps of Pennsylvania bedrock geology, coal, oil and gas resources. Besides my own personal business card, I included a TSOP business card that gives general short information on the purpose of TSOP with the society logo and web address (these are available from me to any member who wants to carry TSOP information to a meeting or other event in a small convenient size)

The congressional visits took place on Wednesday, May 2. Being from Pennsylvania, I had appointments with offices of my two Senators, Rick Santorum and Arlen Specter, both Republicans, and my Representative, Pat Toomey, also a Republican. Visits were arranged by Margaret Baker of the AGI Government Affairs Program, who accompanied me on my first appointment of the day at Senator Santorum's Office. I visited Senator Specter's office alone. At both Senators' offices, the meetings were with staff members. Meetings were short, about 20 minutes. The core message was presented, with references on how support for research funding was important to Pennsylvania and its economy, particularly combined partnerships and technological transfer involving local high tech industry, state academic institutions, and an educated work force.

In addition, the importance of USGS programs, particularly in hazards, hydrology and cooperative mapping were pointed out. Pennsylvania does not have volcanoes, but has occasional low magnitude earthquakes, frequent floods, and sinkholes. At Representative Toomey's office, I was part of a group of four scientists. The others were members of the Materials Research Society, including the chair of the Materials Science department at Lehigh University, which is in Toomey's district. We spoke mostly with a staff member, but Rep. Toomey generously left a

hearing for ten minutes to meet with us. All three Congressmen or their staffers said they would look over the materials, asked some questions, but no commitments for support of the issues were made. I later sent letters of thanks for the visits, iterating the importance of a federal commitment to basic science research.

Although the Congressional Visits Day program is several years old, just one annual visit by scientists is not enough to make a lasting impression, as pointed out by Rep. Curt Weldon, House Committee on Science, last year (noted in "Gaea", the Asso. for Women Geoscientists newsletter May- June 2000). Scientists in general need to have a higher profile with Congress, especially considering the multitudes of lobbyists from diverse organizations who are all trying to get a piece of the federal budget pie. This has been a growing awareness of major U. S.- based geoscience organizations in the last 15- 20 years with the formation of public policy or government affairs programs, liaisons and committees at AGI, AGU, AAPG (American Asso. of Petroleum Geologists), and GSA (Geological Society of America). Scientists as individuals are also encouraged to contact their elected representatives and foster a continuing relationship and dialogue through either visits to offices, letters, involvement in local or state politics. Although AGI sent requests for participation in Congressional Visits Day to executive boards of member societies, some of the geoscientists who responded to AGU's call for participants were individuals who do not hold any society office and came because of personal interest in the issues.

For more information on the Congressional Visits Day and science policy issues relevant to geoscientists, one can visit on the Internet, the AGI Government Affairs program webpage (www.aqiweb.org/gap/gaphome.html). and the AGU Science and Policy website (www.agu.org/sci_soc/policy/sci_pol.html). David Applegate and Margaret Baker of AGI and Peter Folger of AGU are to be greatly thanked for their efforts in organizing and shepherding geoscientists at the CVD, and their continuing efforts in disseminating science policy information and facilitating government-geoscience interaction. Background on the House of Representatives Science Committee can be

[foundatwww.house.gov/science/welcome.html](http://www.house.gov/science/welcome.html).

An excellent resource on Congressional matters and members of the House and Senate is the Library of Congress Legislative webpage (thomas.loc.gov).

[MaryAnn Malinconico is a TSOP Councilor and chair of the Outreach Committee. Before becoming a geologist, she was a Foreign Service Officer (Diplomatic Corps) of the U.S. Dept, of State, and has served on the GSA Committee on Geology and Public Policy.]

Address corrections / updates

Please make the following change in you membership directory:

Ralph Gray's **new** area code is: (724)

TSOP Archives

The official archival collection is available for you to use. The collection contains all of the society's newsletters, publications, programs, field guides, short course notes, Research Committee reports, minutes of council meetings, and member directories.

Photocopies of desired material will be provided at a cost immediately upon approval of our request form. Sorry, but no copies of publications which are currently for sale by TSOP can be provided. Please make all inquires to:

Ken W. Kuehn
TSOP Archivist
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1 Big Red Way
Bowling Green KY 42101
(270) 745-3083
(270) 745-6410 fax
Kenneth.kuehn@wku.edu

NEW RESEARCH COMMITTEE PROPOSAL:

CLIMATE CHANGE DURING QUATERNARY

As part of an initiative by our current TSOP President, a proposal to form a working group within the Research Sub-Committee to evaluate global climate change in the Quaternary is proposed. The goals and objectives are still to be precisely defined, but it is believed that the petrology of peats and early lignites can give valuable clues of Quaternary paleoclimate variations. This is especially topical in light of the global warming controversies that currently in the news lately.

For TSOP members who are interested please contact:

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PLEASE EXPRESS YOUR INTEREST BY **15 AUGUST 2001** to be included in mailing lists for this subcommittee.

An informal meeting of those who express an interest will be held at the Houston TSOP Annual Meeting in September 2001. It is hoped that some preliminary results of this subcommittee can be presented at the TSOP Annual Meeting in Banff in 2002.

MEETING ANNOUNCEMENT

GONDWANA 11

The 11th Gondwana Meeting is to be held at the University of Canterbury, Christchurch, New Zealand. The dates of the conference will be from *Sunday 25^h August to Friday 30th August 2002*.

With the advent of precise dating techniques over the past decade, this has enabled new and exciting Stratigraphic and event correlations to be drawn across the once large Gondwana supercontinent. High precision geochronology has revolutionized the way we explore the connections between the biological and geological record with precise temporal constraints. The time is right to collectively reconsider and document these correlations and connections and explore how the Gondwana Earth System has evolved through time. This will form the central theme of Gondwana 11.

A special forum will be held on **Gondwana coal and coal basins**. Are these deposits the enigma they appear to be? Papers are now being invited on all aspects of Gondwanan coal, and how these deposits can help in the understanding of the supercontinent's tectonic history, palaeoclimatology, Palaeobotany and sedimentary processes. The outcome of the forum will be to advance the understanding of these truly worldwide but dispersed coal deposits.

Parallel sessions with other themes will be kept to a minimum to allow a more multi and inter disciplinary approach to understanding Gondwana geology and to interpreting palaeoenvironments. Conference proceedings will be published as thematic sets in an international journal.

To be included in all future circulars send your expression of interest and YOUR contact details to:

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For more information on the coal papers and field trip write to:

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Can we predict a coal reserves life?

T.A. Moore^{1,2} and G.R. Gillard¹

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The world's coal reserves are a finite resource that has been exploited for a number of centuries. In the last century coal production has steadily increased and appears to be still rising. Therefore it is of importance to be able to predict when world coal production is likely to peak, and how long sustained coal production is likely to continue. To this end, CRL Energy Ltd. has made some preliminary investigations into the expected life of the world mineable coal reserves using the well-established Hubbert Curve prediction technique for finite resource evaluation.

The purpose of this short communication is to demonstrate how Hubbert Curves are derived and then give an example of how they might be used. Hubbert Curves were first developed by M. King Hubbert. He successfully predicted maximum oil extraction in the US 13 years in advance and was accurate to within two years. Since that time Hubbert Curves have been used by others to predict mineral, oil and coal depletion (Hubbert, 1979; Dale, 1984; Campbell and Laherrere, 1998).

Derivation of Hubbert Curves

The method that has been most widely used in the past to estimate future resource production is that of empirical extrapolation. If a near linear trend can be observed during the recent past, extrapolation of this trend is said to be a "projection" of the trend and is used to estimate the future. This method is hazardous when applied to the production of an exhaustible resource, for it fails to take into account the fact that a future number is already known: that is, utilisation of a finite resource will eventually result in zero production when finally depleted. A production curve for any exhaustible resource,

after having reached one or more principal maxima, must eventually decline in a negative-exponential manner back to zero. This fact provides a simple but powerful means of analysis. For example:

Let

$$P = dQ/dt \tag{1}$$

be the production rate, where dQ is the quantity produced in time dt . Then the cumulative production to any given time t , is given by

$$Q(t) = \int_0^t P dt = \int_0^t dQ \tag{2}$$

and for an unlimited time,

$$Q_{\infty} = \int_0^{\infty} P dt \tag{3}$$

where Q_{∞} is the ultimate magnitude of cumulative production in a given region. During this complete cycle, the curve of production rate P , plotted graphically as a function of t , must begin initially at zero, increase exponentially for a period, slow down, pass one or more maxima, and finally decline negative-exponentially back to zero as the initial recoverable resource approaches depletion. We have also the further constraint that

$$Q_{\infty} < Q_i \tag{4}$$

Where Q_i is the quantity of the resource initially present.

By the first principle of integral calculus the area beneath the curve of P versus t to any given time is a graphical measure of the cumulative

production to that time, and for the complete cycle the ultimate area beneath the curve, as t increases without limit, will be fixed by the magnitude of Q_v. If, therefore, from geological or other means, the magnitude of the quantity of the recoverable resource initially present in a given area can be estimated, this estimate sets a rigid bound to the area that can be subtended by the complete-cycle curve of production.

This is the inverse of the conventional problem of integral calculus. There, one is usually given the function y = f(x), and the area A beneath the curve from x = 0 to x = x, is usually determined by

$$A = \int_0^{x_1} y dx \tag{5}$$

The present problem is : Given A(x), find the curve y = f(x). Or, in terms of resource production, given the ultimate quantity to be recovered in a given region, find the production rate as a function of time.

This inverse problem obviously has no unique solution; in fact, for the complete cycle there is an infinity of different curves which subtend the same area. However, when the first part of the curve has already been developed, and the technological constraints are added that the curve, after passing one or more maxima must return to zero by a roughly negative-exponential decline, the range of possible shapes for the complete-cycle curve is severely restricted.

In any graphical plot of such a curve, the graphical interval for ΔP as the ordinate, and for Δt as the abscissa, must be chosen arbitrarily. On such a co-ordinate system, the area of one ΔPΔt - grid rectangle is a graphical measure of the cumulative production ΔQ at a rate ΔP for the time Δt, since

$$\Delta P = \Delta Q / \Delta t,$$

or

$$\Delta Q = \Delta P \Delta t$$

(6)

then, if for a given region an estimate for can be made,

$$Q_v / \Delta Q = n$$

(7)

will be the number of grid squares that can be subtended by the complete-cycle curve.

Example: Powder River Basin

Coal reserves and production data for the Powder River Basin have been obtained from the Wyoming State Geological Survey.

Reserves quoted are (all tonnages are metric tonnes):

1. 7,508.9 Mt of recoverable reserves on currently leased land as of 31 December, 1998.
2. 934,,000 Mt of in situ coal reserves.
3. 14,700 Mt of surface mineable recoverable reserves.
4. 11,500 Mt of surface minable reserves compliant with US environmental law.

Accumulated coal production from the Powder River Basin to 31 December 1998 is 2,813.1 Mt

Therefore, initial coal reserves for the four reserves scenarios quoted above are:

1. 10,322
2. 936,813
3. 17,513
4. 14,313

To ascertain the likely production life of the Powder River Basin, a Hubbert Curve analysis is presented in Figure 1, based on the 17.5 Bt initial surface mineable reserves.

Results indicate that peak production of about 370 million tonnes per annum will be reached around year 2016. By year 2040 approximately 80% of the surface mineable reserves will have been extracted.

Relation between price and production for coal

As with oil, (Campbell & Laherrere, 1998) coal pricing may be able to be predicted by Hubbert Curves. For example, during the anthracite depletion cycle in northeast Appalachia, about 40% of the total anthracite resource was depleted (Dale, 1984). At the same time, coal seams got thinner and the mines went deeper, resulting in a large drop in labour productivity. Between 1870 and 1900, technology and prices began increasing, at first gradually, and then more rapidly, until 1930. After 1930. Production and depletion began to fall, this trend continues.

Figure 2 shows production and price and it is interesting to note the rise in price immediately following the period of peak production. The observation of the price of a commodity rising soon after peak production has been reached is likely to occur with any exhaustible resource including subbituminous coal.

Closing remarks on factors which could influence Hubbert curve symmetry

There are many factors that may effect the shape of Hubbert Curves. No doubt, markets and world economy will influence production demands and thus rates of extraction. In addition, our habit of mining the best deposits first could effectively skew the Hubbert Curves to the left, resulting in peak production sooner than expected. For example, in Figure 2, an additional two years of data - 1999 and 2000 - have been plotted and show a marked increase in extraction rate. This may signify that maximum production could be sooner than predicted. However this is heavily reliant upon accurate estimates of the mineable Powder River Basin reserves. Reliably knowing the continuity as well as coal quality of a deposit plays an enormous rôle in determining the economic extent of a coal deposit. Finally, new technologies are always being developed and these certainly will help to access more of a reserve, thus extending its total production life.

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Figure 1: Powder River Basin -17.5 Bt Initial Reserve of Surface Mineable Coal

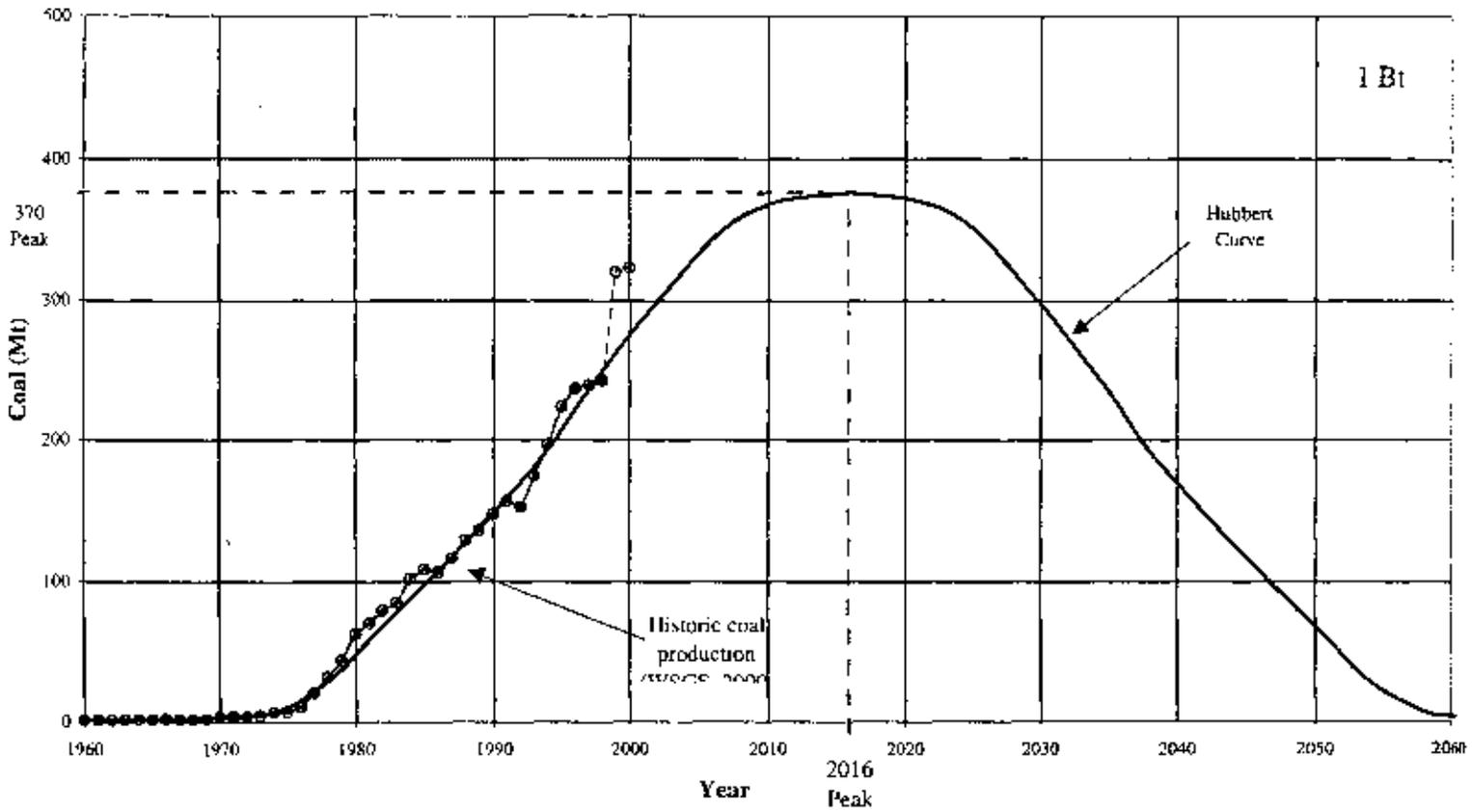
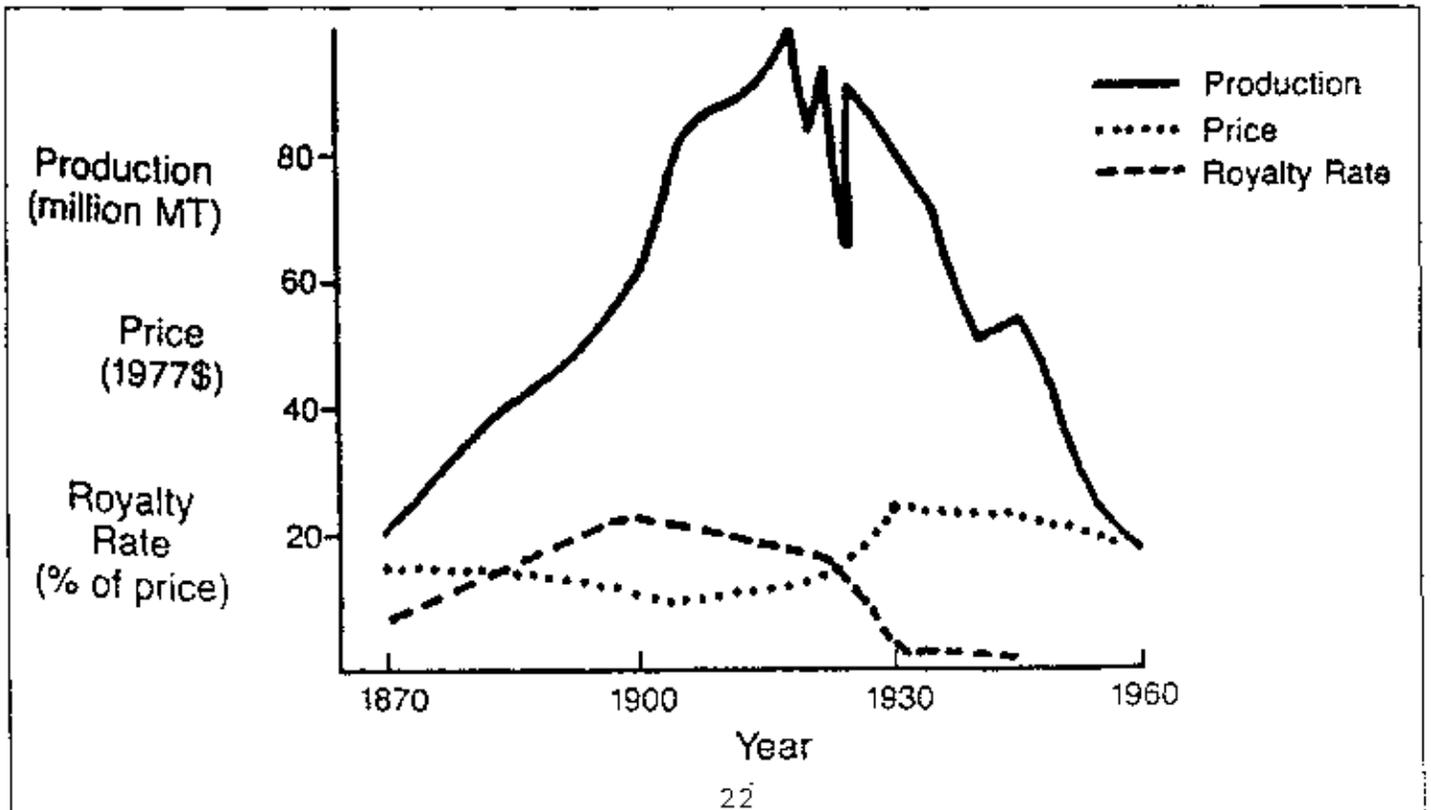
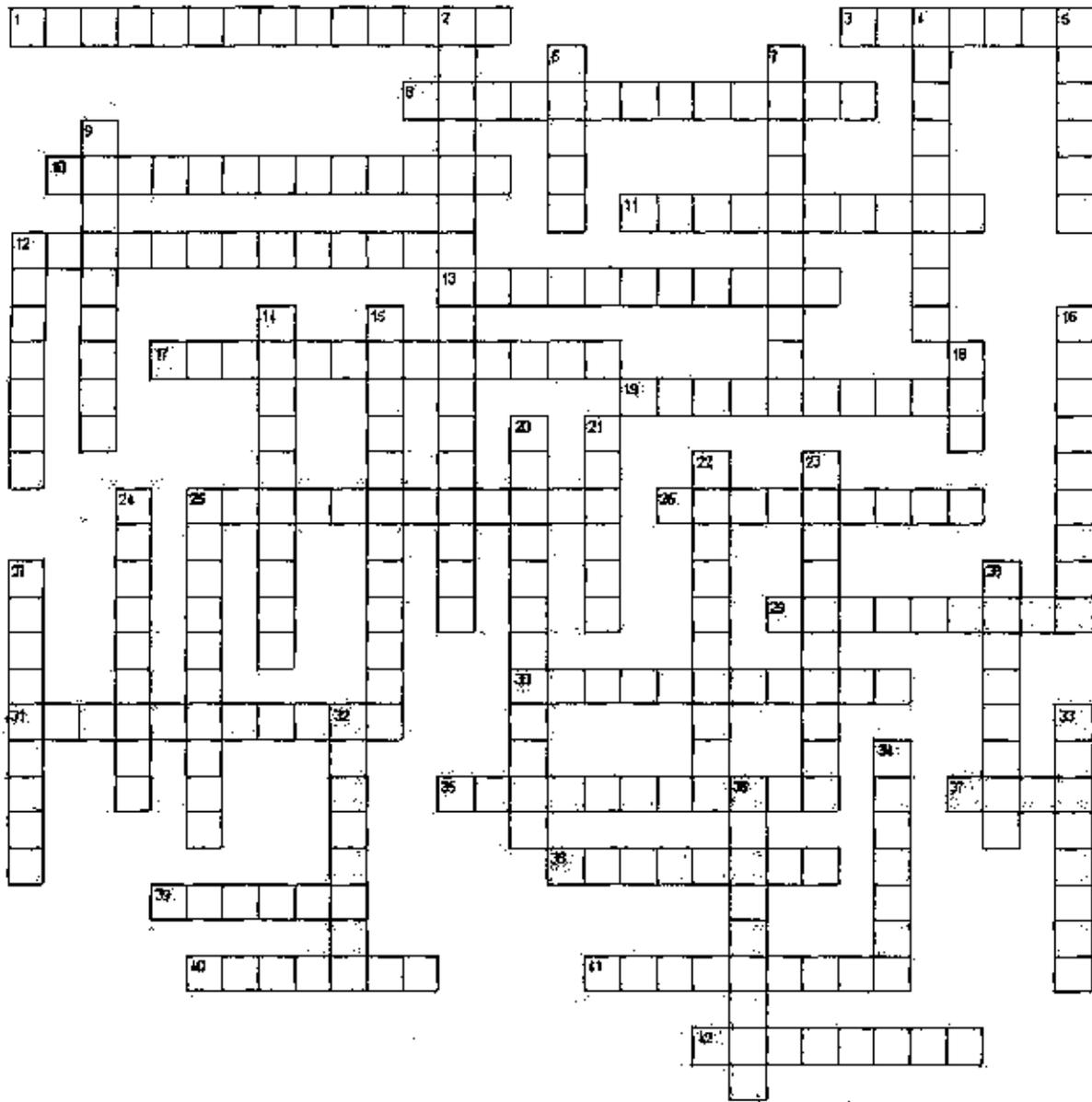


Figure 2: Anthracite coal production, prices and royalty, northeast Appalachia (Dale, 1984)



Organic petrology



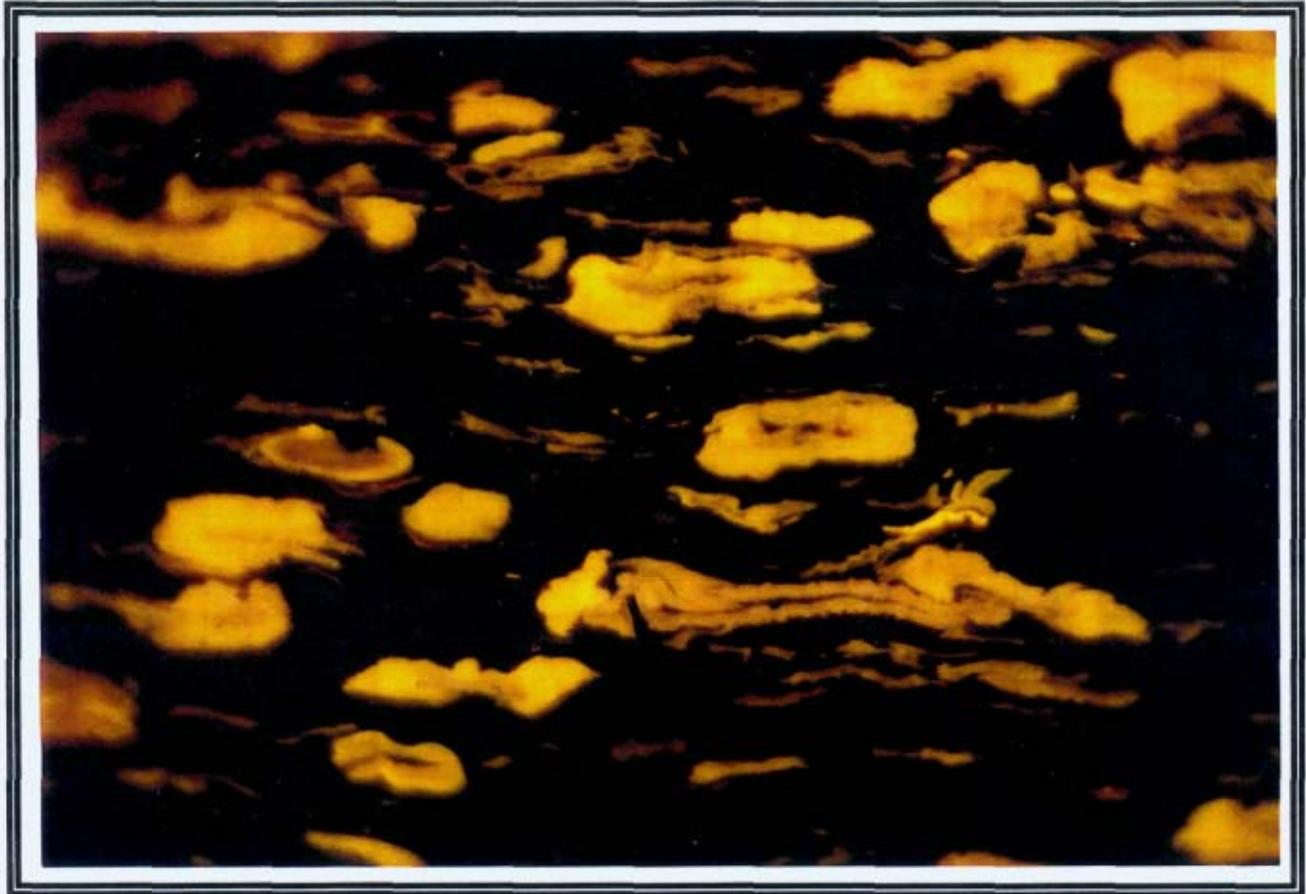
ACROSS

1. microscopic maceral assemblage
3. Pennsylvanian "tree"
8. Devonian black shale marker
10. sulfate reducer
11. Teichmuller maceral
12. deviation in reflectance
13. measure of rank
17. spore component
19. Georgia swamp
25. Gondwana flora
26. boghead from Scottish hill
29. grindability
30. Pediastrum-derived maceral
31. raised bog
35. origin of cats
37. rule of depth
38. concretion former
39. sapropel
40. microhardness
41. trace element fixation
42. fluidity

DOWN

2. coal ball formation
4. sedimentary cycle
5. hard, grey lithotype
6. German coal
7. metamorphic coal
9. fundamental coal science
12. site of Kazakh sapropel
14. vitrinite proxy
15. alginite
16. fungal derivative
18. drift wood
20. metamorphic successor of kaolinite
21. mother of coal
22. ooze from Oz
23. component of marine oil shales
24. underclay
25. igneous altered coal
27. solid bitumen
28. volcanic ash fall deposit
32. CHNS analysis
33. banded coal in Schopf system
34. ubiquitous organic component
36. roots in the Pennsylvanian

Editors' Choice Photomicrograph



Photomicrograph in blue light fluorescence of densosporinite macerals from the Jaklovee Seam, Czech Republic. Width of field is

approximately 200 micrometers. Photomicrograph by William Huggett [caption corrected per 18:3 p. 23.]

The editors welcome contributions of photomicrographs of organic geologic materials for future issues of this newsletter.



THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

Vol. 18 No. 3

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A spectacular field photo of Kerogen Type II Deepwater Monterey Formation Source Rock that is bleeding crude oil exposed at the Carpenteria Beach, California. The source rock has % Ro = 0.3 and 85-95% amorphous liptinite (amorphous or bituminite 2) content. Photograph courtesy P. K. Mukhopadhyay (Muki)



A field photo of hydrocarbon (gas and heavy oil) seepage at the La Brea Tar Pits near Los Angeles California. Photograph courtesy of P.K. Mukhopadhyay (Muki).

The Society For Organic Petrology

The Society for Organic Petrology: c/o American Geological Institute, 4220 King Street, Alexandria, VA 22302-1520

Co-editors:

John C. Crelling & William W. Huggett

The TSOP Newsletter welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail attachment or as printed text via fax or regular mail. The format may be in either MS word or WordPerfect. Please sent to:

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Society Membership

The TSOP Newsletter (ISSN-0743) 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 international and open to all individuals having an interest in the field of Organic Petrology. For more information on membership, Society activities or to inquire about membership packs please contact:

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 Reston VA 20192

Tel: (703) 648-6469

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15. **Technical Bulletin:** Impact of Sample Desiccation On The Mean and Maximum Vitrinite Reflectance For Various Ranks Of Coals.
21. **Crossword Puzzle:** People
22. July's crossword puzzle answers
23. Photomicrograph: Densosporinite
24. Photomicrograph: Alginite

The Society For Organic Petrology Council 2000-2001

President	P.K. Mukhopadhyay
Vice President	Neil Sherwood
President Elect	Tim Moore
Secretary/Treasurer	Peter Warwick
Editors	William Huggett Jack Crelling
Councilor (99-00)	Jeff Quick
Councilor (99-01)	MaryAnn Malinconico

President's Column

Beginning of a New Era

By

Prasanta K. Mukhopadhyay (Muki)

(E-mail: muki@ns.symnatico.ca or muki@global-geoenergy.com)

This will be my last column in the Newsletter as the President of TSOP. Prior to leaving office as President of TSOP, I would like to wish you all a Happy and Prosperous New Year of 2002. I would also like to thank various members of TSOP for their active support and contribution to the society during this period. It was a great year and we have resolved many issues during this time. Twenty-three new members have joined TSOP between October 2000 and August 2001. These members are Sulayman Oyebanji Adewale, Elvira Barcelona, Lisa Buckley, Richard Carroll, Gareth Chalmers, Chris Cornford, Tara M. Curtin, R. Vance Hall, Maria Hamor-Vido, Takashi Hasegawa, Guy Holdgate, Mehmet Kahraman, Thomas Kastner, Christopher M. Kravits, Pavla Ovcari, Slawomira Pusz, Julie Ross, Tanaporn Sakulpitakphon, Steven A. Tedesco, Don M. Triplehorn, Yoshihiro Ujiie, Li Zhongsheng, and Erwin L. Zodrow. I would like to congratulate them all for becoming TSOP Members. The membership request for two other persons is currently (August 15) under review with the TSOP Council. I would like to indicate that over the past decade, TSOP has increasingly becoming a global community.

The 18th TSOP Annual Meeting will be held in Houston, Texas during September 23-26, 2001. The meeting chairperson Cole Robison and the Organizing Committee of the Houston Meeting have put forward an exciting charter of programs including a half day special session on "Organic Geochemistry of the World's Deepwater Areas" (please see details in this issue and last Newsletter). I would like to thank Cole Robison (chairperson of the Houston Meeting Organizing Committee), Carolyn-Thompson Rizer, Wally Dow, Mike Darnell, and Jack Burgess, and others for putting an excellent service to TSOP in organizing this meeting. I would also like to thank all the sponsors who have donated generous grant for the annual meeting in Houston, Texas. The 19th Annual Meeting of TSOP will be held between

August 31 and September 2, 2002 in Banff, Alberta, Canada. This meeting will be hosted by the CSCOP (Canadian Society for Coal Science and Organic Petrology) and will be treated as a joint meeting of CSCOP and TSOP. For details about the 2002 TSOP meeting, please see www.cscop-tsop.com. The 20th Annual Meeting of TSOP will be held in Washington D.C. in 2003. At this stage, the council has planned to organize the 21st Annual Meeting of TSOP in Sydney, Australia in 2004.

This year, a one-day ICCP-TSOP joint session was organized in August 2001 in Copenhagen, Denmark. The session was entitled as "Organic Petrology applied to Petroleum and Coalbed Methane Research". This session was organized by GEUS (Geological Survey of Denmark and Greenland) and Charley Barker (Past-President of TSOP) (for details see December 2000 issue of the Newsletter). There will be a joint session of AAPG-TSOP entitled "Deepwater source rocks and the Petroleum Systems of the Atlantic Margin" along with the AAPG Annual Convention in Houston, Texas in March 2002. Wally Dow and I will be organizing that particular session next year.

The TSOP 2000-2001 Midyear Meeting was successfully held on April 20, 2001 on the premises of the U. S. Geological Survey in Reston, Virginia. Peter Warwick, Secretary-Treasurer of TSOP, organized the meeting. Five council members (Tim Moore, Peter Warwick, MaryAnn Malinconico, Jeff Quick, and myself) and one committee chairperson (Dave Glick) attended the meeting. The meeting also organized a teleconference with other council members (Neil Sherwood in Sydney, Australia and Bill Huggett in Carbondale, Illinois). The meeting had addressed a number of current and future issues (for details see June 2001 Newsletter). I would like to thank Peter Warwick for organizing an excellent meeting and Leslie (Jingle) Ruppert of USGS for

arranging the great dinner for us after the meeting.

This year, Research Committee and Outreach Committee have joined forces more vigorously to promote TSOP Student Grant. The panel of three judges chosen by the Research Committee Chairperson has selected Sharleen Ramos, a master's candidate from the University of British Columbia, Vancouver, Canada. Sharleen has been awarded the 2001 TSOP Student Grant of \$1000.00. Her thesis topic of research is titled "Gas Shale Resources- Role of Organic Matter". Thirteen applicants were considered for this year's research grant. I thank Suzanne, MaryAnn, and the panel of judges for their excellent work. I congratulate Sharleen for this achievement.

The Research Committee under the leadership of Suzanne Russell has dealt with promoting three research topics as discussed in an earlier TSOP Newsletter (December 2000 issue). The status of each of these projects is as follows:

- (a) "Organic Matter in Meteorites and Other Planets.... ": I am still pursuing to get three samples of carbonaceous chondrites (possibly of different type and maturity) from the Smithsonian Institute
- (b) "Evaluation of Global Climate Change in the Quaternary...": Tim Moore has received good responses for his initiative in the June issue of TSOP Newsletter. He is going to start the project soon.
- (c) "The relationship and genesis of reflectance...": Currently, Neil Sherwood is pursuing this project.

Along with these three research topics, our planned publication of the book on the "Source Rocks for Petroleum - Examples from the North and South America" is under consideration. AAPG has to approve this publication as we have planned to publish jointly. The special volume of TSOP-Salt Lake City, 1999 has been published this year in the International Journal of Coal Geology as volume 46, numbers. 2-4.1 thank Jeff Quick, Jim Hower, Carolyn Thompson-Rizer and others for their effort in finalizing this volume.

This year, as an affiliated/member society of the American Association of Petroleum Geologists (AAPG) and American Geological Institute (AGI),

TSOP has put tremendous effort in promoting our society in various functions and publications of AAPG and AGI. The following are some of the highlights:

- A color advertisement showing various activities and research goals of TSOP have been inserted in the November 2000 issue of AGI journal *GEOTIMES* (special issue: *Technology in the Earth Sciences*). The same advertisement in black and white has been inserted in the AAPG Explorer in January 2001 issue (special *Millenium Issue*).
- In February 2001, Brian Cardott, AAPG Liaison to TSOP has attended the AAPG Leadership Conference at the AAPG Headquarters in Tulsa, Oklahoma. He has presented a comprehensive view of various activities of TSOP to all presidents or selected leaders of various scientific organizations.
- In May 2001, MaryAnn Malinconico, Councilor, TSOP has participated in the 6th Annual Science-Engineering-Technology Congressional Visits Day in Washington D. C. organized by AGI and AGU. For details, please review MaryAnn's write up of her experiences in the June 2001 issue of the Newsletter.
- In early 2001, TSOP has sponsored the publication of the AGI booklet on the *Evolution and the Fossil Record* and granted \$1000.00 for the partial cost of the project.
- In June 2001, I have attended the AGI Meeting with the Member Society Representative in Denver, Colorado. Brian Cardott and I have attended the special dinner at the Anschutz Gallery in Denver, Colorado on an invitation from the current President of AAPG. I have discussed various issues about TSOP with the current AGI President and various AAPG Executives at the dinner reception.

David Applegate, AGI Representative to the US Congress has sent a short synopsis to all AGI Member Societies of the US National Energy Policy adopted by Administration of President Bush (Posted 5-19-01). He has presented these policies at the AAPG Meeting as a Special Luncheon Speaker. Some of the key recommendations of that policy that are related to the earth science issues in general are included in

the following paragraphs:

- (1) An executive order for federal agencies to take into account energy supply, distribution and use in any regulatory action.
- (2) The Federal Emergency Management Agency will prepare for potential energy emergencies in conjunction with existing Regional Interagency Steering Committees.
- (3) The Environmental Protection Agency is to work with Congress to use market-based incentives for developing multi-pollutant legislation that would phase in reductions of sulfur dioxide, nitrogen oxides, and mercury over a reasonable period of time.
- (4) The White House Office of Science and Technology Policy and the President's Council of Advisor's on Science and Technology are to review and report on more efficient use of the nation's energy resources.
- (5) The Departments of Energy and the Interior will promote the use of new technologies to recover more oil and gas from existing wells and attempt to build partnerships aimed at improving oil and gas exploration technologies.
- (6) The administration will work with Congress to authorize exploration and development of the 1002 Area of the Arctic National Wildlife Refuge (ANWR); an estimated \$1.2 billion of federal revenue from new ANWR leases will be used to fund research in renewable and alternative fuels.

The Nominating Committee and the Ballot Committee have finalized and added three new members for 2001-2002 TSOP Council. I congratulate Maria Mastalerz, Lavern Stasiuk, and Raymond Pheifer for their success in becoming elected as President-Elect, Vice-President, and Councilor, respectively.

Finally, I would like to thank all the members of the 2000-2001 TSOP Council (Tim Moore, Neil Sherwood, Peter Warwick, MaryAnn Malinconico, Bill Huggett, Jeff Quick, and Jack Crelling) for their great support and help in deciding various issues. I would also like to thank all TSOP Committee Chairpersons and the Committee Members for their excellent work on various issues. I would like to provide special thanks to the following persons: Peter Warwick for his great help in every aspect of my work; MaryAnn Malinconico for raising more funds and promotion for TSOP; Carolyn Thompson-Rizer for solving lots

of problems for the upcoming Houston Meeting; and Jim Hower for finalizing the special volume (Salt lake City).

**TSOP Election Results For
the 2001 -2002 Council.**

President-Elect:
Maria Mastalerz

Vice- President:
Lavern Stasiuk

Councillor:
Raymond N. Pheifer

Co - Editors:
William W. Huggett
John C. Crelling

TSOP Student Grant Award

The TSOP Awards Committee is pleased to announce the winner for the 2001 Student Grant. There were thirteen applicants considered for the award. We are pleased to announce that Sharleen Ramos, a masters candidate from the University of British Columbia, Vancouver, has been chosen for the \$1,000.00 Student Grant. She is a Canadian citizen and her thesis topic is: "Gas Shale Resources-Role of Organic Matter". Her research supervisor is Marc Bustin.

Hilton Houston Westchase & Towers

TSOP 2001!

*The 18th Annual Meeting of the Society For
Organic Petrology*

Houston, Texas
23-26 September 2001

Conference Highlights

Sunday, 23 September

Short Course: *Biomarkers in Oil-Source Rock and Oil-Oil Correlations*
**Instructor-Dr. Marcio Rocha Mello, Petroleum and Environmental Geo-
Services Ltda., Rio de Janeiro, Brazil**

Dr. Mello's short course will present an overview of the use of petroleum biomarkers to correlate oils with one another and to possible source rocks. Dr. Mello will discuss the increasing importance of biomarkers in organic geochemistry and the current methodologies used in their study. He will present examples of their use, discuss their advantages and limitations, and give some insight into the current directions in biomarker research.

Limit: 20 persons

Monday morning, 24 September

Special Session: *The Organic Geochemistry of the World's Deep-Water Areas*

**Sponsored by TSOP and HOGS (Houston Organic Geochemical Society)
Chairs: Dr. A. N. Bishop and Dr. C. R. Robison**

As the search for oil broadens, the deep-water regions of the world have become a major focus of this ever-expanding petroleum exploration. This session will probe various aspects of the organic geochemistry and petrology of deep-water areas from different parts of the world. Subjects will range from oil seeps of the NE Atlantic Margin and North Sea through oil shows and source rocks discovered during scientific ocean drilling, deep-water source rocks and generation/expulsion timing in the eastern Scotian basin, regional geochemistry and maturity modeling for the northern deep-water Gulf of Mexico to a discussion of the relationship between reservoir fluid properties and oil geochemistry. The session will start with a keynote address by Dr. Marcio Rocha Mello on deep-water oil exploration along the Atlantic margin of Brazil.

Monday afternoon, 24 September

General Technical Session and Poster Session

Tuesday, 25 September

General Technical Session and Poster Session

Wednesday, 26 September

Field Trip (Limit 25 persons)

A one-day field trip to the Ocean Star Offshore Energy Center in Galveston, Texas, will be the main feature of the field trip. The Ocean Star is an old jack up rig with added buildings for displays (quite elaborate scaled models, oilfield equipment and tools). The tour of the Ocean Star will be guided. The guides are usually retired oil field engineers who are quite knowledgeable. The tour should last about 1.5-2 hours. Following the Ocean Star tour, we will visit the Galveston Seaport Museum; have lunch at a seafood restaurant; and then leave for the Johnson Space Center (NASA) at Clear Lake. We will return to Houston in the late afternoon.

