

No. 10

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Aachen

Minutes

**of the 46th ICCP Meeting,
held at Oviedo, Spain,
October 2-8, 1994**

by
Zuleika Carretta CORREA DA SILVA,
General Secretary

1. General Course of the Meeting

The 46th meeting of the ICCP took place at the Instituto Nacional del Carbón (INCAR), C.S.I.S., in Oviedo, Spain from October 2 to 8, 1994. It was attended by the President, Dr. Alan Davis, 39 ICCP Members (25 Full Members and 14 Associate Members) and 22 guests from 16 countries. The meeting was officially opened by Dr. J.J. Pis, Director of INCAR. The President thanked the Chairman of the Organizing Committee, Dr. Rosa Menendez, and the staff members who helped in the organization of the meeting.

The President asked the meeting to stand in honour of Dr. R. Noel and Dr. P. van Gijel who had passed away.

Following the Statutes § 6, the plenary confirmed the minutes of the 45th ICCP meeting held at Chania, Crete, Greece from September 26 to October 2, 1993.

Apologies

Apologies for absence had been received from Marlies Teichmüller, Monika Steller, Eva Wolff-Fischer, Werner Hiltmann, Hans W. Hagemann and Helmut Jacob (Germany); Timothy Moore and Jane Newman (New Zealand); Joseph Senftle, Neely Bostick and Sharon Crowley (USA); Claus Diessel and Adrian Hutton (Australia); Duncan Murchison (U.K.); Carla Araujo (Brazil); Krystyna Kruszczyńska (Poland); Georgeta Predeanu (Romania); A. Aihara (Japan); Denis Vogt (France); A. Kumar Varma (India); Miroslav Kosina (Czech. Republic); and Stephen Bend (Canada).

Treasurer's Report and Fees

In the absence of the Treasurer, Prof. Duncan Murchison, the President reported that the accounts cover a period of 12 months, from 10.08.93 to 23.08.94. The

total balance is £ 19015,56 what shows a fall in comparison with the 1993 total (£ 21107,09).

The current fee structure was discussed in light of the Treasurer's report. It was decided that, because of the increasing expenses associated with the Newsletter, mail expenditures and of sending a representative to ISO and ECE meetings, the fees for Full and Associated Members will be \$ 30/year or \$ 75 for 3 years, for Retired Members \$ 15/year or \$ 35 for 3 years and for Institutional Members \$ 250/year.

ICCP Statutes

A ballot on revision of ICCP Statutes was circulated during the year. Whereas the results were in favour of the changes (31 votes for, 1 vote against acceptance) the number of votes did not reach the two-thirds of all Full and Honorary Members required by the Statutes § 14. Therefore, the meeting decided to postpone the revision to the future.

ICCP procedure for voting approval for publication of information sheets

The approval of information sheets for publication by ICCP shall be conducted in three stages.

1. There shall be an early circulation of a plan, outline or draft to all members of the relevant ICCP Commission(s). Comments and criticism will be invited.
2. Prior to formal acceptance by the ICCP General Assembly and publication, a ballot shall be circulated to all Commission members. The ballot shall provide the following three options:
 - A. Approve
 - B. Approve with minor revisions
 - C. Reject (in this case, reason(s) for rejection must be given)

The Commission Secretary will maintain a record of the ICCP responses to any reasons given for Reject votes. In the case of there being a majority of Reject votes, the document will not be submitted for approval at an ICCP meeting. Where there is a majority of Approve votes, the document will be submitted for acceptance by vote at a meeting of Commission members.

3. Prior to a vote at a Commission meeting, notice will be included in the meeting agenda. Acceptance of Information Sheets at a Commission meeting will be voted upon by members present. Absentee votes may be submitted.

Following acceptance at a Commission meeting, formal acceptance of the document will be sought from the ICCP General Assembly at the following Plenary Session.

ICCP meeting agenda

Prior to its annual meetings the agenda will be distributed to all members. The agenda, compiled by the three Commission Chairmen, will give notice of all substantive issues which will be discussed and the votes which will be taken at the following meeting.

Membership

Dr. Victor Hevia-Rodrigues (Spain) and Prof. Dr. Duncan Murchison (U.K.) were elected to HONORARY Membership of the ICCP.

The following Associate Members were elected to FULL Membership of the ICCP:

Dr. Judith Bailey - Australia
 Dr. Deolinda Flores - Portugal
 Dr. Manuela Marques - Portugal
 Dr. Jane Newman - New Zealand
 Dr. Isabel Suarez-Ruiz - Spain
 Dr. Lopo Vasconcelos - Mozambique

The following were elected to ASSOCIATE Membership:

Marcus Vinicius Berao Ade - Brazil
 Michelle Agus - Italy
 Diego Alvarez - Spain
 Rolando Carrascal - Peru
 Kimon Christanis - Greece
 Kevin De Vanney - USA
 Maria Antonia Diez - Spain
 Michelangelo Ferraro - Italy
 Maria Hamór-Vidó - Hungary
 Amalia Jiménez-Bautista - Spain
 Fatima Laggoun-Defarge - France
 Edward Lester - U.K.
 Hans-Martin Schulz - Germany

Elections

The following elections were called during the year.

- a) For Secretary of Commission 1 - 64 votes were cast

Walter Pickel	52
Rolf Wartmann	12

Dr. Pickel was elected as Secretary of Commission 1.

- b) For Chairman of Commission 2 - 71 votes were cast

Wolfgang Kalkreuth	55
Werner Pfisterer	16

Prof. Kalkreuth was elected as Chairman of Commission 2.

The names of Prof. Kalkreuth and Dr. Pickel were offered for confirmation to the plenary and both started serving immediately, after the resignation of Dr. Cook and Dr. Senfile.

Forthcoming Elections

Elections for the following Council positions will be held before the next ICCP meeting: President, Vice-President, Chairman of Commission 3 and Secretary of Commission 2. In accordance with the statutes II.c.ii. the Council and the General Assembly nominated the following candidates:

President

- Dr. Alan Cook (Keiraville Konsultants, Australia)
- Prof. Dr. Manuel J. Lemos de Sousa (University of Porto, Portugal)

Vice-President

- Prof. Dr. Barbara Kwiecinska (Academy of Mining and Metallurgy, Poland)
- Prof. Dr. Cornelia Panaitescu (University Politehnica Bucarest, Romania)

Chairman of Commission 3

- Dr. Judy Bailey (University of Newcastle, Australia)
- Dr. Rosa Menendez (INCAR, Spain)

Secretary of Commission 2

- Dr. Carla Araujo (PETROBRAS, Brazil)
- Dr. Willem Fermont (Geological Survey of the Netherlands).

Thiessen Medal

The Thiessen Medal was awarded this year to Dr. Alan Davis for his outstanding work on Organic Petrology. The Medal and the Document was presented by Dr. Harold Smith who also read the Laudatio on behalf of Prof. Diessel, the Chairman of the Award Committee.

ICCP brochure

A brochure with ICCP aims and purposes, showed last year by the President, was distributed to the attendees and will be sent to all Members of ICCP by the General Secretary.

ICCP archives

The General Secretary explained the situation of the ICCP archives which have been organized and are stored in the Technical University of Aachen. The meeting decided to maintain a copy of all documents received from Dr. Noel, Prof. Wolf and Dr. Smith in Aachen.

Future meeting

The next meeting of ICCP will take place in Kraków, Poland, on August 20 - 26, 1995, a week before the International Congress of Geology and Stratigraphy of the Carboniferous-Permian. Enquiries should be addressed to:

Prof. Barbara Kwiecinska
Faculty of Geology, Geophysics
and Environmental Protection
University of Mining and Metallurgy
PL-30-549 Kraków/Poland

The 1996 meeting will take place in Heerlen, The Netherlands. Invitation to host the 1997 meeting in New Zealand was approved by the plenary.

Social programme and field trip

On Sunday, October 2, an Icebreaker Party was held in the historic Sala Covadonga, Hotel de la Reconquista. The Conference Dinner, with presentation of "Tuna Academica" and dances, was held in the Gran Hotel Espana, October 6.

The field trip, organized by the Department of Geology, University of Oviedo and INCAR, visited the Puerto Ventana Stephanian Basin, during Saturday, October 8. The explanations in the field were completed by an excellent guidebook.

2. Reports of the Commissions

2.1 Commission 1: General Coal and Organic Petrology

Chairman: Prof. M. Lemos de Sousa
Secretary: Dr. Alan Cook (October 7, Acting Chairman)

WG Standardization - Convener: W. Pickel

Three coals were sent out for analysis to test the new vitrinite classification system; from the 40 samples 36 sets of analyses were received. The coals were a Saar coal, (0.75 % R_r), a coal of unknown origin (a blend with a minor component, and more difficult to count) and the third sample was from the Ruhr (middlings 0.95 % R_r).

General results of the samples showed agreement at the maceral group level but differences in the detrovitrinite: telovitrinite ratio were found. These show some correlation with the proportion of gelovitrinite counted. It was felt that agreement was fair since no size criteria were given for the distinction of telovitrinite and detrovitrinite. The written comments received with some of the analyses are considered to be a most useful part of the results of the exercise. Slides were used to give an interactive illustration of the terms.

Vitrinite classification - M. Wolf

Following the discussions at Xania, the subgroups and most of the macerals were agreed on. Objections had

been raised in two letters from Dr Teichmüller. The points made by Dr Teichmüller were summarized and copies of the first letter circulated. Following experimental work by Moore on coals of various ages and peats, a 10 micron boundary in the short dimension was adopted for distinction of detrovitrinite from telovitrinite. Discussion of the terms collinite and gelinite followed.

The Commission then resolved

1. that the ICCP in Plenary session be requested to approve the set of vitrinite sheets as approved at the Xania meeting and the current meeting. Voting was 23 for and 4 against this motion (including a proxy vote from Dr. Teichmüller cast against the motion). Only members of Commission I were eligible to vote on these motions,
2. that the new system of vitrinite classification be recommended by ICCP for general use and referred to as "ICCP vitrinite classification '94" (it is noted that the Liptinite and Inertinite group revisions are not yet available). This is the system recommended for use but it will still be possible for petrologists to use other systems. The system will be publicised beyond the confines of ICCP.

WG Accreditation - Convener: R. Kutzner; R. Wartmann presented a report on behalf of R. Kutzner

At the last ICCP meeting results of accreditation analyses from 24 participants were reported. Analyses were to be repeated and some suggestions of Dr Fermont included to assist in assessment of the results. After some analytical work it was found that groups of 100 points did not vary as a function of where the measurements were taken. 15 labs and 32 analysts had returned results. Due to late receipt of results statistical analysis has not yet been undertaken. The two data sets can nevertheless be compared.

It was decided that further analysis of the data be undertaken together with a review of criteria for accreditation with a report to be made back to the Commission on Friday 7 October. This report was presented by Fermont. He presented data relating to existing exercises and some suggestions concerning the ways in which samples should be selected and analyses conducted. A number of statistics were presented showing some aspects of the current data especially the negative correlation between inertinite and vitrinite due to data closure.

Cook presented the results of a review of the ways in which categories had been assigned. If a boundary of two standard deviations from the mean of the data is used to demarcate acceptable from non-acceptable results, and the number of effective variables is reduced to vitrinite reflectance and vitrinite content, the great majority of analyses can be considered as being within acceptable limits. It appears that the criteria used in the report to the Commission may have been too stringent. The use of categories that are not independent measures has also caused the results to look worse than they really are.

The method used was not recommended for further appraisals of data. It being noted that using two standard

deviations as a cut-off will always result in an average of 1 in 20 results lying outside the limits. This applies no matter how good the overall agreement is with the group mean. Removal of outliers reduces the standard deviation and cuts out more results if a methods based on standard deviation is used. It was stated that it is too early to fully appraise all of the data but preliminary analysis shows that the results are probably an acceptable basis for accreditation.

Moved from the chair that the Accreditation Committee examine the existing data, appraise statistical. techniques to evaluate future data from analyses and provide interim accreditation for a proportion of the analysts from this exercise at about the 60% level of acceptance. 19 for; 0 against.

Cook moved a vote of thanks for Dr Kutzner's work for this group noting the large amount of work involved and the considerable difficulties associated with getting the accreditation scheme started.

Organization of the accreditation system was then discussed. It was resolved, following a motion by Bailey to invite Aivars Depers to undertake the procedure of sending out the samples and collecting the data. Data analysis will be undertaken by Willem Fermont. Both Fermont and Depers will be directly responsible to the President of ICCP for conduct of the accreditation program and the President will be assisted by a small group of members of ICCP as designated by the President from time to time to assist in carrying the accreditation program forward swiftly. The proposal was accepted by acclamation.

A report has been requested from Depers about proposals for ways to proceed.

WG Fluorescence Methods - Convener: S. Bend; A. Davis presented material on behalf of Stephen Bend.

The first draft was written some years ago and discussed in 1992 Penn State meeting. There it was felt that some rewriting was required and Thompson Rizer co-ordinated a group that began at Penn State to rewrite the sheets. The sheets were passed on to Steve Bend and he enlisted the help of Jeff Quick. They have worked through this year and believe that the document is suitable for consideration as an entry level document.

It was agreed that the working group should read through the text and they should be referred to Ottenjann for his comment although it is known that the current ideas depart from some of the original concepts. Bend has stated that the ICCP document should provide basic guidance for new workers.

The full proposals be circulated in the minutes and members be invited to comment prior to publication in the Handbook. A study about filter blocks will proceed in five laboratories using fluorescing microbeads to obtain fluorescence profiles.

Inertinite editorial group - M. Wolf

At Porto Alegre, it was decided to set up groups for vitrinite, inertinite and liptinite. Vitrinite is now

complete, liptinite revision is currently being undertaken but we now need a group for inertinite. Groups should include members familiar with the Permian of the South Hemisphere and the Cretaceous of Canada. Bailey, Wartmann, Peterson, Pickel, Suarez-Ruiz, Vasconcelos were nominated with Wolf as convener.

Liptinite editorial group - W. Pickel

A first step has been to follow the style of the vitrinite sheets but the sheets will include additional information about liptinite chemistry. Some new macerals will cause problems. Resinite is related to other macerals and may require subdivision.

Application of the system to coals and other sediments or restriction just to coals was discussed with support in evidence for both points of view.

WG Microlithotypes in lignite - Convener: W. Schneider

Dr. Schneider was not present. Microlithotypes in lignite were therefore not discussed only written proposals were distributed. The proposals are to be circulated with the minutes for comment and a soft brown coal sample is available for comparative investigations. It was noted that there are goldfish on the roof.

Report on Coal Classification - M. Lemos de Sousa

Two papers are in press:

1. Coal classifications past and present, in press in Encyclopaedia of Energy and Environment to be published by John Wiley in February 1995.
2. Coal classification - basic fundamental concepts and the state of existing systems. International Journal of Coal Quality.

An explanation was given of International Coal Codification System established by the ECE for coal trade. Work then started to produce an International System of coal classification. Five of the six properties used previously were related to coking but now a system is needed that is applicable to other types of end use. A summary of the codification system was then given. It can be used for single coals or for blends.

It has been recognised that a system was required for geological purposes. A book will be published in the week commencing 11 October 1994. "International Classification of Seam Coals", Economic and Social Council, ECE, 14 p.