**The Society for Organic Petrology
18th Annual Meeting, September 23-26, 2001
Hilton Houston Westchase & Towers Hotel
9999 Westheimer Rd.
Houston, Texas**

General Program

Sunday

8:00 - 9:00 am

9:00 am - 4:00 pm

Noon - 6:00 pm

3:00 - 5:00 pm

6:00 - 9:00 pm

8:00 - Midnight

23 September 2001

Registration

Short Course: *Biomarkers in Oil-Source Rock and Oil-Oil Correlation*. Instructor: Dr. Marcio Rocha Mello

General Registration

Poster set-up

Reception

Outgoing Council Meeting

Monday

7:00-7:45 am

7:45 am

8:00 am

24 September 2001

Registration

Welcome and Opening Remarks

Special Session: The Organic Geochemistry of the World's Deepwater Areas

M. R. Mello Keynote Address "Offshore Brazil"

S. Imbus "Faeroe Islands: geochemical correlation of hydrocarbon seeps to those of the NE Atlantic Margin and the North Sea"

B. Katz "Hydrocarbon shows and source rocks in scientific ocean drilling"

E. Colling, et al. "Regional geochemistry and maturity modeling for the Northern Deepwater Gulf of Mexico"

10:00-10:30 am

Break and Poster Session

P. K. Mukhopadhyay "Deepwater source rocks and timing of hydrocarbon expulsion, Eastern Scotian Basin, East Coast Canada"

K. Ferworn and J. Zumberge "Relationship between reservoir fluid properties and oil geochemistry"

11:30 am

Group Photo

11:45am-1:20 pm

Luncheon with Group and TSOP Business Meeting

1:30 pm

General Technical Session: Coal

	R. E. Carroll "Carbon sequestration potential of coal-bed methane reservoirs in the Black Warrior Basin: relationship of sorption capacity to coal quality"
	B. Cardott "Lessons learned from coal-bed methane exploration"
	T. Moore, et al. "The role of macroscopic texture in determining coal-bed methane variability in the Anderson-Wyodak coal seam, Powder River Basin, Wyoming"
3:00 - 3:30 pm	Break and Poster Session
	A. Cohen "Differential coalification exhibited by petrographic changes during artificial coalification of <i>Taxodium</i> -dominated peats from Georgia and Louisiana"
	S. L. Bend "Coal models: descriptive or predictive? An examination and appraisal of coal petrographic models"
	R. Walker and M. Mastalerz "Individual maceral chemistry of selected Indiana coals: implications for coking properties"
	S. Pusz "Optical texture of bituminous coals - transformations during pyrolysis and hydrolysis"
	S. L. Buliga "Morphological analysis and genesis of coal beds in the Motru-Rovinari Basin, Romania"
7:00 pm	Banquet with Group. Guest Speaker: Dr. G. Gulen, University of Houston "Why don't they get it? Politics versus reality in energy policy"
8:30 - Midnight	Incoming Council Meeting

Tuesday

25 September 2001

8:00 am	<i>General Technical Session: Petroleum Source Rocks</i>
	R. C. Hankel and C. L. Riediger "Source rock and oil geochemistry of the Lower Montney formation, central Alberta, Canada"
	I. Matyasik, A. Steczko, M. Mastalerz, and S. C. Brassel "Petrographic and geochemical characterization of source rock variability in the Carpathian region of Poland: implications for oil generation"
	M. L. Malinconico "Organic petrographic studies of the Early Mesozoic Newark Rift Basin (1) thermal history using borehole and surface vitrinite reflectance and (2) organic sedimentation patterns in orbitally forced under filled lake cycles"
	C. Seibel and S. Bend "Organofacies and source potential of the Middle Ordovician Winnipeg formation within southern

	Saskatchewan"
10:00 - 10:30 am	Break and Poster Session R. Locklair and B. Sageman "Origin, character, and Stratigraphic hierarchy of organic-rich siltstones in deepwater facies, Upper Permian (Guadalupian) Brushy Canyon formation, west Texas" Z. Han, Q. Yang, and Z. Pang "Organic facies study of a Permian lake-swamp depositional sequence in Puxiang county, Shanxi Province, China"
11:30 am	Lunch (on your own)
1:00 pm	<i>General Technical Session</i> S. M. Rimmer, J. A. Thompson, T. Robl, S. Goodnight, and S. Hawkins "Controls on organic matter in Devonian-Mississippian marine black shales, east-central Kentucky: preservation vs. productivity" R. Stanton, P. Warwick, et al. "CO ₂ sequestration in low rank coals" T. Sakulpitakphon and J. Hower "Predicted CO ₂ content of maceral concentrates from Kentucky and Illinois coals" H. Rahimpour-Bonab and Z. Zamani "Evaluation of source rock maturation using organic petrography as a tool: a case study from southern Caspian hydrocarbon source rocks"
3:00 pm	Break Z. Shiqi and J. Youliang "Studies on petrology and geochemical characteristics of lacustrine condensed sections in Dongying Sag, Bohaiwan Basin, east China" H. J. McCunn and D. S. Moulton "A new mechanism for the formation and preservation of dolomitic and calcitic hydrocarbon reservoirs" Awards J. Burgess "2001 ICCP Meeting Highlights" W. Dow to lead Discussion Session "Can organic petrology survive in a virtual world?"

List of Posters

- B. Katz and C. Robison "Aspects of hydrocarbon charge of the petroleum system of the Yamal Peninsula, West Siberia Basin"
S. Alsharhan "Oxfordian-Kimmeridgian Diyab formation as a major source rock unit in southern Arabian Gulf"
M. Krzesinka and S. Pusz "New approach to evaluation of coke quality"
S. L. Buliga "The distribution of xylite in the coal beds of Motru-Rovinari Basin, Romania"

T. M. Williams and A. D. Cohen "Trace element distribution in an organic-rich wetland at the Savannah River Site, South Carolina"

S. Hawkins and S. M. Rimmer "Pyrite framboid size and size distribution: indicators of anoxia during deposition of Devonian-Mississippian black shales"

A. Sotirov and J. Kortenski "Petrography of the coal from the Oranovo-Simitli Basin, Bulgaria"

J. Kortenski and A. Sotirov "Petrography of the Neogene lignites from the Sofia Basin, Bulgaria"

Z. Damyanov, M. Vassileva, J. Kortenski, and A. Sotirov "Petrology of the organic matter in the Kremikovtsi siderite iron formation, West Balkan Mountain, Bulgaria"

V. C. Conde, et al. "Palynofacies and sequence stratigraphy of an Upper Aptian section from Almada Basin, Brazil"

W. G. Dow, J. R. Allen, and C. J. Kuhnel "Determination of API gravity from very small samples of oils, tar mats, and solid bitumens with the Rock-Eval 6 instrument"

A. Callejon and K. K. Bissada "Role of coals and carbonaceous shales in the generation of oil in the Eastern Venezuela Basin"

G. J. Nowak "Facies model of the Upper Carboniferous coal seams in the Lower Silesian Coal Basin (SW Poland) from the view point of microscopic studies"

Wednesday

26 September 2001

8:00 am

Field Trip to Galveston to visit the "Ocean Star Offshore Energy Center" an actual retired Gulf of Mexico "jack-up rig" (oil platform) with guided tour and historical displays. It is tied to the dock and easily accessible for learning. Lunch will be in nearby restaurants. An optional afternoon trip to nearby NASA's Johnson Space Center will be offered.

18th Annual TSOP Meeting,
Houston, Texas

REGISTRATION FORM

Please complete Registration Form and Return with Remittance (in U.S. Funds) to:

Dr. C. R. Robison
7702 Soledad Dr.
Houston, TX 77083-4900

NAME: _____

ADDRESS: _____

City: _____ State: _____ Postal Code: _____ COUNTRY: _____

AFFILIATION (if not given in address): _____

TELEPHONE: (work) _____ (home) _____

FAX NUMBER: _____ E-Mail Address: _____

Please state if you will need services to accommodate a disability: _____

Short Course: "Biomarkers in Oil-Source Rock and Oil-Oil Correlations",

Pre-registration by September 1)	@ \$ 60.00	\$ _____
Late Registration (until Sept. 12)	@ \$ 70.00	\$ _____

Meeting (September 23-26):

Pre-registration (by September 1)				
TSOP Member	Professional	@ \$150.00	\$ _____	
	Student	@ \$ 50.00	\$ _____	
Non-Member			@ \$175.00	\$ _____
Late Registration (after Sept. 1)				
TSOP Member	Professional	@ \$175.00	\$ _____	
	Student	@ \$ 75.00	\$ _____	
Non-Member			@ \$200.00	\$ _____

Field Trip (September 26) Offshore Drilling Platform Museum, Galveston, Texas

(Limit 20 persons)	@ \$ 65.00	\$ _____
Late Registration (after Sept. 1)	@ \$ 75.00	\$ _____

Proceedings Volume (to be published in the International Journal

Of Coal	Geology	@ \$	30.00/COPY	\$ _____
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TOTAL: \$ _____

(PAYMENT IN U.S. FUNDS ONLY; MAKE CHECKS PAYABLE TO TSOP - 2001, Houston)

Housing Information:

Accommodations are in the Hilton Houston Westchase & Towers at 9999 Westheimer Rd., Houston, TX 77042. The hotel will hold a block of rooms for reservations as follows: Saturday, 09/22/01, 10 rms; Sunday, 09/23/01, 20 rms; Monday, 09/24/01, 20 rms; Tuesday, 09/25/01, 10 rms. Check in Time 3:00PM; Check Out Time 12:00PM. The Hotel will hold the rooms until September 1, 2001. After this date, rooms not covered by rooming list or individual reservations shall be released from TSOP's block and the hotel may contract with other parties for the use of the rooms. The hotel will continue to accept reservations from TSOP meeting attendees after September 1, 2001, at the prevailing room rate and subject to availability. The contracted room rate is \$129 Single and Double (until Sept. 1). **Reservations:** Individual Reservations- **Each individual guest must make their own reservations online at <http://www.hilton.com> or by calling 1 -800-HILTONS (1 -800-445-8667) (or locally 713-974-1000). Individual must identify him(her)-self as a member TSOP or an attendee of the TSOP meeting to receive the group's special rate. The Group Number is "TSO."** All reservations must be guaranteed and accompanied by a first night room deposit or guaranteed with a major credit card.

Travel Information:

The Hilton Houston Westchase & Towers is located on the SE corner of the intersection of Westheimer and Briarpark in west Houston (hotel address-9999 Westheimer). Two major airports serve Houston: Houston Hobby and Bush Intercontinental. Taxi services are available at both airports. However, a good way to arrive at the hotel is to take the **Express Shuttle Bus** from either airport. Tickets for the shuttle can be purchased (roundtrip available) at the Express Shuttle service counters in the Baggage Claim/Ground Transportation levels of either airport. The cost is approximately \$15.00 one-way and \$24.00 roundtrip. If two or more attendees share a taxi, however, it may be cheaper than the shuttle.

International Visitors:

If you need a personal letter of invitation to obtain travel funds or a USA visa, please indicate on the bottom of your registration form that you wish to have such a letter. You can also e-mail the meeting Chairperson at **robiscr@texaco.com** and request such a letter in advance of mailing in your registration.

All non-immigrant visa holders are advised to have health and accident insurance that covers the time they will be in the USA. J-1 and J-2 visa holders are required by law to have this insurance, which must be set at least to a minimum of \$50,000 per accident or illness and include medical evacuation and repatriation of remains. Your travel agent can assist you with obtaining this insurance coverage.

It is recommended that you obtain sufficient US currency for your trip before departure. However, there are currency exchange facilities at Bush Intercontinental Airport and at several banks in the Houston.



TECHNICAL BULLETIN

IMPACT OF SAMPLE DESICCATION ON THE MEAN MAXIMUM VITRINITE REFLECTANCE FOR VARIOUS RANKS OF COAL

Prepared by: Nancy DeVanney
Supervisor- Microscopy Lab
COALTECH PETROGRAPHIC ASSOCIATES, INC

August 8, 2001

ABSTRACT

A special project was initiated over a period of 3-months (March through May, 2001) to determine the impact of no desiccation versus desiccation of polished coal surfaces on mean maximum reflectance. According to the most current ASTM Test Method, all coals require at least 15 hours of desiccation prior to measuring reflectance unless it has been determined that the moisture content after the wet polishing procedure does not significantly affect the reflectance of the coal. Wet polishing techniques are used to prepare coal samples for reflected light microscopic examination.

In this study, twenty-three different coals were used. These were mostly USA coking coals, but also included some Western Canadian and South American coals. The ASTM ranking for these coals were subbituminous/high-volatile C bituminous, high-volatile B, high-volatile A, medium-volatile, & low-volatile bituminous coals with mean maximum reflectance values ranging from about 0.5 to 1.7%. One hundred measurements were measured and recorded on each sample before and after desiccation.

Based on the data generated in this study, using a wide range of coal ranks and types from a large regional geographic area, desiccation does not significantly affect mean maximum reflectance. The importance of this finding enables commercial petrographic

laboratories to provide more timely coal petrographic services without jeopardizing quality of the results. This is particularly important when rapid analytical turnaround time is required by contract (coal supplier or consumer) for coal shipments.

INTRODUCTION & BACKGROUND

Currently ATSM Test Method (D 2797) requires at least 15 hours of desiccation prior to measuring mean maximum reflectance. This practice was initiated due to some lower rank coals and certain high-volatile coals apparently picking up moisture and decreasing the mean maximum reflectance. J. A. Harrison from the Illinois State Geological Survey published an article dealing with moisture content on the reflectance values of coals. The study indicated that the lower rank coals decreased in reflectance value when water was added to the samples. From Harrison's test data, it was suggested that the coal samples be air dried at room atmosphere for at least 15 hours and then the sample pellet be placed into a desiccator for another 15 hours after it had been wet polished. In some instances, the samples were desiccated for 30 hours. This was suggested to establish uniformity in practices among laboratories. This method can create a long delay for analysis in which turnaround time is of importance to either coal suppliers or consumers, especially when dealing with coal shipments. A note in ASTM Test Method (D 2797) states that unless it has been established

that the reflectance of the coal is not significantly affected by moisture content, place the briquette in a desiccator for at least 15 hours before measurement of reflectance.

Most commercial laboratories in today's market are dealing with production more so than research. To determine if the coals, especially coking coals, differ in their mean maximum reflectance values before and after desiccation, twenty-three different coals were analyzed. It was important in this study to utilize different ranks of coal to be able to obtain a better understanding of the effects of wet polishing on the mean maximum reflectance. The lowest in rank was a South American subbituminous/high-volatile C bituminous coal with volatile matter values between 38.0-42.0 percent and mean maximum reflectance values between 0.53-0.55%. The highest in rank was American low-volatile bituminous coal with volatile matter values between 17.0-18.0 percent and a mean maximum reflectance value between 1.67-1.70%. The main goal in this study was to determine if desiccation is necessary after wet polishing for coal reflectance analysis, particularly for coking coals.

The general rank and geographic origins for the coals used in this test program are listed below:

1. South American - subbituminous/high-volatile C bituminous
2. American - Illinois high-volatile B bituminous
3. Foreign - high-volatile B/C bituminous
4. American - high-volatile B bituminous
5. Foreign - high-volatile A bituminous
6. Western Canada - medium-volatile bituminous
7. American - medium-volatile bituminous
8. American - low-volatile bituminous

TEST METHOD & EXPERIMENTAL DESIGN USED

Each of the twenty-three coking coals used in this study were all given sample lab numbers prior to the preparation of the samples. The study began with the preparation of the samples according to ASTM Test Method (D 2013), (*Preparing Coal Samples for*

Analysis) and having them air dried temperature and reduced in top size to 20-mesh samples. Then using ASTM Test Method (D 2797), (*Preparing Coal Samples for Microscopical Analysis by Reflected Light*), the coal samples were prepared into briquettes (commonly known as pellets) and polished using water in the procedure. Water is recommended as the pellets are being polished to help carry away cuttings and cool the sample due to friction when polishing. After the pellets have been polished, they are normally placed into a desiccator for approximately 15 hours prior to reflectance measurements.

For this study the pellets were not desiccated after the wet polish procedure, but were directly mounted on slides for immediate analysis on the microscope. Each pellet was engraved with an assigned sample number for identification of the sample. The samples then were placed onto a reflected light microscope for analysis. Utilizing ASTM Test Method (D 2798), (*Microscopical Determination of the Reflectance of Vitrinite in a Polished Specimen of Coal*), 100-reflectance measurements were taken on each of the samples. The sample number was then recorded onto a project data sheet containing the sample number, coal name, date, non-desiccated mean maximum reflectance results, and the operator performing the microscopy. All pellets were then cleaned off with a photo flow and water solution, rinsed with water, and the excess water removed with compressed air. This procedure removes any oil residue left on the pellets and puts water back on the pellet similar to wet polishing. The pellets were then placed into the desiccator overnight. The same operator then re-measured the same pellets after at least 15 hours of the samples being in the desiccator utilizing the same equipment and analysis procedure. The mean maximum reflectance values for the desiccated pellets were recorded in the same manner as described above. This procedure was carried out for all twenty-three-coal samples that were used in the test program.

Table I shows the general rank, origin, volatile matter (*dry*), mean maximum reflectance before and after desiccation, and the difference between non-desiccated and desiccated. Figure 1 shows the reflectance trend line of measured values before desiccation and after desiccation. Figure 2

shows the scatter diagram to illustrate that no significant bias exists between non-desiccated and desiccated sample pairs. The test data results showed no significant difference in the mean maximum reflectance values. All paired results fell within the ASTM repeatability for each sample. As stated in ASTM (D 2798), the repeatability for reflectance analysis is as follows: "Duplicate results, by the same laboratory using the same operator and equipment, should not be considered suspect unless the results differ by more than 0.02% actual reflectance".

CONCLUSION

The data generated from this study indicates that there is no significant difference or bias in the coal mean maximum reflectance test results when comparing results from non-desiccated or desiccated pellets. Comparison of paired data (desiccated, non-desiccated) of all samples used for this study found the pairs are well within the acceptable level of test precision (e.g. ASTM repeatability = 0.02%). This also appears to be true for a wide range of coals.

The data strongly indicates that there is no need for desiccation for higher rank bituminous coals, particularly coking coals. The ability to eliminate desiccation can enable coal suppliers and consumers to obtain their test results in a more timely fashion, especially for coal shipments. Based on this study, this practice of requiring desiccation of coal samples will be reviewed with ASTM Subcommittee 28 for possible revision of ASTM Test Method (D 2797).

SELECTED REFERENCES

Harrison, J.A., *Fuel, A Journal of Fuel Science*, May 1965, vol. XLIV, Butterworth's Scientific Publications, London.

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American Society for Testing and Materials (ASTM), *Microscopical Determination of the Reflectance of Vitrinite in a Polished Specimen of Coal*, Designation: D 2798-99, Annual Book of ASTM Standards 2000, Vol. 05.06, pp. 208-212.

Zimmerman, Raymond, *Evaluating and Testing the Coking Properties Of Coal*, Paul Weir Company, 1979.

Table I

Rank of Coal	Origin of Coal	Volatile Matter (% dry)	Ro Value Before Desiccation	Ro Value After Desiccation	Difference
Sub-Bituminous/HV-C Bituminous	South American	41.87	0.53	0.53	0.00
Sub-Bituminous/HV-C Bituminous	South American	39.31	0.55	0.54	0.01
HV Bituminous B	Illinois-American	36.96	0.62	0.62	0.00
HV Bituminous B/C	Foreign-European	28.16	0.75	0.76	-0.01
HV Bituminous A	American	39.03	0.76	0.76	0.00
HV Bituminous A	Foreign-European	27.34	0.87	0.87	0.00
HV Bituminous A	American	38.95	0.89	0.89	0.00
HV Bituminous A	American	35.80	0.94	0.95	-0.01
HV Bituminous A	American	36.06	0.95	0.96	-0.01
HV Bituminous A	American	31.61	1.07	1.08	-0.01
HV Bituminous A	American	31.86	1.07	1.09	-0.02
HV Bituminous A	American	29.75	1.14	1.13	0.01
MV Bituminous	Western Canadian	24.77	1.17	1.16	0.01
MV Bituminous	Western Canadian	22.78	1.22	1.22	0.00
MV Bituminous	Canadian	22.00	1.24	1.24	0.00
MV Bituminous	American	23.78	1.32	1.33	-0.01
MV Bituminous	American	20.86	1.46	1.45	0.01
MV Bituminous	American	21.86	1.46	1.46	0.00
LV Bituminous	American	18.55	1.56	1.56	0.00
LV Bituminous	American	18.56	1.59	1.58	0.01
LV Bituminous	American	18.47	1.60	1.60	0.00
LV Bituminous	American	17.56	1.67	1.67	0.00
LV Bituminous	American	17.56	1.70	1.69	0.01
Mean Average					-0.01

Reflectance Trend Showing Before & After Desiccation Values

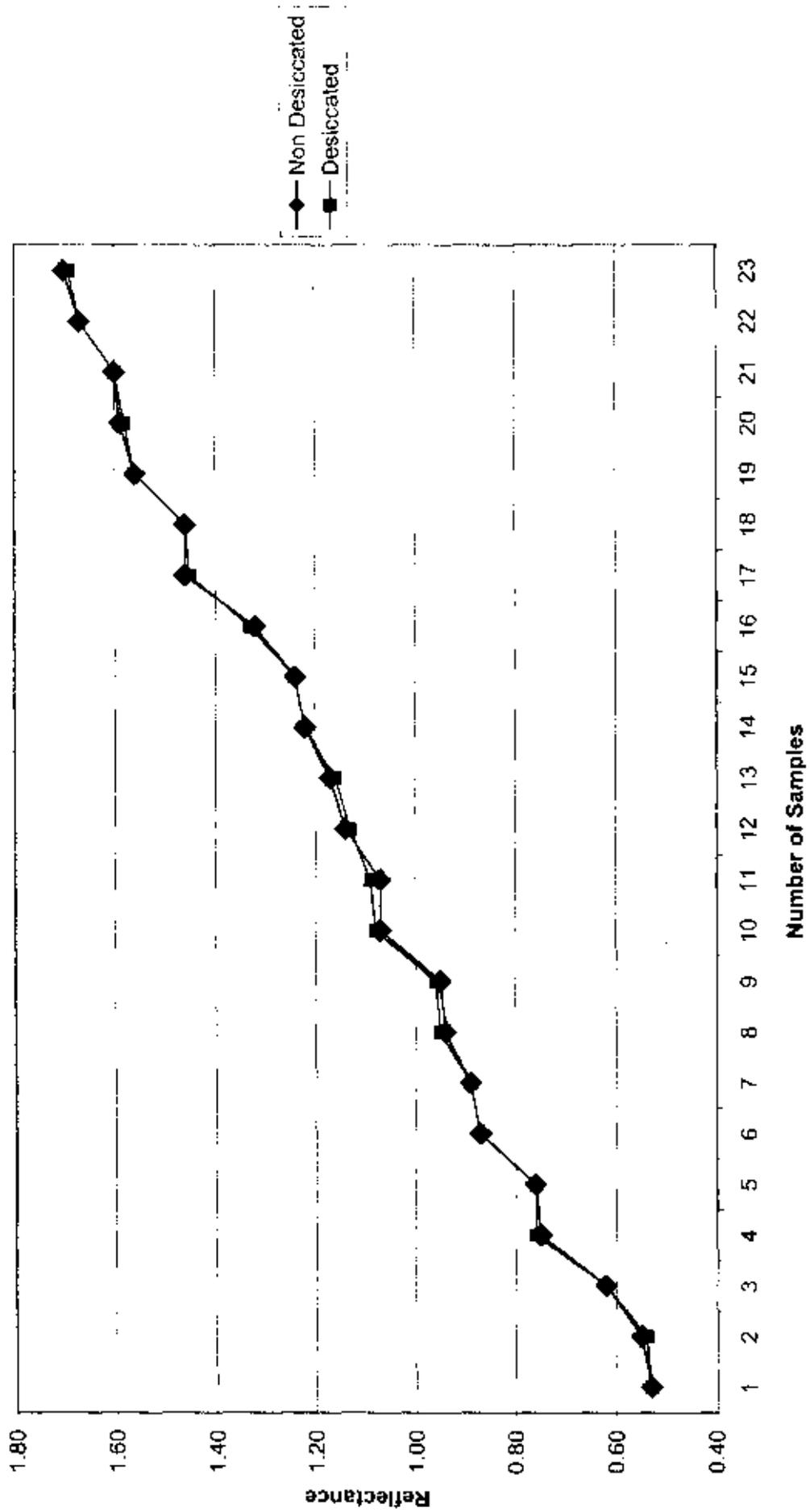


Figure 1

Difference Between Pairs

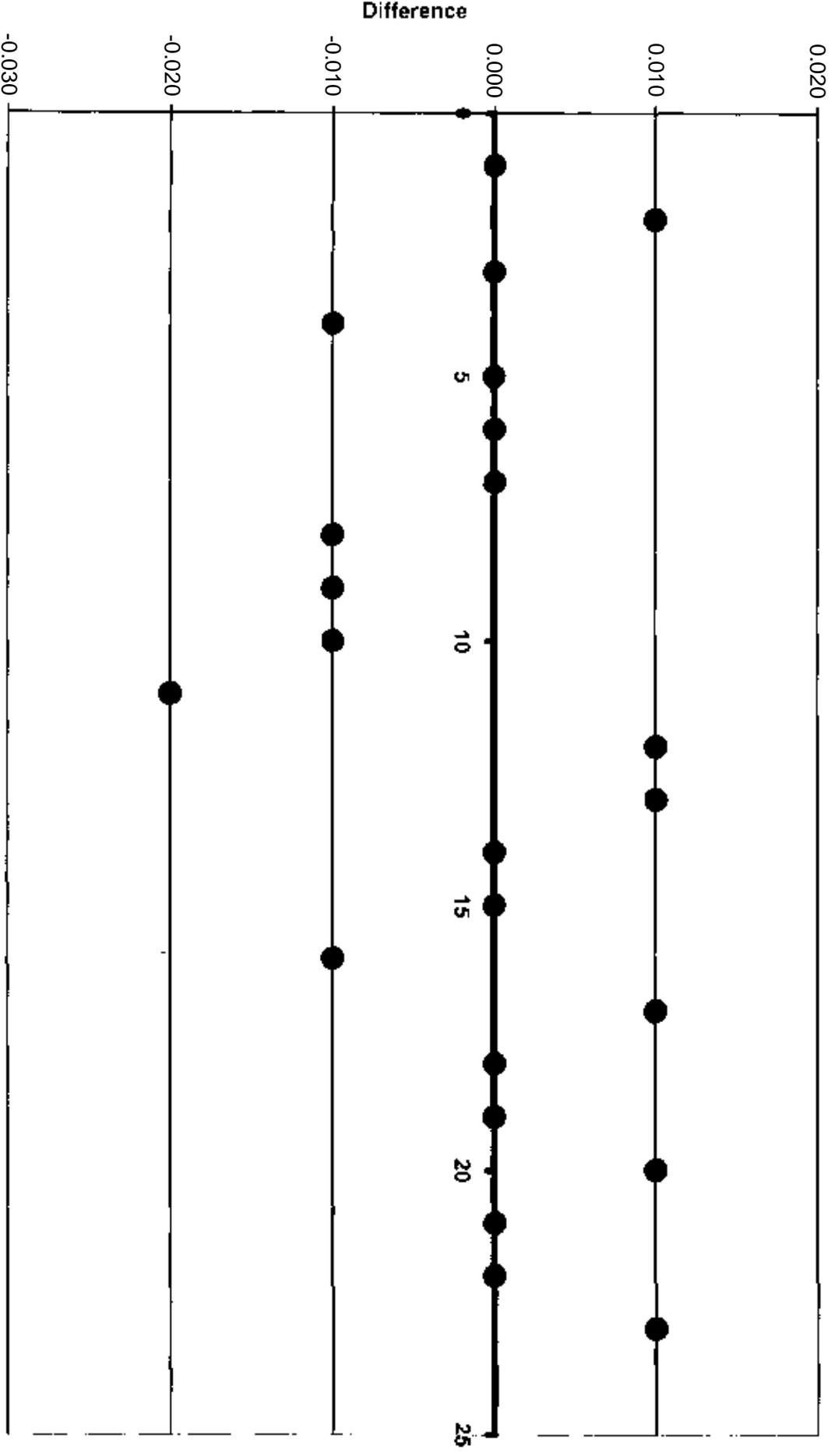
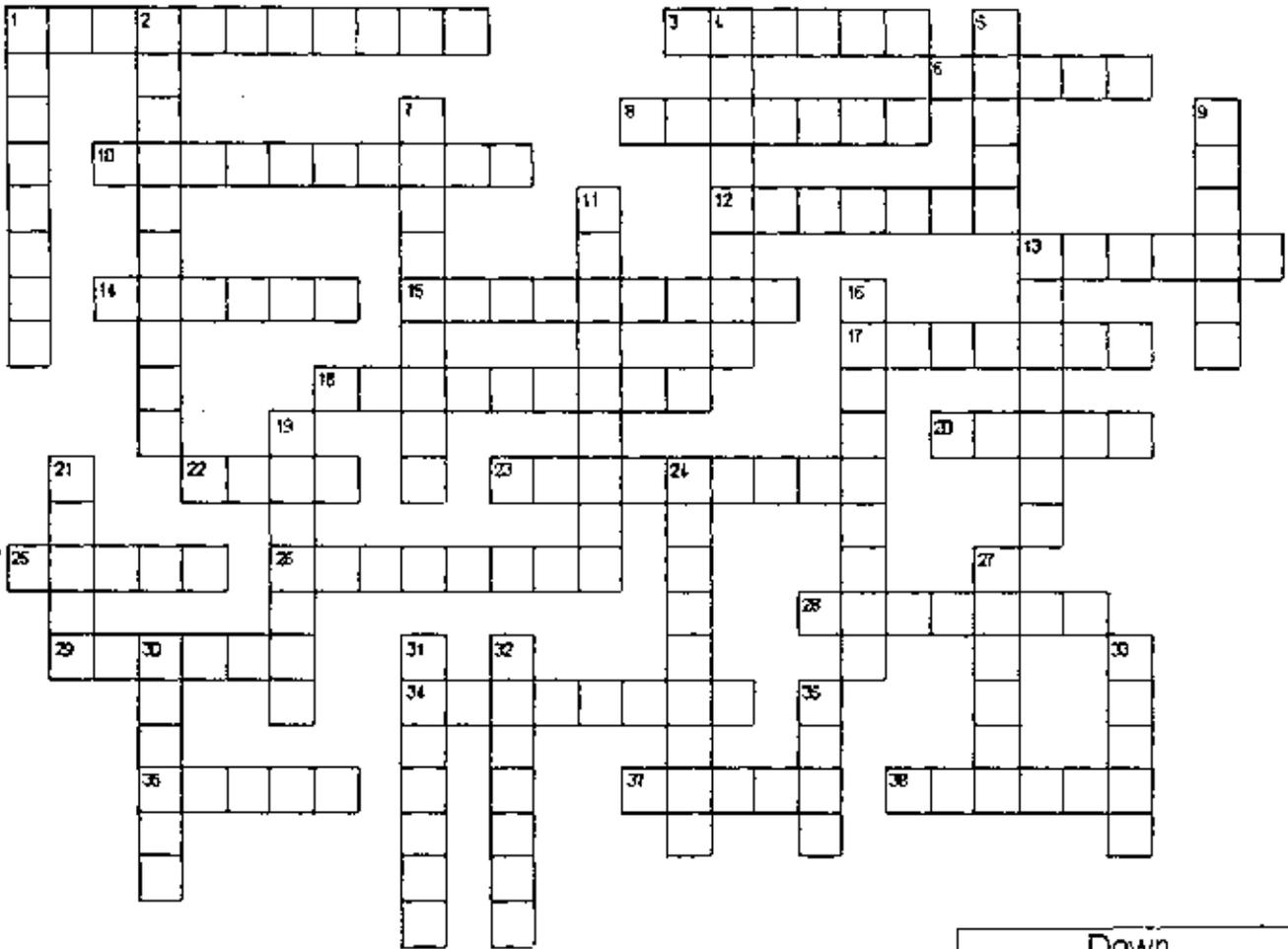


Figure 2

People



Across

- | | |
|--------------------------------------|--------------------------------------|
| 1. Thiessen's last student | 22. Pittsburgh leg of "Triangle run" |
| 3. megascopic description | 23. moist rank studies |
| 6. coal geologist in Cercone mystery | 25. liquefaction studies |
| 8. coal facies | 26. thin section techniques |
| 10. Maritime petrology | 28. Powder River petrologist |
| 12. thermal modelling | 29. oil shale "Oz" |
| 13. char petrologist | 34. swamps and steel |
| 14. South African petrologist | 36. burning down the swamp |
| 15. fluorescence techniques | 37. organic geochemistry of coal |
| 17. Soviet coke petrology | 38. fictional heating |
| 18. Polish-Canadian Hoosier | |
| 20. metamorphism under pressure | |

Down

1. father of Pseudovitrinite
2. swamp organic geochemistry
4. micro macerals
5. Carolina swamps
7. coke petrology pioneer
9. champion of classification
11. coal mineralogy
13. contact metamorphism
16. foothills of Canadian Rockies
19. dispersed organics in a shell
21. developed reflected light techniques
24. Rock-Eval
27. family planner
30. source rocks
31. Kentuckian down under
32. cyclothems
33. secretinite
35. petrology from the Mountaineer state

July's Crossword Puzzle Answers

Across

Down

- | | |
|-------------------|----------------------|
| 1. Microlithotype | 2. Permineralization |
| 3. Lycopod | 4. Cyclothem |
| 8. Protosalvinia | 5. Durain |
| 10. Desulfovibrio | 6. Kohle |
| 11. Fluorinite | 7. Anthracite |
| 12. Bireflectance | 9. Petrology |
| 13. Reflectance | 12. Balkash |
| 17. Sporopollenin | 14. Graptolite |
| 19. Okefenokee | 15. Botryococcus |
| 25. Glossopteris | 16. Funginite |
| 26. Torbanite | 18. Jet |
| 29. Hardgrove | 20. Pyrophyllite |
| 30. Lamalginite | 21. Fusain |
| 31. Ombrogenous | 22. Coorongite |
| 35. Catagenesis | 23. Tasmanites |
| 37. Hilt | 24. Seatearth |
| 38. Siderite | 25. Greymaggie |
| 39. Gyttja | 27. Gilsonite |
| 40. Vickers | 28. Tonstein |
| 41. Chelation | 32. Ultimate |
| 42. Gieseler | 33. Attrital |
| | 34. Kerogen |
| | 36. Stigmaria |

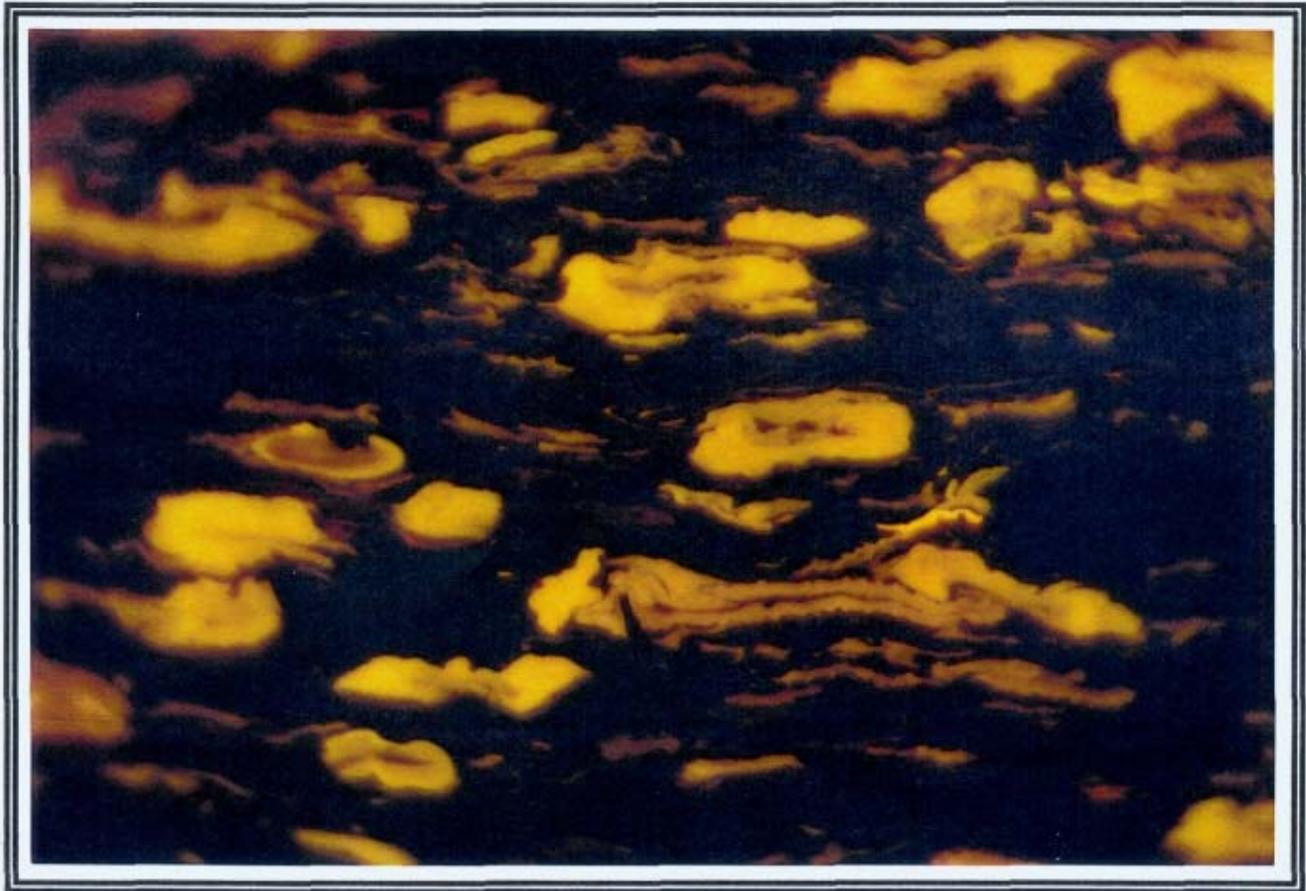
North American Coal Bed Methane Forum, Inc

Announcement

The North American Coalbed Methane, Inc. will hold it's Fall Session on **October 30-31, 2001** at the Lakeview Conference Center, Morgantown, West Virginia. For information please contact Ihor Havryluk at (412)798-1391

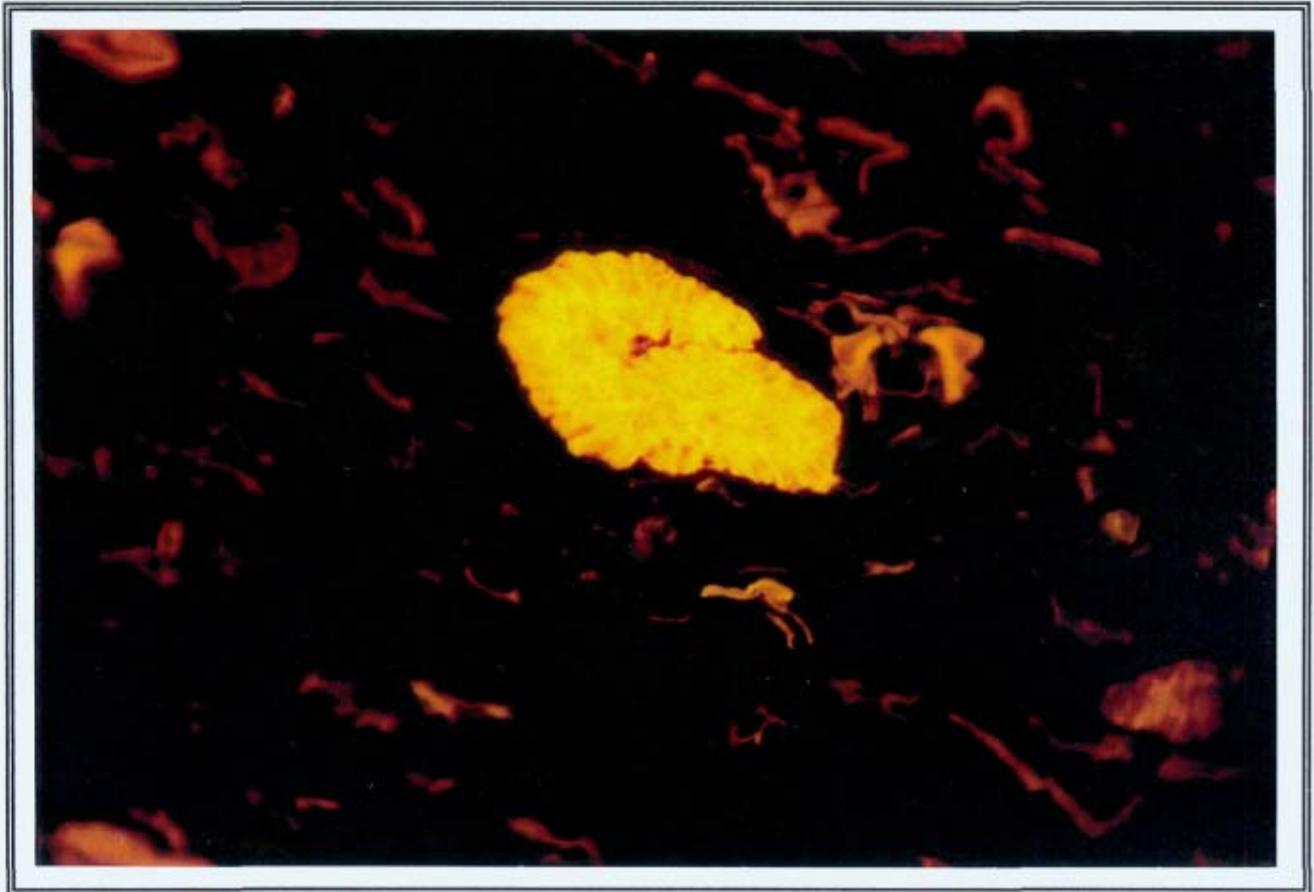
On **Tuesday, October 30, 2001**, WVU Petroleum & Natural Gas Engineering will be offering a short course on Coalbed methane reservoir engineering. For information please contact Dr. Kashy Aminian at (304)293-7682 ext. 3406.

Editor's Note! The Editor's Choice Photomicrograph in the June issue of the TSOP newsletter was inadvertently published with the wrong caption. Below is the correct caption and photo. Thanks to Claus F. Diessel for bringing this to our attention.



Photomicrograph in blue light fluorescence of densosporinite macerals from the Jaklovee Seam, Czech Republic. Width of field is approximately 200 micrometers. Photomicrograph by William Huggett

Editor's Choice Photomicrograph



Photomicrograph of a sapropelic coal in blue light fluorescence of an alginite maceral (center) and sporinite from the Fucik mine in the Czech Republic. Width of field is approximately 200 microns. Photomicrograph by William Huggett.

The editors welcome contributions of photomicrographs of organic geologic materials for future issues of this newsletter.