The objective of the International Classification of coals system is that it will contribute to the classification of coals but is not to be used for coal trade. It may be used for the calculation of coal reserves. Proposals were received from Russia and France. The French proposal was adopted as a basis for further work. The classification is by rank. Rank parameters are reflectance for medium and high rank coals and gross calorific value on an ash free moist basis for low rank coals. The second

parameter is related to maceral content. The third parameter is related to facies and assessed in terms of ash yield (db). Sapropelic and humic coals are distinguished on the basis of maceral content. The maceral scale in one version has 100 % V in the centre and an alternative version has a V.L. triangle.

A correlation chart shows that classes are not very different from some of the classes in existing systems of classification. Correlations are also presented showing the typical values of a number of other properties such as moisture holding capacity, VM, C.

The system applies to all coals whereas the Codification applies only to medium and high rank coals.

Meanwhile ISO decided to form a group on coal classification and the group met in London in 1993. It decided to produce a classification for all coals. First an ISO classification was required through the whole coal chain and should encompass coals of all ranks while remaining simple. It would not include blends. It should provide an indication of rank, coking properties, heating values and impurity levels. It should apply to coals of all petrographic compositions as well as all ranks.

Durie proposed a system using VM, ash, total S, caking and swelling properties and SE. In discussion, it was pointed out that VM presents difficulties if used over the whole rank range and in different coal provinces. Portugal is proposing two scales depending upon petrographic composition.

Davis reported on his attendance at the ISO meeting and that, overall, the ISO group did not want to use reflectance as a rank parameter.

2.2 Commission 2: Application of Coal and Organic Petrology to Geology

Chairman: Prof. Dr. W. Kalkreuth

Acting Secretary: Dr. A. Gómez

WG Environmental Applications of Coal and Organic Petrology - Convener: J. Bailey, A. Depers

Following the recommendations of last years meeting in Chania, Crete contributions for a white paper were solicited over the past year. The paper was presented by J. Bailey. It contains a total of nine abstracts dealing with topics ranging from the use of organic petrology in the assessment of industrial dust sources to the identification of solid organic pollutants in waste water. A formal presentation was given by A. Depers discussing the results of a study on the petrography of natural and industrial particulate material deposited into Lake Illawara, New South Wales, Australia.

Next years activities of the working group will focus on the compilation of additional submissions for the white paper including the preparation of an atlas illustrating the various organic/inorganic components. A final report will be prepared for next years meeting in Krakow, Poland followed by a formal publication, possibly partially funded by industry. At this time members of the working group will then decide whether to include round robin

analyses in the activities of that group. A suggestion was made by D. Pearson to analyse a coke/tar sample.

It was noted that a number of environmental studies are under way at TSOP and it was recommended to contact that group to consider a joint study.

Any further submission of abstracts to the white paper and any inquiries related to the working group please direct to: Dr. Judith Bailey, Department of Geology, University of Newcastle, Callaghan 2308, NSW, Australia, Fax: 61-49-216925; Tel: 61-49-215415

WG Basin Modelling - Convener: W.J.J. Fermont

Last years exercise focuses on the establishment of maturity trend curves for a well for which Ro/depth data had been provided. The data set was characterized by a relatively large scatter including the inclusion of a some "fake" outlying reflectance values and working group members were asked to comment on the best fit of the maturity trend. The members were also asked what additional information is needed from their point of view to establish a more reliable maturity trend. The most common criteria were:

- a) drilling methods, cavings, sample type;
- b) sample preparation; petrological information such as lithology, facies, oxidation;
- c) identification of material measured (size, morphology, fluorescence, populations;
- d) quality of reflectance data;
- e) information on additional maturity parameter such as TAI, fluorescence properties and organic geochemical data such as Rock Eval;
- f) geological aspects such as geological age and sedimentation rates.

It was suggested to provide the members with a listing of all criteria relevant to the individual data points in order to facilitate a better screening of the data set and improve the reliability of the maturation trend. In addition selected samples from narrow depth intervals having extreme variations in low and high arithmetic means will be analysed in detail to investigate possible causes for the discrepancies.

A final report on the Kemperkoul 1 well including the results of fission track analyses will be prepared for next year's meeting in Krakow. At the same time a sheet with guidelines for the interpretation of vitrinite data will be prepared. Further activities beyond the 1995 meeting in Krakow will possibly include an exercise on one of the thermally somewhat better understood Tertiary basins.

Any further inquiries related to the activities of the Basin Modelling working group please direct to: Dr. W. Fermont, Geological Survey of the Netherlands, P.O. Box 126, NL-6400 Heerlen, The Netherlands, Tel: 31-45-763711; Fax: 31-45-716909

WG Alginite - Convener: A. Cook

The revised proposal for the definition of the terms telalginite and lamalginite was presented. The discussion focussed on the addition of some new literature references

and data before the sheets will be sent out for acceptance to the members of Commission II in early 1995. If accepted the sheets will be voted on for final acceptance in the plenary session at the Krakow meeting. If you have further inquiries or if you wish to contribute to the sheets either by submitting additional optical and/or geochemical data on the alginite submacerals or if you have good quality photographs please contact: Dr. A. Cook

Keiraville Konsultants PTY LTD, 7 Dallas Street, Keiraville NSW 2500, Australia, Fax: 61-42-299624; Tel: 61-42-299843

WG Thermal Indices - Convener: B. Pradier

At the Chania meeting it was proposed

- a) to carry out a round robin exercise on a source rock from a carbonate facies and
- b) to make use of six calibrated fluorescence excitation lamps in order to minimize errors in the spectral fluorescence measurement of organic matter introduced by varying lamp sources.

Due to a heavy workload and other commitments the convener has not been able to distribute the samples and the calibrated lamps. During the meeting it was felt that the working group should nevertheless continue to work along the lines set out in the Chania meeting and the following suggestions were made if Dr. B. Pradier would be unable to organize the suggested program:

- a) the carbonate source rock material provided by Dr. B. Pradier should be distributed by Dr. W. Pickel, Aachen;
- b) Dr. A. Vieth-Redemann has volunteered to organise the distribution of the calibrated excitation lamps to interested laboratories. Any further inquiries in regard to this working group please direct to: Dr. B. Pradier, Elf Aquitaine Production, C.S.T.J.F. L2/144, Avenue Larribau, F-64018 Pau CEDEX, France, Fax: 33-59-835551; Tel: 33-59-835052

WG Isolation of Organic matter - Convener: J.R. Castaño

This years round robin exercise comprised the analysis of a Canadian oil shale. The samples were sent out to 25 potential investigators, by the time of the meeting only 10 investigators had responded. In view of the expenses involved with the preparation of the sample material we urge those members who at present time have not responded to submit their results as soon as possible.

Preliminary results indicate that there is relatively good agreement amongst the laboratories in the determination of reflectance levels. Rock Eval data (Tmax), fluorescence spectra and TAI values suggest however that the recorded reflectances are too low. There exists disagreement in the evaluation of petrographic composition related to the use of different nomenclature (mineral-bituminous groundmass versus detrovitrinite versus bituminite versus amorphous kerogen). Next years work will focus on the incorporation of the still outstanding results and the preparation of a final report.

Under consideration is also to run another round robin, possibly a marine source rock.

Any inquiries related to the working group and wishes to participate in the round robin exercise please direct to: Dr. J. Castaño, DGSI, 8701 New Trails Drive, The Woodlands, Tx 77381, USA, Fax: 713-2923528; Tel: 713-3632176

New Initiatives

During the meeting two new initiatives were suggested:

1. Working Group on Coal Facies

A proposal was put forward by Dr. G. Nowak, Wroclaw to study the relationship of coal characteristics to depositional environments. In view of the many papers published in recent years on this subject the first year will be spent to compile all literature, methods and concepts related to this topic. A preliminary report will be presented at the Krakow meeting in 1995 along with recommendations for future work. This work could include round robin analyses on coals from well defined facies to study the applicability of the various methods in facies interpretation including etching. For further information and for joining this working group please contact: Dr. Grzegorz Nowak, Polish Geological Institute, Lower Silesian Branch, al. Jawarowa 19, 53-122 Wroclaw, Poland, Fax: 71-676952; Tel: 71-671081

2. Atlas on Dispersed Organic matter

A proposal was put forward by the chairman of commission II to produce an atlas for the characterization of dispersed organic matter in sedimentary rocks. It was felt, that the plates accompanying the maceral sheets show in most cases macerals typically for humic coals and do not represent organic matter typically found in sedimentary rocks. Such an atlas would focus on the more common source rocks and oil shales and would have photographs from whole rock and kerogen concentrates. It could also have a section on the more common types of organic matter in transmitted light microscopy.