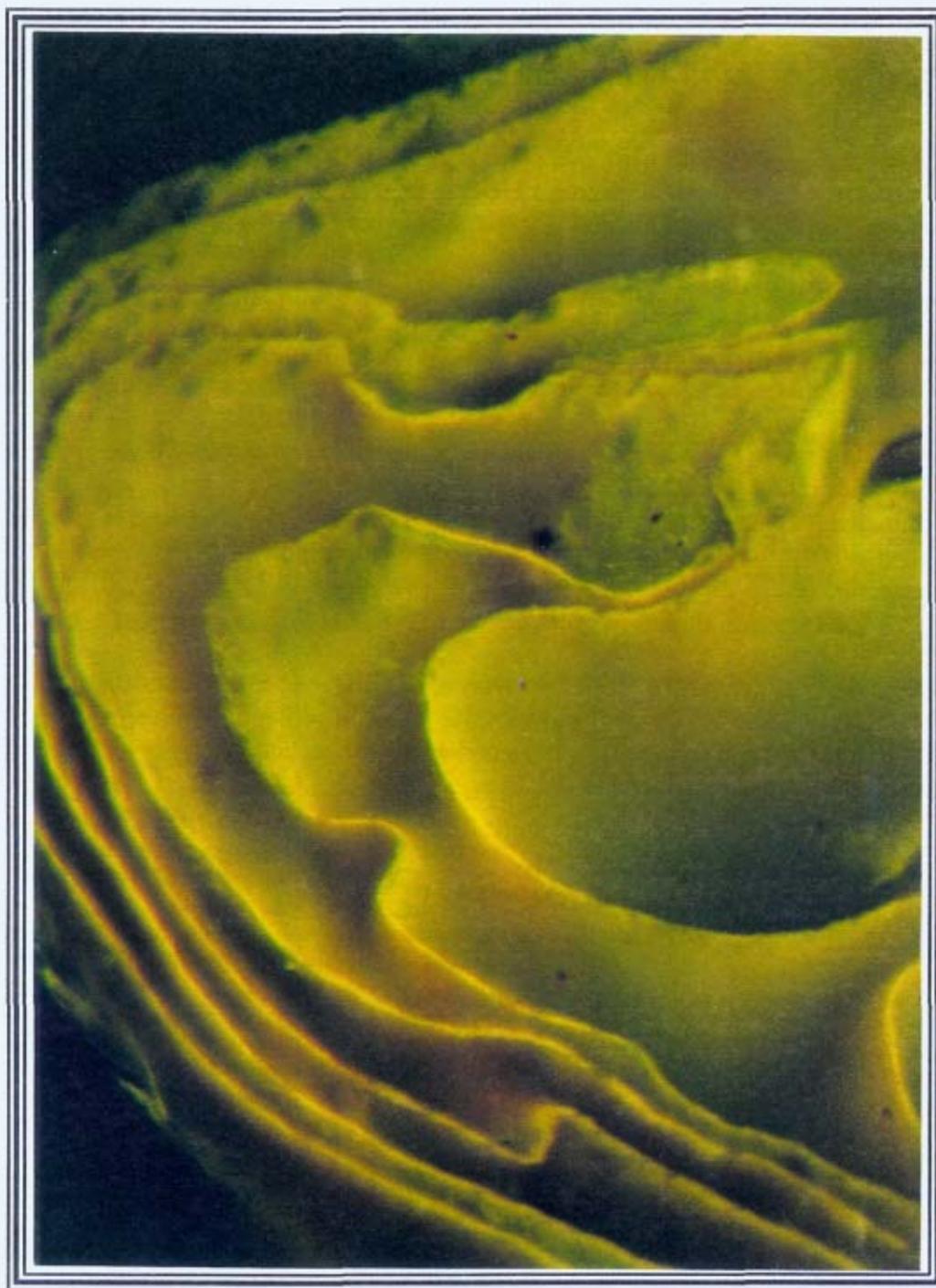
THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

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Photomicrograph of leaf cuticle from a Kentucky paper coal as seen under blue light fluorescence. Width of field approximately 300 micrometers. Photomicrograph by William Huggett.



CRL Energy Ltd

Technology for Industry Education Fellowship

CRL Energy Limited and L&M Mining Limited seek a PhD candidate to take up a Technology for Industry Education Fellowship (TIF).

This is an exciting opportunity to work in a dynamic team with industry and University staff on an innovative project. The fellow will receive a **tax-free** stipend of \$17,641 p.a. plus \$4,000 p.a. towards University fees. Project expenses such as laboratory analyses and travel will also be covered. An office will be provided at CRL Energy.

The Project:

The successful applicant will carry out a PhD project entitled *Groundwater Treatment and Disposal associated with Coalbed Methane Recovery*

The purpose of this project is to produce groundwater treatment and disposal plans as part of the methane extraction process. The expected end products for this project are:

- a determination of the anticipated impacts to surface streams from discharge of groundwater recovered during methane extraction (flow rate, volume, sediment transport, water quality, and habitat alteration)
- a cost-effective design for water treatment and discharge
- a model of the long-term effects of groundwater withdrawal to the surface and subsurface environments

Qualification:

The fellow will have a BSc/BE Honours or MSc/ME degree in geology, engineering geology, environmental science, environmental engineering, or equivalent degree with an understanding of hydrogeology. Preference will be given to candidates with a Master's degree.

Send letter of application, transcripts, and C.V. no later than 15 December 2001 to:

Dr. Tim Moore or
CRL Energy Limited University
77 Clyde Road Department of
Christchurch Christchurch of
Tel: (03) 364-2768
Fax: (03) 364 2774
Email: t.moore@crl.co.nz

Dr. David Nobes
of Canterbury
Geological Sciences
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Fax: (03) 364 2769
Email: d.nobes@geol.canterbury.ac.nz

The Society For Organic Petrology

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Co-editors:

John C. Crelling & William W. Huggett

The TSOP Newsletter welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail attachment or as printed text via fax or regular mail. The format may be in either MS word or WordPerfect. Please sent to:

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 Carbondale Illinois 62901-4324
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Society Membership

The TSOP Newsletter (ISSN 0743-3316) 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 international and open to all individuals having an interest in the field of Organic Petrology. For more information on membership, Society activities or to inquire about membership packs please contact:

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 Reston VA 20192

Tel: (703) 648-6469

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In-Coming President Editorial

I became a coal geologist because of Ron Stanton. If Ron had been any other kind of geologist, it's highly unlikely that I would have had anything to do with coal. I say this with some confidence.

You see, my first geology job was with Ron at the USGS and for the first 15 minutes of the selection process I thought I was being interviewed for a position in the 'Branch of *Cold* Resources!' I was 19 remember.

What I recall thinking at the time was 'Okay, its not what I had in mind as *real* geology, but I suppose a job is a job and it might be fun looking at cores of ice or glaciers or whatever they do in the cold ...'. I can't remember what I thought when I finally did clue in that it was coal not cold; relieved perhaps that at least I'd be looking at real rocks. Little did I know.

The point is, I probably would have worked with anyone at that stage, but I was lucky enough to end up with Ron as my first employer. It's a testament to him that my career ended up being a coal geologist. His enthusiasm, curiosity and professionalism sparked my own. It was also his approach to coal as 'not a four-letter word' that also inspired me.

Without doubt Ron was my first and one of only two people I consider a mentor. That is not to say that at times I could royally piss-off Ron! I did; frequently sometimes. Usually though, it was because I had taken a short cut somewhere, or I was not being fair. Somehow, though, we managed to work through most things. Just this past May I was able to work with Ron again on his Coalbed methane projects. He was very unwell even then. However, in typical Ron fashion he shared all his knowledge, data and ideas openly. It was obvious he was not giving up just yet.

As most of you know Ron died at the end of September after fighting cancer for the last year. Elsewhere in this Newsletter his achievements - and many there are - and history are related, so I will not do that here. However, it is with great sadness that I, and I know all of TSOP, farewell Ron.

77m A. Moore

Environmental Scientist

Are you an experienced environmental scientist who enjoys the challenge of melding research with results for industry? Do you prefer a team-based approach and have the ability to both lead others and work successfully alongside them? Would you like to have the opportunity to generate new projects? If you have an appropriate graduate degree, a track record in publishing research and demonstrated ability to deliver results for clients, you could be who we are looking for. Our team is currently working on site remediation projects from a number of angles with a wide range of clients. We are looking for candidates with backgrounds in chemistry, geology, hydrology, engineering or contaminant site remediation.

For a job description please contact:

The Secretary
Ph 64-4 570-3702
Fax. 64-4-570-3701
CRL Energy Ltd
PO Box 31-244
Lower Hutt
New Zealand
Email: m.donkin@crl.co.nz

Preliminary Announcement

TSOP 2003 Annual Meeting

20th TSOP Anniversary
Washington, DC

September 21-24, 2003 (Tentative dates)

Host: U.S. Geological Survey

For more information

Contact: Peter Warwick

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(703) 648-6469 Office
(703) 648-6419 Fax
pwarwick@usgs.gov

President's Report 2000-2001

By

Prasanta K. Mukhopadhyay (Muki)

(e-mail: muki@global-geoenergy.cora or muki@ns.sympatico.ca)

First of all, I would like to pay homage and sincere respect to all the innocent people who perished during the horrific terrorist attacks in New York and Washington D.C. on September 11, 2001. I would also like to send my deepest sympathy and condolence to their families.

I thank all council members of TSOP for their active support and cooperation to the society during the entire period of 2000-2001. It was a great year and I strongly believe that we have solved a lot of issues during this time and twenty-three new members have joined TSOP between the period between October 2000 and September 2001. I would like to indicate that during the past ten years, TSOP has increasingly become a global community. If we could continue this trend, TSOP may become a major global community of scientists involved in research on the organic matter in sediments in 2010.

Due to unforeseen circumstances that developed as a result of the terrorist attack in New York and Washington D.C., the 18th Annual Meeting of TSOP in Houston, Texas has been postponed to March 2002 by the TSOP Council (2000-2001) supporting a request from Cole Robison and the Organizing Committee of the Houston Meeting. I am hoping that next year's meeting in Houston will be an excellent one as the meeting chairperson Cole Robison and the Organizing Committee have put forward an exciting charter of programs. I thank Cole Robison (chairperson of the Houston Meeting Organizing Committee) and the Organizing Committee (Carolyn-Thompson Rizer, Wally Dow, Mike Darnell, and Jack Burgess) for providing an excellent service to TSOP in organizing this meeting. It is quite unfortunate that we had to postpone the 2001 TSOP Annual Meeting. I would also like to thank all the sponsors who have donated or promised to

donate generous grants for the annual meeting in Houston, Texas. The 19th Annual Meeting of TSOP will be held between August 31 and September 2, 2002 in Banff, Alberta, Canada. This meeting will be hosted by the CSCOP (Canadian Society for Coal Science and Organic Petrology) and will be treated as a joint meeting of CSCOP and TSOP. For any details regarding this meeting, please visit www.cscop-tsop.com. I would like to thank Martin Fowler and the Organizing Committee for successful organization of the Banff Meeting. It is very unfortunate that two TSOP Annual Meetings will take place during the same year because of special circumstances. The 20th TSOP Annual Meeting will be held in Washington D.C. in 2003 and the 21st TSOP Annual Meeting will be held in Sydney, Australia in 2004. I thank both Peter Warwick and Neil Sherwood for taking on this great responsibility.

This year, a one-day ICCP-TSOP joint session had been organized in August 15, 2001 in Copenhagen, Denmark. The session was entitled as "Organic Petrology applied to Petroleum and Coalbed Methane Studies". This session was organized by GEUS (Geological Survey of Denmark and Greenland) and Charley Barker (Past-President of TSOP) (for details see March 2001 issue of the Newsletter). In March 2002, there will be a joint session of AAPG-TSOP entitled "Deepwater source rocks and the Petroleum Systems of the Atlantic Margin" along with the AAPG Annual Convention in Houston, Texas. Wally Dow and myself will be organizing that session next year. John Popp and Jim Hower will organize a joint Southeastern/Northcentral Section GSA/TSOP session on "Applied Coal Geology" in Lexington on April 2002. The session will include oral presentation on topics such as mine geology, Coalbed methane, and mine hydrology.

The TSOP 2000-2001 Midyear Meeting was successfully held on April 20, 2001 at the premises of the U. S. Geological Survey in Reston, Virginia. Peter Warwick, Secretary-Treasurer of TSOP, organized the meeting. Six council members (Tim Moore, Peter Warwick, MaryAnn Malinconico, Jeff Quick, and myself) and committee chairs (Dave Glick) attended the meeting. The meeting also organized a teleconference with other council members Neil Sherwood (in Sydney, Australia) and Bill Huggett (Carbondale, Illinois). The meeting had addressed a number of current and future issues (for details see June 2000 Newsletter). I would like to thank Peter Warwick for organizing an excellent meeting and Leslie (Jingle) Ruppert of USGS for arranging a wonderful dinner following the meeting.

This year, the Research Committee and Outreach Committee have joined forces more vigorously to promote TSOP Student Grant. The panel of three judges chosen by the Research Committee Chairperson has selected Sharleen Ramos, a master's candidate from the University of British Columbia, Vancouver, Canada. Sharleen has been awarded for the 2001 TSOP Student Grant of \$1000.00 US. Her thesis topic of research is: "Gas Shale Resources- Role of Organic Matter". There were thirteen applicants were considered for this year's research grant. I thank Suzanne, MaryAnn, and the panel of judges for their excellent work. I would like to congratulate Sharleen for this achievement.

The Research Committee under the leadership of Suzanne Russell has promoted three research topics as discussed in an earlier TSOP Newsletter (December 2000 issue). The current status of these projects are as follows:

"Organic Matter in Meteorites and Other Planets.... ": I am still pursuing to get two samples of carbonaceous chondrites (possibly of different type and maturity) from the Smithsonian Institute

"Evaluation of Global Climate Change in the Quaternary...": Tim Moore, President, TSOP, 2001-2002 has received good responses for his initiative in the June issue of TSOP Newsletter. He has already started the project.

"The relationship and genesis of reflectance...": Currently, Neil Sherwood is pursuing this project.

Along with the research topics, our planned publication of the book on the "Source Rocks for Petroleum - Examples from the North and South America" is under consideration. AAPG has to approve this publication. We have planned to publish it jointly with the AAPG. The special volume of TSOP-Salt Lake City, 1999 has been published this year in the International Journal of Coal Geology as volume 46, numbers. 2-4. I would like to thank Jeff Quick, Jim Hower, Carolyn Thompson-Rizer and others for their outstanding effort in finalizing this volume. The special volume of the 2000 Bloomington Meeting will be published in the next issue of the International Journal of Coal Geology. I thank Maria Mastalerz for her excellent work in finalizing the issue in such a timely fashion. I would also like to thank Jim Hower on various issues related to TSOP publications and meeting organizing committee.

Neil Sherwood as Vice-President and Chairperson for the Honorary Committee has selected Geoff Taylor from Australia as TSOP's Honorary Member for 2000-2001. I thank Neil and his committee for the excellent work. The Awards Committee with Jack Burgess as Chairperson has arranged to present a "Certificate of Recognition" to all past TSOP Presidents for their excellent service to TSOP. Those certificates will be presented to all past Presidents at the Houston Meeting in March 2002. I thank Jack Burgess and the committee members for their hard work and dedication. In the TSOP website, many new features have been added and some of the keywords for the Society have been included in various search engines within web browsers. I would like to thank Dave Glick, Chairperson of the Internet Committee for his excellent work.

This year, as an affiliated/member society of the American Association of Petroleum Geologists (AAPG) and American Geological Institute (AGI), TSOP has put in a lot of effort in promoting the society in various functions and publications of AAPG and AGI. The following are some of the highlights:

A color advertisement showing various

activities and research goals of TSOP have been inserted in the November 2000 issue of AGI journal *GEOTIMES* (special issue: *Technology in the Earth Sciences*). The same advertisement in black and white has been inserted in the AAPG Explorer in January 2001 issue (special *Millennium Issue*).

In February 2001, Brian Cardott, AAPG Liaison to TSOP has attended AAPG Leadership Conference at the AAPG Headquarters in Tulsa, Oklahoma. He has presented a comprehensive view of various activities of TSOP to all presidents or selected leaders of various scientific organizations.

In May 2001, MaryAnn Malinconico, Councilor, TSOP has participated a very high level 6th Annual Science-Engineering-Technology Congressional Visits Day organized by AGI and AGU. For details, please see MaryAnn's write up of her experiences in the June 2001 issue of the Newsletter.

Early, this year, TSOP has sponsored the publication of AGI booklet on the *Evolution and the Fossil Record* and granted \$1000.00 for the partial cost of the project.

In June 2001, I have attended the AGI Meeting with the Member Society Representative in Denver, Colorado. This meeting was organized in association with the Annual Meeting of the AAPG. Brian Cardott and myself have attended the special dinner at the Anschutz Gallery in Denver, Colorado on an invitation from the current President of AAPG. I have discussed various issues about TSOP with the current AGI President and various AAPG Executives at the dinner reception.

David Applegate, AGI Representative to US Congress has sent a short synopsis to all Member Societies about the US National Energy Policy adopted by Administration of President Bush (Posted 5-19-01). He has presented these policies at the AAPG Meeting as a Special Luncheon Speaker. Some of the key recommendations of that policy that are related to the earth sciences

issues in general are included in the following paragraphs:

- (1) An executive order for federal agencies to take into account energy supply, distribution and use in any regulatory action.
- (2) The Federal Emergency Management Agency will prepare for potential energy emergencies in conjunction with existing Regional Interagency Steering Committees.
- (3) The Environmental Protection Agency is to work with Congress to use market-based incentives to develop multi-pollutant legislation that would phase in reductions of sulfur dioxide, nitrogen oxides, and mercury over a reasonable period of time.
- (4) The White House Office of Science and Technology Policy and the President's Council of Advisor's on Science and Technology are to review and report on more efficient use of the nation's energy resources.
- (5) The Departments of Energy and the Interior will promote the use of new technologies to recover more oil and gas from existing wells as well as work to build partnerships aimed at improving oil and gas exploration technologies.
- (6) The administration will work with Congress to authorize explorations and development of the 1002 Area of the Arctic National Wildlife Refuge (ANWR); an estimated \$1.2 billion of federal revenue from new ANWR leases will be used to fund research in renewable and alternative fuels.

AGI will celebrate the Earth Science Week on October 8-14, 2001. They have requested the all member societies to participate with them.

The Nominating Committee and the Ballot Committee have finalized and added three new members for 2001-2002 TSOP Council. I congratulate Maria Mastalerz, Lavern Stasiuk, and Raymond Pheifer for their success to become elected as President-Elect, Vice-President, and Councilor, respectively.

Finally, I would like to thank all members of the 2000-2001 TSOP Council (Tim Moore, Neil Sherwood, Peter Warwick, MaryAnn Malinconico, Jeff Quick, Jack Crelling, and Bill Huggett) for their great support and help in deciding various issues. I would also like to thank all Chairpersons of various TSOP Committees (Dave Glick, Peter Warwick, MaryAnn Malinconico, Brian Cardott, Cole Robison, Roger Trader, Suzanne Russell,

and Michael Kruge) and other Committee Members for their excellent work on various issues. I would like to give special thanks to the following individuals: Peter Warwick for his great help in every aspect of my work; MaryAnn Malinconico for raising more money and promotion for TSOP this year; Carolyn Thompson-Rizer for resolving many problems related to the upcoming Houston Meeting; Jim Hower for finalizing the special volume (Salt lake City); and Bill Huggett for looking after TSOP Newsletter. I am extremely thankful to Tim (President-Elect) and Neil Sherwood (Vice-President) who have participated so thoroughly on every aspect of this year's work and in solving many important issues. I would like to acknowledge and thank Ken Kuehn, TSOP Nominating Committee Chair, 1998-1999 for the nomination and giving me the opportunity to serve TSOP as President during 2000 (September) - 2001 (September).

Finally, I wish Tim Moore a great success as President, TSOP for 2001-2002.

The Society For Organic Petrology
Council 2000 - 2001

President	P.K. Mukhopadhyay
Vice President	Neil Sherwood
President Elect	Tim Moore
Secretary/ Treasurer	Peter Warwick
Co Editors	William Huggett Jack Crelling
Councilor (99-00)	Jeff Quick
Councilor (99-01)	MaryAnn Malinconico

Webmineral.com:

A Valuable reference tool

Even though, as a whole, readers of this newsletter are organic petrologists, the need for cross-referencing the organic composition of coal or source rock can necessitate the need for reference sources beyond the copy of Taylor et al. that we should always keep handy. The website webmineral.com fills this niche with one of the most comprehensive geological reference in existence. Webmineral.com is a useful tool in research and should also prove to be a useful tool in mineralogy and petrology classes.

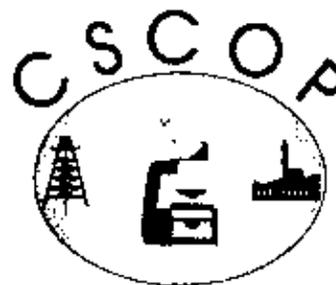
The site starts with simple definitions in "what is a mineral", and moves on to a section on crystallography. The latter section not only contains comprehensive information on crystal classes, but also the user can open Java Applets of mineral forms. Therefore, if you have a desire to view a rotating (and the user can control the orientation of the mineral) hexagonal scalenohedral form, the view is only a click away. In addition, each crystal form is accompanied by an active list minerals in that crystal class. The section webmineral.com/java/index.shtml includes a list of minerals with individual Java Applets.

Other useful areas of the website include "x-ray power diffraction", with a listing of minerals by their three most intense d spacings, "Chemical Composition", "New Dana classification", "Strunz Classification", "Determinative Mineralogy", "Alphabetical Listing", including sound files with pronunciation, and "Mineral Pictures".

Any area could be a starting for a web expedition. For example, if the data available for a coal includes inorganic elements, "Chemical Composition" can provide the basis for searches for possible mineral species. The site is entered through the periodic table. Clicking on an element opens the list of minerals containing that element, each of which can be opened to reveal more comprehensive information for the mineral, including links to sources outside of the website.

As an additional feature, the page can be found in versions translated to Spanish, Portuguese, French, German, Italian, Chinese, Japanese, and Korean.

JOINT ANNUAL MEETING ANNOUNCEMENT AND CALL FOR PAPERS



*The Society for Organic Petrology
(TSOP)*

*Canadian Society for Coal Science
and Organic Petrology (CSCOP)*

"Emerging Concepts in Organic Petrology and Geochemistry"

AUG. 31 - SEPT. 4, 2002 BANFF, ALBERTA, CANADA

Conference themes: Sources (and sinks) of natural gas, petroleum systems, solid bitumen and pyrobitumen, shallow thinking (recent sediments and environmental studies), coal and environment, novel analytical approaches. Special session highlighting contributions of Dr. Archie Douglas to organic geochemistry. Proceedings published in *Organic Geochemistry* and *International Journal of Coal Geology*.

Pre- and post meeting field trips: UNESCO World Heritage site Burgess Shale Cambrian fossil locality; dinosaur fossils at the Royal Tyrrell Museum of Paleontology, Drumheller; petroleum source rocks, coals and hot springs in the Banff area.

Short Course: "Prediction of total organic carbon contents and hydrogen indices in marine sediments" by Dr. Richard Tyson, University of Newcastle-upon-Tyne, UK.

*Registration: US\$244, US\$112- student, (abstracts, icebreaker, conference dinner and refreshments)
Accommodation: CN\$182.25- 217.25 (~US \$114-135) per night at the Banff Center (www.banffcentre.ab.ca),
includes breakfast and access to all Centre sports facilities.*

****** Abstract deadline: January 31, 2002 ******

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Details at WWW.CSCOP-TSOP2002.COM

Meeting sponsors:

Elsevier Science, European Association of Organic Geochemists, CSCOP, TSOP

The new study of chemical-physical properties of coal seams in the Czech part of the Upper Silesian Basin

P. Ovčáček, M. Sivek

VŠB - Technical University of Ostrava, Institute of Geological Engineering, tu. 17. listopadu 15/172, 708 33 Ostrava-Poruba, Czech Republic

In the list of studies that deal with the geology and the development of coal seams in the Czech part of the Upper Silesian Basin as well as with the chemical-technological and also petrologic properties of the seams, studies concerned with those seam properties are in a minority. What is missing most is a more detailed study that would find relations of the geological structure of the basin and its development with the chemical-technological and petrologic properties of coal matter. Then it is the case of defining spatial changes in crucial factors characterizing the chemical-technological and also physical properties of Thanks to the Grant Agency of the Czech Republic, conditions for writing a study of this type have been created, coal matter.

The objective of the study is to fill the existing gap in the literature on the geology of the Czech part of the basin and also to broaden and deepen, in a substantial way, the present knowledge available in a monograph published recently (Dopita M. et al., 1997). Last but not least, an effort of authors of the study is to assemble, filter and process integrately any information important for long-term prognoses of potential exploratory and mining activities in the basin.

Some remarks about the geology of the Czech part of the Upper Silesian Basin

At present the Upper Silesian Basin is, from the economical point of view, the most significant European hard coal basin. This coal basin of Carboniferous age is situated in the territories of the Czech Republic and Poland. Its extent within geologically verified boundaries amounts to more 7000 km², of which the area of the coal-bearing Carboniferous in the territory of the Czech Republic is about 1550 km². The better part of the basin is there in Poland. The southern margin of the basin in the territory of the Czech Republic is not proved for certainty. It can be justifiably presupposed that coal-bearing sediments extend, at great depths, southwards under the nappes of the Outer Carpathians. By exploratory and mining

operations lasting for more than 200 years it has been proved that more than 400 coal seams, separate benches and thin seams having the thickness ranging spatially from some tens of decimeters to more than 15 meters are located in the sediments of Carboniferous age of the Czech part of the Upper Silesian Basin.

The seams of the Czech part of the Upper Silesian Basin show a very variable degree of coalification (from anthracite to long flame coals) and also very different chemical-technological properties (from coals for energy production to coals suitable for coking). An individual group consists of coals of so-called "special development". These are coals occurring in the vicinity of bodies of so-called "red beds" (for the first time, these coals were described just in the Czech part of the Upper Silesian Basin), further altered coals in the neighborhood of volcanites (natural cokes) and a group of coals creating predispositions for coal and gas outbursts. Coal seams in the Czech part of the Upper Silesian Basin are formed prevalingly by hard coal humites. Sapropelites are very rare; liptobiolites, as a lithotype, have not been found yet. From the point of view of coal petrography, it is the case of vitrinite coals. It is coal of the so-called "Saddle Member" that is an exception. Even extraordinarily high contents of inertinite are known in it, which affects adversely coking properties of the coal.

The long-term mining activity in the basin together with systematic areal geological exploration performed in exploratory fields has supplied not only a large amount of data on chemical-technological properties of coal matter, but it has also caused that in principle, these data are distributed, although with various densities, over the whole area of the Czech part of the Upper Silesian Basin. It is just this fact that could enable the authors to obtain, after data preparation and processing, new information on the dependence of chemical-technological and physical properties

of coal matter on the geological structure of coal basins.

Main objectives of the project and project timing

Main outputs of the project can be, according to the present opinion of the authors, divided into the following three fundamental parts:

Map outputs that should illustrate the spatial development of crucial factors of chemical-technological properties of coal seams in the basin depending on its geological structure,

The atlas of micropetrographic types of coals of the Czech part of the Upper Silesian Basin,

Additional studies on some specific problems of chemical-technological properties of coals in the Czech part of the Upper Silesian Basin.

Thus, data on chemical-technological and physical and petrologic properties of coal matter will be processed comprehensively by means of modern computer methods for the first time. It can be seen even now that one of the underlying problems of solving will be the processing of data that originated in a relatively long time period and the preparation of the data to a form usable for the computer-aided methods of spatial analysis.

In addition to the material outputs mentioned above, the main objectives of the authors of the study are as follows:

to collect, redact and evaluate, in a modern way, available data on coal-petrographic, chemical-technological and physical properties of coal matter from closed and active mines and exploratory fields,

to preserve the acquired knowledge in an integrated numerical, text and graphic forms for the next needs,

to process data and to prepare basic input information for future consideration of real possibilities of the raw material and fuel-energy base of the Czech Republic

The solving of the project should take three years. The output of the solving will be a summary final report representing a summary of knowledge acquired and the atlas of micropetrographic types of coals of the Czech part of the Upper Silesian Basin. Apart from the final report, the goal of the authors is to inform the professional public on achieved results by means of journals and conferences.

References

Dopita, M. et al.: Geologie české části homolezské pánve. (Geology of the Czech part of the Upper Silesian Basin). Prague, Ministry of the Environment, Prague, 1997, 278 pp.

Coal floatation and Fine Coal Utilization

J. Laskowski

Elsevier Science Ltd., June 2001.

Hardbound 350 pages

ISBN0-444-50537-7

To stay profitable while complying with environmental regulations requires that the coal industry not only improve fine coal recovery but also find better ways for its utilization. This is the first monograph on the processing of fine coal which recognizes that all unit operations that handle fine coal depend on coal surface properties, and which, in one single volume, provides one comprehensive introduction to coal surface chemistry, using it rigorously in treating coal floatation fundamentals and engineering, fine coal manipulation, pelletization and briquetting, and coal-water slurries.

Readers involved in mineral processing, chemical engineering, mining and metallurgical engineering; technical personnel working for reagent suppliers; and scientists researching the field of coal surface chemistry, floatation and fine coal utilization will find this volume of great interest.

See: www.elsevier.com/locate/isbn/0-444-50537-7
For further details.

This book can be purchased with a 20% off the normal price for TSOP members, provided that it is for personal use only. Please contact Simon Richert (s.richert@elsevier.co.uk) For details.

**TSOP Research Committee Report
September, 2001**

**Submitted by Suzanne J. Russell,
Chairman**

Student Research Grants

The Criteria for Eligibility for TSOP Student Research Grants were revised by Ken Kuehn in consultation with Dave Glick, Sharon Crowley and Suzanne Russell and posted on our web site in December, 2000. The purpose for posting the criteria was to make the judging process transparent to interested parties.

This year we had a record number of applicants for the TSOP Student Research Grant: 13. Applicants attended schools in Canada, USA, India, UK and Brazil. Nationalities applying were Canadian (5), USA (3), Indian (2), Korean (1), British (1) and Brazilian (1). Thanks are due to Mary Anne Malinconico for her efforts in publicising the grant. The panel of judges this year was composed of Wally Dow, Ray Pheifer and Jeff Quick. Many thanks are due to them for the time and effort they devoted to this activity. The projects submitted were all worthy of consideration. A final choice, however, was made. The TSOP 2001 Student Grant Recipient is Sharleen Ramos of the University of British Columbia for her project "Gas Shale Resources - Role of Organic Matter". Sharleen is studying for her Master's degree with Professor Marc Bustin. Unfortunately, Sharleen will not be joining us for the Houston meeting. I will mail the award certificate to Sharleen and request that the TSOP secretary-treasurer mail the award check, as well.

Since the Banff meeting in 2002 will be about three weeks earlier than the Houston meeting, I have moved the Student Grant application deadline to April 15, 2002. In contrast, the 2001 deadline was May 15th. This is a postmark deadline. Several applications (from non-USA locations) this year were postmarked by the 15th but received as late as 10 days afterward.

TSOP Sponsored Research Proposals

TSOP still has only one officially sponsored research subcommittee, Kerogen Classification. I readily admit it is my fault I do not have an update on this subcommittee. I will contact them by October to get an update on their progress.

Two other potential subcommittees, Climate Change During the Quaternary and Vitrinite Reflectance Suppression, are being organised by Tim Moore and Neil Sherwood, respectively. Descriptions of the proposed work were prepared for the Newsletter and the Quaternary Climate Change has appeared in the Newsletter (I have not received the latest issue so I do not know if the Vitrinite Reflectance Suppression description has appeared subsequently). Tim Moore has planned an informal meeting during TSOP in Houston of those interested in the Quaternary proposal. Neil reports that Jeff Quick and Peter Warwick would like to be involved in the Vitrinite proposal. Discussion to date has centered on a suitable suite of samples for the work.

**Answers to September's Crossword
Puzzle**

- | Across | | Down | |
|---------------|-------------|-------------|------------|
| 1. | Teichmuller | 1. | Thompson |
| 3. | Schopf | 2. | Casagrande |
| 6. | Hower | 4. | Crelling |
| 8. | Diessel | 5. | Cohen |
| 10. | Hacquebard | 7. | Mackowsky |
| 12. | Lopatin | 9. | Alpern |
| 13. | Bailey | 11. | Finkelman |
| 14. | Falcon | 13. | Bostick |
| 15. | Ottenjann | 16. | Kalkreuth |
| 17. | Ammosov | 19. | Castano |
| 18. | Mastalerz | 21. | Stach |
| 20. | White | 24. | Espitalie |
| 23. | Damberger | 27. | Stopes |
| 25. | Davis | 30. | Tissot |
| 26. | Theissen | 31. | Esterle |
| 28. | Stanton | 33. | Lyons |
| 29. | Hutton | 35. | Ting |
| 34. | Spackman | | |
| 26. | Scott | | |
| 37. | Given | | |
| 38. | Bustin | | |

Review of TSOP Incoming and Outgoing Council Meetings, 2001

Outgoing Council Meeting

The TSOP 2000-2001 Outgoing Council meeting was held Tuesday, September 25, 2001, by conference call. The 2001 TSOP annual meeting in Houston, Texas (scheduled for September 23-26, 2001), and Outgoing Council meeting, were postponed due to difficulties with domestic and international air travel following the September 11th terrorist attacks in the United States. As a result of the meeting postponement, the Outgoing Council meeting was rescheduled and held during a conference call initialed by President P. K. (Muki) Mukhopadhyay at 19:05 EST - USA, on September 25, 2001. The following TSOP Council members and committee chairs participated in the conference call: P. K. (Muki) Mukhopadhyay (outgoing President), Tim Moore (incoming President), Maria Mastalerz (President-elect), Neil Sherwood (Vice-President), Peter Warwick (Secretary -Treasurer), MaryAnn Malinconico (Councilor), Jeff Quick (outgoing Councilor), Ray Pheifer (incoming Councilor), Bill Huggett and Jack Crelling (Newsletter Co-editors), Judith Potter (TSOP 2002 Annual meeting committee representative), and David Glick (Internet Committee Chair).

The following is a review of some of the items discussed during TSOP's Outgoing Council Meeting:

TSOP Council approved the request from the 2001 Annual Meeting Organizing Committee to reschedule the Houston meeting to during occur the week of March 3-6, 2002 in Houston. The proposed time precedes by one week the annual meeting of the American Association of Petroleum Geologists also scheduled to take place in Houston.

Following TSOP's request, the abstract deadline has been pushed back to January 31, 2002 for the 2002 Annual Meeting in Banff, Alberta.

TSOP Council reviewed options presented by the 2003 Annual meeting committee proposal to hold the Annual meeting in the Washington D.C. area.

Council approved the 2004 meeting location for Sydney, Australia.

On September 21, 2001, TSOP had a checking account balance of \$5,725.50 (this is down from \$11,946.34 on 9/15/00) and Vanguard Funds at a value of \$14,434.09 (this is down from \$16,980.30 on 9/15/00). The total assets of the Society on that date were \$20,159.59 (this is down from \$28,926.64 on 9/15/00).

The number of TSOP members has increased by 23 new members during the last year. In September 2001, TSOP has a total of 221 members. Of these 221, 5 are special 1-year student members, 6 are honorary members, and 4 are special full members; the remaining 205 are paying TSOP members. TSOP has members from 27 countries.

The Council approved a motion to put the TSOP Newsletter online. This effort would hopefully lower the current printing and mailing costs. The Internet Committee also agreed to scan old issues of the Newsletters so that they may be posted on the Society's web page.

Incoming Council Meeting

The TSOP 2000-2001 Incoming Council meeting was held Thursday, October 11, 2001, by conference call. As a result of the TSOP Annual meeting postponement, the Incoming Council meeting was held during a conference call initialed by incoming President Tim Moore at 19:01 EST - USA, on October 11, 2001. The following TSOP Council members and committee chairs participated in the conference call: Tim Moore (incoming President), Maria Mastalerz (President-Elect), Lavern Stasiuk (Vice-President), Peter Warwick (Secretary-Treasurer), P. K. (Muki) Mukhopadhyay (Past President) MaryAnn Malinconico (Councilor), Ray Pheifer (Councilor), and Jack Crelling (Newsletter Co-Editor).

The following is a review of some of the items discussed during TSOP's Incoming Council Meeting:

After some discussion the Council unanimously approved the 2001-2002

TSOP budget.

Citing increased costs for the newsletter and a dramatic drop in the Society's Mutual Fund holdings, the Council voted unanimously to raise membership dues from \$20 to \$25. Student (\$15) and Industrial (\$75) dues would remain the same.

Tim Moore reported two new research initiatives for 2002: 1) Coalbed Methane in Low-rank Coals to be headed by Peter Warwick and Maria Mastalerz; and 2) Petrographic Indexes and maceral Ratios headed by Joan Esterle, Tim Moore, and Maria Mastalerz. Maria Mastalerz also agreed to work with Jim Hower to see what is needed to update the AAPG-EMD/TSOP Coal Geology CD-Rom. Warwick and Mastalerz also agreed to provide a poster on CBM Research for the TSOP booth to be open at the AAPG Annual Meeting in Houston.

Jack Crelling suggested that new research efforts should be focused on new applications of organic petrology, such as in material science applications. Examples are auto breaks, and possible space applications. Jack would follow up on this suggestion and report to the next Council meeting.

Ray Pfeifer suggested TSOP should start an endowment fund for research and student grants. Both Ray and Peter Warwick will work on this and report to the next Council meeting.

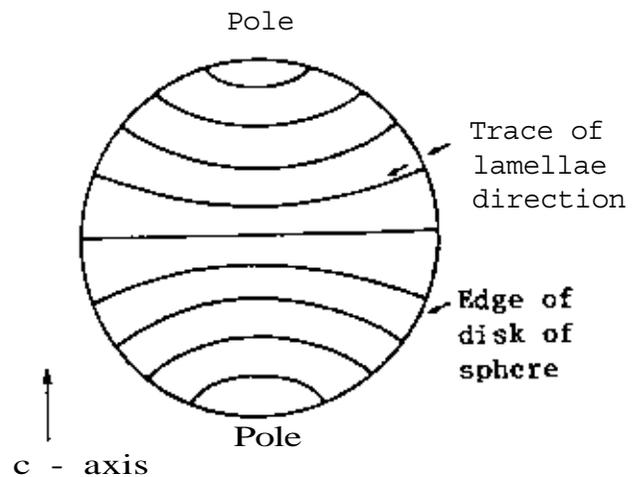
Annual Meetings Committee: Discussion of this topic was tabled, as two of the new incoming Council members had not received descriptions in the proposed Committee responsibilities and duties (see Appendix 3). The topic would be considered at the Mid-year meeting in Houston in March.

Mesophase in Coal Tar Pitch

By Jack Crelling

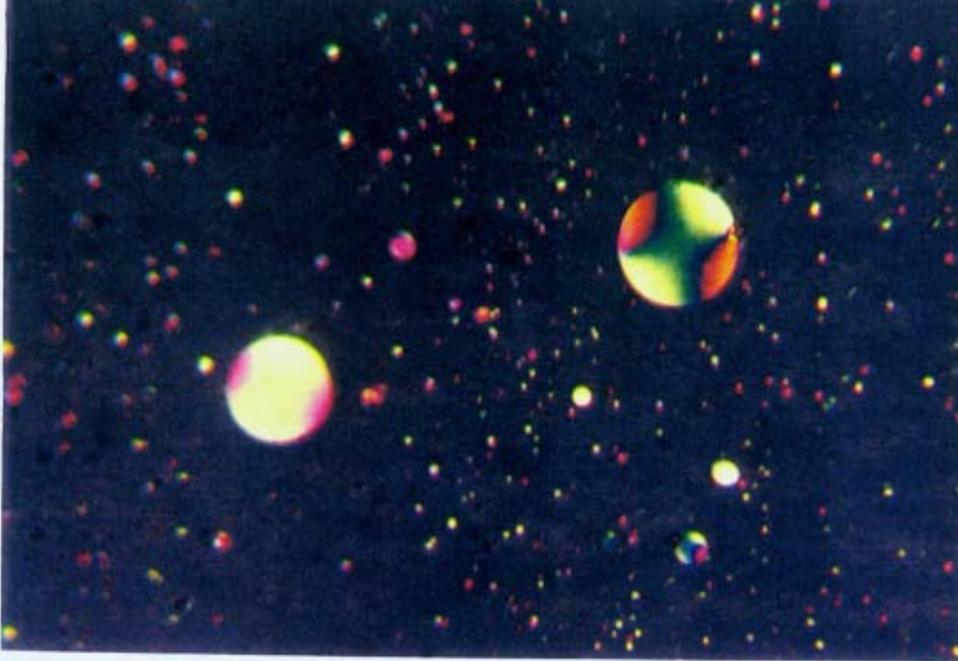
Mesophase is a "middle phase" formed when coal, petroleum residue and pitch, and coal tar pitch are pyrolyzed. Upon heating the pitch becomes fluid and with increased heating zones of order (liquid crystals) begin to form. These are anisotropic and seen under the polarizing microscope with a hot stage as tiny spheres that are only a few microns in diameter (see Figure 1.). With further heating more mesophase appears and all grow larger (see Figures 2 and 3). These spheres are actually liquid crystals composed of layers of carbon benzene rings arranged in an equatorial manner.

While soot and other forms of pyrolytic carbon commonly have an onion skin structure, the mesophase spheres do not (see below). Courtesy of Harry Marsh.

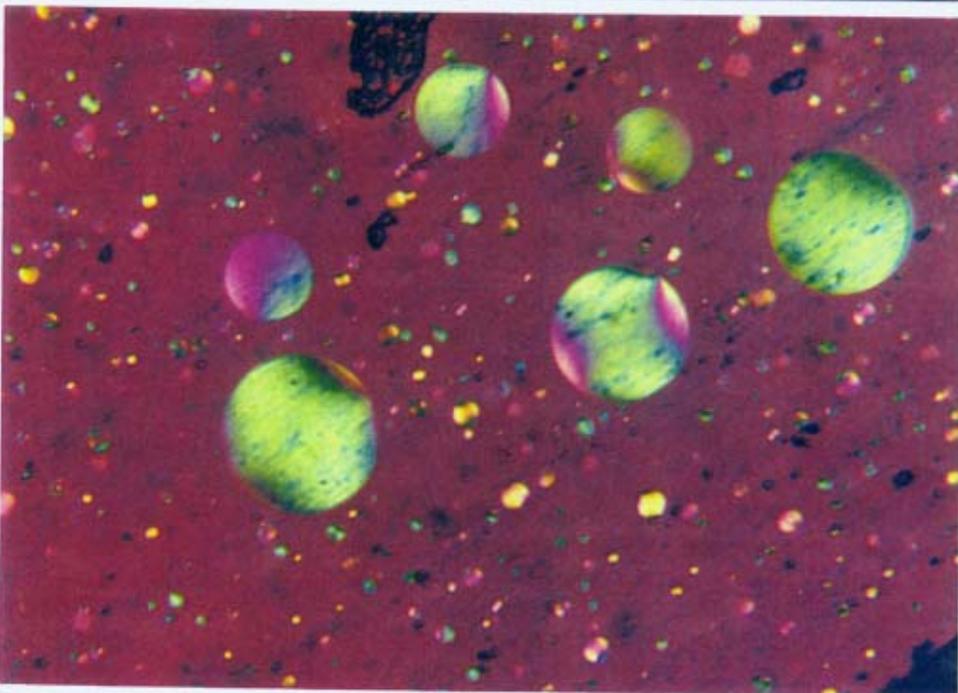


Section through a mesophase sphere

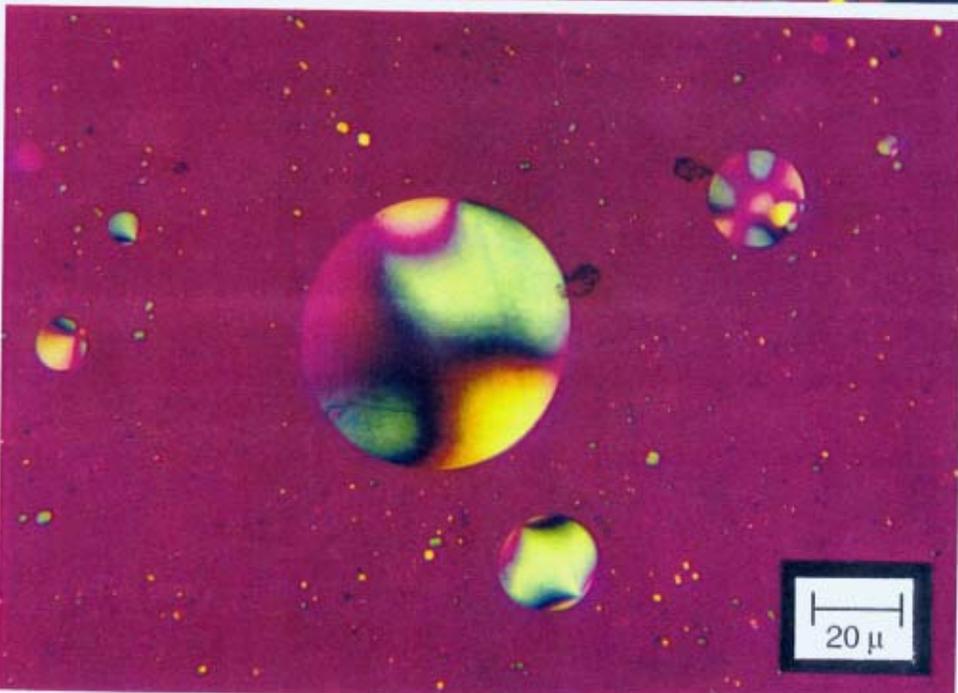
The equatorial structure of the mesophase spheres allows them to easily coalesce at the expense of the liquid phase (see Figures 4, 5, 6, and 7). Eventually the spheres dominate the liquid phase to the point of phase inversion where the typical field is solid mesophase with small patches of isotropic pitch (see Figure 8). At the end of the pyrolysis the mesophase spheres are stressed and deformed and solidify into familiar coke textures (see Figure 9). All of these photomicrographs have been supplied by Ralph J. Gray and were taken in polarized light with both an analyzer and interference plate.