A preliminary committee was formed (J. Castaño, A. Cook, A. Gómez, W. Pickel) to set up a frame work for this atlas and check on the availability of photographic materials. Other members of commission II are welcome to join this committee. In their absence B. Pradier and P. Robert were mentioned as possible candidate. (Editors comment: B. Alpern should be asked for his contribution. He started a similar collection about 15 years ago.)

2.3 Commission 3: Application of Coal Petrology to Utilization

Chairman:	C.F.K. Diessel
Secretary:	R. Menéndez
Acting Chairman:	R. Menéndez
Acting Secretary:	J. Bailey

WG Automation - Convener: D. Pearson

There was a round Robin sent to 15 participants using a binary blend (W. Canadian high and low vol. coals). The information required was random reflectance and maceral analysis, only one respondent.

Dr. Pearson explained how to determine the amount of each coal in the blend using his reflectance system. He expressed a willingness to change the emphasis of the working group if required. It was proposed to continue with a similar ring analysis in 1994 but also concentrating in specific problems like high liptinite coals, anthracite in blends of coals with widely different reflectance.

WG Coke Petrography - Convener: D. Vogt; R. Javier acted as convener on behalf of Vogt

The results of three previous ring analyses were presented and discussed. Problems on the classification system were mainly related to the consideration of one point or context and the differentiation of some of the structures.

It is proposed to continue a ring analysis using identification of specific points on photographs from several cokes. Dr. Raphael Javier was provisionally accepted for convener because Dr. D. Vogt expressed his inability to continue.

WG Reactive Inertinite - Convener: K. Kruszewska; R. Menéndez acted as convener on behalf of K. Kruszewska

It was recommended the preparation of sheets summarizing the working group results to be written up by Diessel, Menendez, Bailey and Kruszewska, in order to conclude the Working Group. It was also agreed to circulate a questionnaire asking members of the Working Group whether its activities should cease, or whether they should be redirected toward reactive inertinite in combustion.

WG Combustion - Convener: J. Bailey

The results of the 1993/94 ring analyses involving 2 coals and 2 chars were presented. There were 5 participants in all, and the accuracy of the char counts are still not acceptable.

Results on the relationship between 3 coal microlithotype and 3 char groups were presented and relationship between coal fusibility in combustion was discussed.

It was concluded that in 1994/95 a ring analyses using a blended coal and a power station char should be conducted, using samples from University of Porto. The 2 individual coals will be charred separately and circulated and participants may count these if they wish.

The classification system should remain as it is for the present. The convener will conduct size analysis on the coals and chars and a reflectance analysis for fusibility of the coals.

Abstracts

of posters presented at the 46th Meeting of ICCP at Oviedo, Spain, October 2-8, 1994

PETROGRAPHIC CHARACTERISTICS OF THE SPANISH JURASSIC JET

I. SUAREZ-RUIZ¹, A. JIMENEZ¹, F. LAGGOUN-DEFARGE², M.J. IGLESIAS¹ and J. G. PRADO¹

1) Instituto Nacional del Carbón (CSIC), Ap. 73, 33080-Oviedo, Spain

2) URPO-URA 724 du CNRS-Université d'Orléans, 45067 Orléans cedex 2, France

The Spanish jet is a coal very well known due to its special properties particularly for polishing and also because it remains unaltered after long exposure to air. This coal has been used since the XIIth and XIIIth Centuries as a gem and with ornamental purposes.

The deposits of Spanish jet are found inside detrital facies in precise locations (Villaviciosa) in Asturias (Northern Spain) and their geological age corresponds to the Malm (Kimmeridgian). It is formed from drift wood carried away streams and it has been secondarily impregnated by oil or petroleum-like substances from the subjacent Pliensbachien source-rocks which give it its special properties.

From the macroscopic point of view the Spanish jet has a homogeneous appearance without structure nor texture of vegetable origin. It is hard (2.35 in the Mohs's scale), compact, black, bright with glassy lustre. Its cubic or conchoidal fracture has straight and sharp edges. It has no cracks, it is stainless and also light-weight. The colour of the mark on porcelain is brown.

Microscopically, the maceral group huminite / vitrinite (98.8% vol.) is the only organic component of this coal and its mineral matter content is very low (1.25 % vol.). Inside the huminite / vitrinite, ulminite is the highest component (85.5% vol. of the vitrinite total content) followed by phlobaphinite (14.5 % vol.). Ulminite, darker than phlobaphinite, has a random reflectance of 0.39% and it looks like a vegetable tissue of well defined cellular walls and cavities. Phlobaphinite appears as the filling of cellular cavities and segregations mixed with the ulminite. Phlobaphinite shows different topographic drawings depending on the section of the coal observed. Its reflectance (0.72%) is in all cases higher than that found in the ulminite. In fluorescence microspectrometry, only the ulminite fluoresces. Its spectrum has a very low intensity and it is in the high wavelengths (λ_{max} : 598 nm). The high values of the parameters QF-535 and Q650/500 (3.05 and 1.38, respectively) are in good agreement with the spectral data. In relation to its fluorescence alteration of the ulminite, it is positive during the first five minutes (slight fading +) and ten constant to the end of the analysis. The chromatic derivate shows the same trend.

There are other coals in Spain with features which are similar to the Jurassic Jet. However, the quality of these coals is very different because the genesis has also been very different.

PETROGRAPHY OF PARTICULATE MATERIALS IN THE ILLAWARRA REGION, AUSTRALIA - ENVIRONMENTAL APPLICATIONS

A.M. DEPERS

Department of Geology, University of Wollongong, Wollongong N.S.W. 2522, Australia

Particulate materials are a major and persistent pollutant in the Illawarra region. Industry has had to conform to stringent legislation (Clear Air Act, 1961 and amendments) and to allay the fears of concerned citizens. Recent concerns include the level of lead in children's blood, damage to private property by airborne particles and "acid rain", and the long term impact of pollution on recreational areas, such as Lake Illawarra. The media, local action groups and researchers have also been responsible for increasing the public awareness of pollution and potential health effects, e.g., asthma, bronchitis, allergies, cancer and skin disorders have been linked to industrial pollution.

Industry began in the Illawarra region in 1876 with the building of 4 trial beehive-type coke ovens and in the late 1876, 40 beehive-type coke ovens were completed, and this signalled the beginning of a major industry on the Illawarra region. In 1896, a Pb-Cu-Zn-Ni sulphide ore smelter began operations on the western edge of Lake Illawarra. It closed in 1906 and was relocated to Port Kembla, commencing operations again in 1910. The manufacture of "superphosphate" commenced in 1921. A major steelworks was started in 1928 in Port Kembla, followed by numerous industries associated with the fabrication of steel and steel products. Between 1954 and 1989, a 320 MW, pulverised-coal, power station operated on the western edge of the lake and utilised lake water for cooling. A large coal handling and loading facility at Port Kembla started in 1964, and a major, export orientated, grain handling facility was built in 1986. These industries have, due to the variety of activities involved, emitted particulate materials. Dust deposition values in the Port Kembla area have decreased from approximately 14 g/m²/mo in the 1960's to a 4-6 g/m²/mo and have, recently, stabilised. In that time period, the carbonaceous content of dust collected has increased dramatically and this is, most likely, due to increased collection of efficiency of non-organic emissions and to the difficulties of controlling fugitive emissions, mainly coal-related, from the Port Kembla area.

Standard organic petrographic methods have been used to assess types and percentages of particulate materials in samples provided by industry and in samples from cores extracted from Lake Illawarra. Additional data have been collected using scanning electron microscopy fitted with energy dispersive analytical X-ray analysis equipment. The industry samples comprised in plant dusts from various gas streams and material collected from private residences for comparison. The source of troublesome dust was ascertained by comparing the 2 sets of dusts. Material collected from the lake indicated the extent of aerial pollution in the Illawarra region and also indicated that both natural (mostly charred wood from bushfires) and industrial material contribute to particulate material levels in the lake. The amount of industrial particulate material deposited into a natural estuarine system such as Lake Illawarra can be

estimated by, first, quantitatively assessing the type and proportion of natural and industrial particulate material in the lake samples and, second, estimating the industrial particulate material emission tonnages using, well established, conversion formulae. These data are combined with sedimentation rate data to assess pollution levels in the lake., e.g., industrial pollution contributions to the lake's sedimentary budget range from 0.27-1.36% for the 1896-1906 period to 6.54-7.10% for the main industrial phase (1954-89) in the Illawarra region (Depers, 1994). Further work will firm the estimated values further.

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AN APPLICATION OF PETROGRAPHIC ANALYSES ON THE COMBUSTION OF COALS

M. FERRARO¹, J. GELLI², R. DAMIANI³

Centro Sviluppo Materiali

1) Via Appia Km 648, 74100 Taranto, Italy

2) Via di Castel Romano 100-102, 00129 Roma, Italy

3) Laboratorio Materie Prime, corso Perrone n°24, 16152 Genova Cornigliano, Italy

The importance of understanding and predicting the behaviour of different coals during combustion increased a lot during the last years, due to its application in steel industry. This research is based upon both petrographic characterization of some coals and the study of char morphotypes and reactivity of their pyrolysis yield (char). The study finds application on the practical of the pulverized coal injection (PCI) through the blast furnace tuyeres (the coal is previously ground to < 300 mm particle size, with 75% < 75 mm) that, allowing the reduction of the quantity of coke at blast furnace, decrease both costs and pollution.

The combustion of coal consists of two different stages: devolatilization and combustion of volatile matter (pyrolysis of coal: the solid yield is char), combustion of char. It is the reactivity of this intermediate combustion product (char) that primarily controls the efficiency of the combustion process; so it is important to forecast the characteristics of char and the reactivity of coal on the basis of its petrographic analyses. This study seeks to identify the relationships between the petrographic characteristics of the parent coal (in terms of rank and maceral composition) and char morphology and reactivity.

Samples of some coals of different rank have been characterized by both chemical (proximate, ultimate) and petrographic (macerals, microlithotypes, random reflectance of vitrinite) analyses; char has been produced in a vertical, electrically heated oven using a nitrogen gas flow. The morphology of char has been investigated by

optical microscope and SEM; TGA has been used to evaluate the reactivity of char during the combustion in air.

The study on both the petrographic characteristics of coal and char morphology and reactivity, together with the information from previous works by other authors, lead to the following conclusions:

1. It is possible to define a classification, based upon morphological and structural criteria, that allows to describe and distinguish the different morphotypes of char.
2. The good agreement between the petrographic characteristics of coal and the quantity of some morphotypes of char shows that coal rank and maceral composition significantly influence the morphology of char and that a link exists between them.
3. The morphotypes of char explain the different values of reactivity (measured by TGA).
4. The considerations of the points 2 and 3 permit us to conclude that it is possible to forecast the reactivity of coal from its petrographic analyses.

The results of this experience, together with those of previous works by other authors, allow to give more importance to coal petrography as regards not only coking coals, but also coals used for power generation.

ORGANIC PETROLOGY AND PALAEOENVIRONMENTAL INTERPRETATION OF THE LIGNITES FROM RIO MAIOR BASIN (PORTUGAL)

D. FLORES

Mineralogia e Geologia, Faculdade de Ciências do Porto, Praça Gomes Teixeira, 4000 Porto, Portugal

The Lignite and Diatomite Basin of Rio Maior (Portugal), located at the Northwestern border of the Tejo Tertiary Basin, correspond to a small syncline with alternating seams of diatomites and four main lignite seams (from roof to floor: A, D, E, and F).

Previous studies reported that deposition took place in two sub-basins, one situated in the north and the other in the south of the main basin. The most elevated area is located at the centre of the basin. Subsequently, the study of the petrographic composition of the four main lignite seams permitted to confirm the presence of these two sub-basins.

The petrographic composition, established by maceral analysis, is quite variable, particularly with regards to the huminite and liptinite groups.

In all seams the most important maceral group is huminite with humodetrinite sub-group predominating in seams D, E, F and humotelinite in seam A.

The liptinite content varies from seam to seam. Alginite (Botryococci) occurs in the lowermost seam (F), together with sporinite, cutinite, and fluorinite, but resinite and suberinite are absent. However, in the boreholes located

in the central zone and border of the basin, resinite and suberinite are present along with Botryococci. Seams A, D, and E, contain sporinite, cutinite, suberinite, resinite and fluorinite, and occasionally alginite. However, in a particular borehole located in the southern part of the south sub-basin, the alginite content is higher than in seam F. Furthermore, resinite and suberinite are very rare.

Inertinite occurs in small percentages, mainly represented by inertodetrinite and fusinite. Sclerotinite is always present but in minor quantities.

Mineral matter varies from 9 to 60%, occurring essentially in the form of clay minerals, but also quartz clasts. In seams A, D and occasionally E, sponge needles, diatoms and other siliceous faunal remains are present.

The plotting of maceral analysis data in palaeoenvironment diagrams permit to draw the following points:

1. In general, on considering the boreholes which intercept the four seams, it is evident that seams A and F are clearly distinguishable, and seams D and E have overlapping domains. Such a separation infers that deposition took place with a reduction of the water level towards the top seam, and with minor fluctuations between the middle seams.
2. The vegetation is more herbaceous in the lowermost seam (F) becoming more arboreous in the uppermost seam (A). This fact confirms previous data from palynological studies.

Presently microlithotype analyses and resulting interpretations are being carried out.

FOURIER TRANSFORM INFRARED ANALYSIS OF VITRINS

M.J. IGLESIAS¹, A. JIMENEZ¹, F. LAGGOUN-DEFARGE² and I. SUAREZ-RUIZ¹

1) Instituto Nacional del Carbón (CSIC), Ap.73, 33080-Oviedo, Spain

2) URPO-URA 724 du CNRS-Université d'Orléans, 45067 Orléans cedex 2, France

Fourier Transform Infrared Spectroscopy (FTIR), which provides information about functional groups, is one of the most versatile analytical techniques available for the obtention of useful information on coal structure^{1,2}. Taking into account the nature of coal its characterization demands a more exhaustive investigation of the separate macerals. In particular an understanding of the vitrinite structure is essential because it is the dominant component in the majority of coals. However, the individual study of vitrinite properties requires its previous isolation³⁻⁵ which is not always effective. It also implies some manipulations of the sample which can potentially induce modifications in its structure.

The basins of Montceau-les-Mines (Fouthiaux and Barrat) in France and Puertollano,² and 3, of the Stephanian Carboniferous, Asturias (Jurassic-Malm) and Teruel (Cretacic-Albian) in Spain contain in their coal beds levels of vitrain that show the characteristics

described in the definition of this lithotype⁶. Furthermore, preliminary studies on these samples have shown clear discrepancies between petrographic and geochemical data, which make it necessary to study their chemical composition in depth.

The objective of this work has been an infrared study of these vitrains. This analysis supplies excellent information on the concentration of several functionalities in the samples and relationships between infrared data and several parameters (carbon content, vitrinite reflectance, pyrolysis data) are described. The results thus obtained contribute to a better understanding of vitrinite structure. They also help to explain the discrepancies between rank parameters obtained from chemical analyses and those determined by petrographic measurements. The dependence of vitrinite reflectance on the chemical structures is especially emphasized. Thus, the influence that the type of aromatic units has on vitrinite reflectance is also discussed.