1

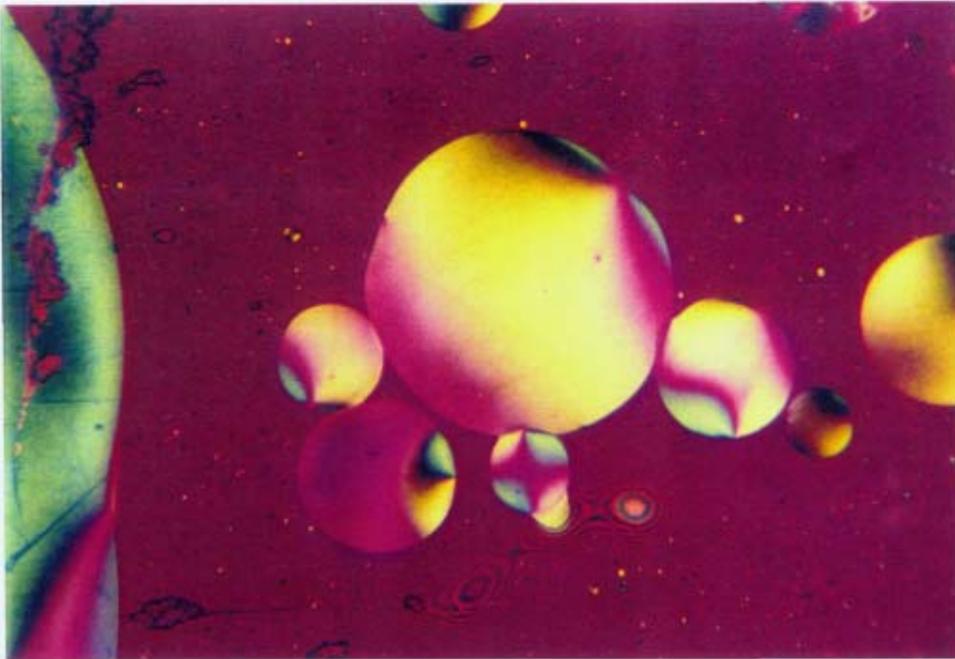


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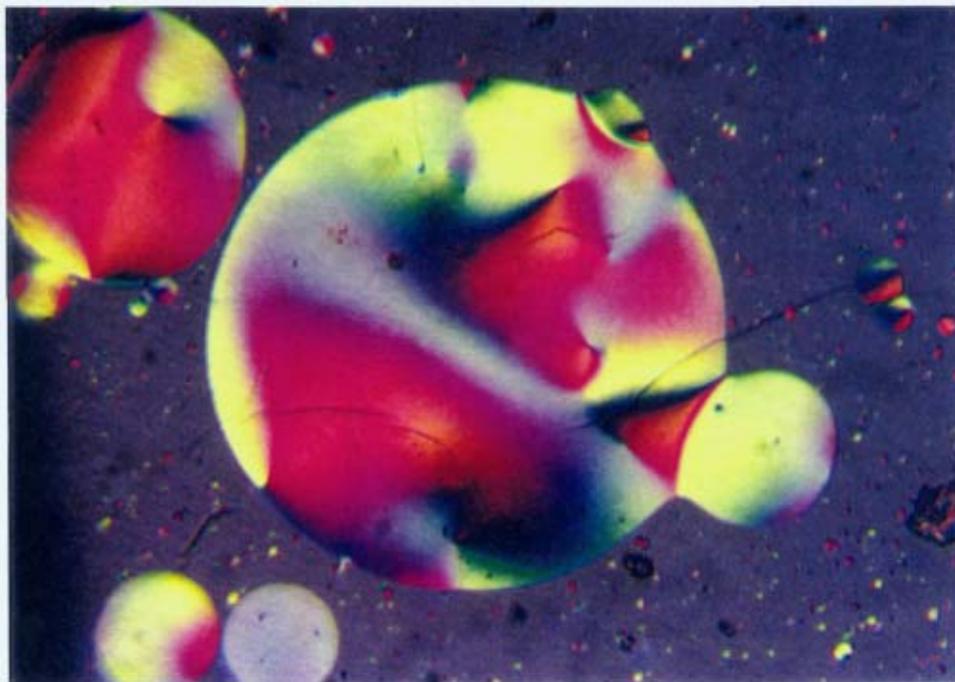


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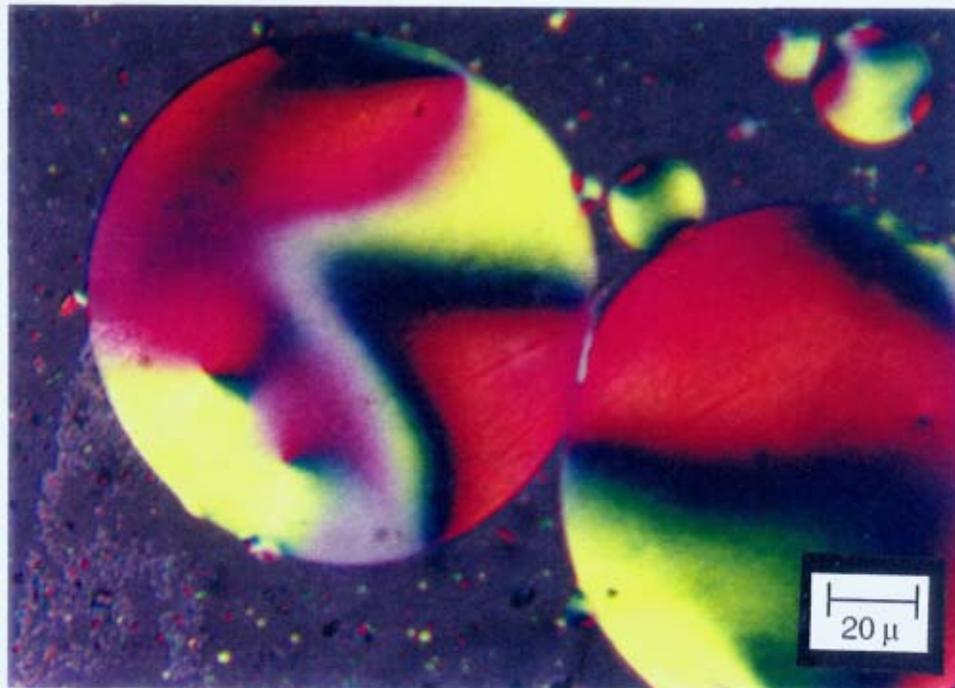
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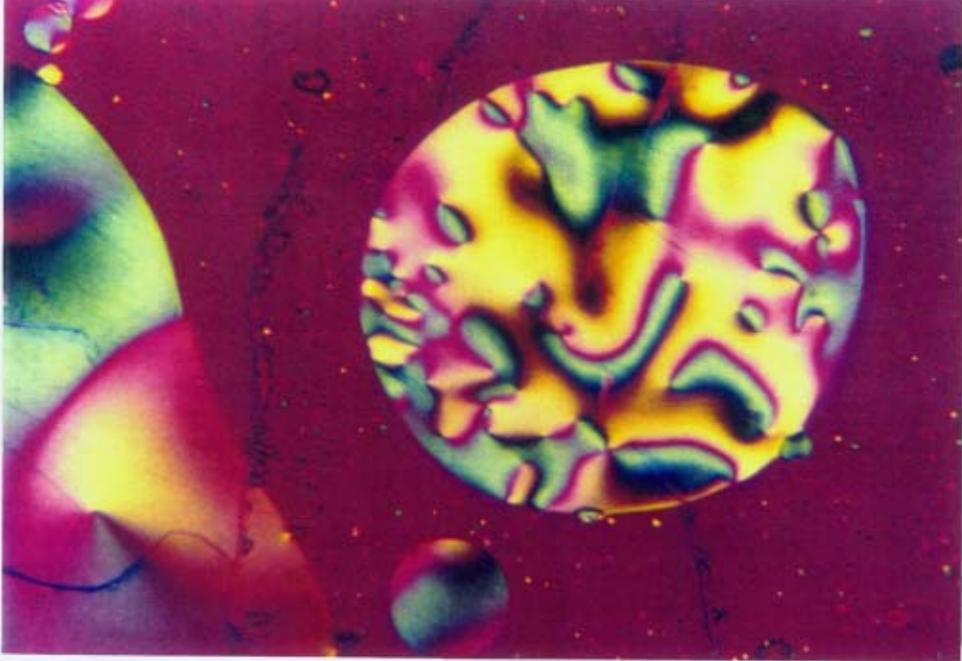
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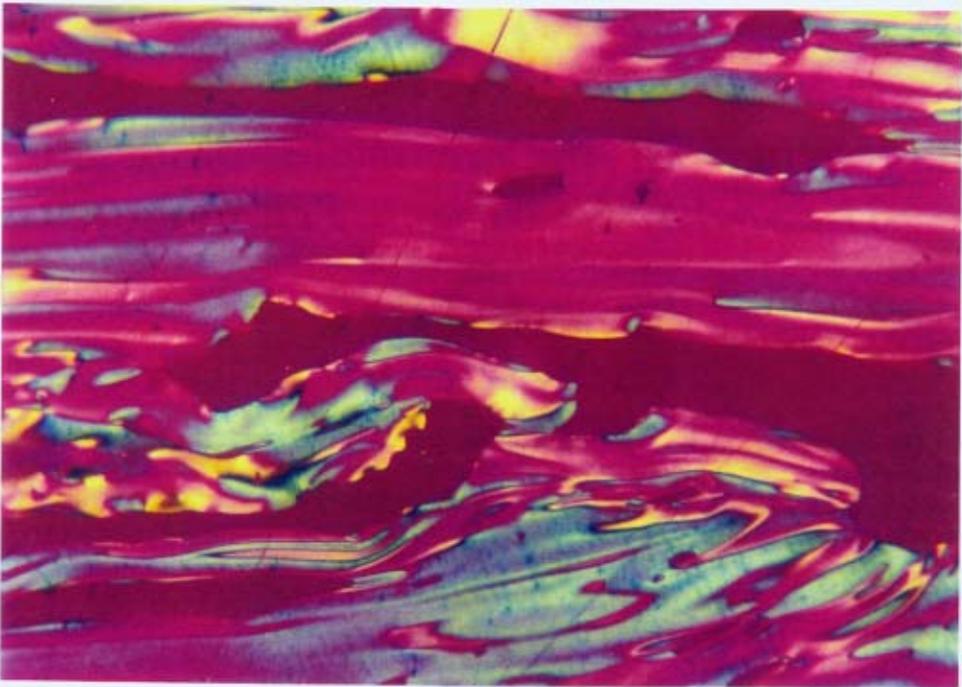
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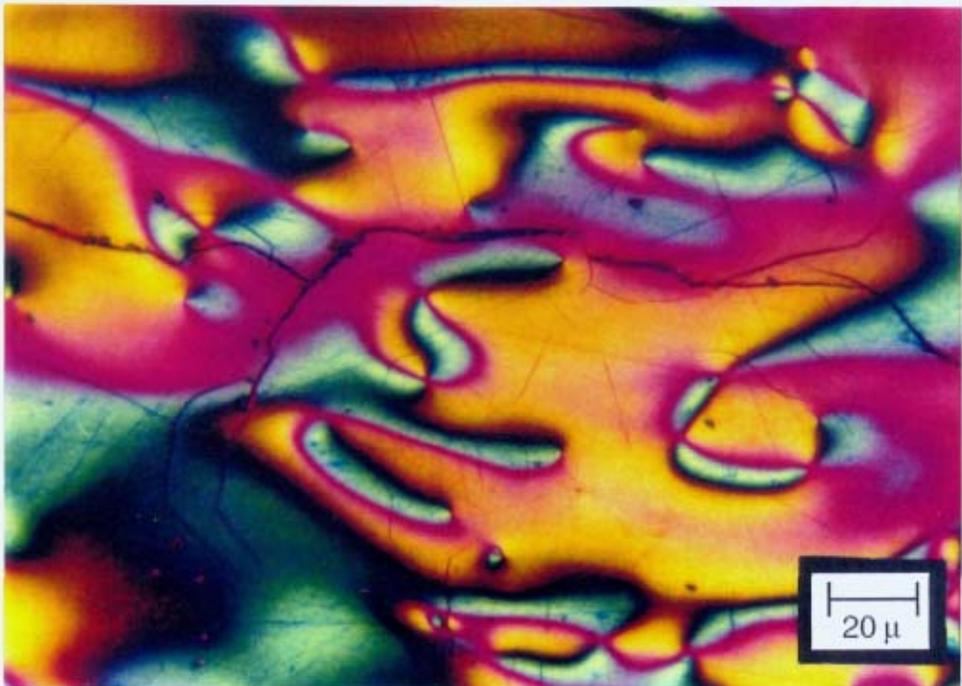
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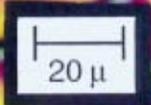
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8



9





Hilton Houston Westchase & Towers

TSOP!

The 18th Annual Meeting of The Society for Organic Petrology

Houston, Texas
rescheduled to
3 - 6 March, 2002

Texas Travel

What to do between the TSOP Meeting March 3-6 and the [AAPG Meeting March 10-13](http://www.aapg.org)? See Texas! For Texas travel information and resources, including outdoor recreation, state parks and trails, hotels, historic sites, events.

See: <http://www.state.tx.us/Travel> and <http://www.texas tourism.com> and <http://www.tourtexas.com>
Galveston, including beaches: <http://www.galvestontourism.com>

Texas golf "links": <http://www.golftexas.com> and <http://www.texasgolfermagazine.com>

For a free 264 page Texas travel guide plus state highway map: <http://www.traveltexas.com> or (in U. S.) I-800-888-8TEX

Conference Highlights

Sunday, 3 March 2002

Short Course: Biomarkers in Oil-Source Rock and Oil-Oil Correlations
Instructor: Dr. Marcio Rocha Mello, Petroleum and Environmental
Geo-Services Ltda., Rio de Janeiro, Brazil

Dr. Mello's short course will present an overview of the use of petroleum biomarkers to correlate oils with one another and to possible source rocks. Dr. Mello will discuss the increasing importance of biomarkers in organic geochemistry and the current methodologies used in their study. He will present examples of their use, discuss their advantages and limitations, and give some insight into the current directions in biomarker research.

Monday morning, 4 March 2002

Special Session: The Organic Geochemistry of the World's Deep-Water Areas

Sponsored by TSOP and HOGS (Houston Organic Geochemical Society)

Chairs: Dr. A. N. Bishop and Dr. C. R. Robison

As the search for oil broadens, the deep-water regions of the world have become a major focus of this ever-expanding petroleum exploration. This session will probe various aspects of the organic geochemistry and petrology of deep-water areas from different parts of the world. Subjects will range from oil seeps of the NE Atlantic Margin and North Sea through oil shows and source rocks discovered during scientific ocean drilling, deep-water source rocks and generation/expulsion timing in the eastern Scotian basin, regional geochemistry and maturity modeling for the northern deep-water Gulf of Mexico to a discussion of the relationship between reservoir fluid properties and oil geochemistry. The session will start with a keynote address by Dr. Marcio Rocha Mello on deep-water oil exploration along the Atlantic margin of Brazil.

Monday afternoon, 4 March 2002

General Technical Session and Poster Session

Tuesday, 5 March 2002

General Technical Session and Poster Session

Wednesday, 6 March 2002

Field Trip (Limit 25 persons)

A one-day field trip to the Ocean Star Offshore Energy Center in Galveston, Texas, will be the main feature of the field trip. The Ocean Star is an old jack up rig with added buildings for displays (quite elaborate scaled models, oilfield equipment and tools). The tour of the Ocean Star will be guided. The guides are usually retired oil field engineers who are quite knowledgeable. The tour should last about 1.5-2 hours. Following the Ocean Star tour, we will visit the Galveston Seaport Museum; have lunch at a seafood restaurant; and then leave for the Johnson Space Center (NASA) at Clear Lake. We will return to Houston in the late afternoon.

**The Society for Organic Petrology
18th Annual Meeting, March 3-6, 2002
Hilton Houston Westchase & Towers Hotel
9999 Westheimer Rd.
Houston, Texas**

General Program

Sunday

3 March 2002

8:00 - 9:00 am

Registration for Short Course

9:00 am 4:00 pm

Short Course: *Biomarkers in Oil-Source Rock and Oil-Oil Correlation*. Instructor: Dr. Marcio Rocha Mello

9:00 am - 4:00 pm

Noon - 6:00 pm

General Registration

3:00 - 5:00 pm

Poster set-up

6:00 - 9:00 pm Reception
8:00 - Midnight Mid-Year Council Meeting

Monday

4 March 2002

7:00 - 7:45 am Registration
7:45 am Welcome and Opening Remarks
8:00 am *Special Session: The Organic Geochemistry of the World's Deepwater Areas*
M.R. Mello Keynote Address "Offshore Brazil"
S. Imbus "Faeroe Islands: geochemical correlation of hydrocarbon seeps to those of the NE Atlantic Margin and the North Sea"
B. Katz "Hydrocarbon shows and source rocks in scientific ocean drilling"
E. **Colling, et al.** "Regional geochemistry and maturity modeling for the Northern Deepwater Gulf of Mexico"
10:00-10:30 am Break and Poster Session
P. K. Mukhopadhyay "Deepwater source rocks and timing of hydrocarbon expulsion, Eastern Scotian Basin, East Coast Canada"
K. Ferworn and J. Zumberge "Relationship between reservoir fluid properties and oil geochemistry"
11:30 am Group Photo
11:45am- 1:20 pm Luncheon with Group and TSOP Business Meeting

1:30 pm General Technical Session: Coal
R. E. Carroll "Carbon sequestration potential of coal-bed methane reservoirs in the Black Warrior Basin: relationship of sorption capacity to coal quality"
B. Cardott "Lessons learned from coal-bed methane exploration"
T. Moore, et al. "The role of macroscopic texture in determining coal-bed methane variability in the Anderson-Wyodak coal seam, Powder River Basin, Wyoming"
3:00 - 3:30 pm Break and Poster Session
A. Cohen "Differential coalification exhibited by

petrographic changes during artificial coalification of Taxodium-dominated peats from Georgia and Louisiana"

S. L. Bend "Coal models: descriptive or predictive? An examination and appraisal of coal petrographic models"

R. Walker and M. Mastalerz "Individual maceral chemistry of selected Indiana coals: implications for coking properties"

S. Pusz "Optical texture of bituminous coals - transformations during pyrolysis and hydrolysis"

S. L. Buliga "Morphological analysis and genesis of coal beds in the Motru-Rovinari Basin, Romania"

Banquet with Group

7:00 pm

Guest Speaker: Dr. G. Gulen, University of Houston "Why don't they get it? Politics versus reality in energy policy"

8:30 - Midnight/TD>

Mid-Year Council Meeting, continued

Tuesday

5 March 2002

8:00 am

General Technical Session: Petroleum Source Rocks

8:00 am

R. C. Hankel and C. L. Riediger "Source rock and oil geochemistry of the Lower Montney formation, central Alberta, Canada"

I. Matyasik, A. Steczko, M. Mastalerz and S. C. Brassel "Petrographic and geochemical characterization of source rock variability in the Carpathian region of Poland: implications for oil generation"

M. L. Malinconico "Organic petrographic studies of the Early Mesozoic Newark Rift Basin (1) thermal history using borehole and surface vitrinite reflectance and (2) organic sedimentation patterns in orbitally forced under filled lake cycles"

C. Seibel and S. Bend "Organofacies and source potential of the Middle Ordovician Winnipeg formation within southern Saskatchewan"

10:00-10:30 am

Break and Poster Session

R. Locklair and B. Sageman "Origin, character, and Stratigraphic hierarchy of organic-rich siltstones in deepwater facies, Upper Permian (Guadalupian) Brushy Canyon formation, west Texas"

Z. Han, Q. Yang, and Z. Pang "Organic facies study of a Permian lake-swamp depositional sequence in Puxiang county, Shanxi Province, China"

11:30 am

Lunch (on your own)

1:00 pm

General Technical Session

S. M. Rimmer, J. A. Thompson, T. Robl, S. Goodnight and S. Hawkins "Controls on organic matter in Devonian-Mississippian marine black shales, east-central Kentucky: preservation vs. productivity"

R. Stanton, P. Warwick, et al. "CO₂ sequestration in low rank coals"

T. Sakulpitakphon and J. Hower "Predicted CO₂ content of maceral concentrates from Kentucky and Illinois coals"

H. Rahimpour-Bonab and Z. Zamani "Evaluation of source rock maturation using organic petrography as a tool: a case study from southern Caspian hydrocarbon source rocks"

3:00 pm

Break

Z. Shiqi and J. Youliang "Studies on petrology and geochemical characteristics of lacustrine condensed sections in Dongying Sag, Bohaiwan Basin, east China"

H. J. McCunn and D. S. Moulton "A new mechanism for the formation and preservation of dolomitic and calcitic hydrocarbon reservoirs"

Awards

J. Burgess "2001 ICCP Meeting Highlights"

W. Dow to lead Discussion Session "Can organic petrology survive in a virtual world?"

List of Posters

B. Katz and C. Robison "Aspects of hydrocarbon charge of the petroleum system of the Yamal Peninsula, West Siberia Basin"

A. S. Alsharhan "Oxfordian-Kimmeridgian Diyab formation as a major source rock unit in southern Arabian Gulf"

B. M. Krzesinka and S. Pusz "New approach to evaluation of coke quality"

S. L. Buliga "The distribution of xylite in the coal beds of Motru-Rovinari Basin, Romania"

T. M. Williams and A. D. Cohen "Trace element distribution in an organic-rich wetland at the Savannah River Site, South Carolina"

S. Hawkins and S. M. Rimmer "Pyrite framboid size and size distribution: indicators of anoxia during deposition of Devonian-Mississippian black shales"

A. Sotirov and J. Kortenski "Petrography of the coal from the Oranovo-Simitli Basin, Bulgaria"

J. Kortenski and A. Sotirov "Petrography of the Neogene lignites from the Sofia Basin, Bulgaria"

Z. Damyanov, M. Vassileva, J. Kortenski, and A. Sotirov "Petrology of the organic matter in the Kremikovtsi siderite iron formation, West Balkan Mountain, Bulgaria"

V. C. Conde, et al. "Palynofacies and sequence stratigraphy of an Upper Aptian section from Almada Basin, Brazil"

W. G. Dow, J. R. Allen, and C. J. Kuhnel "Determination of API gravity from very small samples of oils, tar mats, and solid bitumens with the Rock-Eval 6 instrument"

A. Callejon and K. K. Bissada "Role of coals and carbonaceous shales in the generation of oil in the Eastern Venezuela Basin"

G. J. Nowak "Facies model of the Upper Carboniferous coal seams in the Lower Silesian Coal Basin (SW Poland) from the view point of microscopic studies"

Wednesday

6 March 2002

Field Trip to Galveston to visit the "Ocean Star Offshore Energy Center" an actual retired Gulf of Mexico "jack-up rig"

800 am (oil platform) with guided tour and historical displays. It is tied to the dock and easily accessible for learning. Lunch will be in nearby restaurants. An optional afternoon trip to nearby NASA's Johnson Space Center will be offered.

18th Annual TSOP Meeting, March 2002,
Houston, Texas

REGISTRATION FORM

Please complete Registration Form and Return with Remittance (in U.S. Funds) to:

Dr. C. R. Robison
7702 Soledad Dr.
Houston, TX 77083-1900

NAME: _____
 ADDRESS: _____
 City: _____ State: _____ Postal Code: _____ COUNTRY: _____
 AFFILIATION (if not given in address): _____
 TELEPHONE: (work) _____ (home) _____
 FAX NUMBER: _____ E-Mail Address: _____
 Please state if you will need services to accommodate a disability: _____

Short Course: "Biomarkers in Oil-Source Rock and Oil-Oil Correlations" (March 3)

Pre-registration (through 15 February 2002)	@ \$ 60.00	\$ _____
Late Registration (after 15 February)	@ \$ 70.00	\$ _____

Meeting (March 3-6):

Pre-registration (through 15 February 2002)			
TSOP Member	Professional	@ \$ 150.00	\$ _____
	Student	@ \$ 50.00	\$ _____
Non-Member		@ \$ 175.00	\$ _____
Late Registration (after 15 February 2002)			
TSOP Member	Professional	@ \$ 175.00	\$ _____
	Student	@ \$ 75.00	\$ _____
Non-Member		@ \$ 200.00	\$ _____

Field Trip (March 6) Offshore Drilling Platform Museum, Galveston, Texas

(Limit 20 persons)	@ \$ 65.00	\$ _____
Late Registration (after 15 February)	@ \$ 75.00	\$ _____

Proceedings Volume (to be published in the International Journal of Coal Geology)

@ \$ 30.00/copy	\$ _____
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TOTAL: \$ _____

(PAYMENT IN U.S. FUNDS ONLY; MAKE CHECKS PAYABLE TO TSOP-2001, Houston)

**18th Annual TSOP Meeting, March 2002,
Houston, Texas**

Housing Information

Hotel reservations should be made by February 8, 2002

Accommodations are in the Hilton Houston Westchase & Towers at 9999 Westheimer Rd., Houston, TX 77042. Check in Time 3:00 PM; Check Out Time 12:00 PM. The Hotel will hold the rooms until February 8. After this date, rooms not covered by rooming list or individual reservations shall be released from TSOP's block and the hotel may contract with other parties for the use of the rooms. The hotel will continue to accept reservations from TSOP meeting attendees after February 8, 2002, at the prevailing room rate and subject to availability. The contracted room rate is \$129 Single and Double (until Feb. 8).

Reservations: Individual Reservations - **Each individual guest must make their own reservations online at www.hilton.com or by calling 1-800-HILTONS (1-800-445-8667) (or locally 713-974-1000). Individual must identify him(her)-self as a member of TSOP or an attendee of the TSOP meeting to receive the group's special rate. The Group Number is "TSO".** All reservations must be guaranteed and accompanied by a first night room deposit or guaranteed with a major credit card.

Travel Information:

The Hilton Houston Westchase & Towers is located on the SE corner of the intersection of Westheimer and Briarpark in west Houston (hotel address-9999 Westheimer). Two major airports serve Houston: Houston Hobby and Bush Intercontinental. Taxi services are available at both airports. However, a good way to arrive at the hotel is to take the **Express Shuttle Bus** from either airport. Tickets for the shuttle can be purchased (roundtrip available) at the Express Shuttle service counters in the Baggage Claim/Ground Transportation levels of either airport. The cost is approximately \$15.00 one-way and \$24.00 roundtrip. If two or more attendees share a taxi, however, it may be cheaper than the shuttle.

International Visitors:

If you need a personal letter of invitation to obtain travel funds or a USA visa, please indicate on the bottom of your registration form that you wish to have such a letter. You can also e-mail the meeting Chairperson at robisrcr@texaco.com and request such a letter in advance of mailing in your registration.

All non-immigrant visa holders are advised to have health and accident insurance that covers the time they will be in the USA. J-1 and J-2 visa holders are required by law to have this insurance, which must be set at least to a minimum of \$50,000 per accident or illness and include medical evacuation and repatriation of remains. Your travel agent can assist you with obtaining this insurance coverage.

It is recommended that you obtain sufficient US currency for your trip before departure. However, there are currency exchange facilities at Bush Intercontinental Airport and at several banks in the Houston area.

Jack Crelling Receives the Gilbert H. Cady Award

Roughly 37 years ago G.S.A. met in New York City. At the time I was at Penn State and was on the admissions and assistantship committee for the geological sciences. I was fortunate to be able to attend that meeting and had been asked to meet a student from the University of Delaware who was interested in the possibility of attending Penn State for graduate work.

We did meet and discussed Penn State, graduate work and the student's interests. I remember indicating that we would have to have a transcript of his record before getting too far along in the admissions process. This remark of mine prompted the student to reach into his coat pocket and produce his college transcript. This degree of preparation caught my attention and we had further discussions.

The Gilbert H. Cady Award is presented this year to John Crawford Crelling in recognition of his many outstanding achievements in the field of coal geology. He has contributed in significant fashion to our practical knowledge of the composition of coal, the nature of coal macerals, the formation of metallurgical coke, and the properties of other forms of carbon such as chars, graphites and carbon composites.

The five years that Jack spent working at the Homer Research Laboratories of the Bethlehem Steel Corporation gave him insights and discipline that served him in good stead when working in his own laboratory in a university setting. His ability to plan his research programs and to stick to a carefully developed scheme has been key to his success in getting his work published, in obtaining funding to support his work, and in attracting students and co-investigators. To date he has been the author or co-author on over a hundred published articles and three books as well as the co-editor of two books. He has been awarded over four and a half million dollars in funding for sixty-five projects, and he has worked with



colleagues in geology, chemistry, engineering, physics, and material science from home and from the United Kingdom, France, Spain, Canada, Pakistan, Japan, the Czech Republic, and the Netherlands.

Professor Crelling has been amazingly astute in his efforts to understand the nature of coal by focusing on the macerals that are the basic constituents of coal. Within a few years of arriving at Southern Illinois University, he set up a laboratory using the biological technique of density gradient centrifugation in an ongoing twenty-year program of isolating and characterizing pure maceral concentrates. He was the first to separate and characterize the macerals vitrinite and Pseudovitrinite and he has advanced such work on the liptinite and inertinite macerals. To help characterize the maceral concentrates he developed petrographic techniques in spectral fluorescence, rotational polarization and bireflectance imaging. The results of this research have led to an increasingly clear understanding of the petrology, chemistry, thermal reactivity, and physical properties of a wide variety of macerals. He has also extended the use of coal petrographic techniques into the field of materials science by using them to characterize such things as automobile and aircraft brakes, carbon-carbon composites, petroleum cokes, synthetic graphites, and carbon blacks.

His success in these efforts and his ability as a teacher have led to requests to present numerous short courses and workshops dealing with topics such as "Foundations and Principles of Coal Petrology," "Applied Fluorescence Microscopy," "Petrology of Cokes, Chars, Carbons, and Graphites," and "Teaching Principles for Graduate Students." At Southern Illinois University he has directed twenty-two Master's theses and two Ph.D. dissertations dealing with coal geology, applied coal petrology, and maceral characterization. In addition, he has developed a widely used

petrographic atlas of coals cokes, chars, carbons, and graphites that is available through an SIU website.

Jack has been called upon to teach a number of different courses during his time at SIUC. Many of these deal to a large extent with coal, coal materials, and coal extraction. Surprisingly, he also has taught igneous petrology. Some explanation may be necessary here.

Although he is a coal geologist/petrologist, his Ph.D. degree was in fact in igneous petrology. His dissertation is an excellent study of the dikes radiating out from the Spanish peaks in southern Colorado. These dikes and related sills have altered many of the coal seams in that region. Prior to his doctorate work, Jack had received the M.S. degree, also from Penn State, studying the alteration of these coals by the emplacement of the many dikes and sills in the area.

By virtue of his many accomplishments in the fields of coal science, Professor Crelling is an outstanding recipient of the Gilbert H. Cady Award.

Signed: Russell R. Dutcher

TSOP Graduate Student Research Grants

The Society for Organic Petrology (TSOP) invites applications for graduate student research grants. 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 from around the world, who demonstrate the application of organic petrology concepts to research problems.

Grant Size: Monetary awards up to a maximum of \$1,000.00 US will be granted. TSOP will also provide Merit Awards, in the form of certificates redeemable for TSOP publications, to top-ranking applicants not receiving grants. The program

awards a maximum of two grants each year.

Use of Grant: Grants are to be applied to expenses directly related to the student's thesis work, such as summer fieldwork, laboratory analyses, etc. A portion (not to exceed 25%) of the funds may be used to attend TSOP Annual Meetings. Funds should not be used to purchase capital equipment, to pay salaries, tuition, room, or board during the school year. Funds must be spent within 18 months of receipt of the award.

Application Deadline: TSOP graduate student research grant application deadline is April 15, 2002. Grants will be awarded in September, 2002. Watch for detailed information and an application form on the TSOP web site <http://www.tsop.org> or applications may be obtained from Suzanne J. Russell, Shell UK Exploration and Production, 1 Altens Farm Road, Nigg, Aberdeen AB12 3FY, UK; phone: +44 (0)1224 88 2310; fax: +44 (0)1224 88 4184; e-mail: suzanne.russell@expro.shell.co.uk.

The Society For Organic Petrology Council 2001 - 2002

President	Tim Moore
Vice President	Lavern Stasiuk
President Elect	Maria Mastalerz
Secretary/ Treasurer	Peter Warwick
Co Editors	William Huggett Jack Crelling
Councilor	Ray Pheifer
Councilor	MaryAnn Malinconico

TSOP Publications

- | | |
|--|------|
| 1. <i>Fluoreszenz von Liptiniten und Vitriniten in Beziehung zu Inkohlungsgrad und Verkokungsverhalten</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 | \$35 |
| 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 | \$10 |
| 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 | \$35 |
| 17. <i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997 | \$15 |
| 18. IJCG, 13th TSOP Meeting, Carbondale, IL, 1996; Vol. 37, Nos. 1-2, 1998 | \$15 |
| 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 | \$25 |
| 22. IJCG, 15th TSOP Meeting, Halifax, Nova Scotia, 1998; Vol. 43, Nos. 1-4, 2000 | \$25 |

Ronald W. Stanton

On Thursday, September 27, 2001, Ronald W. Stanton of Vienna, VA, 50, a longtime member of The Society for Organic Petrology (TSOP) and International Committee for Coal Petrology (ICCP), and research geologist with the U.S. Geological Survey (USGS), died at his home from cancer. Ron was born in Wilkes Barre, Pennsylvania and lived in Fairfax County, Virginia.

Ron started his career at the USGS as a field assistant in 1973. Following his completion of undergraduate and masters degrees in Geology at West Virginia University, he returned to the USGS Branch of Coal Resources in 1975 as a coal geologist specializing in organic petrology. He was responsible for developing new techniques and approaches to the description, characterization, and prediction of coal bed thickness and quality of world coal resources. Ron continued to analyze coal components throughout his career and his observations led to significant modifications of coal petrographic classifications that are currently used by the American Society for Testing and Materials and by other coal geologist throughout the world.

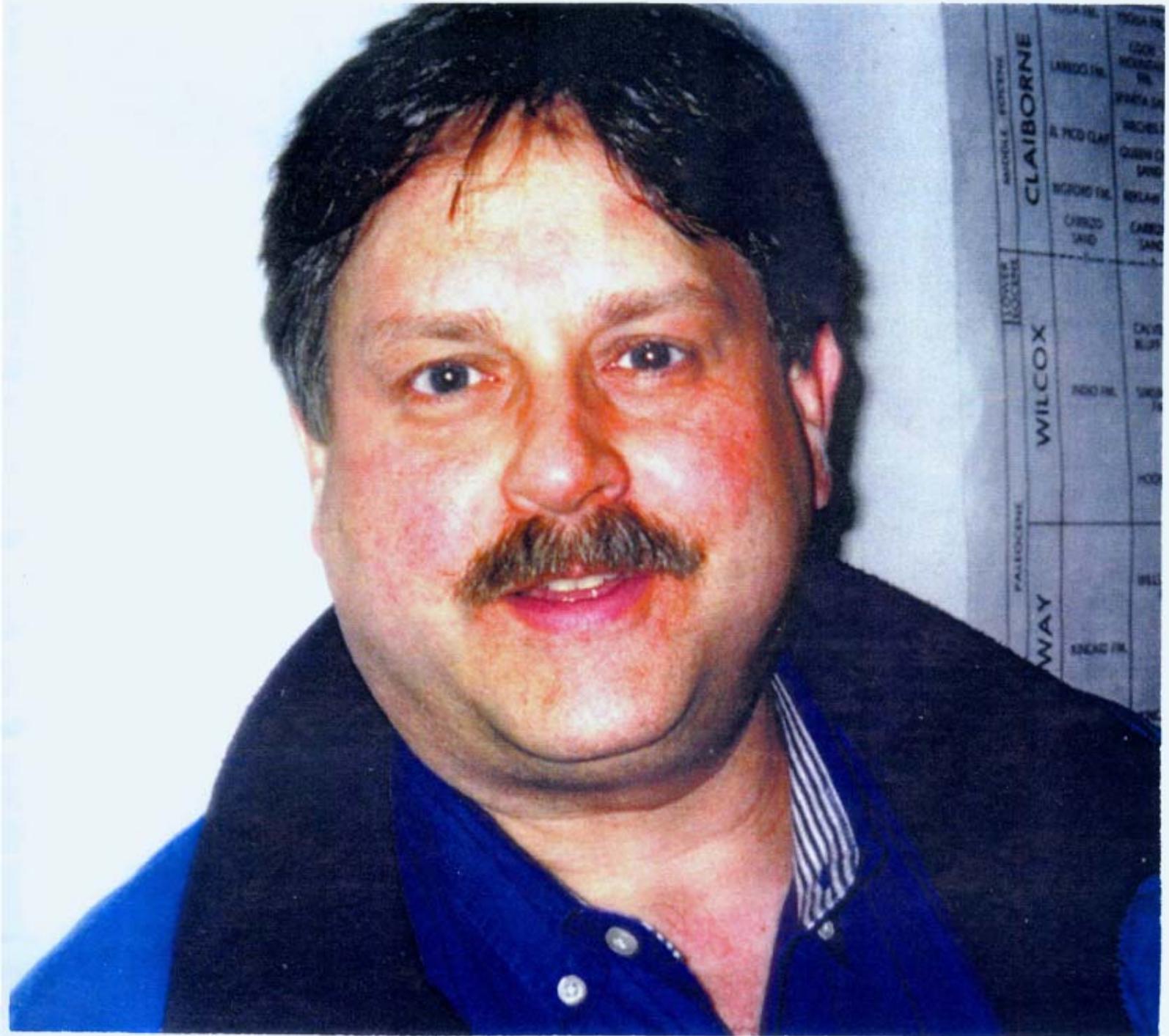
In 1993, Ron was appointed Assistant Branch Chief of the Branch of Coal Geology at the USGS and had responsibility for budgets and staffing. From 1995 to 1999, he served as the Team Chief Scientist of the Eastern Energy Resource Team where he was responsible for science directions, plans, and supervision of over the professional and administrative staff.

Ron was recognized worldwide as a coal geologist and was recently elected as an Honorary Member of the ICCP in 2001. He held numerous leadership positions at the American Society for Testing and Materials, Committee D5 on Coal and Coke, and was a founding member of TSOP. In addition, he was a member of the Geological Society of America, Sigma Xi, Scientific Research Society, American Association of Petroleum Geologists, and the Society of Mining Engineers.

He was a Boy Scout leader, a soccer and basketball coach for youth leagues in Fairfax

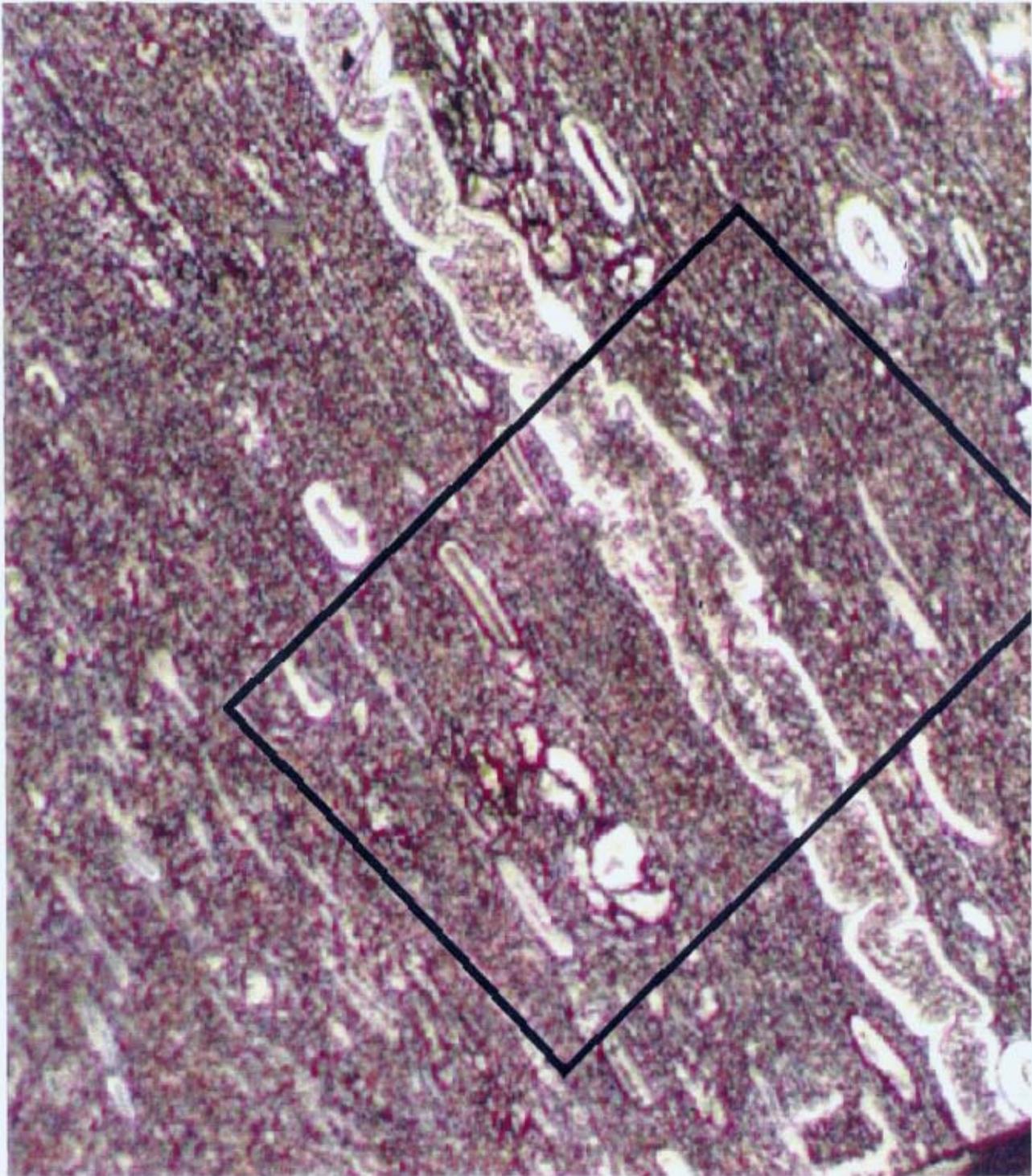
County and an organizer of the Hunter Mill Defense League, which fought development in Fairfax County. His interests included fly-fishing and bluegrass music. He played the violin, banjo, piano and trumpet.

Ron's wife Cindy has arranged for a music scholarship in Ron's honor- the RWS Scholarship Fund. It will be a scholarship for students of James Madison High School (Fairfax County) and will be administered by the high school. The scholarship will be specifically earmarked for an orchestra student in the strings program and will go either to a graduating senior or to help students with school music programs. Checks can be made out to "JMHS" and somewhere on the check should be indicated that it is for the "RSW Scholarship Fund." If you care to contribute to the scholarship (contributions are tax deductible), you can send the checks directly to Cindy Stanton at 10309 Browns Mill Road, Vienna, Virginia 22182, USA.



Ron Stanton

Contributing Members' Photomicrograph



Late Eocene bituminous coal from Kalimantan Indonesia. Etched (with KMnO_4) coal particle showing sclerotinite and Semifusinite. The long thin Semifusinite tissue is interpreted as oxidised epidermal tissue of a primary root. These features, along with the sclerotinite represent the only inertinite in the coal, usually less than 2%. Scale is 1 mm across the whole field of view. Photomicrograph by Tim Moore.



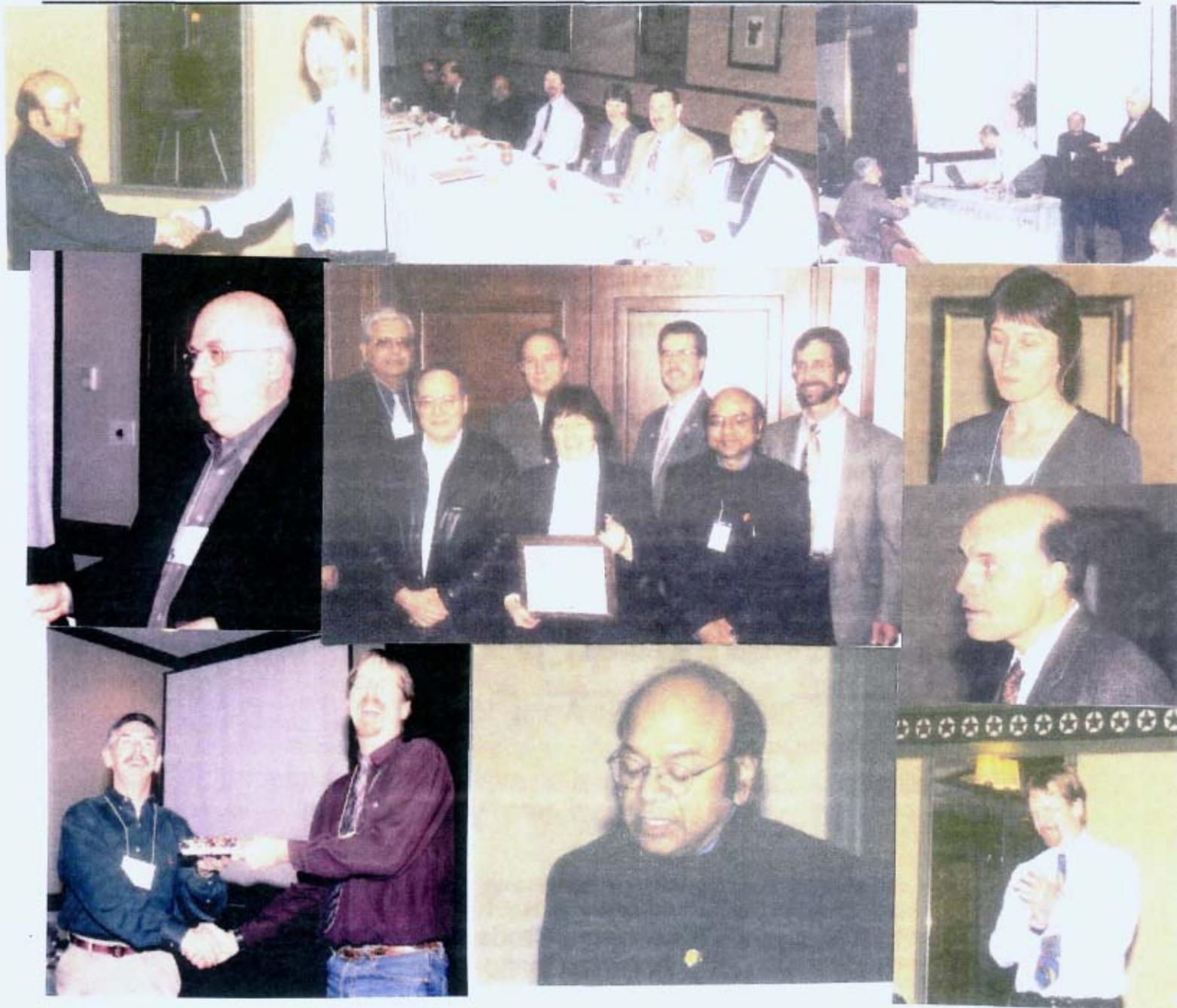
THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

Vol. 19 No. 1

March 2002

ISSN-0743-3816



The 18th Annual Meeting of The Society For Organic
Petrology
March 3-6, 2002 Houston, Texas



The Society for Organic Petrology (TSOP)

Student Grants 2002

Purpose: The Society for Organic Petrology (TSOP) grants foster research in organic petrology which includes coal petrology, kerogen petrology, organic geochemistry and related disciplines) by providing support to graduate students from around the world, who demonstrate the application of organic petrology concepts to research problems.

Grant Size: Monetary awards up to a maximum of US \$1,000.00 will be granted. TSOP will also provide Merit Awards, in the form of certificates redeemable for TSOP publications, to top-ranking applicants not receiving grants. The program awards a maximum of two grants each year.

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DEADLINE: April 15, 2002

Application and further information available on the Internet at
<http://www.tsop.org/grants.htm>

OR

TSOP Research Committee Student Grants Program

S. J. Russell, Chairperson

Shell UK Exploration and Production

1 Altens Farm Rd., Nigg, Aberdeen AB12 3FY

United Kingdom

Fax: +44(0)1224 88 4184;

E-mail: suzanne.russell@expro.shell.co.uk

The Society For Organic Petrology

The Society for Organic Petrology: c/o American Geological Institute, 4220 King Street, Alexandria, VA 22302-1520

Co-editors:

John C. Crelling & William W. Huggett

The TSOP Newsletter welcomes contributions from members and non-members alike. Items may be submitted on computer disk, as an e-mail attachment or as printed text via fax or regular mail. The format may be in either MS word or WordPerfect. Please sent to:

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 Department of Geology
 Southern Illinois University
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 E-mail: icrelling@geo.siu.edu
huggett@geo.siu.edu

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 international and open to all individuals having an interest in the field of Organic Petrology. For more information on membership, Society activities or to inquire about membership packs please contact:

Peter Warwick
 U. S. Geological Survey
 956 National Center
 Reston VA 20192

Tel: (703) 648-6469

March Contents

Cover: 18th Annual Meeting of The Society For Organic Petrology

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9. Calender of Events
11. Available TSOP Publications
12. Contributing Member's Photomicrograph

Cover Photos

Clockwise from top left: Outgoing TSOP president Prasanta Mukhopadhyay (Muki) welcomes Incoming President Tim Moore, Council at lunch, Session chair Cole Robison ensures a smooth transition between speakers, Maria Mastalerz presents her report during the luncheon, Peter Warwick submits Treasurer report, Tim Moore gives his first official address as president, Muki gives his last, Mike Darnell presents Tim with the award for the farthest traveled member, Wally Dow imparts his wisdom to wrap up the meeting. Center: Past TSOP presidents were presented with a plaque honoring their service to the Society-I to r: Cole Robison, Art Cohen, Jim Hower, Sue Rimmer, Brian Cardott, Muki, Jeff Levine.

President's Column

by Tim Moore

This past year has been one of the most difficult for TSOP. Obviously with the events of September 11th, Council had to postpone the Annual Meeting which was scheduled for Houston in late September. The reason for this was that most of our international participants would not have been able to get the all important travel insurance. Without this insurance, none of their employers would have allowed them to travel, myself included.

However it is with much pleasure that I can report that the Houston meeting was a stunning success. This success was no accident. The monumental efforts of Cole Robison and his organising committee are to be given full credit. Essentially they planned virtually two meetings, the original one in September and the actually one in March.

Although I was officially made President in September 2001 during an outgoing phone meeting with Council, I'd like to take this opportunity to welcome the current Council. Vice President: Vern Stasiuk, President-Elect: Maria Mastalerz, Secretary/Treasurer: Peter Warwick, Editor: Bill Hugget & Jack Crelling, and our two councilors: MaryAnn Malinconico and Ray Pheifer. I am sure it will be a productive and innovative council.

I would also like to congratulate Muki (aka P.K. Mukhopadhyay) for his term as TSOP President. I found working with Muki a pleasure. He is highly efficient, well organised and has lots of energy; and with that energy comes many great ideas. The direction and vision that Muki has given TSOP over this last year will help direct this organisation for years to come.

The mid-year meeting of the TSOP Council was held at the Houston conference. Updates on our next three meetings were made: 2002 Banff, 2003 Washington DC, and 2004 Sydney, Australia. I am particularly pleased to see TSOP holding its first annual meeting not only overseas, but also in my part of the world. Australia (or the 'West Island' as we New Zealanders call it) is not just a

lovely place to visit. Coal science is ground breaking and researchers there are innovative and highly creative. I am absolutely sure the technical programme will be highly thought provoking and stimulating.

At the mid-year meeting we also received updates on our affiliated conferences. Specifically, the "Black Shales" (Sue Rimmer) and "Applied Coal Geology" (Jim Hower) TSOP sessions at the Northcentral-southeast Section of the GSA Meeting in Lexington Kentucky to be held on 4 April 2002.

As a closing remark, I'd like to thank all our student participants at the Houston meeting. All the talks by the students were of high quality and scientific merit. This aspect of TSOP should never be underestimated. Although it was a difficult decision to make by our Awards committee, the best student paper went to Robert Locklair of Northwestern University in Evanston, Illinois. Congratulations Robert!



**THE SOCIETY FOR
ORGANIC
PETROLOGY
(TSOP)**

AAPG ASSOCIATED SOCIETY
AGI MEMBER SOCIETY

19th Annual Meeting

jointly with
the Canadian Society for Coal Science
and Organic Petrology (CSCOP)



AUG. 31-SEPT. 4, 2002 BANFF, ALBERTA, CANADA

Pre-meeting short course on "Prediction of TOC contents and hydrogen indices in marine sediments". Instructor: Dr. Richard Tyson

Oral and poster sessions; Meeting theme: "Emerging Concepts in Organic Petrology and Geochemistry"; Special symposium celebrating contributions of Dr. Archie Douglas to organic geochemistry.

Meeting and abstract information at www.cscop-tsop2002.com
or contact Martin Fowler, Geological Survey of Canada, Calgary,
Ph: (403) 292-7038; E-mail Mfowler@nrcan.gc.ca

**Visit us at AAPG Annual Meeting (March 10- 13, 2002)
Exhibit Booth #371 and
attend joint AAPG/TSOP Interactive Poster Session**

Jack Crelling Receives The 2002 Joseph Becker Award

Dr. John C. Crelling, of Southern Illinois University and a founding member of TSOP, became the 40th recipient of the Joseph Becker Award at the 61st Ironmaking Conference held in Nashville this past March.

The ISS Ironmaking Division established the Joseph Becker Award in 1961 to honor outstanding achievements in coal carbonization and coal technology, including improvements in methods of selection and preparation of coal for coke manufacture, developments in coal technology that led to greater efficiency in the use of coke in ironmaking, and improvements in the design, operation and productivity of coke plants and coal chemical recovery equipment.

Jack started his professional career in 1972 at the Homer Research Labs of the Bethlehem Steel Corporation where he was in charge of the Coal and Coke Petrographic Labs. At Bethlehem he worked on a variety of quality control projects including a major study on the effects of weathering on coke quality and coking behavior. In 1977 he became a professor at Southern Illinois University and leader of the Coal Characterization Laboratory. The overall objective of his research at SIU is to improve the petrographic characterization of coal to better predict its behavior. His research includes the development of quantitative fluorescence and rotational polarization techniques, the chemistry and reactivity of coal macerals, and the behavior of coal in blast furnace injection. At SIU he also established a Maceral Separation Laboratory at SIU with an ongoing program for the separation and characterization of pure coal macerals including vitrinite and Pseudovitrinite. In 1998 he created an internet based petrographic atlas of coals, cokes, chars, carbons, and graphites. He has presented 4 papers at the Ironmaking Conference and is a reader for the *ISS Transactions*.

The Becker Award is one of the highest honors available in the steel industry, and has now been awarded to seven TSOP members:

1976 - W. Spackman, Jr.
1986-R. J. Gray

1988 - R.R. Thompson
1990-H. Marsh
1960- L.G. Benedict
1999-H. Valia
2002 - J. Crelling

Special Offer to TSOP Members

We are pleased to announce an agreement between TSOP and Elsevier to offer the Review of Paleobotany and Palynology at a special price of US\$90/year. A yearly individual subscription will include 5 Volumes of 4 Issues each, some combined into larger editions.

Each subscriber is to maintain the subscription for personal use only.

Please check the journal's web site at

<http://www.elsevier.com/locate/revpalbo/>

If you are interested in subscribing, please fill in the appropriate information below and send it to Peter Warwick at the address below. You will be invoiced by Elsevier for the subscription cost. If you are not a TSOP member we invite you to fill out an application form, downloaded from:

www.tsop.org/tsopjoin.htm

and send it along with the journal order form:

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Reston, VA 20192

Book Reviews

Below is a complete list of Book reviews that have been featured in the TSOP Newsletter from it's beginning in June of 1984

Petroleum Geochemistry and Basin Evaluation (Vol. 2, #1)

The Okefenokee Swamp: Its Natural History, Geology and Geochemistry (Vol. 2 #2)

Low Rank Oil Shales: Part 1 - Organic Petrology (Vol. 3 #2)

Geochemistry in Petroleum Exploration (Vol. 4 #2)

NMR of Humic Substances and Coal: Techniques, Problems, and Solutions (Vol.5 #1)

Organic Metamorphism and Geothermal History: Microscopic Study of Organic Matter and Thermal Evolution of Sedimentary Basins (Vol. 5 #3)

Organic Petrography And Organic Geochemistry Of Texas Tertiary Coals In Relation To Depositional Environment And Hydrocarbon Generation (Vol. 7#1)

Peat And Coal: Origins, Facies And Depositional Models (Vol. 7 #1)

Coal: Classification, Coalification, Mineralogy, Trace-Element Chemistry, And Oil And Gas Potential (Vol. 7 #1)

Environmental Forensic Geochemistry - Tracing Petroleum Contaminants In Soil And Water(Vol 8 #2)

The Many Forms Of Carbon (Vol 8 #4)

Geology And Utilization Of Fort Union Lignites (Vol 9 #4)

New Perspectives On Central Appalachian Low-Sulfur Coal Supplies (Vol.9 #4)

Coal and Coal-Bearing Strata as Oil-Prone Source Rocks (Vol 10 #3)

Coal-Bearing Depositional Systems (Vol 12 #1)

Vitrinite Reflectance as a Maturity Parameter (Vol 12 #1)

Fractals and Chaos in Geology and Geophysics (Vol 12 #1)

Asphaltenes and Asphalts, 1 (Vol 12 #2)

Coalbed Methane in the Cretaceous Fruitland Formation, San Juan Basin, New Mexico and Colorado (Vol 12 #2)

Bitumens in Ore Deposits (Vol 12 #2)

European Coal Geology (Vol 12 #2)

Control of Coal Dust in Transit and in Stockpiles (Vol 12 #3)

Dazzle 'en with Style: The Art of Oral Scientific Presentation (Vol 12 #3)

The Values of Precision (Vol 12 #3)

An Introduction to Coal Technology (Vol 12 #3)

Coal: Resources, Properties, Utilization, Pollution (Vol 12 #4)

The Petroleum System - from Source to Trap (Vol 13 #1)

At What Cost? Manufacturing Employment Impact from Higher Electricity Prices (Vol 13 #1)

Messel: An Insight into the History of Life and the Earth (Vol 13 #1)

Sedimentation of Organic Particles (Vol 13 #1)

Lignites of North America (Vol 13 #1)

Trace Elements I Coal (Vol 13 #2)
Amber, Resinite, and Fossil Resins (Vol 13 #2)
Geological and Landscape Conservation (Vol 13 #2)
Fractals in Petroleum Geology and Earth Processes (Vol 13 #2)
The Paleobiology of Trace Fossils (Vol 13 #2)
Ultrastructure of Fossil Spores and Pollen (Vol 13 #2)
Views from my Underground Ivory Tower (Vol 13 #3)
Paleogeography, Paleoclimate, and Source Rocks (Vol 13 #3)
Trace Elements in Peat Soils and Peat Landscapes of European Russia (Vol 13 #3)
Coal Science (Vol 13 #3)
Non-biostratigraphical Methods of Dating and Correlation (Vol 13 #3)
Petroleum Geochemistry and Geology, 2nd Edition (Vol 13 #4)
Global Peat Resources (Vol 13 #4)
Geology of Australian Coal Basins (Vol 13 #4)
Historical Perspective of Early Twentieth Century Carboniferous (Vol 13 #4)
Paleobotany (Vol 13 #41)
Fluorescence Microscopy (Vol 14 #1)
Petroleum Source Rocks (Vol 14 #1)
Coal—Energy for the Future (Vol 14 #1)
Aspects of Archaeological Palynology: Methodology and Application (Vol 14 #1)
Sedimentary Organic Matter: Organic Facies and Palynofacies (Vol 14 #2)
Coal Preparation: Automation and Control (Vol 14 #2)
Rethinking Science as a Career (Vol 14 #2)
Hydrocarbon Migration and its Near-Surface Expression (Vol 14 #2)
Palynological Correlation of Major Pennsylvanian Chronostratigraphic (Vol 14 #3)
Boundaries in the Illinois and other Coal Basins (Vol 14 #3)
Ancient DNA: Recovery and Analysis of Genetic Material from
Paleontological, Archaeological, Museum, Medical, and Forensic Specimens (Vol 14 #3)
Peer Instruction: A User's Manual (Vol 14 #3)
Palynology: Principles and Applications (Vol 14 #3)
Organic Petrology (Vol 16 #1)
A Petrographic Atlas of Canadian Coal Macerals and Dispersed Organic Matter (Vol 16 #4)

If any member needs to "augment" their TSOP Newsletter collection, feel free to contact the Editors for back copies. (Note: Issues out of print: Vol 1 #1, Vol 1 #2, Vol 17 #2).

Calender of Events

2002

May 20-21: Illinois Energy Policy for the 21st Century, Springfield Illinois.

June 3-6: Joint Conference: 9th Billings Land Reclamation Symposium and 20th Annual Meeting of American Society of Mining and Reclamation, Billings Montana.

June 9-13: 19th Annual Conference of the American Society of Mining and Reclamation, Lexington Kentucky.

June 25-26: International Conference on Technology for Coal Mining, Preparation and Utilization Results of the ECSC Coal Research Program, Luxembourg, Brussels.

August 31-September 4: The Society For Organic Petrology(TSOP) / the Canadian Society for Coal Science and Organic Petrology (CSCOP) joint Annual Meeting, Banff Canada (*See notice in this issue*).

September 10-11: Air Quality III. Washington D.C

Call For Papers

Mining and the Environment III & Annual Meeting of the CLRA

May 25-28, 2003

Sudbury, Ontario, Canada.

www.sudbury2003.co

Provisional Program

Papers describing the issues, the approaches taken in different parts of the world and major case studies will be presented. The topics could include, but will not be limited to:

- | | | |
|--|---|--|
| • Ground and surface water remediation | * | Environmental Data Management Systems |
| • Ecosystems, Health Evaluation and Restoration Technologies | * | New Technology - Old Problems |
| • Sustainability, Mining and Society | * | "Cradle to Grave" Mines Management |
| • Challenges, Technical, Economic and Social - to Mining the Frontier. | * | Potential Climate Change Impacts for Mining |
| • Reclamation Issues for Oil and Natural Gas | * | Acidic Drainage |
| • Aquatic Toxiety, Legislation and Reporting | * | Waste Management |
| | * | Aggregate Pits and Quarries- Creating the Next Landscape |

Prospective authors are invited to submit titles and preliminary abstracts by May 1 2002

TSOP PUBLICATIONS

<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	\$35
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	\$10
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	\$35
17.	<i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997	\$15
18.	IJCG, 13th TSOP Meeting, Carbondale, IL, 1996; Vol. 37, Nos. 1-2, 1998	\$15
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	\$25
22.	IJCG, 15th TSOP Meeting, Halifax, Nova Scotia, 1998; Vol. 43, Nos. 1-4, 2000	\$25
23.	IJCG 16 th TSOP Meeting, Snowbird, Utah, 1999; Vol 46, Nos. 2-4, 2001	\$25
24.	IJCG 17 th TSOP Meeting, Bloomington, Indiana, 2000; Vol 47, Nos. 3-4, 2001	\$25

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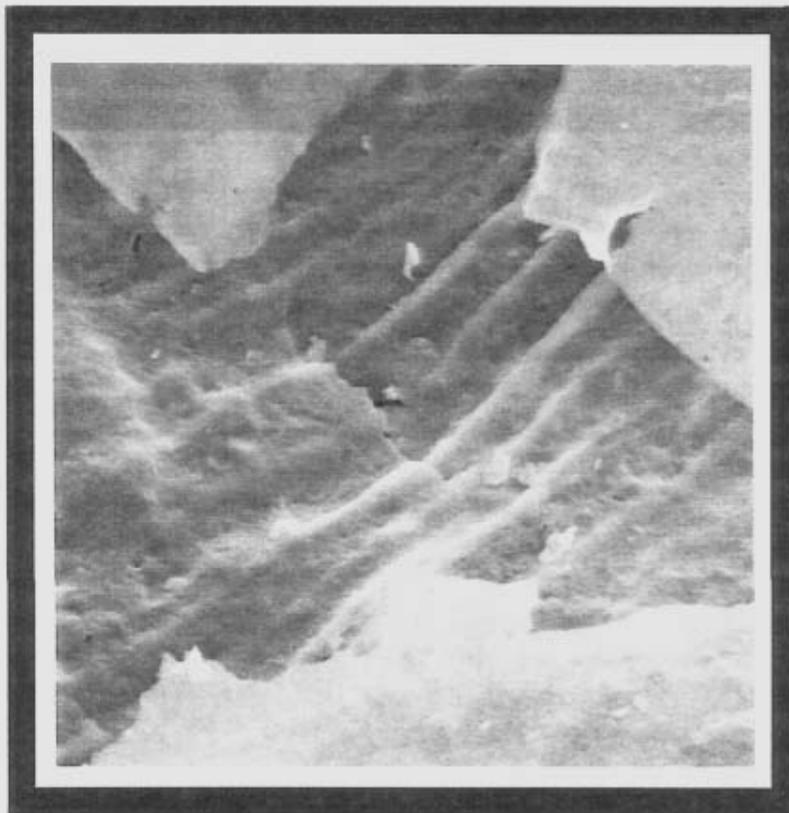
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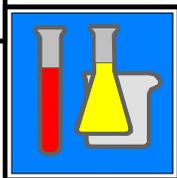
Contributing Members' Photomicrograph



Photomicrograph of a leaf cuticle as seen using a Hitachi S570 Scanning Electron Microscope. The small dust-like particles in the center for the field are silt grains. Width of field is approximately 40 micrometers. Photomicrograph by William Huggett.



THE SOCIETY FOR ORGANIC PETROLOGY



NEWSLETTER

Vol. 19, No. 2

June, 2002

ISSN-0743-3816

photo by Donald Lee, courtesy The Banff Centre



19th Annual Meeting, August 31 - September 4:

CSCOP - TSOP 2002 Banff, Alberta, Canada



THE SOCIETY FOR ORGANIC PETROLOGY



Call for Papers

Twentieth Annual Meeting

September 21 - 24, 2003

Washington, D.C. Area

HYATT ARLINGTON

ARLINGTON, VIRGINIA, USA

For our 20th Annual Meeting, TSOP will return to the city which hosted its first meeting.

Meeting Themes:

- Session 1 Petroleum Systems, Source Rocks, and Coalbed Methane (Monday AM)
- Session 2 Ron Stanton Memorial Session Coal Characterization (Monday PM)
- Session 3 General Submissions (Tuesday AM)
- Session 4 Government and Energy (Tuesday PM)

Field Trip: Geology and Energy Resources of the Triassic Basins of Northern Virginia (Wednesday)

Short Courses:

- Modes of Occurrence of Trace Elements in Coal (Sunday AM)
- Health Impacts of Coal: Should We Be Concerned (Sunday PM)
- Petroleum Source Rocks and Coal in the National Petroleum Reserve in Alaska - A Core Workshop (Sunday)

Abstract submission deadline: April 15, 2003; See <http://www.tsop.org/mtgdc.htm> for more details

Spousal and Social Activities Planned

Meeting Hotel: The Hyatt Arlington

Conveniently located across the Potomac River from Washington, D.C., within walking distance of Georgetown, and is adjacent to the Rosslyn Metro Stop. See: <http://www.arlington.hyatt.com/>

For more Information:

Contact Peter Warwick, U.S. Geological Survey, 956 National Center, Reston VA 20192, USA; Phone: (703) 648-6469, Fax: (703) 648-6419, E-mail: pwarwick@usgs.gov; also see our website at: <http://www.tsop.org/mtgdc.htm>

First Announcement

**The Society for
Organic Petrology
Newsletter**

ISSN 0743-3816

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Co-Editors:
John C. Crelling &
William W. Huggett

Editor-Elect:
David C. Glick

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 (of sufficient resolution to print well) on CD-ROM or as e-mail attachments (if larger than 5 MB, please e-mail me first). Zip disks are discouraged.

David C. Glick
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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>

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Cover photos, clockwise from top:

Main Dining Room in Donald Cameron Hall, The Banff Centre; photo by Donald Lee, courtesy of The Banff Centre.

Peyto Lake, north of Banff along the Icefields Parkway; photo by D. Glick.

Mount Rundle, overlooking Banff; photo by D. Glick.

President's Column:

Tim A. Moore

Three vital questions for our Society

One of the points that arose in the end-of-meeting discussion at the Houston TSOP conference was that of assessing the future direction of organic petrology. Wally Dow led the debate asking what can TSOP do to facilitate the future of coal and kerogen petrography. Three questions emerged:

How will organic petrology evolve, and what technology will we be using in 20 years?

How can data integrity in the petroleum and coal industry be assured?

How do we, as a society, 'get the word' out?

As scientists, one of our roles, perhaps our primary role, is to imagine. To imagine how better to assess things, how better to find an underlying truth, indeed, to imagine questions whose answers will be vital in twenty years time. Although sounding somewhat 'airy-fairy' I think this is fundamental in any field: As scientists, we are the creators of new ideas and technologies. And thus, members of TSOP should be at the forefront of new concepts and ideas in anything to do with hydrocarbons. If we do not see ourselves as bastions of new knowledge, then funding agencies and industry will not either. As scientists, we are often caught in the 'doing' rather than the 'thinking' thing. We must think more often, and I include myself in the 'not thinking enough' group.

To answer Wally's first question, I believe we, as a society, need to collectively think about where we are going and, just as importantly, how we get there.

The second of Wally's three questions, is also a very important one. I have never been one for accreditation programmes, but perhaps there is a need for one. There is already a programme with ICCP, and perhaps doing something complimentary or jointly with ICCP is needed. The basic point being, that if there are a lot of unqualified people selling their interpretation of organic petrographic data to industry, that information will ultimately be down-valued as the inevitable bad interpretations proliferate. What, as a society, are we going to do about protecting the value of our intellectual property?

Finally, the third question is: *how do we get the word out?* How does TSOP actively promote not only our innovative research to the right audience, but also package our member's talents to showcase organic petrology as a useful tool now and in the future? These are not simple questions nor will any answers be easy. And because of this, I challenge all TSOP members to be a part of the discussions on the direction of organic petrology.

As part of the Outgoing Committee meeting in Banff on 1 September 2002, I will put on the agenda the forming of a subcommittee to look into, and more importantly, lead a society-wide contemplation/examination of our future. Nobody else will do this for us, and in the balance hangs the viability of our society.

The Annual meeting of TSOP at Banff, Canada is shaping up to be a fantastic event! Last report has the attendance of the meeting quite high and I know personally that a few of us 'downunders' will be attending the meeting 'upover'. Martin Fowler and CSCOP in general are to be congratulated on the high quality of the organisation that has gone into preparing for the Banff joint TSOP-CSCOP meeting.

Y Y Y Y Y

ELECTION RESULTS

In the recent election, Robert Finkelman, Peter Warwick, Mike Avery, William Huggett, and David Glick were elected. The Society thanks Roger Trader for his efforts as Chair of the Ballot Committee, and the other candidates, Adrian Hutton, H.B. Lo, and Noriyuki Suzuki, for their willingness to serve.

TSOP's 2002-2003 Council will be:

President	Maria Mastalerz
President-Elect	Robert Finkelman
Vice-President	Peter Warwick
Secretary-Treasurer	Mike Avery
Councilor ('01-'03)	Ray Pheifer
Councilor ('02-'04)	William Huggett
Editor	David Glick

Y

Annual Meeting
CSCOP - TSOP 2002
August 31 - September 4

**Emerging Concepts in Organic
Petrology and Geochemistry**

TSOP's 19th annual meeting will be held jointly with The Canadian Society for Coal Science and Organic Petrology's annual meeting in Banff, Alberta, Canada. Full details, descriptions of activities, and the complete oral and poster presentation program may be found on the conference web site www.cscop-tsop2002.com/.

The meeting will be held at The Banff Centre, "Canada's only learning centre dedicated to the arts, leadership development, and mountain culture," and home to a world class conference facility. The extensive campus is located on the east side of the town of Banff, with views of the spectacular mountain scenery; see their web site at www.banffcentre.ca. Transportation information is available at www.cscop-tsop2002.com/locate.htm and maps and driving directions are available at www.banffcentre.ca/about/getting_here.asp.

The Organising Committee consists of Conference Chair Martin Fowler, GSC-Calgary, and Members Erdem Idiz, Shell International; Peter Jenden, Saudi Aramco; Steve Larter, Newcastle; Mark Obermajer, GSC-Calgary; Judith Potter, JP Petrographics; Cindy Riediger, University of Calgary; Lloyd Snowdon, GSC-Calgary; and Lavern Stasiuk, GSC-Calgary. The Technical program contact is Martin Fowler. The meeting is sponsored by Elsevier Science and the European Association of Organic Geochemists; the Conference Secretariat, handling general enquiries, is Natasha Beckett of Elsevier Science, Kidlington, Oxford, UK.

Optional activities will begin with a full-day short course on Saturday, August 31, and continue with field trips on Sunday, September 1. Conference registration and an ice-breaker gathering will be held Sunday evening; registration will continue on Monday morning.

Technical sessions will take place Monday morning through Wednesday morning. The featured Dr. Archie G. Douglas Symposium, 'Celebrating 45 Years of Organic

Geochemistry,' will be held all day Tuesday. During most of the remaining time, there will be two parallel sessions of oral presentations. Poster displays will be available for viewing Monday morning through Wednesday morning.

Optional post-conference field trips will resume for Wednesday afternoon and Thursday.

TSOP Outgoing Council	Sunday 20:15
TSOP Business Lunch	Monday 12:20
TSOP Incoming Council	Monday 19:00

TECHNICAL SESSIONS

(oral and poster presentations) will include:

Dr. Archie G. Douglas Symposium

Celebrating 45 years of organic geochemistry

Shallow thinking

Recent sediment, peats, weathering, paleo-archeology, Ocean-Drilling Program, environmental applications of organic geochemistry and organic petrology, C—S cycles

Solid bitumen and pyrobitumen

Alteration by biodegradation and thermochemical sulphate reduction, organic-inorganic interactions, physical and chemical properties and evolution

Sources (and sinks) of natural gas

Coalbed methane, CO₂ sequestration, non-marine and marine kerogen, coal & bitumen origins for gas

Novel analytical approaches

Confocal laser scanning microscopy, CSIA, thermogravimetric - gas chromatographic analysis, modelling, organo-stratigraphy, hydrocarbon fluid inclusions

Petroleum systems

Characterization of migration pathways, organic geochemical and organic petrological analysis of the source, carrier and reservoir system

Coal and environment

Trace elements, coal petrography, coals as source rocks, green-house gases.

(continued on page 6)

SHORT COURSE**A prediction of total organic carbon contents and hydrogen indices in marine sediments**

Course tutor: Dr Richard Tyson, NRG

This one day short course will focus on the numerical prediction of the two most fundamental petroleum source rock parameters: TOC and Hydrogen Index (HI). Although many basin modelling packages can predict how TOC and HI may change with time and maturation, they provide little guidance as to the original immature TOC and HI, which may be unknown in new exploration areas. This course is designed to give a better appreciation of how TOC and HI may vary laterally in response to depositional conditions.

FIELD TRIPS**Upper Cretaceous Geology near Drumheller and the Tyrrell Museum of Paleontology**

L. Hills and P. McNeil (University of Calgary) (September 1, 2002)

Day hike to the Burgess Shale, A UNESCO World Heritage Site

C.M. Henderson (Dept. of Geology and Geophysics, University of Calgary) (September 1; repeated September 5, 2002)

Sightseeing tour of the Banff to Lake Louise Area

(September 1; repeated September 5, 2002)

Rocky Mountain geology, hydrocarbon source rocks and coal

C.L. Riediger (Dept. of Geology and Geophysics, Univ. of Calgary), Steve Grasby (GSC- Calgary) and Wolfgang Kalkreuth (UFRGS, Porto Alegre) (September 4-5, 2002)

Mark your calendars now!
2003 TSOP meeting
September 21-24, 2003
Washington, DC

2002 TSOP Graduate Student Research Grants

by Suzanne Russell

A total of eight applications, from the USA and Romania, were received for the 2002 TSOP Graduate Student Research Grants. The applications were submitted by two Master's candidates and six PhD candidates. This year TSOP grant application reviewers are Joe Curiale, Unocal; Brenda Pierce, U.S. Geological Survey; and Colin Ward, University of New South Wales. Applications are presently being reviewed. The Student Research Grant will be awarded at the TSOP Annual Meeting in Banff.

This year's applicants' research topics and institutions follow:

"The effects of mire type and depositional environment on coalbed methane reservoir properties in the Olmos Formation, South Texas," University of Kentucky.

"Isotopic composition of acidic biomarkers-possible application in correlation of heavily biodegraded oil with its source," University of Oklahoma.

"Use of atomic force microscopy in the evaluation of enhancement of coal permeability," University of South Carolina.

"Sorption of MTBE (methyl-tertiary butyl ether) on clay rich deposits," Northern Illinois University.

"Correlations between structural properties of vitreous carbon and its physical-chemical, petrological and mechanical characteristics," Politehnica University of Bucharest.

"Characterization of lipid biomarkers in Victoria Harbour, Hong Kong, SAR," University of Oklahoma.

"Solid bitumen within Upper Mississippian Chester sandstones in Seward County, Kansas," University of Oklahoma.

"Formation mechanisms of hydrocarbons in volcanic gases," University of New Mexico.

The results of the TSOP Student Research Grant competition will be announced at the annual meeting and also in the next TSOP Newsletter. Y

ATLAS CARBOPETROGRAFIC

by

Cornelia Panaitescu and Georgeta Predeanu
Editura Academiei, Romane, 1999, 264pp

Book Review

by W. Kalkreuth
Instituto de Geociências, UFRGS
Porto Alegre, Brazil

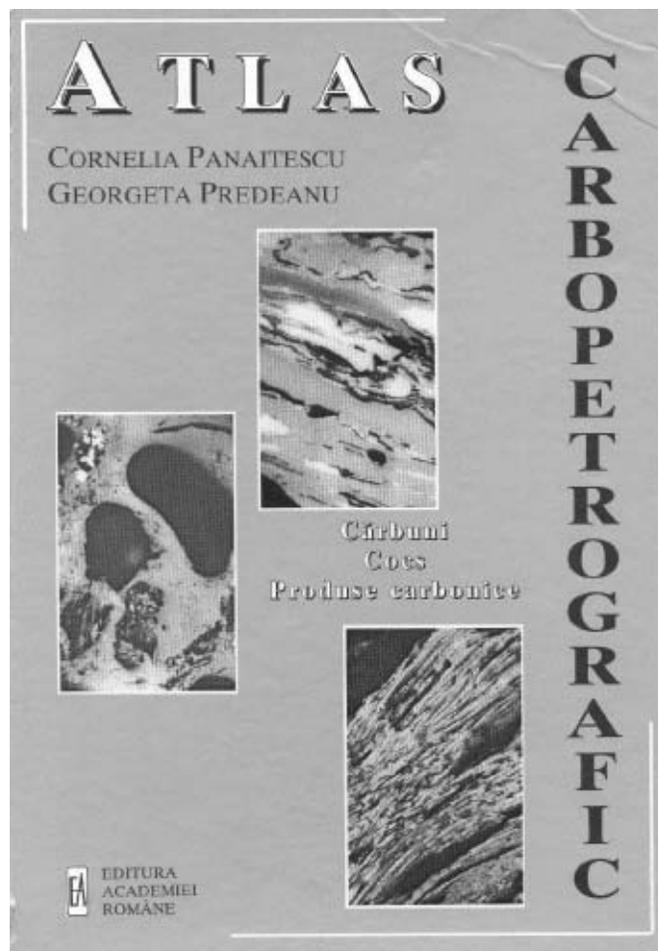
The atlas is subdivided into a short text part (introduction, methodology and specifications) and the main body of the book (109 black and white and colour plates), which consists of four sections on various types of Romanian coals, coal derived products such as coke, and dispersed organic matter derived from sedimentary rocks. Text part and plate description are both in Romanian and English.

In the text part the reader is introduced to the locations of the major Romanian coal deposits and the classification schemes used for determination of coal rank, and the description of organic components in coal and coal derived products.

Section 1 shows examples of the most common Romanian coal macerals, representing a rank range from lignite to anthracite, with many excellent plates in colour. This section deals also with the identification of macerals in dispersed organic matter.

Section 2 shows the transformation of coal macerals in the carbonization process, presenting numerous micrographs on coke texture, coke porosity and coke textures before and after reactivity tests. Sections 3 and 4 deal with other coal and petroleum derived residual substances such as needle petroleum coke, mesophase, combustion residues and briquettes.

This atlas is an important source of information for anyone interested in the nature of Romanian coals and coal-derived products. The atlas is also an excellent tool for people working in the field of coal and organic petrology to assist in the identification of coal macerals, dispersed organic matter and products from technological processes such as carbonization and combustion.



The atlas (US \$ 30.00) can be ordered from:

Editura Academiei Romane
Calea 13 Septembrie, nr. 13, Sector 5, Cod 76117
Bucuresti, Romania

Phone/Fax: 401 410 3983
e-mail: edacad@ns.ear.ro

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<http://www.tsop.org/tsopjoin.htm>

Middle and Upper Pennsylvanian Stratigraphy, Sedimentology and Coal Geology in Eastern Kentucky

Field Trip Report by Cortland Eble

Post-meeting field trip Saturday, April 6th, 2002, sponsored by the Coal Geology Division of GSA, led by:

Cortland Eble, Kentucky Geological Survey, University of Kentucky, Lexington, KY, eble@kgs.mm.uky.edu

Steve Greb, Kentucky Geological Survey, University of Kentucky, Lexington, KY, greb@kgs.mm.uky.edu

Ronald Martino, Marshall University, Huntington, WV, martinor@marshall.edu

This one day trip examined new roadcut exposures of late Middle Pennsylvanian Breathitt Group strata and Late Pennsylvanian Conemaugh Formation strata near Ashland, in northeastern Kentucky. This area is of interest because it is situated along the northern margin of the Central Appalachian Basin and, as such, the role of accommodation space on patterns of sedimentation, coal occurrence, coal quality and coal thickness were readily apparent. The Middle/Late Pennsylvanian stratigraphic interval also spans a major climatic shift from “wetter” conditions in the late Middle Pennsylvanian to “drier” conditions in the Late Pennsylvanian. The effect of this change on paleoflora and lithology was demonstrated at several stops. This climate change was paralleled by a south to north shift in basin depocenters, and the effect of this change on peat accumulation and sedimentation was also observed and discussed.

The trip attracted 37 participants, many of whom were TSOP members. A guidebook compendium for all of the field trips associated with the meeting is available from the Publication Sales Office of the Kentucky Geological Survey, University of Kentucky, Lexington, KY (ph. 859-257-5500).



Cortland Eble, Jim Hower, Leslie Ruppert on Kentucky post-GSA field trip.

TSOP Promotes Organic Petrology at Houston AAPG Booth

by MaryAnn Malinconico

At the 2002 annual meeting of the American Association of Petroleum Geologists (AAPG), TSOP, for the second time, hosted an exhibit booth (photo at right). The meeting was held March 10-13, 2002, in Houston, the week after our own Houston meeting. We previously had a booth at the 1997 AAPG annual meeting in Dallas (TSOP Newsletter, Sept. 1997, v. 14, no. 3, p. 5). The purpose of the booth was to gain exposure for the Society and for the discipline of organic petrology. The booth was located near the AAPG headquarters booth, some large corporate exhibitors such as IndigoPool (loved their afternoon ice cream and cookie snacks!), between basin modeling consultants and the delightfully friendly East Texas Geological Society, and on the way to the Interactive Poster Session area. Central to the booth's backwall display was a poster (bottom right) illustrating the petroleum system as a subset of the organic carbon cycle and the many industrial and academic applications of organic petrology. Surrounding the poster were photos grouped by application (coal and coal bed methane geology; kerogen, source rock and bitumen petrology; organic maturation; basin analysis; and carbons/graphites), highlighting those used in petroleum and coal bed methane exploration and production. The photos included photomicrographs, photos from TSOP field trips and the cover of the February 2002 AAPG Bulletin, a photomicrograph of fluorescing liptinite-rich coal by TSOP member Henrik Petersen. Other photo contributors were Jack Crelling, Jim Hower, MaryAnn Malinconico, Dan Pearson, Vern Stasiuk and John Castaño. The photo display was topped by a large banner that described the purpose of the society and organic petrology; other panels listed society benefits and membership job-type distribution.

The TSOP booth had free morning bagels and cream cheese as a traffic enhancer. On a side table were pamphlets on the joint 2002 TSOP/ CSCOP meeting in Banff, Alberta, Canada, and other coal and organic petrology-related meetings, TSOP membership applications, free TSOP-imprinted screen sweeps and mints, and small TSOP business cards with the website address. There were also information sheets on TSOP research sub-committees (Coalbed gas in low-rank coals; Maceral ratios assessment, and Kerogen

classification). Two chairs in the booth allowed relaxed conversation. The booth furnishings (chairs, tables, display wall) were rented, but the photos and display materials belong to TSOP.