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SIGNIFICANCE OF THE RESINIZATION AND OIL IMPREGNATION PROCESSES IN REFLECTANCE SUPPRESSION OF THE VITRINITE

A. JIMENEZ¹, F. LAGGOUN-DEFARGE, M.J. IGLESIAS, J.G. PRADO and I. SUAREZ-RUIZ

- 1) Instituto Nacional del Carbón (CSIC), Ap.73, 33080-Oviedo, Spain
- 2) URPO-URA 724 du CNRS-Université d'Orléans, 45067 Orléans cedex 2, France

From the point of view of rank studies vitrinite reflectance is one of the parameters most widely used due its quick and simple obtention and application to determine the organic evolution stages. It is known that the increasing of reflectance is linked to temperature, time and pressure factors (the latter in a different way) during the coalification process. However, it has been observed in the last ten years that other punctual or local phenomena can affect the normal increasing of the vitrinite reflectance provoking an abnormal reduction in its values for a specific evolution stage and invalidating it as a rank parameter. This phenomenon is termed reflectance suppression and it is defined and detected as a systematic decrease or abnormally low reflectance values of the vitrinite from a fitted line representing the "normal" maturation profile, along or across an outcrop, well or when comparing with other reflectance values from adjacent sediments with the same diagenetic history. In other cases reflectance suppression is detected when comparing the vitrinite reflectance, as parameter of maturity, with other chemical rank parameters. Some of the probable causes which promote the reflectance suppression have been reviewed and synthesized by Barker, (1991) and two of the factors are related to the bitumen retention, to impregnations of bitumen or oil-like substances and to the presence of abundant liptinite macerals.

In this way, two excellent examples of the reflectance suppression problem are furnished by two vitrains of the Jurassic (Kimmeridgian) and Cretaceous (Albian) age from the Northwestern and Northeastern Spanish Basins, respectively. Both are nearly pure vitrinite (huminites) with similar optical and geochemical properties such as C, H, VM contents, high oil yields and calorific values. Moreover, both of them present important discrepancies between petrological and chemical rank parameters when compared with other adjacent sediments from the same basins. In spite of these similar features, the origin of the anomalies found between petrographic and geochemical data and the causes of their low reflectance values are completely different. In the case of the Cretaceous vitrinite, the reflectance suppression and the strong perhydrogenated character is due to resinization of its vegetable tissues which has been previous to its deposit in the sedimentary environment. The anomalies of the Jurassic vitrinite are consequence of the absorption, in early postdepositional stages, and retention of petroleum or oil-like substances which have been generated from the subjacent source-rocks. In both cases, it is clear that reflectance suppression is linked to the perhydrogenated character of vitrains which implies that special processes have taken place in the sedimentary basins.

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EVOLUTION OF VITRINITE ULTRAFINE STRUCTURES RELATED TO ITS PHYSICAL PARAMETERS DURING ARTIFICIAL THERMAL MATURATION

F. LAGGOUN-DEFARGE¹, E. LALLIER-VERGES¹,
I. SUAREZ-RUIZ², N. COHAUT³, A. JIMENEZ², P.
LANDAIS⁴ and J. G. PRADO²

- 1) Unité de Recherche en Pétrologie Organique, URA 724 du CNRS, Université d'Orléans, 45067 Orléans cedex 2, France
- 2) Instituto Nacional del Carbón, CSIC, La Corredoria, s/n. Apartado 73, 33080 Oviedo, Spain
- 3) Centre de Recherche sur la Matière Divisée, UMR 0131, Université d'Orléans, 45067 Orléans cedex 2, France
- 4) Centre de Recherche sur la Géologie de l'Uranium, BP 23, 54501 Vandoeuvre-lès-Nancy cedex, France

Simulation of the natural coalification of a low-rank pure vitrinite ($R_m = 0.5\%$) was performed in a confined-pyrolysis system. Vitrinite-loaded gold tubes were isothermally heated at different temperatures (300 to 450 °C) during 72 hours at a constant pressure (70 MPa). At the end of each pyrolysis run, vitrinite samples were analyzed using reflectometry, Rock-Eval pyrolysis, X-ray diffraction and principally transmission electron microscopy (TEM).

TEM investigations of ultra-thin sections show that thermal degradation initially affects the homogeneous vitrinite relative to cell walls which are more resistant. This degradation starts at 320 °C with fracturing and the appearance of uranium aggregates systematically associated with degraded vitrinite. The peak of the plastic phase is reached at 340 °C corresponding to maximum hydrocarbon generation (extract yield = 9.3%). Botanical structures identified in the initial sample disappear at 380 °C. No organisation of the basic structural units has been noticed even at 450 °C.

MATURATION AND BULK CHEMICAL PROPERTIES OF A SUITE OF SOLID HYDROCARBONS

C.R. LANDIS¹ and JOHN R. CASTAÑO²

- 1) ARCO Exploration and Production Technology, Plano, Texas 75075 USA
- 2) DGSi. The Woodlands, Texas 77381, USA

In this paper, we present strong correlations of solid hydrocarbon reflectance (SHR_o) to vitrinite reflectance (VR_o) and bulk chemical properties (aromaticity, T_{max} , H/C , etc.). These correlations suggest that, like kerogens in coals and sedimentary rocks, solid hydrocarbons

systematically vary during maturation. As a consequence, solid hydrocarbon reflectance (SHR_o) is especially useful as a maturity indicator in rocks lacking vitrinite, such as pre-Devonian rocks and many organic-rich marine rocks. Unlike other organic maturation indicators, the utility of solid hydrocarbons is not limited by botanical evolution, but rather the generative potential of the petroleum system.

Solid hydrocarbons, also known as "solid bitumen", "asphalt", "dead oil", "migrabitumen", and "pyrobitumen", are genetically defined as solid phase accumulations of predominantly hydrocarbons produced by petroleum generation in source rocks. They may occur over a range of concentrations in outcrop and well samples in all components of petroleum systems. Although accumulations of solid hydrocarbons from exhumed reservoirs are well reported, the extent and utility of disseminated solid hydrocarbons are found in organic-rich to very lean, mature rocks as a residual product of generation. Disseminated solid hydrocarbons exhibit three optical forms: anisotropic ("coked"), "granular", and relatively uniform ("homogeneous"). Only the "homogeneous" solid Hydrocarbons are recommended for correlation purposes with other thermal indicators.

SUBSTITUTIONS MACERAL-MINERAL, MINERAL-MINERAL AND MACERAL-CARBONIC PRODUCTS IN SOME COAL DEPOSITS FROM ROMANIA

C. NEDELICU¹ and C. PANAITESCU²

- 1) SC "Prospectiuni" S.A. Str. Caransebes 1, sector1. Cod 78344, Bucuresti, Romania
- 2) University "Politehnica" Bucuresti, Faculty of Industrial Chem. Fuel Laboratory. Polizu, Str. No 1 Sector 1. Cod 78126, Bucuresti, Romania

Petrographic studies were carried-out on the different chemical-geological phenomena that have taken place during the formation and evolution of some brown coal deposits. There were supported by petrographic structure and composition.

In the Badenian subbituminous coal field from Bozovici (in the SW of Romania), with $R_mH=0.30-0.38\%$, it established that humotelinite is frequently metasomatically replaced by calcite and quartz. Both minerals appear in surfaces of 0.1-0.5 m and show a very good preservation of the original woody structure.

In the case of Pontian soft brown coal from Supur deposit (west side of Romania), with $R_mH=0.10-0.30\%$, the humotelinite is partially substituted by pyrite. In the new formed carbominerite the initial tissue structure is also preserved.

The Sarmatian subbituminous mat coals, from the borozel area (in the west of Romania), with $R_mH=0.30-0.38\%$, the calcareous tests of Congeria and Foraminifera from the roof coal seams, are replaced by fibro-radial calcedony and pyrite. The form of the tests is perfectly preserved. All these metasomatic substitutions express the periodical change of the circulating water chemism, during the diagenesis of the coal deposit.

Related to the meta-anthracites from the Armenis-Râul Lung-Râul Alb (in the SW of Romania), with $RmVi=6,5-7,4\%$ and $DR=1,50-1,75$, lodged in the anchimetamorphosed geological formations of Lower Lias in Gresten's facies, which belong to the alpine cover of the Danubian Autochthonous, the followings were observed:

1. The meta-anthracites are not in thermic contact with any eruptive rock.
2. The substitution of the vitrinite (pleochroic, anisotropic, reflected, birefracted) by epigenetic associations composed from:
 - a) natural coke, pyrocarbon and semigrafite.
 - b) Calcite, quartz and illite.
3. The substitution of the goethite, from the pores of vitrinite and inertinite, by the haematite.
4. The presence of the epigenetic association of pyrite, chalcopryrite and cubanite, formed in the "pseudoveins" of detrital quartz recrystallized from metasandstones associated with meta-anthracites.
5. The formation of the pyrophyllite from the kaolinite and quartz belonging to the sterile of coal. There are still some kaolinite and quartz.
6. The formation quartzite-like mosaic structures and chlorite-illite-pyrophyllite matrix in metasandstones and also epigenetic association of pyrrhotine-pyrite-chlorite-illite in metapelites.

In meta-anthracites deposit from Armenis-Râul Alb these substitutions happened in anchizone, during the overlapping of the Gaetic Nappe over the Danubian Autochthonous, in the Laramian phase of the alpine orogenesis. They express modifications of the thermo-baric conditions in coal deposit, estimated at about 300 °C and 1 kbar (according to the observations on the equilibrium: kaolinite + quartz = pyrophyllite + water, Velde et Kornprobst, 1969; Wrinkler, 1976).

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USE OF PETROGRAPHIC RESULTS ON COAL AND BLENDS FOR STRENGTH AND COKE COMMERCIAL QUALITY PREDICTION, IN ROMANIA

C. PANAITESCU¹, G. PREDEANU² and C. DUMITRESCU³

- 1) University "Politehnica" Bucuresti, Faculty of Industrial Chem. Fuel Laboratory. Polizu, Str. No 1 Sector 1. Cod 78126, Bucuresti, Romania
- 2) Coal and Coke Dept., Metallurgical Research Institute. Mehadia Str. 39, Sector 6, Cod 77769, Bucuresti, Romania

The conventional coke strength prediction method based on petrographic analysis of coal is examined. Data obtained by the carbonization of a wide range of coal blends in the industrial top-charging coke ovens in Romania, were compared to predicted values of coke strength, using Shapiro, Gray & Eusner petrographical method.

First experiment consists of 12 number of carbonization tests (boxes of 100 kg), charged into industrial oven using two or three components. The multiple regression correlation developed by ICEM are able to give better prediction of coke strength, the coefficient (r) between actual and predicted values of M_{40} being 0.95.

Second experiment consists of 14 number of industrial carbonization tests (41.6 m³ top charged coke ovens) using charges with seven and eight components of different rank and petrographic composition.

In both cases the pyrogenation parameters were constant.

It can be seen that the difference between the predicted and actual values of M_{40} index is high and the correlation coefficient ($r=0.63$) is low.

It was concluded that the petrographic method give better prediction of coke strength for blends made by few components.

ICCP INTERLABORATORY EXERCISE ON ORGANIC MARKERS

B. PRADIER

Elf Aquitaine Production, CSTJF Organic geochemistry, Avenue Larribau, 64018 Pau Cedex, France

In the frame of ICCP (International Committee for Coal and Organic Petrology), an interlaboratory exercise was organized in 1993 among the members of Commission II (Applications of Organic Petrology to geology and Prospecting for Oil and Gas).

The exercise was based on three sets of core samples selected from North Sea Dogger. Each set consisted of a coal and its associated organic shale, i.e. massive and dispersed Type III organic matter. The three samples sets were taken from the same formation sampled in three different boreholes, at three different depths to cover a relatively narrow rank range (0.7-0.9% mean random reflectance). The aim of the exercise was:

- i) to characterize the three samples sets by increasing rank, using various kinds of optical and organic geochemical parameters.
- ii) to comment on the quality of these parameters, the possible influence of depositional environments and lithology, and their respective importance in the final rank determination.

Fourteen laboratories participated in the exercise. A wide diversity of parameters was used:

- random vitrinite reflectance, maximum vitrinite reflectance,
- Thermal Alteration Index, Spore Coloration Index,
- spectral fluorescence parameters,
- volatile matter, calorific value, atomic ratios, etc.,
- Rock-Eval parameters,
- extract chemistry, including LC-GC and GC-MS.

Besides the rank assessments, numerous observations and analyses were performed and discussed in the field of depositional environment determination (maceral and microlithotype analyses, microfacies descriptions, palynofacies analysis, ^{13}C Isotopy, extract chemistry, etc...). These results led to an interlaboratory comparison of rank interpretation and to a general reflection on the quality and limitation of use of the most current rank parameters.

COAL PETROGRAPHICAL AND ORGANIC GEOCHEMICAL STUDIES ON COAL, COAL MINE DUST AND ISOLATED LUNG DUST FROM COAL MINERS- A NEW APPROACH IN THE UNDERSTANDING OF COAL MINE WORKERS' PNEUMOCONIOSIS (CWP)

HANS-MARTIN SCHULZ, HANS WERNER HAGEMANN and MONIKA WOLF

Department of Geology, Geochemistry and Deposits of Petroleum and Coal, Aachen University of Technology, Lochnerstr. 4-20, 52056 Aachen, Germany

Recent investigations have demonstrated that the silicotic and cytotoxic potential of coal mine dust seems to be independent on its quartz content (Hagemann et al., 1993; Schulz et al., 1993 a & b; Schulz, 1994). Based on epidemiological studies, the silicotic and cytotoxic potential of coal mine dust is dependent on coalification rank of the exploited coals.

High incidences of coal mine workers' pneumoconiosis (CWP) can be correlated with dust from high rank coals. The silicotic risk probably is based on enrichment and on shape variations of different coal macerals. As coal rank increases, vitrinite is enriched in the dust. Simultaneously, the minor amounts of inertinite tend towards a more elongated but not fibrous shape. Vitrinite shows constant shapes in dust from bituminous coals, but in anthracite dust a fibrous vitrinite occurs. Conspicuously, coal mine dust from lungs with high degrees of CWP was enriched in inertinite.

Conversely, coal mine dust from low rank coals reveals high cytotoxicities in cell tests. High concentrations of phenolic compound can be extracted by dichloromethane from low coalified coal mine dust. These compounds,

which are characterized by a high solubility in aqueous solutions, can explain high cytotoxicities of coal mine dust in cell test. Cell tests for the determination of the cytotoxic character of coal mine dust usually are carried out in aqueous solutions. Further supporting parameters for extended cytotoxicities are contaminations of dust by diesel emissions in the coal mine as well as ubiquitous pollutants adsorbed on coal dust.

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Miscellaneous

Short History of British Working Group on Coal Petrography

by
Harold Smith

The older members will remember Norman Kaye and his dedication to the work of the ICCP Working Group "Application of Coal petrography in the Coking Industry" of which he was Chairman. The efficient organization of the exercises and the reporting of the results was largely the result of his influence. Norman was Secretary of the British Working Group from its inception in 1967 until his untimely death in 1979. Throughout this period the British Group benefited from participation in the International exercises involving the prediction of coke strength using the different available methods. This was very pertinent to the work of the British Group whose members were drawn from British Carbonisation Research Association, British Steel Corporation and the National Coal Board and who were all actively involved in carbonisation research involving test ovens of different sizes. At the same time there was a constant need to standardize methods of analysis and to check progress by bi-annual check exercises.