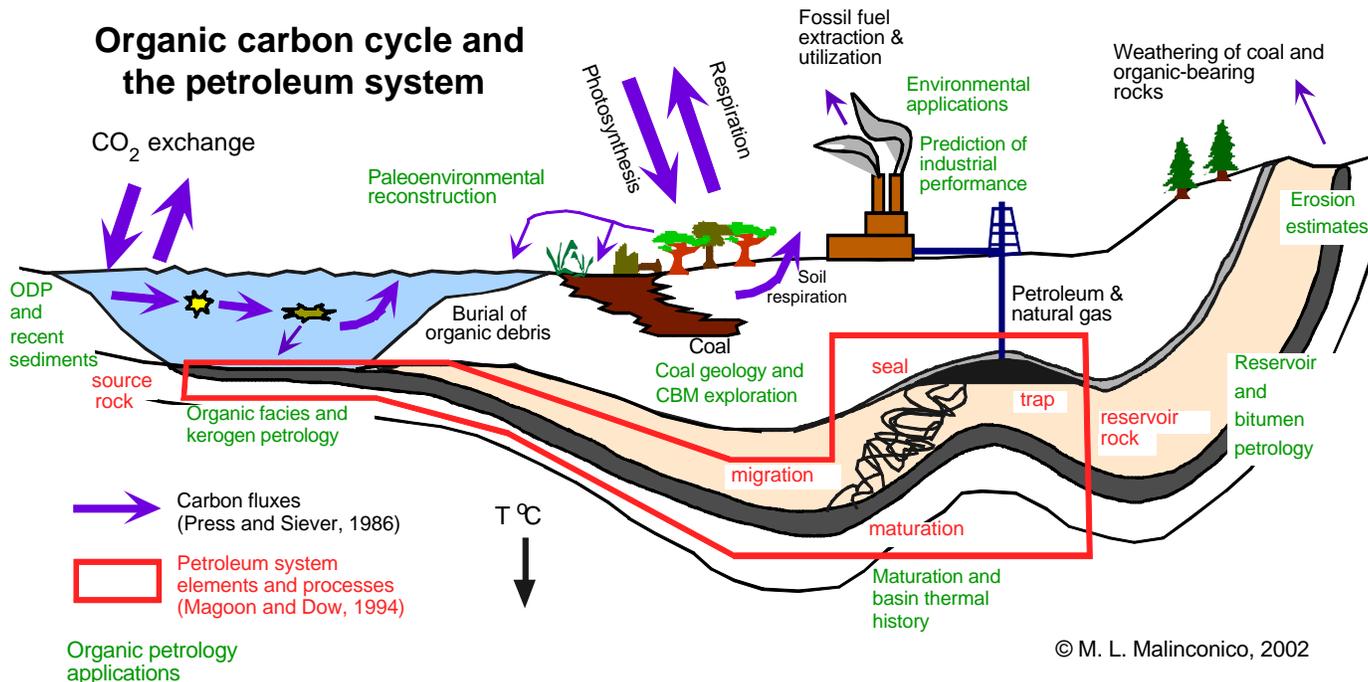
Visitors to the booth included many who until then were unfamiliar with organic petrology, some former members interested in rejoining, and students. Two students from Germany and the Philippines said that they were familiar with TSOP from our website and the topical reference lists (<http://www.tsop.org/refs/refs.htm>) which they used in their research. Our website was also among those highlighted at the exhibit hall's Virtual Café.



Marlys Dow staffs the TSOP booth. Free bagels and cream cheese, mints, computer screen sweeps, and TSOP literature are on the table. Photo by MaryAnn Malinconico.

The booth was organized by the Outreach Committee, MaryAnn Malinconico, chair, and was successful through the generous help of numerous TSOP members. Members contributing photographs have already been mentioned. Members contributing time staffing the booth include Wally and Marlys Dow, Carolyn Thompson-Rizer, P. K. Mukhopadhyay (Muki), Han Zhi-Wen, and MaryAnn

Malinconico. Cole Robison, Brian Cardott, and the Oklahoma Survey staff helped with shipping heavy publication and display materials. AAPG gave permission to use figures/photos by Wally Dow, Mark Pasley, and Henrik Petersen from their articles in AAPG publications. Y



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Poster from TSOP booth display

Applied Coal Geology

A symposium at the Southeastern Section (51st) and North-Central Section (36th) Geological Society of America Meeting, Lexington, Kentucky, 3-5 April 2002

Meeting Report by James Hower

The Applied Coal Geology symposium was co-sponsored by TSOP and by the Coal Geology Division of the Geological Society of America and convened by Jim Hower, University of Kentucky Center for Applied Energy Research (CAER), and John Popp, Alliance Coal, Lexington, KY.

The first portion of the session was devoted to coal resource issues. Nick Fedorko and Scott McColloch, both of the West Virginia Geological Survey, discussed GIS and resource and coal quality evaluations in their presentations. Leslie Ruppert and Joe Hatch, of the Reston and Denver offices of the USGS, respectively, presented the results of the coal resource assessments of the northern and central Appalachians and of the Illinois Basin. These investigations were carried out in conjunction with the state geologic surveys. The assessments make better use of coal quality information than have quantity-based resource assessments conducted in the past. Mark Tyra, University of Kentucky CAER, presented a different type of energy resource assessment. The CAER is evaluating the quality of ponded ash at a western Kentucky power plant. The reclaimed and processed ash has many potential product streams, one of them being a supply of unburned carbon which can be recycled back into the power plant.

Maria Mastalerz, Indiana Geological Survey, presented examples of correlation problems among thin, discontinuous coals and the impact of miscorrelations on mining potential of the coals. Faults can have a direct impact on the mineability of a coal. Marc Coolen, West Virginia-Indiana Holding Company, presented examples from Mingo County, West Virginia, of the difficulties faults and the associated steeply-dipping beds can have on mining. Steve Greb, Kentucky Geological Survey, discussed structural controls on the shape of coal bodies, with examples from the uppermost Breathitt Group coals in northeastern Kentucky. John Popp substituted for some late cancellations by showing the audience some

frightening examples of what can go wrong in mine planning and how the geologic problems can be overcome.

The afternoon session started with Steve Schatzel, National Institute of Safety and Health, presenting information on occupational hazards associated with rare earth elements in coals and the geological conditions associated with REE concentrations. Abandoned mines in the northern Appalachians are often associated with acid mine drainage. Dina Lopez, Ohio University, discussed the impacts of seasonal flow, and the discharge from abandoned mines, on the water quality in a drainage system in southeastern Ohio. Several investigators have used coal-combustion by-products to help mitigate acid mine drainage. Maura Metheny, Ohio State University, and Ava King, Natural Resources - Power Plant Program (Maryland) discussed projects from their respective states.

Finishing the session, undergraduate students Goe Sakulpitakphon and Alan Trimble discussed portions of their studies at the CAER. Sakulpitakphon predicted the CO₂ emission from the chemical analyses of coals in the CAER database and on coals for which density gradient maceral separation had been performed. For the latter iso-rank sets, she saw clear trends with maceral concentration. Trimble expanded on previous studies of the relationship between petrography and coal grindability, refining the predictions for high volatile A bituminous coals.

Selected papers from this symposium will be published in *International Journal of Coal Geology*. Y

TSOP to Co-Sponsor GSA Session

At the GSA Annual Meeting, October 27-30, 2002, in Denver, Session T4 on Coal Resource and Utilization Issues will be co-sponsored by TSOP and GSA Coal Geology Division. It will include multidisciplinary examinations of coal resource issues, including availability of future resources, coal quality, coal utilization, coal-bed methane, and the mitigation of potential environmental impacts of coal utilization. It is being organized by Peter D. Warwick, U.S. Geological Survey, Reston, Va., and Margaret S. Ellis, U.S. Geological Survey, Denver. Y

18th Annual Meeting of The Society for Organic Petrology, Houston, Texas

Meeting Report by Carolyn Thompson-Rizer
on behalf of the Organizing committee: C. Robison
(Chair), A. Bishop, J. Burgess, M. Darnell, W. Dow

The meeting originally scheduled for September 23-26, 2001 was postponed until March 3-6, 2002 due to the terrorist attacks in New York City, Washington, D.C., and Pennsylvania. The meeting was held at the Hilton Houston Westchase and Towers and conference center. Fifty-six participants attended from Canada, Mexico, Venezuela, Brazil, Poland, Bulgaria, New Zealand, and the USA. The short course was cancelled at the last minute due to the instructor's scheduling conflict.

Twenty-three oral and ten poster presentations were made during the two-day meeting. A special session "The Organic Geochemistry of the World's Deep-water Areas" started the meeting and was cosponsored by TSOP and the Houston Organic Geochemical Society. Peter Nederlof spoke about fluid properties and business risk in the deepwater Gulf of Mexico. Scott Imbus discussed the Faeroe Islands geochemical correlation of hydrocarbon seeps to those of the northeast Atlantic

margin and North Sea. Barry Katz talked about hydrocarbon shows and source rocks in scientific ocean drilling. Ed Colling presented regional geochemistry and maturity modeling for the northern deepwater Gulf of Mexico. Muki discussed the deepwater source rocks and timing of hydrocarbon expulsion in the Eastern Scotian Basin, Canada. John Zumberge presented the relationship between reservoir fluid properties and oil geochemistry.

The general technical session on coal included three papers on coal-bed methane. The general technical session on petroleum source rocks contained papers on rocks in Canada, Poland, USA, and China. Wally Dow led a stimulating discussion session around the question "can organic petrology survive in a virtual world?" The consensus appears to be "yes."

The Best Student Paper Award (\$250) was won by Robert Locklair of the Department of Geological Sciences at Northwestern University. The title of his oral presentation was "Origin, Character, and Stratigraphic Hierarchy of Organic-rich Siltstones in Deep-water Facies, Upper Permian (Guadalupian) Brushy Canyon Formation, west Texas." The award for the longest distance traveled to the meeting was given to Tim Moore from New Zealand.

Following the group banquet on Monday night we were entertained with a little skit on oil by Jane and Gus (unknown last names), students from the University of Houston, followed by Mr. Ralph L. Lewis, Jr. speaking on "The Global Struggle, Energy, Minerals, and Water." He is a nationally known public speaker and has given over 1,000 lectures in the past 25 years. Mr. Lewis is a retired Vice President of Gulf Oil Company and Senior Consultant for Chevron. He is an engineer and has served in numerous domestic and foreign locations in oil and gas and chemicals. He also was involved in Gulf's coal, shale oil, geothermal, solar, nuclear, and uranium operations. He gave us several insights to ponder.

(continued on page 12)



Hilton Houston Westchase and Towers, Houston, Texas.

Photo by D. Glick



Seven people went on the field trip on Wednesday to Galveston to visit the Ocean Star Offshore Drilling Rig Museum, which is an actual Gulf of Mexico rig tied up to a pier (photos above and below, by MaryAnn Malinconico). Five of them also visited the Johnson Space Center.



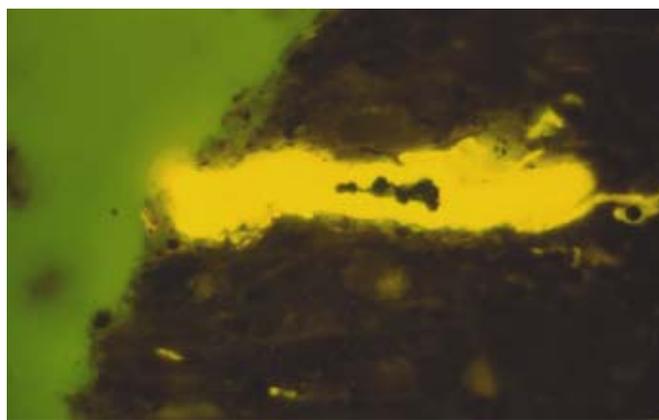
"Black Shales— Old Problems, New Solutions"

Meeting Report by Sue Rimmer

At the Joint NC-SE GSA Sectional Meeting held in Lexington, KY, April 3-5, 2002, Sue Rimmer and Maria Mastalerz convened a session on various aspects of black shale research. This full day of talks was sponsored by TSOP and, in addition to providing a venue for some excellent presentations, allowed us to spread the word about our society and put in a pitch for the upcoming meeting in Banff.

We began with several talks that focused on various aspects of black shales in the Appalachian Basin, but the session also included work on shales from across the continent including the Illinois Basin and the western USA, and even ODP samples. Throughout the day we heard a wide range of talks, with topics including the role of tectonic and eustatic sea-level changes in the Appalachian Basin, orbital forcing of anoxic events in the Western Interior Seaway, organic geochemistry (biomarkers and stable isotopes), pyrite and trace elements as indicators of anoxia, and structural, engineering and petroleum source rock applications.

We had a total of 18 talks, as listed below, and we received very positive feedback about the quality of the talks in the session . . . all in all, a very worthwhile endeavor. We appreciate the endorsement offered by



Telalginites in the Cleveland Shale (Upper Devonian), Montgomery Co., Kentucky. Oil immersion, reflected-light, blue-light illumination. Field-of-view = 240 microns across. See also page 20 (back cover) for photomicrograph of *Foerstia (Protosalvinia)* in the Huron Shale (Upper Devonian), east-central Kentucky. Photo by Sue Rimmer.

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TSOP as we put this symposium together and would like to thank the authors for their terrific presentations.

APPROXIMATING ABSOLUTE DEPTHS FOR DEVONIAN-MISSISSIPPIAN BLACK SHALES IN THE NORTHERN APPALACHIAN BASIN, EASTERN UNITED STATES: IMPLICATIONS FOR EUSTATIC VS. TECTONIC CONTROL OF SEA LEVEL: ETTENSOHN, Frank R., Geological Sciences, University of Kentucky

ANATOMY OF AN EROSION FLOODING SURFACE: REGIONAL ASPECTS OF THE MIDDLE DEVONIAN LEICESTER PYRITE MEMBER IN THE NORTHERN APPALACHIAN BASIN: BAIRD, Gordon C., Geosciences, SUNY Fredonia, and BRETT, Carlton E., Geology, University of Cincinnati

INFLUENCE OF MATURITY AND ORGANIC MATTER TYPES ON HYDROGEN EXCHANGEABILITY AND CARBON AND HYDROGEN ISOTOPIC SIGNATURES: EXAMPLE FROM THE NEW ALBANY SHALE: LIS, Grzegorz, Geological Sciences, WERNER-ZWANZIGER, Ulrike, Chemistry, SCHIMMELMANN, Arndt, Geological Sciences, and MASTALERZ, Maria, Indiana Geological Survey, Indiana University

BIOMARKER EVIDENCE FOR PHOTIC ZONE EUXINIA DURING DEVONIAN BLACK SHALE DEPOSITION ON NORTH AMERICA: BROWN, Todd C., and KENIG, Fabien, Earth and Environmental Sciences, University of Illinois at Chicago

SMALL-SCALE VARIATIONS IN BLACK SHALE SEQUENCES OF INDIANA: SHAFFER, Nelson R., Indiana Geological Survey, Indiana University

PYRITE FRAMBOID SIZE AND SIZE DISTRIBUTION IN MARINE BLACK SHALES: A CASE STUDY FROM THE DEVONIAN-MISSISSIPPIAN OF CENTRAL KENTUCKY: HAWKINS, Sarah and RIMMER, Susan M., Geological Sciences, University of Kentucky

REVISITING DEGREE OF PYRITIZATION AS A PALEOREDOX PROXY: LYONS, Timothy W., Geological Sciences, University of Missouri

QUALITATIVE EVIDENCE FOR BLACK SHALE TYPES: JUSTIFICATION FROM GEOCHEMISTRY AND DIAGENETIC RELATIONSHIPS: SCHULTZ, Richard B., Geography and Environmental Planning, Elmhurst College

VARIABLE REDOX SIGNALS RECORDED BY RARE-EARTH ELEMENTS IN CARBONIFEROUS PHOSPHATIC BLACK SHALE FROM KANSAS, OKLAHOMA, AND ARKANSAS AND THE INFLUENCE OF AUTHIGENIC PHOSPHATE ON PROVENANCE ANALYSIS: KIDDER, David L., Geological Sciences, Ohio University, KRISHNASWAMY, Rama, Geological Sciences, The George Washington University, and MAPES, Royal H., Geological Sciences, Ohio University

A NEW APPROACH TO THE SULFUR ISOTOPE GEOCHEMISTRY OF SHALES: FORMOLO, Michael J., LYONS, Timothy W., and GELLATLY, Anne M., Geological Sciences, University of Missouri

ORGANIC-RICH SILTSTONES IN THE PERMIAN BRUSHY CANYON FORMATION, WEST TEXAS: DOES GRAIN SIZE MATTER?: LOCKLAIR, R. and SAGEMAN, B., Geological Sciences, Northwestern University

A DYNAMIC STRATIFICATION MODEL FOR BLACK SHALE DEPOSITION IN A JURASSIC AND A CRETACEOUS EPEIRIC SEA: SIMONS, Dijk-Jan H and KENIG, Fabien, Earth and Environmental Sciences, University of Illinois at Chicago

ORBITAL TIME SCALES, OCEAN ANOXIC EVENTS, AND CONTROLS ON THE ACCUMULATION OF ORGANIC CARBON IN THE CRETACEOUS WESTERN INTERIOR SEAWAY: MEYERS, Stephen R., SAGEMAN, Bradley B., Northwestern University, and HOLLANDER, David J., Marine Science, University of South Florida

ORGANIC GEOCHEMISTRY OF THE EARLY APTIAN OAE1A FROM SHATSKY RISE (ODP LEG 198): BRASSELL, Simon C., Geological Sciences, Indiana University

MOLECULAR FOSSILS IN MESOPROTEROZOIC SHALES: BIOMARKER CHARACTERIZATION AND IMPLICATIONS FOR EUKARYOTIC EVOLUTION: SCHUNEMAN, Patrick J., KAH, Linda C., UHLE, Maria E., Geological Sciences, University of Tennessee, LYONS, Timothy W., Geological Sciences, University of Missouri, and BARTLEY, Julie K., Geology, State University of West Georgia

PREFERENTIAL JOINTING OF UPPER DEVONIAN BLACK SHALE, APPALACHIAN PLATEAU: EVIDENCE FOR AN ANCIENT PRESSURE COMPARTMENT AND SEAL SYSTEM: LASH, Gary G., Geosciences, SUNY - College at Fredonia

ASSESSMENT OF THE PETROLOGIC, SEDIMENTOLOGIC, AND ENGINEERING CHARACTERISTICS OF THE DEVONIAN MILLBORO AND NEEDMORE SHALES, HIGHLAND COUNTY, VIRGINIA: COMBS, Lora L., Environmental and Engineering Geosciences, Radford University and SETHI, Parvinder S., Geology, Radford University

BASINWIDE COOPERATIVE STUDIES OF THE GAS POTENTIAL OF THE NEW ALBANY SHALE (DEVONIAN-MISSISSIPPIAN) IN THE ILLINOIS BASIN: HASENMUELLER, Nancy R., Indiana Geological Survey, Indiana University

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The Lab from Hell

A Short Story

by

Alan Davis

The middle-aged man found himself standing in a large laboratory. There was a massive wooden table occupying the center of the room and a work bench along one wall under a series of windows. Outside it was very foggy. He was intrigued to see a lone black Ortholux I microscope sitting in the center of the bench and walked over to inspect it. He only had time to determine that it was equipped for reflected light when the door to the lab opened and a tall figure strode purposefully up to the wooden table, placed a manilla folder on it and beckoned to the man to come over, pointing to a spot on the floor where he wanted him to stand.

An intense anxiety overcame the man who tried unsuccessfully to remember the events leading up to his arrival in this place. The man standing in front of him was instantly recognizable. The hairline, the appendages; this was The Devil, Satan, Lucifer, Beelzebub, The Prince of Darkness, Old Nick himself.

Nick had opened the folder and scanned some of the pages inside. He turned to the man. 'I gather there's no need for me to introduce myself,' he said. 'Don't be too alarmed. This is a bit like Purgatory, not my own domain proper. You have been given a chance to redeem yourself and get an upgrade.' He pointed upwards. 'On the whole your record is very clean indeed, although there is one little matter that must be addressed. So, you will have to undergo a little purification to become fit for that higher state, and that's where I come in.'

'Is it really up there?' asked the man, pointing himself.

'I was speaking mephistophically,' Nick replied.

He looked again at the folder, closed it, pushed it away and said 'I see you were a coal petrologist.'

The use of the past tense caused the desperate feeling to return to the man, who nodded.

'You seem to have spent a lot of time doing mackerel analyses,' continued Nick.

'That's pronounced "masseral,"' said the man, surprised at his own temerity.

Nick continued, apparently unfazed by the man's correction. 'And I see you report these (with pointed exaggeration of the next word) *maceral* analyses to the nearest tenth of one percent.'

'Yes, that's common practice,' responded the man. 'And, in fact, it follows the ASTM standard.'

'But come on,' said Nick. 'That's hardly the truth, is it? You can't look me in the eye and tell me that those analyses are accurate to that level, can you?'

In the past... correction ...In his lifetime, the man had followed this practice, arguing to others that this was the way it was always done. But there seemed to be no point in arguing the point now. The man he was dealing with clearly understood the situation as well as anyone.

'Lies,' continued Nick. 'That's what most people end up here for. And I am going to try to help you fully repent for those lies. How many of those *maceral* analyses have you reported to 0.1%? Thousands? Well then, my plan for your atonement shouldn't seem so excessive.'

He walked over to a large desiccator on the bench which the man had not noticed before and opened it. It was full of what the man instantly recognized as polished coal grain mounts.

'Your atonement,' said Nick, 'should be possible by analyzing these mounts and reporting the results only when you have achieved the accuracy which you have claimed in the past.'

'No hurry,' he added, with a faint smile that the man did not care for.

The man walked over to the desiccator. Obviously, there were hundreds of mounts, but on the surface this did not appear to be a job of impossible proportions. He tried to make a quick estimate of the time it might take, but was too distraught. He removed some of the mounts, all in roughly cubic molds with a good polish and the sample designation labeled on the side, although the bases were cut somewhat irregularly. He took out more of the mounts and examined the numbers. All of them carried a sample number under which was the number 1.

Nick anticipated his question.

'Next door we have another ex-petrologist who will be doing the second pellet of each sample,' he said.

The man began to realize the full extent of the predicament he was in.

'Where does, did he work?' he asked, searching for some clue as to the other petrologist's biases.

'Nice try,' replied Nick, 'but I really can't tell you where he, or she, worked.'

He assumed an overdone air of righteous pride.

'We have always been an Equal Rights workplace,' he said. 'Before anyone else came up with the idea.' Then, 'You and your male, or female, opposite number in this little exercise will work at these until you get the results with an across-the-board reproducibility of 0.1%.'

'This file cabinet,' Nick said, indicating another unit which the man had not previously observed, 'contains your maceral analysis sheets.'

He pulled out the four drawers one after the other; they were crammed with sheets.

'If you need any more, just scream,' he added, with one of those half smiles that the man had begun to dread.

The man took one of the sheets and was surprised to see that the spaces for the category names, which were aligned across the width of the page so as to allow for a large number of columns, had been left blank.

'Do you want maceral groups or do I have to count the individual macerals and break the vitrinite group down into telocollinite and so on?' asked the man.

'Oh, I want a full maceral analysis,' replied Nick, and added with a little smirk 'The devil is in the details. You'll have to decide which macerals yourself.' A pause and then 'And so will your opposite number. Independently of course. And shouldn't it be telovitrinite? Telocollinite is so *passé*.' He shook his head, apparently upset at himself and concluded 'I really shouldn't help the Purgatores as much as I do.'

The man groaned.

Nick scratched his beard and continued.

'I have provided you with a nice selection of coals. Some from Southern Africa, Australia, Indonesia. Some cannels and quite a few lignites.'

The man closed his eyes, then opened them quickly to glance over to the microscope. It did not have any fluorescence capability.

Nick apparently thought of something else.

'There are a couple which still haven't been collected, but by the time you get through this lot (nodding towards the desiccator) they should have finished coalifying,' he said.

The mist outside the windows was swirling in frightening patterns and cast a green light into the lab.

Nick still looked thoughtful.

'When we have a few more petrologists here we could begin some round robins. That would be fun' he said, as if to himself.

'That's all,' he concluded, and immediately began walking towards the door.

The man panicked.

'Wait,' he cried.

Nick froze in mid step.

'Yeess,' he intoned, in a comic baritone. There was always a "Wait" at this juncture.

'*Carousel*. Did you see *Carousel*?' cried the man, his eyes bright with desperation and the conviction that he had found an avenue of escape from this awful situation.

'I'm not really into musicals,' allowed Nick, 'though sometimes I have them played for the rock 'n rollers and rappers. But I know the story of Billy Bigelow, yes.'

'Billy had led a bad life,' said the man, excitedly. 'And he was in danger of going to hell but was allowed back to earth to straighten up some of the mess he had created. Can't I do that?'

Nick scratched his stubble again.

'Why not?' he said. 'You can go back and get the ISO, ICCP, ASTM and the rest to agree on a single set of maceral terms that everyone will be willing to use for all coals. Do that and it's a one-way ticket to Paradise for you.'

The man picked out one of the grain mounts and positioned it on a small ball of clay on top of the glass slide which had been sitting on the desiccator.

'I may as well get started on these,' he said with a slight tremor in his voice.

It was only then that he noticed there was no leveling press.

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Anticipating the Effect of Mercury Regulations on the U.S. Coal Industry

reprinted with permission from the
Utah Geological Association Newsletter, March, 2002

Jeffrey C. Quick, Utah Geological Survey

On December 15, 2000, the U.S. Environmental Protection Agency (EPA) decided to regulate mercury emissions from coal-fired power plants. This decision began a formal process that will result in rules that limit mercury emissions by December 2004.

How will these rules affect the coal industry? Since the rules have not yet been written, any answer to this question is speculative. Nonetheless, consideration of the Clean Air Act, available technology, industry response to regulation of sulfur and nitrogen emissions, and the mercury content of U.S. coal, suggests these rules will have a major impact.

Unlike sulfur dioxide (SO₂) and nitrogen oxides (NO_x), the Clean Air Act classifies mercury as a hazardous air pollutant. Section 112 (d) of the act requires the "maximum degree of reductions in emissions" for hazardous pollutants like mercury. The Clean Air Act also requires setting the mercury emission limit to a level at least as low as current emissions from the best performing power plants (average of the best five power plants, or the best 12 percent of power plants). Regardless of how these power plants are identified, the rules limiting mercury emissions will clearly be more rigorous than existing rules that limit SO₂ and NO_x emissions.

Experience with SO₂ and NO_x regulations suggests that mercury regulation will significantly affect the U.S. coal industry. For example, despite proven technology to remove sulfur from flue gas, switching to low-sulfur coal remains the most popular SO₂ compliance strategy (EIA, 2000a). Technologies to remove mercury from flue gas are considerably less certain (EIA, 2001). For example, power plants with scrubbers and filters generally have lower mercury emissions (Kilgroe and others, 2000), but the data show so much variation that results are not assured for individual power plants that choose to install such devices. This variation appears to be partly related to coal-specific factors such as chlorine and calcium content, as well as plant-specific factors such as flue gas temperature in emission control devices (EERC, 2001). What is certain is that the amount of mercury in coal varies by the same order of magnitude as the amount of sulfur in coal (Fig. 1), and that mercury in coal is directly related to mercury emissions for similar power plant configurations (Fig. 2). Consequently, switching to lower mercury coal will probably be an important part of most power plant compliance strategies. If so, then demand for low-mercury coal will increase - this will obviously benefit low-mercury coal producers.

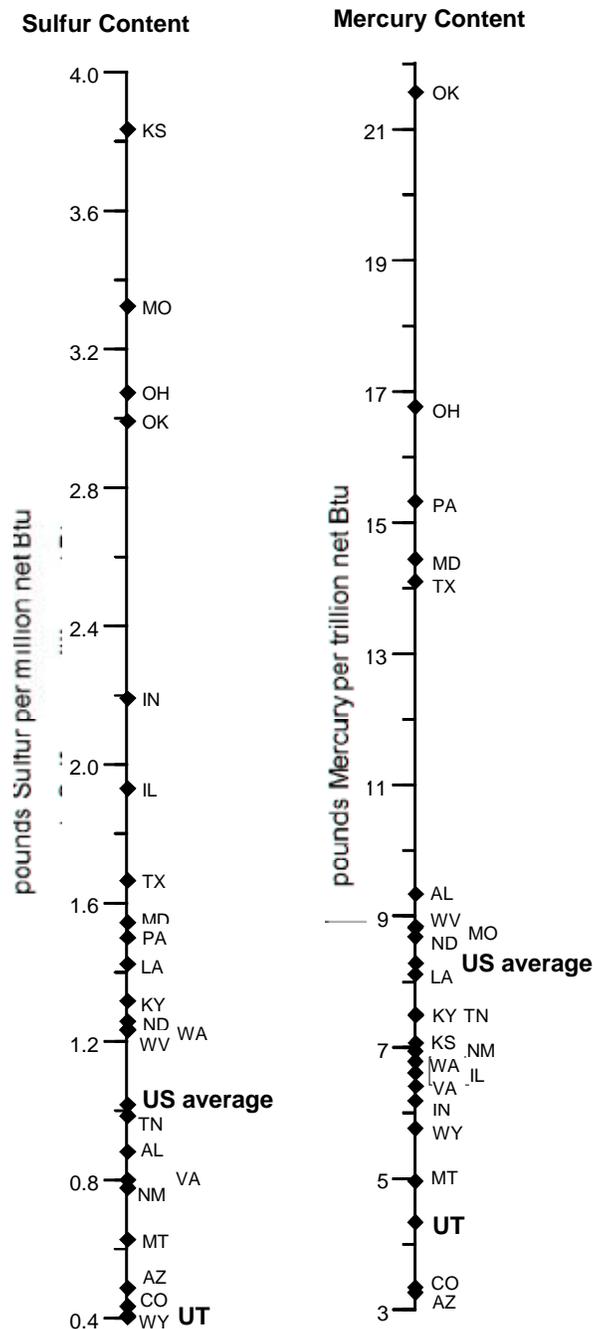


Figure 1. Average sulfur and mercury content of coal delivered to power plants in 1999 by U.S. state of origin. Although mercury and sulfur show similar magnitudes of variation, note the different measurement scales (lbs S per million net Btu compared to lbs Hg per trillion net Btu); an average U.S. coal contains about 130,000 times more sulfur than mercury. Sulfur values are calculated from EIA (2000b) and weighted according to the total net heating value of coal shipments. Mercury values are calculated from selected Part II, ICR data (EPA, 2000), and are un-weighted numeric averages. The calculation method is described by Quick and Brill (in press).

A less obvious effect of mercury regulation relates to the likely linkage of mercury emission limits to the gross heating value of the coal. An EPA preference for this regulatory approach is evident since the gross heating value is currently used to set emission limits for both SO₂ and NO_x. The gross heating value of coal is the familiar Btu/lb value that is reported in U.S. trade journals and laboratory assays (MJ/kg elsewhere). Importantly, the gross heating value is not the same as the coal's heating value when it is burned in a power plant's boiler, which is the "net" heating value. The net heating value is less than

gross heating value in proportion to the amount of water vapor in coal combustion gases, which, in turn, varies with coal rank (Quick and Glick, 2000). This means that the effective emission limits will likewise vary with coal rank, further complicating the effect of mercury regulation on the coal industry. The outcome of setting mercury emission limits according to the gross heating value can be anticipated by examining current NO_x regulations.

Phase two of the EPA's Nitrogen Oxide (NO_x) Reduction Program under the Acid Rain Program limits annual NO_x emissions from power plants according to the boiler type and the gross heating value of the coal that is burned. Because the difference between net and gross heating value varies with coal rank, the effective NO_x emission limit for a power plant likewise varies with coal rank (Fig. 3). Consequently, existing rules that limit NO_x emissions favor producers of low-rank coal. This bias towards producers of low-rank coal will persist if mercury emission limits are likewise set according to the gross heating value of the coal. Given substantial, mandated mercury reductions, uncertain post-combustion control technologies, and large variation of mercury in coal, demand for low-mercury coal will probably increase. How can coal producers satisfy this demand? Understanding how mercury is locally distributed within a coal bed may allow producers to selectively mine lower mercury coal or improve washing methods to better remove mercury. Alternately, producers might consult with power plants to identify mutually beneficial and low-cost solutions such as blending, or adding compounds that enhance mercury capture. Without communication, power plants may find independent solutions without regard for coal producer interests.

Although the coal industry has little influence on how rules limiting mercury emissions will be written (EPA, 2001), these rules may have a big influence on where coal is mined. Perhaps more important than how the rules are written, is recognition that demand for low-mercury coal will probably increase. Coal producers that are able to meet this demand will benefit the environment, and at the same time provide stable employment and affordable electricity for their communities.

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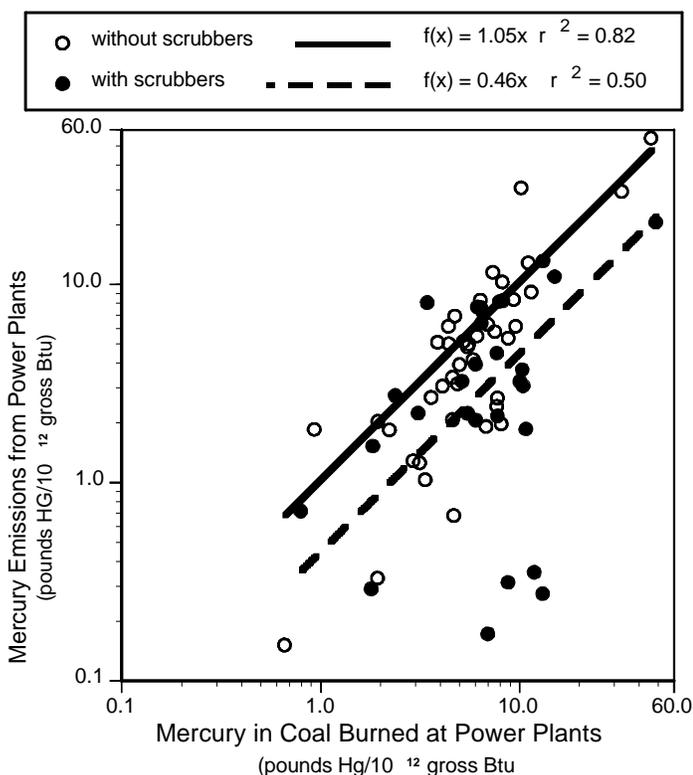


Figure 2. Mercury emissions from 70 U.S. power plants increase as the amount of mercury in the coal that is burned increases. Power plants with scrubbers have generally lower emissions than power plants without scrubbers, but the dashed best-fit regression line for power plants with scrubbers ($r^2 = 0.50$) suggests that the mercury content of coal remains an important factor that controls emissions from scrubbed power plants. Deviations are thought to be partly due to factors such as the coal chlorine content which is thought to oxidize mercury in the flue gas to a water soluble form that can be removed by scrubbers (Chu and others, 2000). Measurement error also contributes to the scatter since there are many instances where mercury emissions exceed the amount of mercury in the coal. Data are from the Part III, ICR data set (EPA, 2000) and exclude records for fluidized bed and gasification boilers.

ASTM (1990) Coal Rank

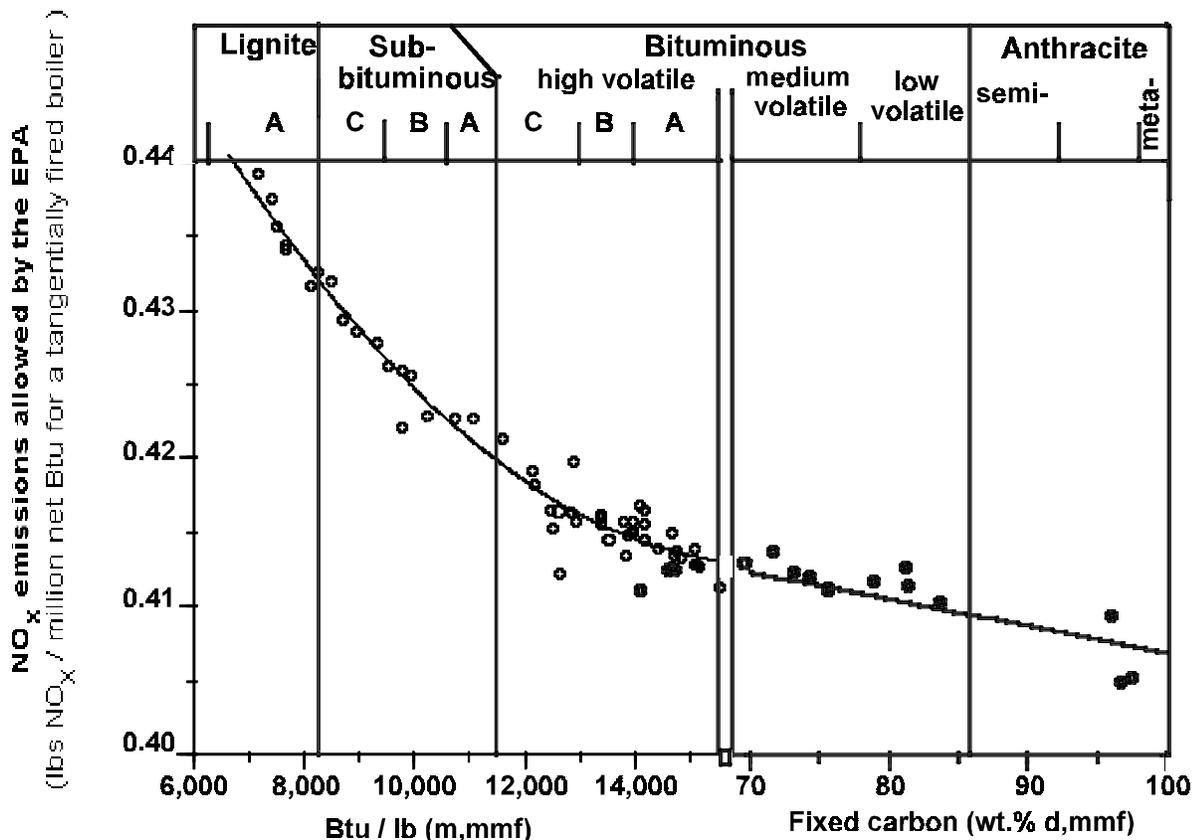


Figure 3. Calculation showing that higher NO_x emissions are allowed for U.S. power plants that burn low-rank coal than those that burn higher rank (bituminous) coal. This competitive advantage of lower rank coal will persist if mercury emission limits are similarly defined according to the gross heating value of the coal. Calculation of NO_x emissions on a net energy basis is after Quick and Glick (2000) using the current EPA limit for tangentially fired power plants of 0.40 pounds NO_x per million gross Btu.

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Advisory Committee. This 26-member advisory group is charged with developing rules to regulate mercury emissions from power plants. John Shanahan from the National Mining Association is the lone representative for the coal industry. The membership list is posted on the EPA (2000) website.

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Calendar of Events

2002

August 25 - 30, 2002: Gondwana 11: Correlations and Connections, University of Canterbury, Christchurch, New Zealand.

August 31- Sept. 4, 2002: 19th Annual **TSOP** Meeting, CSCOP - TSOP 2002: Emerging Concepts in Organic Petrology & Geochemistry, Banff, Alberta, Canada. See page 5.

September 22 - 29, 2002: 54th Annual Meeting of **ICCP**, Maputo, Mozambique, and Pretoria, South Africa. See <http://www.uem.mz/faculdades/ciencias/geologia/eventos/index.htm>.

September 23 - 27, 2002: Nineteenth Annual International Pittsburgh Coal Conference, Pittsburgh, Pennsylvania, USA. One-page abstract submissions due March 1. See <http://www.engrng.pitt.edu/~pccwww/>

October 19 - 24, 2002: 8th Latin-American Congress on Organic Geochemistry, Cartagena, Colombia. See <http://www.alagocongress2002.com.co>

October 27 - 30, 2002: Annual Meeting of the Geological Society of America, Denver, Colorado, USA. See <http://www.geosociety.org/meetings/> Including session T4, Coal Resource and Utilization Issues, sponsored by GSA Coal Geology Division and **TSOP**. Organized by Peter D. Warwick, U.S. Geological Survey, Reston, Va., and Margaret S. Ellis, U.S. Geological Survey, Denver.

December 9 -11, 2002: 'Black Shales' meeting: Organic-carbon burial, climate change and ocean chemistry (Mesozoic-Paleogene), London. Geological Society of London, Marine Studies Group. Abstracts due by 1 November. See <http://www.earthsci.ucl.ac.uk/conferences/GSLC>

2003

February 4 -5, 2003: Reservoir Geochemistry Conference by the Geological Society of London, Petroleum Group, to promote the latest advances in organic and inorganic geochemistry and their applications in the evaluation and study of reservoirs. Deadline for submission of formal abstracts is 1 June 2002. Contact Dr. John Cubitt: john-cubitt@es-information.demon.co.uk

May 12 -16, 2003: Fourth Geofluids Conference on fluid evolution, migration and interaction in sedimentary basins and orogenic belts, organized by the Netherlands Institute of Applied Geoscience TNO-National Geological Survey. In Utrecht, The Netherlands, at the campus of Utrecht University See <http://www.nitg.tno.nl>

May 26 - 30, 2003: The Fifth International Symposium on Applied Isotope Geochemistry (AIG-5), P&O Resort, Heron Island, Great Barrier Reef, Queensland 4680, Australia. See <http://www.chem.mq.edu.au/aig-5>

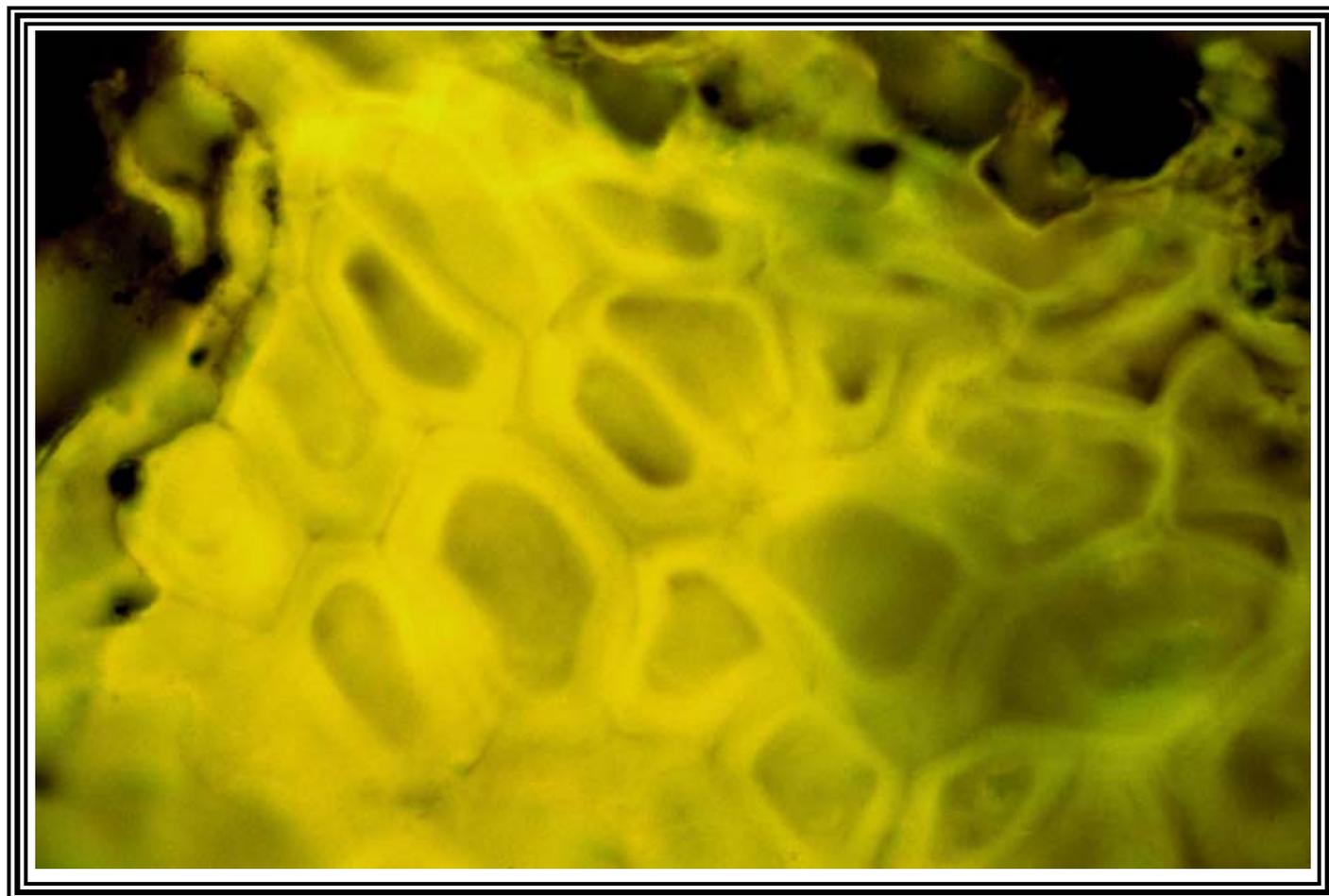
August 10 - 16, 2003: 55th Annual Meeting of **ICCP**, The International Committee for Coal and Organic Petrology, Utrecht, The Netherlands. See <http://www.nitg.tno.nl/eng/55iccp.shtml>

August 10 - 16, 2003: XVth International Congress on Carboniferous and Permian Stratigraphy (XV ICC-P), Utrecht, The Netherlands. See <http://www.nitg.tno.nl/eng/iccp.shtml> Theme: 'Permo-Carboniferous around the Southern North Sea Basin'.

Sept. 21 - 24, 2003: 20th Annual TSOP Meeting, **TSOP** 2003, Washington, D.C. Area (Arlington, Virginia, USA). See page 2 and <http://www.tsop.org/mtgdc.htm>

October 20 - 22, 2003: International Ash Utilization Symposium, Lexington, Kentucky, USA. See <http://www.flyash.org>

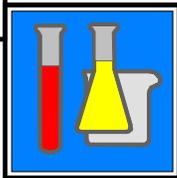
Photo Gallery



Foerstia (Protosalvinia) in the Huron Shale (Upper Devonian), east-central Kentucky. Oil immersion, reflected-light, blue-light illumination. Field-of-view = 240 microns across. Photo by Sue Rimmer; see "Black Shales - Old Problems, New Solutions" on page 12.



THE SOCIETY FOR ORGANIC PETROLOGY



NEWSLETTER

Vol. 19, No. 3

September, 2002

ISSN-0743-3816



Banff CSCOP-TSOP Meeting



THE SOCIETY FOR ORGANIC PETROLOGY



Call for Papers

Twentieth Annual Meeting

September 21 - 24, 2003

Washington, D.C. Area

HYATT ARLINGTON

ARLINGTON, VIRGINIA, USA

For our 20th Annual Meeting, TSOP will return to the city which hosted its first meeting.

Meeting Themes:

- Session 1 Petroleum Systems, Source Rocks, and Coalbed Methane (Monday AM)
- Session 2 Ron Stanton Memorial Session Coal Characterization (Monday PM)
- Session 3 General Submissions (Tuesday AM)
- Session 4 Government and Energy (Tuesday PM)

Field Trip: Geology and Energy Resources of the Triassic Basins of Northern Virginia (Wednesday)

Short Courses:

- Modes of Occurrence of Trace Elements in Coal (Sunday AM)
- Health Impacts of Coal: Should We Be Concerned (Sunday PM)
- Petroleum Source Rocks and Coal in the National Petroleum Reserve in Alaska - A Core Workshop (Sunday)

Abstract submission deadline: April 15, 2003; See <http://www.tsop.org/mtgdc.htm> for more details

Spousal and Social Activities Planned

Meeting Hotel: The Hyatt Arlington

Conveniently located across the Potomac River from Washington, D.C., within walking distance of Georgetown, and is adjacent to the Rosslyn Metro Stop. See: <http://www.arlington.hyatt.com/>

For more Information:

Contact Peter Warwick, U.S. Geological Survey, 956 National Center, Reston VA 20192, USA; Phone: (703) 648-6469, Fax: (703) 648-6419, E-mail: pwarwick@usgs.gov; also see our website at: <http://www.tsop.org/mtgdc.htm>

First Announcement

The Society for Organic Petrology Newsletter

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published quarterly

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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.

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Address Changes

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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: photos of Banff meeting, clockwise from top left:	
Martin Fowler, Conference Chair, oversees technical session;	
Donald Cameron Hall, dining room at center of ground floor;	
Auditorium in Max Bell Building during Archie Douglas Symposium.	

Cover photographs by David Glick.

President's Column:

Maria Mastalerz



After our very successful meeting in Banff, Canada, I am very excited to be leading The Society for Organic Petrology. This year's meeting has shown how seamlessly organic petrology blends with organic geochemistry, how these disciplines complement one another with an advantage for both, and how we can appreciate and enjoy this combination. We were very honored by the participation of Dr. Duncan G. Murchison, who received TSOP's lifetime Honorary Membership this year; Dr. Archie G. Douglas, who received the 2002 Treibs Award; and Dr. Fariborz Goodarzi, who received CSCOP's Peter Hacquebard Award. I, personally, was delighted to see my colleagues and friends at the meeting, some of whom I had not seen for many years. The organizers did a superior job of attracting world class scientists and put together an outstanding scientific program.

For me, the Banff meeting reinforced the idea that we are stronger when united. The organizations TSOP, CSCOP, ICCP, as well as others, all need to work closely together. Our experience at the meeting highlights the point that when we join forces, excellent things happen. Joint events, sessions, conferences, and projects always bring better results, attract new people, contribute to better communication, and give all of us better exposure.

The role of organic petrology is evolving and there is no guarantee what the future will bring for the field. The Society needs to change proactively in order to maintain its strength and appeal. What should we do in order ensure it? I would like to follow up on the challenge from past TSOP President Tim Moore to discuss the future directions of organic petrology. I would like to encourage TSOP

members and others who are actively working in the field to express their views as to where organic petrology might be in 20 years. What equipment will we be using after all our old Leitz and Zeiss microscopes become obsolete? Who could use the skills of organic petrologists? Please e-mail me or other Council members with your comments. Your views are very important, and will help the Society to grow and become better prepared to serve its members into the future.

At the Incoming Council meeting in Banff we discussed some changes that will or could be introduced to serve our members more effectively. I would like to mention three of them:

1. The Council has voted to post the TSOP Newsletter on the web site, making it available to everyone. We want people to hear about the Society, to learn what we are doing, and to use us as a resource, whether they are TSOP members or not. We believe that the change from publishing only a paper version of the newsletter will be welcomed and that many of you will access it on the Internet.
2. The Council expressed deep concern over the declining availability of coal geology programs at North American universities and elsewhere. We believe that our Society is well positioned to fill this gap. Our members have excellent qualifications and the Council has decided to work toward developing a TSOP education program to serve this purpose.
3. I personally believe that it would be an advantage for the president to serve a term longer than one year. One year is too short a time to make an impact, and the extension of the term would allow a president to better serve the Society. I always feel sad seeing presidents leave at just the point when they have gained in experience and have so much more to offer. Changing the length of president's term from one to two years would require changes in TSOP's by-laws; for this change we need to hear from TSOP members. At this point I would like you to think about this issue; soon all members will be asked to respond to this question.

Finally, I would like to say that I am looking forward very much to working with you this year. I appreciate your dedication to the Society, and on my part I would like to leave you with a promise that I will try to serve the Society and all of you as well as I can. Y

Outgoing Co-Editors Bid Farewell

from Bill Huggett and Jack Crelling

As we step down from the editorship of this newsletter, we would like to thank all who contributed their work, ideas and opinions to help ensure that the TSOP newsletter stays a viable and valuable information source. To many members this newsletter is the only "material" contact they have with the society and to that end it is essential that it contain as much pertinent information as possible.

Please welcome long-time TSOP member Dave Glick as new editor; please continue to provide any ideas or information that would be useful to our many members. Thank you!

Y Y Y Y Y

ROMANIAN ATLAS CARBOPETROGRAFIC: Ordering Procedure Update

from Peter Crosdale

This volume was reviewed in the last Newsletter. I contacted Editura Academiei Romane to confirm costs (including postage) and availability of credit card facilities etc. They informed me that they do NOT handle the book for foreign orders. You must order it through

Orion Press Impex 2000 SRL

PO Box 77-19

Bucuresti 3

Romania (ph./fax +40-1-335-0296)

It now costs \$50. U.S. including postage. They have no credit card facility and will not ship on a purchase order, i.e. the order must be pre-paid. I also know that this works as I bought (by bank draft) a copy which is now sitting on my desk.

Y Y Y Y Y

Bethany Burnett Awarded 2002 TSOP Graduate Student Research Grant

by Suzanne Russell

A total of eight applications, from the USA and Romania, were received for the 2002 TSOP Graduate Student Research Grants. The applications were submitted by two Master's candidates and six PhD candidates. This year TSOP grant application reviewers were Joe Curiale, Unocal; Brenda Pierce, U.S. Geological Survey; and Colin Ward, University of New South Wales. Our 2002 awardee is Bethany Burnett of the University of New Mexico (thesis advisor Dr. Tobias Fischer), with the research topic "Formation Mechanisms of Hydrocarbons in Volcanic Gases". Bethany is working towards a Master's degree. Mrs. Burnett was unable to attend the Banff meeting, hence, her award will be mailed to her. Mrs. Burnett's summary of her topic follows.

Formation Mechanisms of Hydrocarbons in Volcanic Gases

by Bethany Burnett

Many highly populated areas are located in the vicinity of active volcanoes. Therefore, it is important to understand the dynamics of the various components of volcanic gases in order to better monitor and predict volcanic activity. While studies have characterized the light hydrocarbon fraction of volcanic and geothermal gaseous emissions in some locales, the low concentrations of these compounds have been inhibitive to numerous analyses. The two major questions to be addressed by this research are as follows: 1) Is the proportion of organic compounds present in the gas sample dependent on the H/C (hydrogen/carbon) ratio of the gas? and 2) Is there a correlation between the hydrocarbons present and the setting?

Theoretically, the more highly saturated hydrocarbons should be thermodynamically stable in volcanic gases with high H/C ratios, because they are more reduced. It is expected that aromatic hydrocarbons and alkenes will be present in greater proportions in gas samples with low H/C ratios than in samples with high H/C ratios. Correlations between the distribution of hydrocarbons and the geologic and tectonic setting will also be examined. Magma temperatures, redox conditions, and underlying crustal material differ between convergent margins, divergent margins, and hotspots. The stability of hydrocarbons will therefore vary between these settings, which is expected to lead to different distributions of hydrocarbons.

We will identify and quantify the hydrocarbon content of gaseous emissions from a variety of geothermal and volcanic areas using a gas chromatograph. Methane is typically the predominant hydrocarbon found in these emissions, but we are also interested in the following types of hydrocarbons: n-alkanes (C₂-C₁₀), alkenes, benzene, toluene, and xylenes. Additionally, carbon stable isotope analyses of the light alkanes will be performed. Although results from previous studies of hydrocarbons have generally been suggestive of a biogenic origin, the possibility of abiotic synthesis has not been ruled out. Carbon stable isotope values can be used to distinguish between thermogenic and biogenic gases, with biogenic gases having lower $\delta^{13}\text{C}$ values than thermogenic gases. The combined results from these analyses will then be correlated with geologic setting in order to determine trends. This research will further the understanding of the stability of organic molecules at high temperatures and could potentially provide input regarding the formation of the initial organic compounds on the early Earth. Y

TSOP Technical Session at ICCP Copenhagen, Denmark, 2001

Meeting Report by Henrik Petersen

The 53rd annual meeting of the International Committee for Coal and Organic Petrology (ICCP) was held in Copenhagen, Denmark, from August 12–19 2001. The meeting was organised by the Geological Survey of Denmark and Greenland (GEUS), and the meeting venue was the newly established Geocentre Copenhagen, which includes GEUS, the Geological and Geographical institutes of the University of Copenhagen, the Geological Museum, and the Danish Lithosphere Centre. In addition to the usual ICCP programme the meeting included a one-day TSOP session in the middle of the meeting and a Marlies Teichmüller Symposium at the end of the meeting. This was the first official TSOP meeting outside North America, and the idea to include a TSOP session in the ICCP meeting in Copenhagen was developed together with Charlie Barker at the TSOP meeting in Halifax in 1998. As chairman of the organising committee of the 53rd ICCP meeting, I was in contact with Charlie Barker during the year 2000 in order to realise the idea, and we decided to announce a one-day TSOP session with the theme “Organic petrology applied to petroleum and coalbed methane studies.”

The ICCP meeting was indeed an international meeting with about 70 participants from 20 different countries: Australia, Brazil, Canada, Czech Republic, Denmark, Germany, Greece, Hungary, Malaysia, Mozambique, Poland, Portugal, Romania, Russia, South Africa, Spain, Thailand, The Netherlands, United Kingdom and USA. It was particularly pleasant to see that nine Australian colleagues made the long way to Denmark to participate in the meeting. I got the impression that many of the delegates found the inclusion of a more “regular” scientific session in the ICCP meeting attractive.

Charlie Barker and I, who organised the TSOP session, were

very pleased to notice the interest in giving an oral presentation or presenting a poster at the session, which made it possible for us to set-up a one-day programme consisting of 15 oral presentations and 20 posters. After an introduction by Charlie Barker, Vern Stasiuk et al. gave the



Two of the speakers at the TSOP session, W. Kalkreuth and C.J. Kommeren, at the balcony of Restaurant Nimb during the conference dinner.
—photo courtesy of Henrik Petersen



The magnificent Cretaceous chalk cliffs at Møns Klint on the island of Møn, Denmark.

----photo courtesy of Henrik Petersen

opening presentation on a basin-wide thermal maturity evaluation of Devonian–Mississippian source rock strata in the Western Canada Sedimentary Basin. This was followed by a talk by A. Carr on thermal history modelling using vitrinite reflectance. M. Mastalerz & A Schimmelmann continued with a presentation on isotopically exchangeable hydrogen in coals. Petrographic insights into liquid hydrocarbon generation and expulsion from oil-generating coals of Sarawak, Malaysia, were discussed by A. Wan Hasiah & Q. Bachir. C.J. Kommeren gave a talk on the "good and the bad news" deduced from organic petrology for petroleum exploration offshore the Falkland Islands, whereas J.A. Bojesen-Koefoed et al. presented the role of organic geochemistry and petrology in exploration activities in West Greenland. B. Ratanasthien et al. compared liptinite in the source rocks of the Fang oilfield in northern Thailand and the Pattani gasfield in the Gulf of Thailand. M. Glikson et al. discussed isotope geochemistry, py-MS and electron microscopy of coals associated with hydrogen sulphide seam gas in the Bowen Basin, Australia, and later she presented results from a coalbed methane project in the Hubei Basin, China. L.W. Gurba & C.R. Weber talked about a new look at coal optical properties and their application in coalbed methane evaluation. W. Kalkreuth et al. gave a presentation on the assessment of the coalbed methane potential in the Santa Terezinha Coalfield in the Parana Basin in Brazil, whereas C. Barker on behalf of E.R. Landis and co-workers presented the results from a coalbed gas study in the Mecsek Basin, Hungary. The three final oral presentations in the TSOP session dealt with other than petroleum related aspects of organic petrology. K.J. Kruszewska discussed fluorescing macerals in South African coals, A. Iordanidis & A. Georgakopoulos presented results from a petrographic study on the Pliocene lignites from the Amynteo Basin in northwestern Greece, and finally G. Predeanu et al. gave a talk on carbonisation behaviour of inertinite by thermoplasticity and coke microstructure assessment.

The oral presentations were followed by poster viewing while the delegates could enjoy draught beer from Carlsberg. The posters covered a variety of areas of applied organic petrology and geochemistry, including facies studies, coal combustion, and presentation of different analytical techniques. I consider the TSOP session a great success and would once again like to thank all speakers, poster contributors, chairmen, and delegates for their participation. A special issue of the International Journal of Coal Geology with about nine papers presented at the TSOP session is in publication.

Most delegates participated in the conference dinner the day after the TSOP session. The dinner was held on Thursday on a very warm summer evening in Restaurant Nimb with its large balcony with a view over the "Tivoli"-gardens in the centre of Copenhagen. The organising committee was pleased to notice that a majority of the conference delegates participated in the excursion on Saturday to the beautiful Chalk cliffs on the island of Møn in the Baltic Sea. The exposed Cretaceous chalk deposits constitute an analogue to the Danish offshore chalkfields in the Danish Central Graben. The excursion also visited a passage grave from about 3200 B.C. and the Fanefjord church with the famous wall paintings from the Middle Ages.

Some Observations on the 53rd Annual Meeting of the ICCP in Copenhagen, Denmark, 2001

by Jack Burgess

This meeting covered the same Commission work as in previous years, but I will touch on isolated topics of interest to me and to the membership of TSOP.

One of these topics is accreditation of coal petrographers through ICCP, and its relevance to the coal industry. The actual accreditation program has been in effect for several years, however, the results presented at the Copenhagen meeting are worth documenting.

The accreditation report was prepared by Aivars Deepers: 55 members had signed up for the exercise and it was completed by 50.

2 members used automated analysis, and both passed and were accepted.

19 members were reaccredited.

17 are fully accredited.

14 members were provisionally accredited; the term provisionally accredited is no longer used.

Thus for the year 2001 the ICCP has accredited 50 members, or just under one-third of the membership. Certificates of accreditation were mailed in August, 2001, to those members who qualified. For those interested, the fee structure for accreditation may be found on the ICCP web site, www.iccop.org

Accreditation brings up questions of liability of the ICCP to possible lawsuits from disgruntled failed applicants. This legal aspect of liability is to be researched and reported on in 2002. *Continued on p. 8*

The use of automated analysis for both maceral and reflectance analysis was either discussed or alluded to in four sessions, so it is a current topic.

Graphite and semi-graphite sheets were prepared by Dr. Barbara Kwiecinska for the Handbook, and were presented and approved by the members, a big job and very well done.

Peter Crosdale, Newsletter Editor, has reproduced the out-of-print 1963 ICCP Handbook on CD-ROM, and has included keyword references. It is available now for \$15.00, and I can't wait for mine to arrive. Order through Rudi Schwab or Peter Crosdale.

The ICCP has purchased two glass standards, both in the care of Walter Pickel. One can be loaned out for a deposit fee, while the other is to remain in Sydney, to be used for calibrating submitted standards, also for a fee. Interested parties may contact Walter Pickel by e-mail: Walter.Pickel@CSIRO.au

The Conference Dinner was held at the world-famous Tivoli Gardens, on the second floor balcony of the main Pavilion overlooking the gardens. Acrobats performed while we honored guests fraternized and drank to one another's good health – truly a fitting end to a wonderful conference. After dinner we strolled the grounds well into the night.

Y Y Y Y Y Y Y Y Y

2003 TSOP Dues Notice

Members whose dues expire at the end of 2002 will find a dues form enclosed with this Newsletter. Please check and correct the printed address and contact information and promptly return the form and payment to Secretary-Treasurer Mike Avery (see address on form). Dues should be paid by December 31.

At other times, please forward any changes in address or other contact information to the Membership Chair, Peter Warwick (see page 3).

Blank dues forms (and application forms for new members) may be found as PDF files on TSOP's web site at www.tsop.org Y

Call for papers: 20th Annual International Pittsburgh Coal Conference

The 20th International Pittsburgh Coal Conference (<http://www.engrng.pitt.edu/~pccwww/>) will be held 15-19 September 2003 at the Westin - Convention Center in Pittsburgh, PA. Abstracts for the meeting are now being solicited and are **due 1 January 2003**. The complete call for papers can be found at:
<http://www.engrng.pitt.edu/~pccwww/03firstcall.PDF>

Several program topics areas may be of interest to TSOP members, in particular topic area 8 (Sequestration) and 11 (Coal Geosciences and Resources). The latter session is being organized by Jim Hower. Potential topics for papers include:

8. Sequestration

- 8.1 CO₂ separation and capture
- 8.2 Sequestration of CO₂ in geologic formations
- 8.3 Enhancing natural sinks
- 8.4 Advanced CO₂ conversion concepts
- 8.5 Modeling and assessments
- 8.6 Non greenhouse gas capture and storage
- 8.7 Multi pollutant capture and storage

11. Coal Geosciences and Resources

- 11.1 Coal resource evaluation
- 11.2 Coal geology
- 11.3 Coalbed methane
- 11.4 Petrology and geochemistry of coals
- 11.5 Evaluation of trace elements considered to be health hazards
- 11.6 Geotechnical characterization of coal-bearing strata.

Please note that the Pittsburgh meeting is the week prior to the TSOP meeting in Arlington, VA. International participants may be interested in arranging travel so that they can participate in both meetings. Any questions about the meeting can be forwarded to the conference office at pcc@engr.pitt.edu. Any questions about session 11 can be sent to Jim Hower at hower@caer.uky.edu. We hope to see you in Pittsburgh and Arlington next September. Y

In Memoriam Dr. William A. Kneller 1929-2002

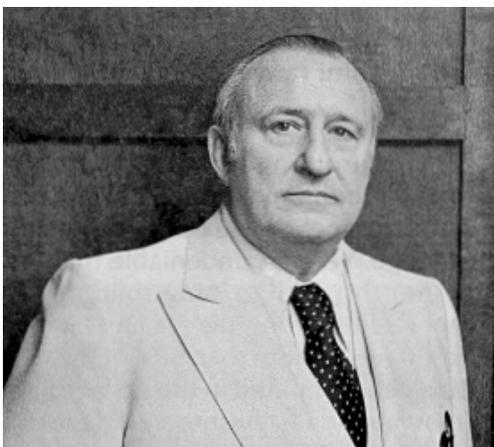
With the headline "Geologist Built University of Toledo Department," the Toledo (Ohio) Blade newspaper of Sept. 16, 2002, reported the passing of Dr. William A. Kneller on September 13. He had retired in 1989 for health reasons, and died at age 73 of kidney failure arising from diabetes.

According to that report, with information supplied by Dr. Mark Camp, an associate professor of geology at UT and former Kneller graduate student, Dr. Kneller was hired there in 1961 to chair a small geology and geography department. He separated those disciplines, serving a long term as chair of the geology department and starting its master's degree program in 1966. Among his accomplishments were setting up extensive laboratories with modern analytical equipment, creation of an endowed Institute for Silicates and Ceramic Research, and a Subsurface Data Center core storage facility. He and his students performed extensive work in coal characterization; his research included organic-inorganic interactions in combustion and synthetic fuel production.

He attended TSOP's first annual meeting in Virginia in 1984, bringing five of his graduate students to the inaugural meeting of a promising young society. That visit was the start of a productive relationship; he was a TSOP member since then, attending many more annual meetings with his graduate students. Several of his graduate students have become TSOP members and officers.

Kneller held bachelor's and master's degrees from Miami University of Ohio and a Ph.D. from the University of Michigan, and was a 30-year veteran of the Marine Corps Reserve, retiring with the rank of Colonel. In addition to professional geological societies he belonged to Sigma Gamma Epsilon and Phi Sigma honor societies, and served on the University's Faculty Senate. He is survived by Olga, his wife of 51 years; four children, three grandchildren, and a sister. Memorial contributions may be made to the American Diabetes Association, the National Kidney Foundation, or the Multiple Sclerosis Society.

Former graduate student Jeff Quick adds: Although many TSOP members are



familiar with Bill's work in organic petrology, this was only part of his research interests. Bill was also an expert in silicate science. He published extensively on highway aggregates, concrete petrology, the chemistry and behavior of chert, the beneficial uses of iron and steel slags, the geology of glacial sand and gravel deposits, historic building stones, and ancient mortars and cements. He also published on the use of thermal analysis to evaluate

carbon blacks, chert, power plant fly ash, clays, carbonates, and coal. He held a U.S. Patent for beneficiation of cement kiln dusts and was involved with the selective mining and combustion of an Ohio coal to produce a germanium-enriched ash. Many of his graduate students will recall pleasant hours spent studying in the cool quiet of the X-ray lab while tending his instruments to assay raw materials used to make the ceramic tiles on the U.S. space shuttle.

During a visit to Bill Kneller's home a few years ago, I saw a bookshelf with his students' theses prominently displayed. These forty-seven books were clearly important to him and attest to the importance of teaching in his life. As a former student, I count his ability to instill an enthusiasm and passion for science among his most enduring accomplishments.

Renee Klinger, also a former graduate student, remembers: I looked up to Dr. Kneller and admired him very much. I owe a lot to him; it was not just about learning organic petrology, organic geochemistry, or the coal industry, but about efforts gained from hard work and dedication. Dr. Kneller gave everything to his students, just ask his wife or his daughter. He was gruff on the outside to

many, but a big teddy bear to those of us who knew him well. Dr. Kneller truly cared about his students, probably too much. I know that for years after I graduated, when I would go back to see him in his office, I would see a picture of myself and a few of his other past graduate students. I think that pretty well says it all as to how much we mutually cared for and respected him, and how he certainly felt about his students.



Photos courtesy of Dr. Mark Camp

Y

19th Annual Meeting CSCOP - TSOP 2002 in Banff

Meeting Report by David Glick

TSOP's 19th Annual Meeting, its third held jointly with the Canadian Society for Coal Science and Organic Petrology, was held in Banff, Alberta, Canada August 31 - Sept. 4, 2002. The Banff Centre, a meeting, arts and inspirational facility with a large campus close to downtown Banff, provided an exceptionally scenic site with technical and dining facilities very well suited to the meeting.

Sponsored by Elsevier Science and the European Association of Organic Geochemists, the conference theme was "Emerging Concepts in Organic Petrology and Geochemistry." The meeting was organized by a committee of members in Canada and the U.K.; Martin Fowler (photo, front cover) of GSC-Calgary, Canada, was the Conference Chair. Among the committee members, Lavern Stasiuk of GSC-Calgary performed many duties as the TSOP liaison for the meeting, and Judith Potter of JP PetroGraphics provided the statistics presented in this article. There were 141 delegates in total, including 11 students and about 30 guests and accompanying persons.

Activity began on Saturday, August 30, with 19 people attending a short course on "A prediction of total organic carbon contents and hydrogen indices in marine sediments" presented by Richard Tyson.

Field trips were held Saturday and Sunday, and resumed on Wednesday and Thursday, with some trips being held twice for convenience in scheduling around other trips and arrival/ departure dates. In total, 20 people attended the Rocky Mountain Geology, Hydrocarbon Source Rocks and Coal trip; 29 attended the two trips to the Burgess Shale site (see photo on p.20, back cover); five attended the trip to see Upper Cretaceous Geology near Drumheller and the

Royal Tyrrell Museum of Paleontology; and 28 delegates and guests attended the sight-seeing tours of the Banff to Lake Louise area of Banff National Park.

Registration and a large welcoming ice-breaker party were held Sunday evening in the Max Bell Building, the location for all of the technical activities. TSOP's outgoing Council held its meeting later Sunday evening.

Parallel technical sessions on Sources of Natural Gas and Petroleum Systems were held on Monday morning. Poster displays were available for viewing throughout the conference. A luncheon was provided on Monday, and TSOP's business meeting took place immediately afterward. President Tim Moore conveyed that office to incoming President Maria Mastalerz, and TSOP Council members (photo below) and committee chairs were introduced and gave brief reports. TSOP's upcoming meetings in Washington, DC, 2003 and Sydney, Australia, 2004, were announced and invitations were extended. Karyn Pratt, manager of the Petroleum Geochemistry division of Geotech, Western Australia, received TSOP's Farthest Traveled award (photo below left).

Duncan Murchison became TSOP's seventh Honorary Member. The presentation was made by Tim Moore, outgoing TSOP President. CSCOP also conducted business, with Fariborz Goodarzi receiving CSCOP's Hacquebard Award (photos, page 11). On Monday afternoon, the parallel sessions continued. The meeting of TSOP's incoming Council was held Monday evening.

On Tuesday, the Dr. Archie G. Douglas Symposium, "Celebrating 45 Years of Organic Geochemistry," was held



Tim Moore presents Farthest-Traveled Award to Karyn Pratt, W. Australia. D. Glick photo



Members of TSOP Council 2002-2003 at Banff Meeting: left to right, front row: Pres.-Elect Bob Finkelman, Pres. Maria Mastalerz, Vice-Pres. Peter Warwick; back row: Sec.-Treas. Mike Avery, Editor David Glick, Councilor Ray Pheifer. Not shown: Councilor Bill Huggett. J.B. O'Donnell photo



Lavern Stasiuk presents TSOP Honorary Member plaque to Duncan Murchison.
D. Glick photo



Fariborz Goodarzi receives CSCOP's Hacquebard Award from Judith Potter.
D. Glick photo

to celebrate the outstanding achievements of one of the pioneers of organic geochemistry. The Symposium was chaired by Martin Fowler, Brian Horsfield and Steve Larter; each of them also made a technical presentation and, along with other colleagues and past students of Dr. Douglas, touched on the many topics of his research at the University of Glasgow and the University of Newcastle. Following an introduction by K.E. Peters, the Treibs Award was presented to Dr. Douglas by J.R. Maxwell, himself the 1989 recipient of the award. The Treibs Award is presented by the Geochemical Society's Organic Geochemistry Division for major achievements, over a period of years, in organic geochemistry. Dr. Douglas spoke in acceptance of the award, and also made a technical presentation reviewing medical aspects of carcinogenic compounds from organic sedimentary materials.

The evening banquet in the main room of Donald Cameron Hall featured a bagpiper leading the procession into the dining room. A group photograph (still being processed as of this writing) was taken. Following dinner, participants saw a good-humored slide show on Archie Douglas and in particular his students and their non-technical activities



Socializing follows the banquet.
D. Glick photo

through the years. Music and socializing continued after the program (photo below left).

Wednesday morning featured a session on Coal and Environment, with parallel sessions first on Shallow Thinking and then on Novel Analytical Techniques. The technical sessions ended mid-day Wednesday; in total over 2.5 days there were 66 oral presentations and 43 posters. Proceedings are to be published in special issues of *Organic Geochemistry* and *International Journal of Coal Geology*.

Field trips resumed Wednesday afternoon and Thursday. Many participants were also seen to enjoy the town, the mountain scenery, and geology on their own before departing.

Hamed Sanei Wins Student Paper Award

TSOP's Best Student Paper award was presented to Hamed Sanei (photo below) of the University of Victoria, British Columbia, Canada, for his poster, "Sources of Heavy Elements in the Recent Sediments of Pigeon Lake, Alberta: Assessment of the Impact from Coal-Fired Power Plants Versus Other Anthro-pogenic and Natural Sources,"



Hamed Sanei receives Best Student Paper Award from Colin Ward.
D. Glick photo

co-authored with Dr. F. Goodarzi. TSOP's committee for the award was chaired by Colin Ward and included MaryAnn Malinicono, Ray Pheifer, and Peter Warwick. Y

TSOP Research Committee News

Suzanne J. Russell
Research Committee Chairman

Student Research Grant Awarded

Bethany Burnett of the University of New Mexico was awarded the 2002 TSOP Graduate Student Research Grant; see page 5 for the story and research summary. Graduate students and professors should watch this Newsletter and the TSOP web site for the 2003 Student Research Grant forms and application deadline.

Research Committee Report on Subcommittees

There are presently four official subcommittees of the Research Committee. These are: 1) TSOP-ICCP Dispersed Organic Matter Classification Working Group (Vern Stasiuk, chairman), 2) Quaternary Climate Research Initiative (Tim Moore, chairman), 3) Maceral Ratios (Mick Frank, chairman), and 4) Coalbed Gas in Low-rank Coals (Peter Warwick and Maria Mastalerz, co-chairmen), the newest sub-committee which was approved by the TSOP Council at the Banff meeting. A description of this new subcommittee is given below:

Starting a Research Subcommittee

Starting a Research subcommittee is a straightforward process. A proposal is submitted to the Research Committee chairman using the form provided on page 13. With the endorsement of the Research Committee chairman, the proposal is submitted to Council for approval at their mid-year or annual meetings. Monetary grants (\$1000 US per year) are available through Council to pursue subcommittee activities. A subcommittee chairman will be nominated by the Research Committee chairman (volunteers are encouraged) and approved by Council. A subcommittee is discontinued when there has been no activity for two years.

Coalbed Gas in Low-rank Coals

The initial goal of this project is to form a working group of experts who will compile a list of recommended procedures for testing gas content of low-rank coals.

With the advent of major coalbed methane production from low-rank coals, such as in the Powder River basin of the United States, there is increased world-wide interest in evaluating low-rank coal basins for their gas potential. The gas content in low-rank coal basins has generally not been evaluated because of their presumed lack of significant thermogenic gas. The purpose of this working group is to identify the unique procedures and methods that need to be utilized when testing and evaluating coalbed methane resources in low-rank coal basins. This need results from the fact that not all techniques used to evaluate gas content of high-rank coals are applicable for low-rank coals. In the next phase, this working group will test reproducibility of selected analytical procedures, such as adsorption isotherms, and will conduct round-robin analyses of coal or gas samples. Future plans are to participate in multi-lab/multi-agency round robin testing of desorption and adsorption techniques used to characterize gas contents in low-ranked coals.

Anticipated products will include a list of recommended procedures and techniques for handling and evaluating coalbed methane from low-rank coal basins.

**TSOP Research Committee Proposal Form
For Subcommittees and/or TSOP Sponsored Projects**

Title of subcommittee:

Title of project:

Why is this project of benefit to TSOP? (use additional paper where needed)

Goal(s):

Approach or method(s):

Anticipated products:

Suggested subcommittee chairman:

Suggested subcommittee members:

Estimated time for completion of project:

Estimated cost of project:

Status Report on TSOP-ICCP Dispersed Organic Matter Classification Working Group

Lavern Stasiuk, Jack Burgess, Carolyn Thompson-Rizer, Adrian Hutton and Brian Cardott

During 2001-2002 the TSOP Dispersed Organic Matter Classification research group has made presentations to the ICCP DOM working group at the annual meeting in Copenhagen. Prior to this the draft classification was circulated via email to the TSOP DOM working group members for their comments. Table 1 is the current draft of the DOM Classification incorporating changes and suggestions made by ICCP and TSOP members during 2001-2002.

Currently images are being compiled and new images are being collected using the Geological Survey of Canada's Zeiss Axioplan II- Axiovision system. These images will show representative macerals in the DOM classification within strew mount samples and in polished block samples, in transmitted white, fluorescence, and reflected white light modes. Ideally the committee would like to use the same geological sample (e.g. Green River shale) to illustrate any given maceral in each of the various modes. For each image/sample and each maceral, age, formation, location, total organic carbon and Rock Eval Indices (e.g. HI, OI) will be quoted. Dr. Jack Burgess and Humble Instruments have provided a good set of samples for this purpose. Plate 1 on page 15 illustrates one example of the perceived product. Dr. Burgess is making a presentation to the ICCP Commission II at the annual meeting in Maputo, Mozambique, and Pretoria, South Africa, September 22-29, 2002.

TABLE 1. TSOP and ICCP Classification of Dispersed Organic Matter in sedimentary rocks and isolated organic matter¹ from petroleum source rocks, oil shales, clastics, and carbonate rocks² for reflected and transmitted light microscopy, with fluorescence illumination capability.

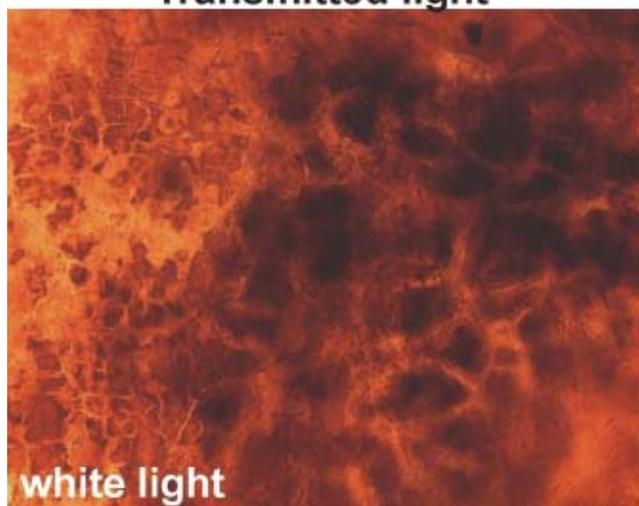
GROUP	MACERAL ³
Vitrinite	Telinite
	Collotelinite
	Vitrodetrinite
	Collodetrinite
	Gelinite
	Corpogelinite
Liptinite	Alginate
	Bituminite (Amorphinite) ⁴
	Liptodetrinite
	Sporinite
	Cutinite
	Suberinite
	Resinite
	Chlorophyllinite
Inertinite	Fusinite
	Semifusinite
	Funginite
	Secretinite
	Macrinite
	Micrinite
	Inertodetrinite
Zooclasts	Scolecodont
	Graptolite
	Chitinozoa
	Foram lining
Secondary Products	(Migra)bitumen
	Oil
	Pyrobitumen

Footnotes 1. Outcrop, core, side-wall core, well cuttings samples at moderate thermal maturity (within the oil window 0.5 to 1.3% Ro); 2. Sample processed with HCl and HF acids. 3. Using transmitted light and kerogen concentrates, it may not be possible to subdivide the vitrinite group into macerals, therefore vitrinite must be used. This may also apply to macerals within the inertinite group. 4. Bituminite is a defined ICCP maceral term, variety amorphinite is more commonly applied to this type of DOM and can be further expanded upon using the following recommendations: (i) fluorescing (fluoramorphinite) and non-fluorescing (hebamorphinite) amorphinite (Senftle et al., 1987) or (ii) Types A, B, C, D (Thompson and Dembicki, 1986). May 22/2002

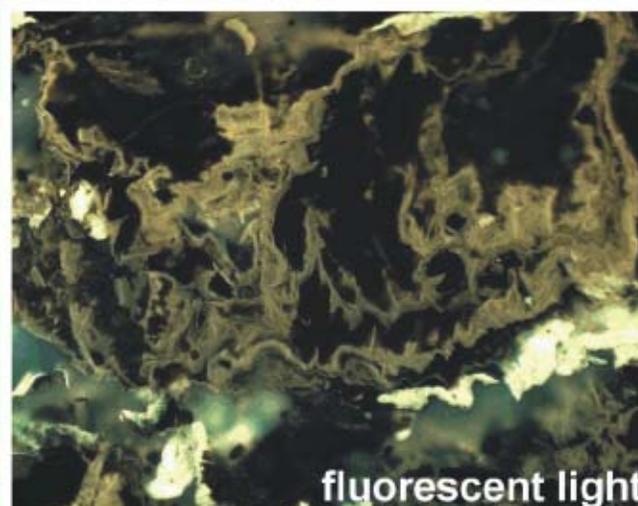
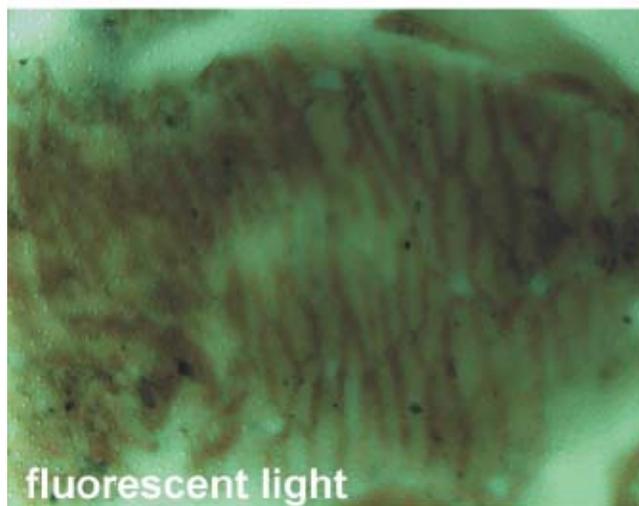
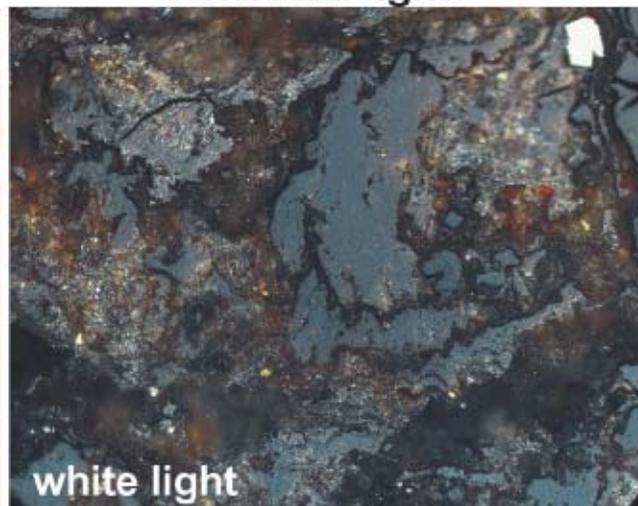
Plate 1. An example of a set of images showing representatives of macerals in the TSOP-ICCP Dispersed Organic Matter Classification , in progress.

**Formation/unit: Indiana paper coal. Age: Pennsylvanian. Location: Parke County, Indiana. %Ro = 0.72, TOC = 38.4, HI = 291, OI = 68
Macerals: cutinite and vitrinite**

Transmitted light



Reflected light



TSOP PUBLICATIONS

<u>TSOP Number (USD)</u>	<u>Name of Publication</u>	<u>Price</u>
		(includes shipping)
1.	<i>Fluoreszenz von Liptiniten und Vitriniten in Beziehung zu Inkohlungsgrad und Verkokungsverhalten</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	\$10
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	\$35
17.	<i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997	\$15
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	\$25
22.	IJCG, 15th TSOP Meeting, Halifax, Nova Scotia, 1998; Vol. 43, Nos. 1-4, 2000	\$25
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

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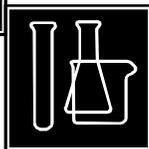
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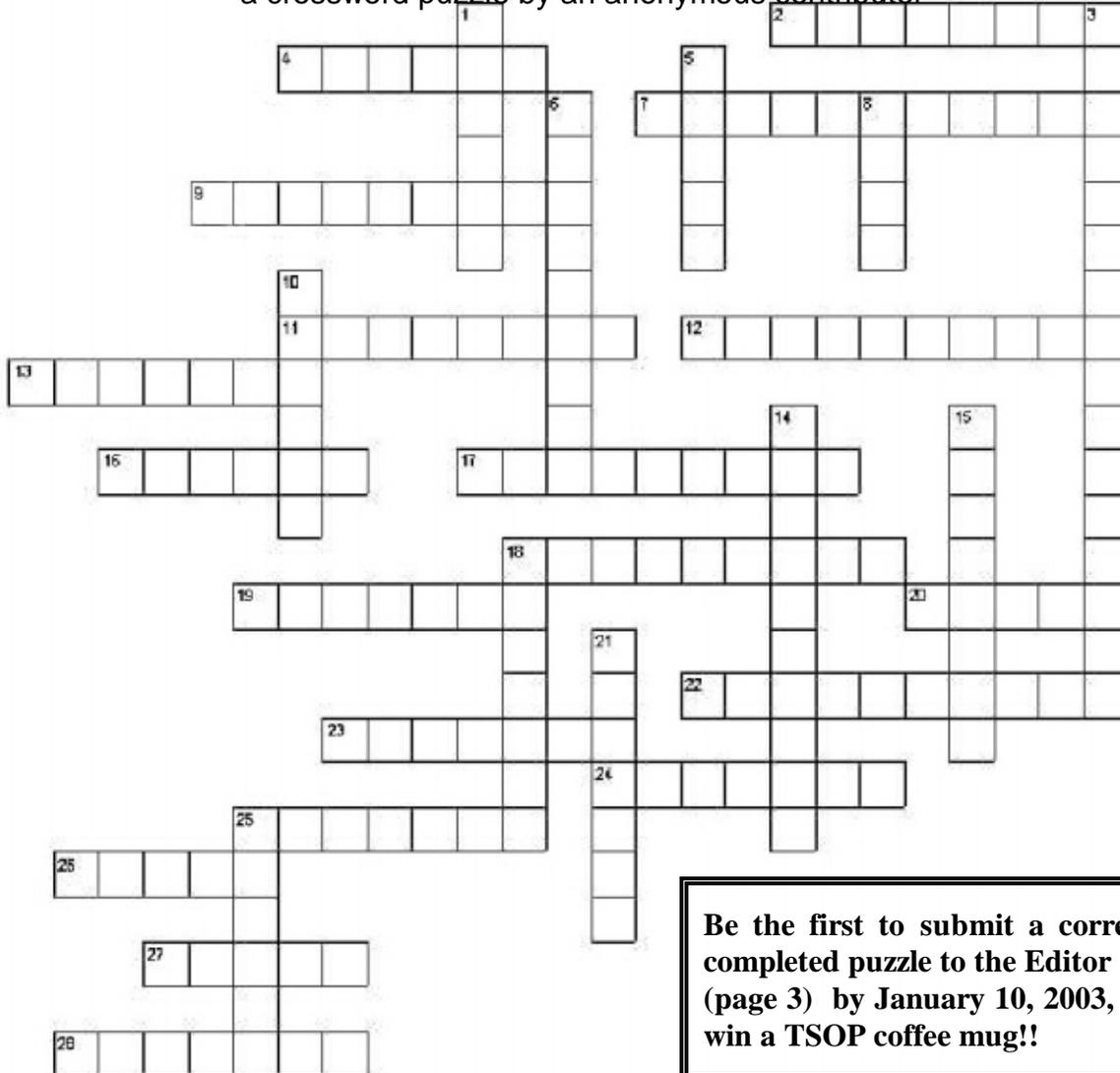
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COALFIELDS OF THE WORLD

a crossword puzzle by an anonymous contributor



Be the first to submit a correctly completed puzzle to the Editor (page 3) by January 10, 2003, and win a TSOP coffee mug!!

ACROSS

2. Widely exported coals from Colombia
4. Carboniferous lignite
7. World class producer of subbituminous coal in western Great Plains (USA)
9. Great Plains (USA) lignite
11. Turkish Tertiary lignite
12. Tierra del Fuego
13. Coalbed methane producer in Alabama
16. New South Wales major basin
17. Republic of South Africa

18. In the Rockies of British Columbia
19. Carboniferous of Poland
20. Southern Wyoming
22. Major basin in Central Appalachians
23. "Barkinite" locality
24. Major producer in Venezuela
25. English coalfield
26. Utah Cretaceous
27. South Island of New Zealand
28. Home of the Pittsburgh coal bed

DOWN

1. Major field in the Ukraine
3. Coalfield of Zola's Germinal
5. Permian of Queensland
6. Tertiary of Washington
8. Pennsylvanian of Germany
10. Spanish low rank
14. Saskatchewan lignite
15. Westphalian of France
18. Triassic basin in Queensland
21. Home of some of the earliest reptiles
25. Brazilian Gondwana

Calendar of Events

2002

December 9 -11, 2002: 'Black Shales' meeting: Organic-carbon burial, climate change and ocean chemistry (Mesozoic-Paleogene), London. Geological Society of London, Marine Studies Group. <http://www.earthsci.ucl.ac.uk/conferences/GSLC>

2003

February 4 -5, 2003: Reservoir Geochemistry Conference by the Geological Society of London, Petroleum Group, to promote the latest advances in organic and inorganic geochemistry and their applications in the evaluation and study of reservoirs. Deadline for submission of formal abstracts is 1 June 2002. Contact Dr. John Cubitt: john-cubitt@es-information.de mon.co.uk

May 12 -16, 2003: Fourth Geofluids Conference on fluid evolution, migration and interaction in sedimentary basins and orogenic belts, organized by the Netherlands Institute of Applied Geoscience TNO-National Geological Survey. In Utrecht, The Netherlands, at the campus of Utrecht University. See <http://www.nitg.tno.nl>

May 26 - 30, 2003: The Fifth International Symposium on Applied Isotope Geochemistry(AIG-5), P&O Resort, Heron Island, Great Barrier Reef, Queensland 4680, Australia. See <http://www.chem.mq.edu.au/aig-5>

August 10 - 16, 2003: 55th Annual Meeting of ICCP, The International Committee for Coal and Organic Petrology, Utrecht, The Netherlands. See <http://www.nitg.tno.nl/eng/55iccp.shtml>

August 10 - 16, 2003: XVth International Congress on Carboniferous and Permian Stratigraphy (XV ICC-P), Utrecht, The Netherlands. See <http://www.nitg.tno.nl/eng/iccp.shtml>
Theme: 'Permo-Carboniferous around the Southern North Sea Basin'.

Sept. 21 - 24, 2003: 20th Annual TSOP Meeting, TSOP 2003, Washington, D.C. Area (Arlington, Virginia, USA). See page 2 and <http://www.tsop.org/mtgdc.htm>

October 20 - 22, 2003: International Ash Utilization Symposium, Lexington, Kentucky, USA. See <http://www.flyash.org>

TSOP TWENTY-FIRST ANNUAL MEETING *Organic Matter Down Under*

Sydney, Australia 27 September – 1 October, 2004

The 21st Annual Meeting of TSOP will be held at the University of New South Wales, centrally located with respect to Sydney Airport, beaches and the city centre.

Some Conference Themes:

- 7 Non-marine source rocks
- 7 New techniques in organic petrology and geochemistry
- 7 Coal in sustainable development

Provisional Program:

- | | |
|---------------------------|---|
| 7 Monday, September 27 | – Short course(s), registration, icebreaker |
| 7 Tuesday, September 28 | – Technical sessions, TSOP business lunch |
| 7 Wednesday, September 29 | – Technical sessions, conference dinner |
| 7 Thursday, September 30 | – Technical sessions, field trip departure |
| 7 Friday, October 1 | – Field trip: coal geology of the Hunter Valley |

Additional details will be provided as the planning process develops. A formal call for papers will be made during 2003, covering the conference themes together with other advances in coal geology, organic petrology and geochemistry. Sydney, host to the 2000 Olympics, has many attractions for those who can stay a little longer, and a partners' program is being planned to complement the technical activities.

Mark the dates on your calendar now!

Organising Committee:

Neil Sherwood	Colin Ward	Lila Gurba
Claus Diessel	Adrian Hutton	Joan Esterle
Herbert Volk	Harold Read	Tim Moore

For more information contact:

7Neil Sherwood, CSIRO Petroleum:

Neil.Sherwood@csiro.au

Photo Gallery



Banff Meeting Field Trip to Burgess Shale outcrop, a UNESCO World Heritage Site, at the Walcott Quarry on Fossil Ridge, Thursday, 5 September 2002. Photo by Ray Pheifer.



THE SOCIETY FOR ORGANIC PETROLOGY



NEWSLETTER

Vol. 19, No. 4

December, 2002

ISSN-0743-3816



Illite, ankerite and calcite filling cleat in Bowen Basin coal; see p. 3.
Core diameter 7 cm.

Photograph by Basim Faraj.

2003 Meeting: Washington, DC - page 7
New Abstract Deadline: May 15
\$250 Student Paper Award



TSOP
The Society for Organic Petrology



TWENTY-FIRST ANNUAL MEETING

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For more information contact:

- 7 Neil Sherwood, CSIRO Petroleum: Neil.Sherwood@csiro.au
- 7 Colin Ward, University of New South Wales: C.Ward@unsw.edu.au

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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.

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Address Changes

Please report any changes in address or contact information to:

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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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Y Y Y Y Y Y Y Y Y

Cover: Photograph by Basim Faraj

Face cleat fill illite (brown) and ankerite (thicker, light color fill) and butt cleat calcite fill in core sample from Late Permian B Lower seam (329.2m depth), Rangal Coal Measures at Moura, Bowen Basin, Queensland, Australia. K/Ar age of the 1M illite-fill is 229+3 Ma B.P. The illite is part of a basin-wide aluminosilicate mineralization event that affected the Late Permian coal seams during the Triassic's Bowen-Hunter Orogeny. Core diameter is 7.0 cm.

For more details see:

Faraj, B.S.M., Fielding, C.R. and Mackinnon, I.D.R. (1996) Cleat mineralization of Upper Permian Baralaba/Rangal Coal Measures, Bowen Basin, Australia. In Gayer, R. and Harris, I. (eds) Coalbed Methane and Coal Geology. The Geological Society, Special Publication No. 109, London, p.151-164.

Initiative to Promote TSOP and Coal Science

by Bob Finkelman

Applications due by June 1, 2003

The TSOP Council has 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 will create a fund to underwrite the cost of a two-year subscription to the journal for deserving TSOP members.

Each recipient 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.

A new committee (Committee for Promotion of Coal Science) has been established to operate the program. The committee will be responsible for soliciting applications, for selecting the most deserving candidates, for distribution the Journal issues, maintaining accurate records, and for soliciting contributions from TSOP membership or from industry. Contributions to cover the cost of the first two subscriptions have already been pledged.

Any TSOP member in good standing interested in submitting an application for the Journal is invited to 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, including how they will encourage submission of papers to the International Journal of Coal Geology during the 2-year free subscription period. 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 1, 2003.

Contributions to support this effort should be sent to Mike Avery, Geological Survey of Canada, P.O. Box 1006, Dartmouth, NS B2Y 4A2, Canada.

Should this project prove to be successful, we would consider expanding the program to include the Review of Paleobotany and Palynology.

Y Y Y Y Y

Five-Year Dues Discount Payment due by May 15

The TSOP council has unanimously endorsed a proposal to offer a cost saving opportunity to our membership. The council has agreed to allow TSOP members to pay their dues in advance by offering 5 years of membership credit for every \$100 paid. The advantage to TSOP members would be the 20% discount on the current \$25 annual fee plus saving time and postage on mailing annual dues. Moreover, membership dues would then be locked in at the current rate for the duration of the credit.

If you have already sent in your dues for 2003 but want to take advantage of this offer, just send the additional dues by May 15, with a note indicating that you wish to participate in this program, to Mike Avery, Geological Survey of Canada, P.O. Box 1006, Dartmouth, NS B2Y 4A2, Canada. Y

**Not a member of TSOP?
Download an application form at
<http://www.tsop.org/tsopjoin.htm>**

NEWS from the March 2003 Mid-Year Council Meeting

reported by David Glick

Treasury:

In the interest of fiscal conservatism, some funds were moved from the stock fund to the bond fund.

AGI member society dues are now based on worldwide stipulated membership (rather than North America as in the past), so our total bill has increased from \$224 to \$410.

Internet:

Registration of our web site domain name, tsop.org, has been paid for three years, to December 2005.

Promotional Activities:

The promotional brochure for TSOP will be reviewed by Council and members (by June 1) and will be updated by August, 2003.

A 2003 meeting brochure has been distributed at meetings of other societies and will be placed on the web site.

TSOP's Committee for Promotion of Coal Science was discussed and its activities expanded (see article, page 4).

Operations

TSOP's existing Procedures Manual has been fully computerized; it will undergo evaluation and revision by Council and committee chairs.

Joe Curiale was added as the newest member of the Honorary Member Committee.

TSOP has nominated Professor Isaac Kaplan for AGI's Ian Campbell Medal.

Discussion on changing the TSOP President's term to two years continued. The membership will again be asked for comments.

TSOP is contributing to production of AGI's 'Geoscience Careers' brochure, directed towards undergraduate students considering majors in the geological sciences.

President-Elect Bob Finkelman will attend the AGI Leadership Forum May 19-20 in Washington, DC. He will also be a reviewer of AGI's brochure "Coal and the Environment," currently being written by a team which includes several TSOP members. Y

International Journal of Coal Geology New Manuscript Procedure

As of April 1, 2003, manuscripts for the journal should be submitted directly to:

Jim Hower
Editor, International Journal of Coal Geology
University of Kentucky
Center for Applied Energy Research
2540 Research Park Drive
Lexington, KY 40511
USA

Questions can be directed to Jim at the above address, or at 859-257-0261 (phone), 859-257-0360 (fax), or hower@caer.uky.edu.

The Elsevier guide for authors can be found at <http://authors.elsevier.com/GuideForAuthors.html?PubID=503337>

Y Y Y Y Y

Moore Moves

Past TSOP President Tim Moore has moved jobs to the NZ Government owned coal company Solid Energy New Zealand (SENZ). His new position will be as Research Manager looking for new technologies for alternative uses of coal and coal gas. Initial projects will be coalbed methane, biomass, hydrogen from coal, acid mine drainage research and CO₂ sequestration investigations.

SENZ is a small exporter on the world market, but because of the niche markets it does hold, the coal returns excellent prices. Currently the coal is exported to Japan, India, Chile, several European ports and the US. The coal is used as coke, char, carbon fibre and carbon filters. SENZ has an annual turnover of over \$NZ230 million and last years' profits were over \$NZ38 million. SENZ has a research budget of over \$NZ1 million. Tim's new job will be to oversee short, medium and long term strategies to identify technologies gaps, develop programmes to fill those gaps and then take those results and apply them.

Tim also retains his Senior Fellow position at the Department of Geological Sciences, University of Canterbury, Christchurch. As SENZ's liaison with the University, he will continue lecturing on petroleum and coal and supervising graduate students. Y

Photometry Systems for Organic Petrologists Available from A.S. & Co. GmbH by Maria Mastalerz

I was recently contacted by a representative of A.S. & Co. GmbH company in Munich, Germany, who informed me that since 1999 they have been manufacturing photometry systems for vitrinite reflectance and fluorescence quantification. This could be great news for many organic petrologists whose equipment is getting old and needs to be replaced. Here is what they said: "Starting in 1999 with special microscope solutions for material and life science we were asked to configure hard- and software for vitrinite reflection according to DIN / ISO but also for maturation measurements and fluorescence quantification. Based on our knowledge about the Zeiss UMSP and MPM series and a close cooperation with partners from microscopy, spectroscopy and service departments we are offering different setups and packages for:

- 7 servicing existing instruments as long as required spare parts are available;
- 7 upgrading existing units with new PC and spectroscopy technology;
- 7 vitrinite reflection measurement configurations according to DIN/ISO 7405/5 advice;
- 7 fast UV-VIS microscope spectrometer based on cooled CCD technology, combined with high resolution holographic gratings;
- 7 modern software packages for Microsoft Windows which enable data processing and valuation (distribution histograms, red / green ratio, fluorescence alteration, etc.);
- 7 possibilities to exchange data easily with homemade or optional available evaluation software via ASCII;
- 7 digital still video documentation for reporting purposes;
- 7 2 dimensional image acquisition for quantitative grain, form and structure analysis."

"We see our strength in individual customised solutions which upgrade existing equipment or offer completely new workstations. Due to progress in sensor technology it is possible to combine the 546nm signal detection for vitrinite and spectral fluorescence analysis in one instrument, so maturation studies as well as component quantification can be displayed now in one procedure. Furthermore different

fluorescence excitations between 380nm and 490nm allow new differentiation possibilities separating spore species when monochromator illumination is attached additionally."

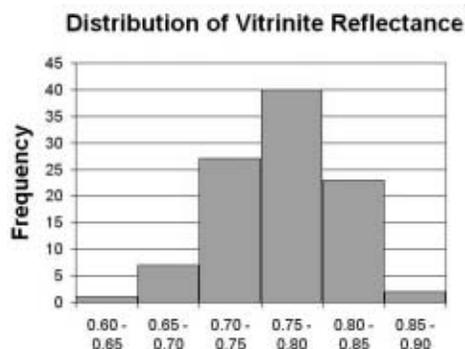
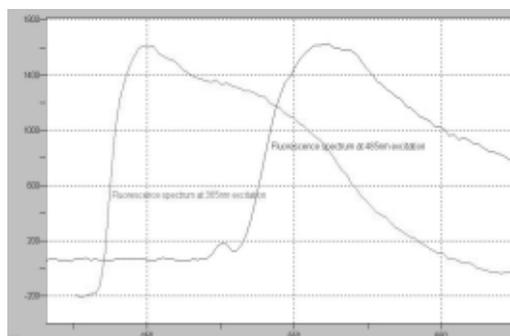
Those interested in getting more information about their products could visit their web site:

<http://www.as-und-co.de>, or contact:

Hartmut Althoff Tel.: +49 89 24 20 998 -0
 A.S. & Co. GmbH Fax.: +49 89 24 20 998 -19
 Pfisterstr. 7
 D 80331 München
 GERMANY



Axiocvert with A.S. & Co. System. Photo by Dr.M.Misz, Silesian University; provided by J.H. Nuske, A.G. & Co.



Left: Fluorescence spectra at 365 nm (left peak) and 485 nm (right peak) excitation; Right: Vitrinite reflectance histogram. By Dr.Ch. Hartkopf-Froeder, Geologisches Landesamt NRW; provided by J. H. Nuske, A.S. & Co.

2003 TSOP Meeting Washington, DC, USA September 21 - 24, 2003

By the Meeting Committee

The Abstract Deadline has been EXTENDED to May 15. Do not miss this opportunity to get your abstract into this program.

Please plan to attend and to present a paper or poster. The meeting web site has frequent updates, such as a new two-page color brochure, as well as complete meeting details, abstract submission, and registration instructions: <http://www.tsop.org/mtgdc.htm>

MEETING HIGHLIGHTS

SHORT COURSES

- * **Health Impacts of Coal: Should We Be Concerned?**
- * **Modes of Occurrence of Trace Elements in Coal**
- * **Petroleum Source Rocks and Coal in the National Petroleum Reserve in Alaska (NPRA) - A Core Workshop**

TECHNICAL SESSIONS

- * **Petroleum Systems, Source Rocks, and Coalbed Gas Session**
- * **Ron Stanton Coal Characterization Session**
- * **Energy and Government Session**
- * **General Submission Session**
- * **Poster Session**

FIELD TRIPS

- * **Geology and Energy Resources of the Triassic Basins of Northern Virginia**
- * **Smithsonian Natural History Museum Guided Tour**

Best Student Paper Award

**Authors And Presenters:
Abstract Submission Information
New Deadline: May 15, 2003**

We encourage you to take the opportunity to make a presentation, either as an oral presentation or as a poster. The oral presentations are scheduled for 25 minutes, including some minutes for questions.

Please enclose a copy of your abstract on a diskette (Word, WordPerfect) or send an email with the abstract attached to:

Linda Bragg Phone: +1 (703) 648-6451
U. S. Geological Survey Fax: +1 (703) 648-6419
12201 Sunrise Valley Drive E-mail: lbragg@usgs.gov
Mail Stop 956
Reston VA 20192 USA

Outstanding Student Paper

A competition for Outstanding Student Paper will be held; the prize is \$250. 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.

Meeting Schedule

Sunday, September 21, 2003

- 0715 - 0830 Conference Registration - Meeting time for BUS to USGS for Short Course B
0830 - 1200 Short Courses A and B
1200 - 1300 Lunch - OPEN
1300 - 1630 Short Courses C and B (cont.)
1800 - 2000 Ice Breaker Reception - Hyatt Arlington (James Madison High School Orchestra)
1800 - 2000 Dinner - OPEN
2000 - 2400 Council meeting - Hyatt Arlington

Monday, September 22, 2003

- 0730 Conference Registration
0800 - 1130 Technical Session A: Petroleum Systems Source Rocks, and Coalbed Gas
1200 - 1330 Lunch - TSOP Business Lunch
1330 - 1730 Technical Session B: TSOP General Session
1730 - 1900 Happy Hour Poster Session (James Madison High School Orchestra)
1900 - 2030 Conference Dinner - TSOP Banquet
2030 - 2400 Council meeting - Hyatt Arlington

Tuesday, September 23, 2003

0730 Conference Registration
0800 - 1130 Technical Session C:
 Ron Stanton Coal Characterization Session
1200 - 1330 Lunch - Light Lunch, Poster Session
1330 - 1730 Technical Session D:
 Energy and Government Session
1900 - 2030 Dinner - OPEN

Wednesday, September 24, 2003

0800 - 1730 Field Trip A: Geology and Energy
 Resources of the Triassic Basins of
 Northern Virginia
0900 - 1200 Field Trip B: Smithsonian Natural
 History Museum Guided Tour

We are planning social activities for spouses and we will be updating the web site with that information plus entertainment and site-seeing opportunities in the Washington, D.C. area.

Housing Information

Accommodations are in the Hyatt Arlington at 1325 Wilson Boulevard, Arlington, Virginia, 22209. The hotel will hold a block of rooms for reservations starting September 20 until September 25. Check in time will be 3:00 PM and check out time will be 12:00 PM. The contracted room rate is \$150 for a single and \$175 for a double.

Reservations: Individual Reservations -- Each individual guest must make their own reservations online at <http://arlington.hyatt.com/groupbooking/usgs> or by calling +1 (800) 233-1234. Individual must identify him (her)-self as a member TSOP or an attendee of the TSOP meeting to receive the group's special rate. All reservations must be guaranteed and accompanied by a first night room deposit or guaranteed with a major credit card.

**Travel Information for the
Washington, D.C. Area**

Three airports serve the Washington, D.C. area. Ronald Reagan Washington National Airport (DCA) is the airport that is closest to the Hyatt Arlington. International travelers should use Washington Dulles International Airport (IAD), which is closest to the USGS office in Reston, VA or Baltimore-Washington International Airport (BWI).

We will gather more travel and transportation information and post to the web page as we get it. Check the related links for each airport for ground transportation information to help you get from the airport to the Hyatt Arlington (conference hotel). We will try to get as much ground transportation related information, phone numbers and costs up on the web pages as we can but we can not predict everyone's needs. If you need help, please feel free to contact us.

International Visitors

If you need a personal letter of invitation to obtain travel funds or a USA visa, please indicate on the bottom of your registration form that you wish to have such a letter. You can also e-mail the meeting Chairperson at pwarwick@usgs.gov and request such a letter in advance of mailing in your registration. All non-immigrant visa holders are advised to have health and accident insurance that covers the time they will be in the USA. J-1 and J-2 visa holders are required by law to have this insurance, which must be set at least to a minimum of \$50,000 per accident or illness and include medical evacuation and repatriation of remains. Your travel agent can assist you with obtaining this insurance coverage. It is recommended that you obtain sufficient US currency for your trip before departure. However, there are currency exchange facilities at all three Washington, D.C. area airports.

SHORT COURSES

**Petroleum Source Rocks and Coal in the
National Petroleum Reserve in Alaska
A Core Workshop**

The USGS archives cores from about 60 exploration wells drilled in and near NPRA during the past 50 years. This workshop will feature cores selected from that archive to illustrate key attributes of the main petroleum and coal systems of the region. Petroleum systems with principal source rocks in the Triassic (Shublik), Jurassic (Kingak), and Cretaceous (HRZ), and coal systems in the Mississippian (Endicott) and Cretaceous (Nanushuk) will be emphasized. The workshop will focus on sequence stratigraphy and sedimentology of source rocks and coal, as well as closely related reservoir and seal facies. Cores illustrating the emerging Alpine play, which includes a recent 400+ million barrel discovery just outside NPRA, will be featured. Limit: 30 participants.

Instructor: David W. Houseknecht works on Alaska North Slope basin analysis and petroleum resource assessment and has organized and led three previous NPRA core workshops.

Dave Houseknecht Phone (703) 648-6466
U.S. Geological Survey E-mail: dhouse@usgs.gov
956 National Center
Reston, VA 20192

Health Impacts of Coal: Should We Be Concerned?

This short course will sort out the facts and fallacies that have been interwoven in this sensitive issue. We will explore questions such as: Are there confirmed cases of health problems? Under what conditions would coal present a threat to human health? What properties of coal are most dangerous? What can the coal science community do about it?

- 8:30 Welcome, Introductions, Course Summary --
(Finkelman, Bunnell) 45 minutes
8:45 Health Impacts of Coal: Facts and Fallacies --
(Finkelman) 1 hour
9:45 Break
10:00 Health Impacts of Residential Coal Use in China
-- (Finkelman) 1 hour
11:00 Balkan Endemic Nephropathy (BEN) --
(Bunnell) 45 minutes
11:45 Summary and Questions -- (Finkelman, Bunnell)
15 minutes

Synopsis of Lectures:

Health Impacts of Coal: Facts and Fallacies -- This lecture will provide an overview of the issue. We will discuss situations in which health problems have been confirmed and where the health impacts of coal have been distorted. We will briefly review the current situation with regard to mercury in coal.

Health Impacts of Residential Coal Use in China -- We will discuss arsenism and fluorosis in China.

Balkan Endemic Nephropathy (BEN) -- A summary of the relationship between BEN and the leaching of organic compounds from lignites.

Instructors:

Robert B. Finkelman, (703) 648-6412; rbf@usgs.gov

Bob Finkelman has worked for the USGS for 30 years interrupted by 7 years as a staff scientist with Exxon Corporation. For the past 25 years he has been involved with various coal quality issues. During the last 10 years he has focused attention on the health impacts of geologic materials including coal. He has conducted research on Balkan endemic nephropathy in Yugoslavia and Romania. He has worked extensively in China on arsenism and fluorosis caused by residential coal combustion.

Joseph E. Bunnell, (703) 648-6497; jbunnell@usgs.gov

Joe Bunnell has worked as a public health research biologist for the Energy Resources Team at USGS since earning his Ph.D. from the Johns Hopkins University Medical Institutions in 1999. He has conducted research on BEN in Serbia, Romania and Bulgaria, a possible similar situation in the USA, and is investigating respiratory health effects of coal combustion in the Navajo Nation.

Modes of Occurrence of Trace Elements in Coal

This short course will focus on modes of occurrence of trace elements in coal and the importance of trace elements in the overall context of coal quality. Emphasis will be placed on those elements of technological, economic, and environmental significance. We will review the current state of knowledge and describe state-of-the-art methods for quantifying element modes of occurrence in coal.

- 1:00 Introduction and Housekeeping
(Kolker) 15 minutes
1:15 Coal Formation and Diagenesis
(Ruppert) 30 minutes
1:45 Coal Mineralogy and Mineral Chemistry
(Kolker) 30 minutes
2:15 Overview of Bulk Analytical Methods
and USGS Selective Leaching Procedure
(Palmer) 45 minutes
3:00 Break 15 minutes
3:15 Overview of Microanalysis and
Spectroscopic Methods
(Kolker) 30 minutes
3:45 Coal-use Issues and Case Studies
(Kolker) 45 minutes

TSOP PUBLICATIONS

<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 Verkokungsverhalten</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	\$10
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	\$35
17.	<i>International Journal of Coal Geology (IJCG)</i> , 12th TSOP Meeting, The Woodlands, TX, 1995; Vol. 34, Nos. 3-4, 1997	\$15
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	\$25
22.	IJCG, 15th TSOP Meeting, Halifax, Nova Scotia, 1998; Vol. 43, Nos. 1-4, 2000	\$25
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

Please complete a TSOP Publications Order Form. Make checks payable to TSOP.

Send orders to:

Brian J. Cardott

Oklahoma Geological Survey

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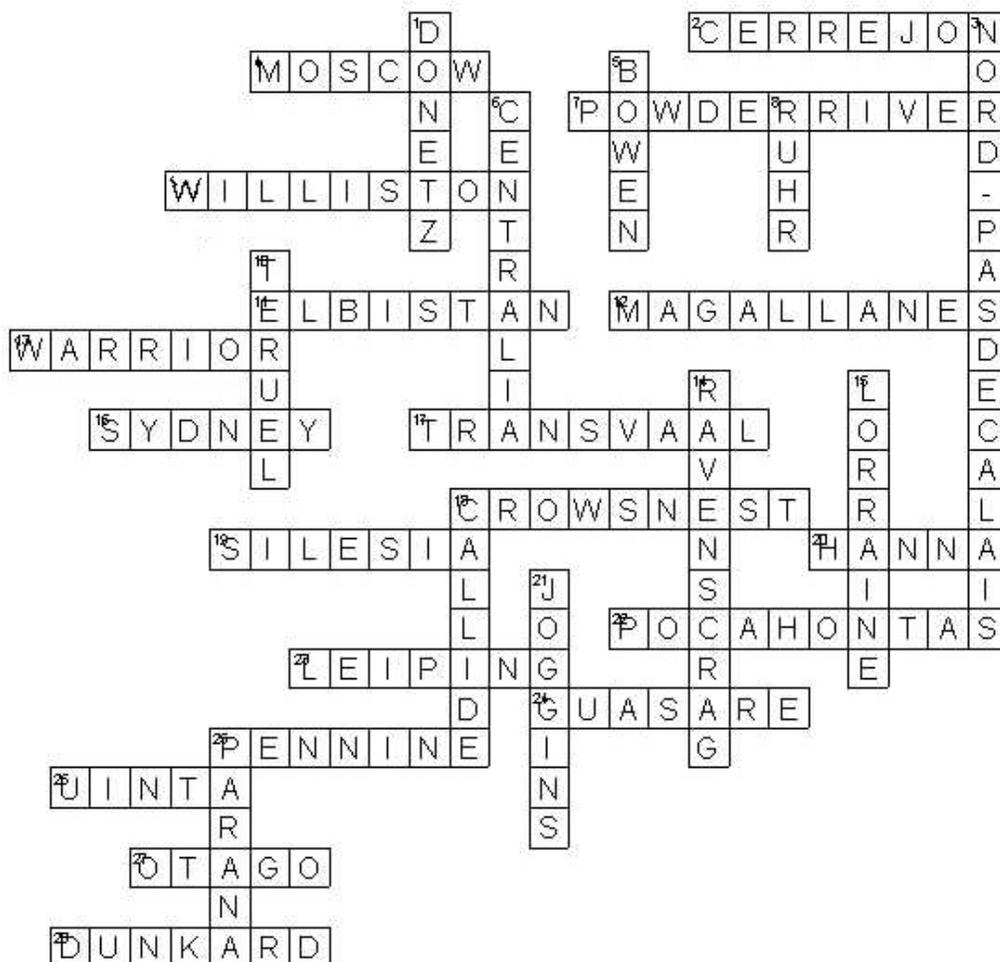
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Solution to last issue's puzzle COALFIELDS OF THE WORLD by an anonymous contributor



ACROSS

2. Widely exported coals from Colombia
4. Carboniferous lignite
7. World class producer of subbituminous coal in western Great Plains (USA)
9. Great Plains (USA) lignite
11. Turkish Tertiary lignite
12. Tierra del Fuego
13. Coalbed methane producer in Alabama
16. New South Wales major basin
17. Republic of South Africa

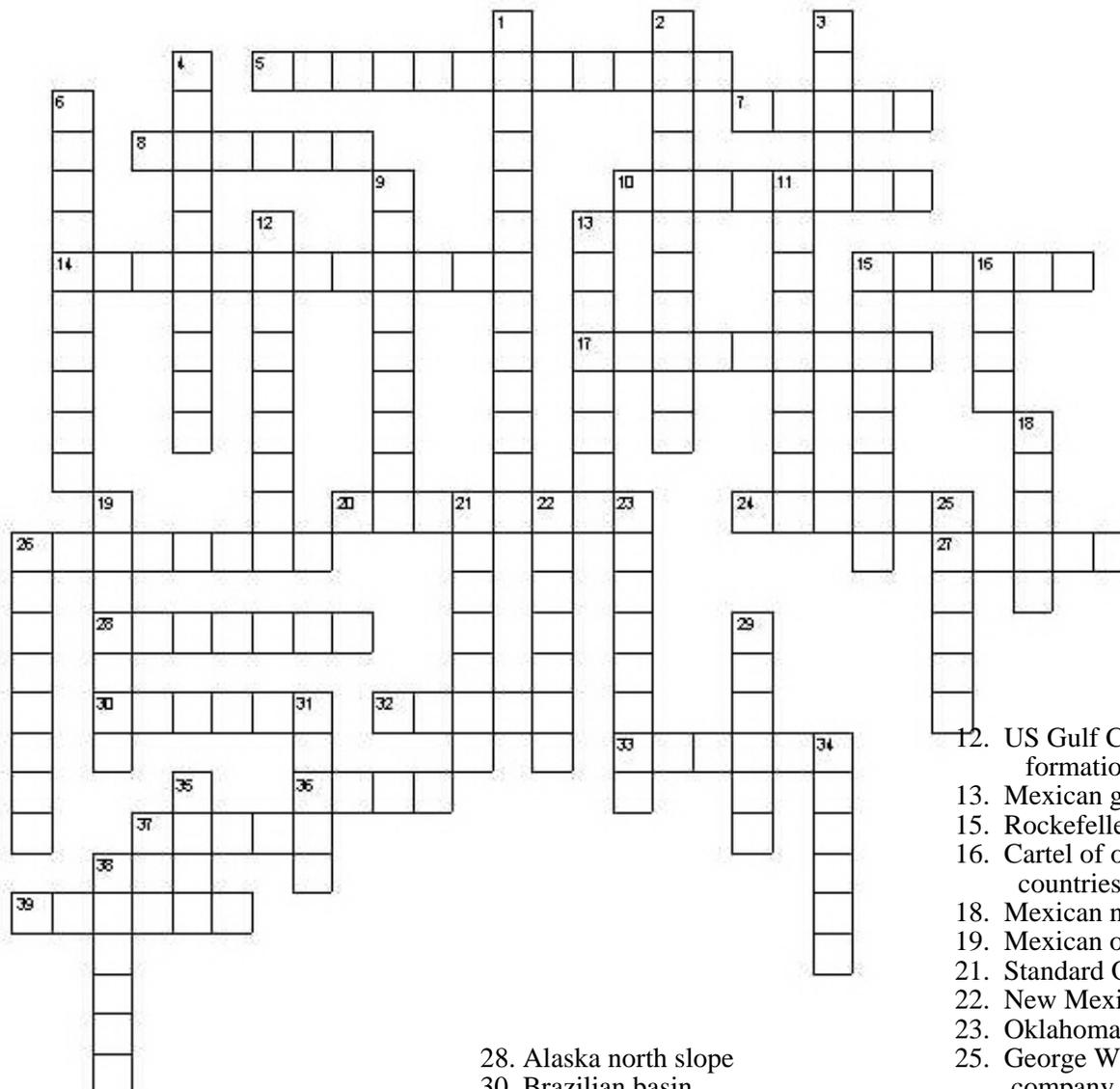
18. In the Rockies of British Columbia
19. Carboniferous of Poland
20. Southern Wyoming
22. Major basin in Central Appalachians
23. "Barkinite" locality
24. Major producer in Venezuela
25. English coalfield
26. Utah Cretaceous
27. South Island of New Zealand
28. Home of the Pittsburgh coal bed

DOWN

1. Major field in the Ukraine
3. Coalfield of Zola's Germinal
5. Permian of Queensland
6. Tertiary of Washington
8. Pennsylvanian of Germany
10. Spanish low rank
14. Saskatchewan lignite
15. Westphalian of France
18. Triassic basin in Queensland
21. Home of some of the earliest reptiles
25. Brazilian Gondwana

OILFIELDS OF THE WORLD

a crossword puzzle by an anonymous contributor



ACROSS

5. BP-Amoco ancestor
7. Family of oil, explosives & prizes
8. California field
10. Central Appalachian gas field
14. Well-logging service company
15. Exxon-Mobil predecessor
17. Brazilian company
20. Multi-national European field
24. Iraqi oil field city
26. New York / Pennsylvania oil field
27. Louisiana island known for Tabasco sauce

28. Alaska north slope
30. Brazilian basin
32. Home of AAPG
33. Megagiant, object of 1991 war
36. Australian strait
37. South African coal to oil
39. Strategic strait

DOWN

1. Utah CBM field
2. VP Cheney's former company
3. West African oil producing country
4. East Texas gusher
6. Site of Col. Drake's well
9. Venezuela lake
11. Alberta tar sands

12. US Gulf Coast Jurassic formation
13. Mexican gulf
15. Rockefeller's company
16. Cartel of oil-producing countries
18. Mexican national company
19. Mexican oil field
21. Standard Oil "biographer"
22. New Mexico CBM field
23. Oklahoma basin
25. George W. Bush's former company
26. Libyan oil field city
29. Gulf of Mexico salt formation
31. Nova Scotian island
34. Dome of Harding administration scandal
35. Caspian city
38. Southeast Asian sultanate

Be the first to submit a correctly completed oilfield puzzle to the Editor (page 3) by June 30, 2003, and win a TSOP coffee mug!

Calendar of Events

May 5-9, 2003: 2003 International Coalbed Methane Symposium, Tuscaloosa, Alabama
<http://bama.ua.edu/~coalbed/>

May 11-14, 2003: AAPG Annual Convention, Energy: Our Monumental Task. Salt Lake City, Utah. Including History of Petroleum Geology Forum: Lessons from Discoveries. <http://www.aapg.org/meetings/slc03/>

May 12 -16, 2003: Fourth Geofluids Conference on fluid evolution, migration and interaction in sedimentary basins and orogenic belts, organized by the Netherlands Institute of Applied Geoscience TNO-National Geological Survey. In Utrecht, The Netherlands, at the campus of Utrecht University. See <http://www.nitg.tno.nl>

May 21-22, 2003: South Louisiana Petroleum Exploration Symposium, Marriott Hotel, New Orleans, LA, USA, by the New Orleans Geological Society.
<http://www.nogs.org>

May 26 - 30, 2003: The Fifth International Symposium on Applied Isotope Geochemistry (AIG-5), P&O Resort, Heron Island, Great Barrier Reef, Queensland 4680, Australia. See <http://www.chem.mq.edu.au/aig-5>

June 10, 2003: 4th Annual Coalbed Methane Symposium, Rocky Mountain Association of Geologists and Rocky Mountain PTTC, Denver, CO.
http://www.rmag.org/cbm_2003.pdf

June 11-14, 2003: Geology and Stratigraphy of Coals of the Frontier through Almond Formations in the Rock Springs-Kemmerer, Wyoming Area, Rock Springs Wyoming, Denver, CO, USA, by the Rocky Mountain Association of Geologists and PTTC.
<http://www.rmag.org>

A 4 day field geology course in southwestern Wyoming sponsored by the Rocky Mountain Association of Geologists and lead by John Horne, AAPG distinguished lecturer.

August 10 - 16, 2003: 55th Annual Meeting of ICCP, The International Committee for Coal and Organic Petrology, Utrecht, The Netherlands.
See <http://www.nitg.tno.nl/eng/55iccp.shtml>

August 10 - 16, 2003: XV International Congress on Carboniferous and Permian Stratigraphy (XV ICC-P), Utrecht, The Netherlands. See
<http://www.nitg.tno.nl/eng/iccp.shtml>
Theme: 'Permo-Carboniferous around the Southern North Sea Basin'.

September 7-11, 2003 226th ACS National Meeting New York, New York, including symposia: Geochemistry Division
CO2 sequestration: advanced technologies for predicting and monitoring isolation performance
<http://membership.acs.org/g/geoc/upcoming.html>

Division of Fuel Chemistry
Environmental Issues in Fossil Fuel Utilization (Trace Metals, PM, PAHs)
<http://oasys.acs.org/acs/226nm/fuel/program.html>

Sept. 15 - 19, 2003: 20th International Pittsburgh Coal Conference, Westin - Convention Center in Pittsburgh, PA. <http://www.engrng.pitt.edu/~pccwww/>

Sept. 21 - 24, 2003: 20th Annual **TSOP** Meeting, TSOP 2003, Washington, D.C. Area (Arlington, Virginia, USA). See page 7 and
<http://www.tsop.org/mtgdc.htm>

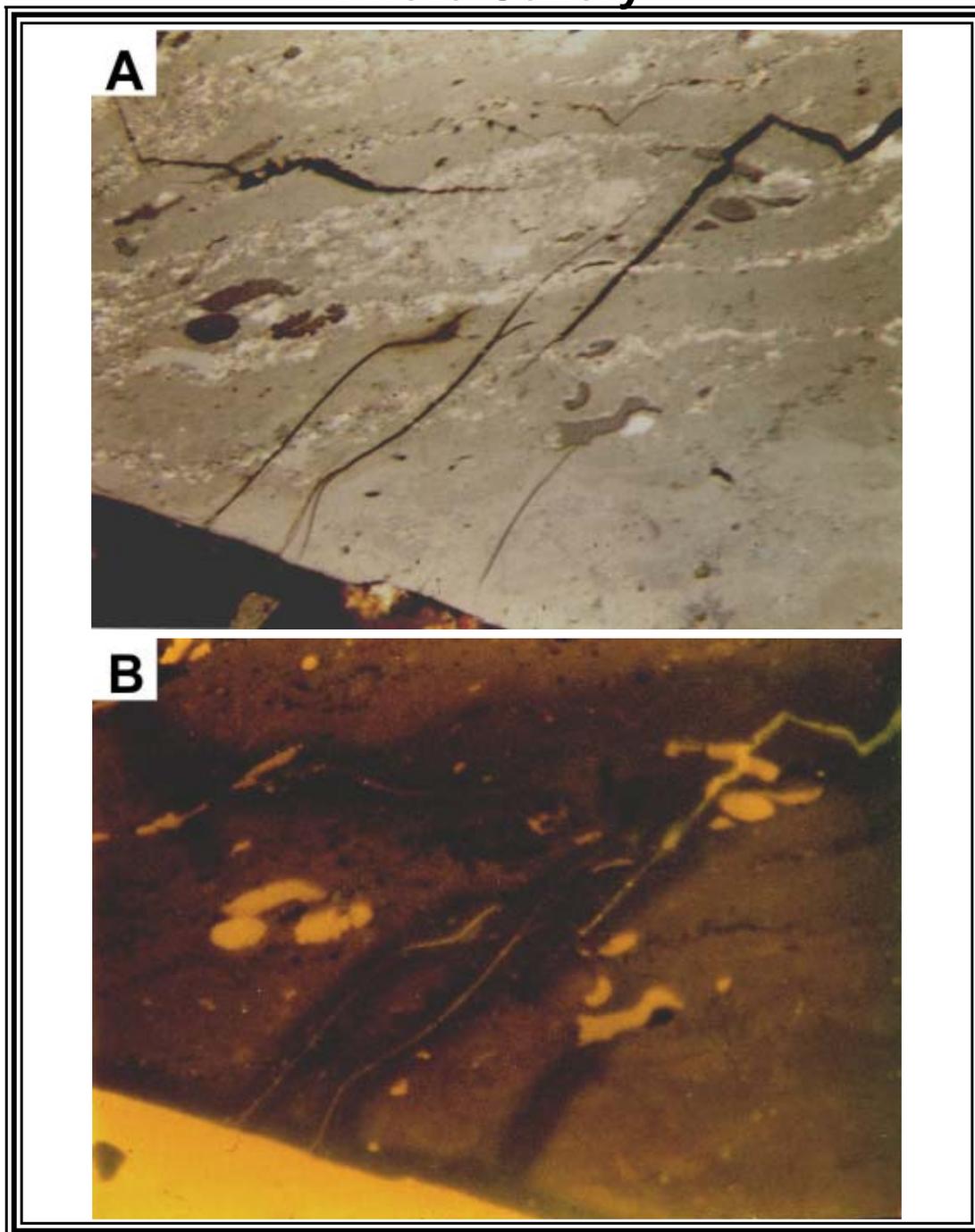
October 20 - 22, 2003: International Ash Utilization Symposium, Lexington, Kentucky, USA. See
<http://www.flyash.org>

Nov. 2-5, 2003: Geological Society of America Annual Meeting and Exposition, Seattle, Washington. Including Topical Session 119, Revisiting the Biogeochemistry of Black Shales and Oxygen-Deficient Marine Environments.
<http://www.geosociety.org/meetings/2003/>

2004

Sept. 27 - Oct. 1, 2004: 21st Annual **TSOP** Meeting, TSOP Organic Matter Down Under, Sydney, Australia. See page 2 and
<http://www.tsop.org/mtgsyd.htm>

Photo Gallery



Comparison of white-light (A) and blue-light (B) illumination as a means of detecting subtle forms of weathering observed in this bituminous coal (Clarion Seam) from Pennsylvania. Observe the lower fluorescence emissions along fracture surfaces and particle edges in blue light, whereas little evidence of weathering is apparent from the white-light image. Field of view equals 290 microns across. Photo by Gary Mitchell.