As a result of these activities the British Working Group was requested by the British Standards Institute in 1974 to draft a British Standard on Coal Petrography. This proved to be more protracted than originally intended and part 2 in particular was difficult in the absence of quantitative information on the effects of various methods of grinding and polishing coal.

Among other investigations undertaken by the British Group was the study and analysis of the optical properties of coke originally the subject of research by Denis Goldring of BSC. In 1977 another development was reported to the Group by Geoff Pitt of Central Research Establishment of NCB. His laboratory had devised equipment for the automatic measuring of vitrinite reflectance. This presaged the on-going research into the use of image analysis equipment to characterise coals.

By the early 1980's the effect of the recession in the steel industry in the U.K. had become apparent with the closure of many coking plants and in 1983 BCRA ceased to function. (A small number of the staff including chemists and analysts continue to operate on a commercial basis under a closely similar name). In the mid 1980's the British Group comprised in addition to organizations already mentioned, members from British Gas, Institute of Geological Sciences and Thornton Research Centre (Shell).

However, it was becoming increasingly difficult for the individual members to undertake research on topics of collective interest to the Group due to the financial constraints operating in industry and the academic world and meetings became fewer and less well attended. Many of the original members had either left the group as the direction of their work changed or had retired. In September 1992 Prof. Murchison, who was Chairman of the group at that time, recommended that the Group should join the Coal Research Forum in the hope that coal petrography in the U.K. would continue to thrive within the supportive environment provided by that Organisation. The Forum was created to bring together all those with interests in coal research and to promote and integrate those interests in the U.K. The most logical place within the Forum was considered to be the Coal Characterisation Division. This met with all-round approval and became reality by April 1993. It is anticipated that the membership of the working group would expand through the acquisition of Forum members who had an interest in coal petrography.

The newly constituted Group had its first meeting in May 1994 and was attended by 14 members drawn from Industry and Universities. As the Chairman (from British Steel) remarked, historically the Group had been concerned with characterising coking coals but now the remit included coals for combustion. However, the main objective of the group remains the task of ensuring that laboratories practicing coal petrography in the U.K. continue to produce reproducible results.

It is to be hoped that the new members of the British Working Group will become active in their support for the ICCP and that the liaison between the two organisations will continue to be as productive as in the past.

This short article has been written in response to the appeal from the Editor for contributions to the ICCP News and I hope it will be of historical interest if nothing else.

Dr. H.S. Pareek Research Fellowship in coal Petrology

Dr. H.S. Pareek, Dy Director General (Retired), Geological Survey of India has instituted one research fellowship in COAL PETROLOGY in the Department of Geology, Banaras Hindu University, Varanasi-221 005, India. He has donated a large sum of money for this fellowship for carrying out advance research in the field of coal petrology at the Coal Processing Laboratory of the Department. Moreover, this is for the first time in the history of scientific achievements that an individual has by his own efforts, on the basis of his specialization in the subject, initiated such a fellowship.

This fellowship is open for students desirous of working for Ph.D. degree on a concurrent and continuous basis for a maximum period of four years depending upon the evaluation of year to year satisfactory progress. This fellowship will include a maintenance grant of Rs 26,400/- per annum and Rs. 7500/- as contingent grant per annum. Students who have postgraduate degree in Geology and have initiative and aptitude for working in coal petrology can apply for the award of the fellowship. The coal processing laboratory of the Department has facilities for the advanced research in the field of coal petrology. The students desirous of doing research on Indian coals are invited to apply for the fellowship to Prof. R.M. Singh, Head of the Department of Geology, Banaras Hindu University, Varanasi-221 005, India.

Dr. M.P. Singh

Proposal of Dr. H. Jacob for the content of further ICCP news

Dr. Jacob ask the ICCP members to send the editor of the news english abstracts of their published papers in order to make more popular the publications. He has in mind especially publications printed in regional journals which are not available everywhere.

Please send your comments to the editor. If such an information is wanted it could be started in the next number of the news.

The General Secretary informs the places and dates of the ICCP meetings since its foundation:

1953 June: Geleen, Netherlands
 1954 January: Paris, France
 1954 June: Paris, France
 1955 January: Essen, Germany
 1955 June: Liège, Belgium
 1956 June: London, UK
 1956 October: Madrid, Spain
 1957 June: Essen, Germany
 1957 October: Paris, France
 1958 May: Liège, Belgium
 1958 September: Heerlen, Netherlands
 1959 September: London, UK
 1960 June: Madrid, Spain
 1961 May: Krefeld, Germany

1962 September: Liège, Belgium
1963 September: Paris, France
1964 September: Hoensbruck, Netherlands
1965 October: Budapest, Hungary
1966 October: Madrid, Spain
1967 September: Sheffield, UK
1968 September: Essen, Germany
1969 September: Varna, Bulgaria
1970 September: Liège, Belgium
1971 August: Krefeld, Germany
1972 September: Belgrad, Yugoslavia
1973 September: Lille-Paris, France
1974 September: Ustron-Jaszowiec, Poland
1975 August: Moscow, USSR
1976 September: Newcastle-upon-Tyne, UK
1977 April: Liège-Wegimont, Belgium
1978 April: Essen, Germany
1979 May: Urbana, USA
1980 April: Ostrava, Tchechoslovaquia
1981 April: Pau, France
1982 April: Porto, Portugal
1983 September: Oviedo, Spain
1984 August: Calgary, Canada
1985 September: Dubrovnik, Yugoslavia
1986 September: Doncaster, UK
1987 August: Beijing, China
1988 September: Aachen, Germany
1990 February: Wollongong, Australia
1991 September: Porto Alegre, Brasil
1992 July: University Park, Penn., USA
1993 September: Chania, Crete, Greece
1994 October: Oviedo, Spain

Meetings

A symposium "New Techniques in the Chemical Analysis of Coal" will be held at the 1995 Chemical Congress of Pacific Basin Societies (Honolulu, December 17-22, 1995). The symposium is being sponsored by the Geochemistry Division of the American Chemical Society. The organizers are Paul C. Lyons and Curtis A. Palmer (U.S.A.), Anthony M. Vassallo (Australia) and Marc Bustin (Canada). The symposium will focus on both microchemical and bulk chemical techniques including micro-FTIR, light-element analysis by microprobe, X-ray imaging of coal macerals, IR and XAFS spectroscopy, coal fluorescence, laser pyrolysis gc-ms, ^{13}C NMR analysis and imaging, model compound reactions, trace-element analysis of minerals in coal, proton thermal analysis of coal, new approaches to lignin analysis, and coal-bed methane generation. Most of the 23 papers in the symposium are expected to be published in a special issue of the International Journal of Coal Geology. Contact Paul C. Lyons, U.S. Geological Survey, M.S. 956 National Center, Reston, VA 22092, U.S.A. for further information.

Imprint

Editorial management:

Dr. Monika Wolf
Mergelskull 29
47802 Krefeld
Germany

Layout:

T. Gleu, Aachen
R. Wuropulos, Aachen

Regional coordinators:

Australia/New Zealand:

Dr. R. Sykes
Institute of Geological & Nuclear Sciences
PO Box 30368
Lower Hutt
New Zealand

Southeast-Asia, Japan:

Dr. A. Cook
Keiraville Consultants Pty. Ltd.
7 Dallas Street
Keiraville, N.S.W. 2500
Australia

China:

Dr. Wang Jie
China University of Mining & Technology
Xuzhou, Jiangsu 221008
People's Republic of China

North America:

Dr. St. Bend
Department of Geology/E.R.U.
University of Regina
Regina, Saskatchewan S4S 0A2
Canada

South America:

Dr. C.V. Araujo
Petrobras - Cenpes Divex/Segeq
Cidade Universitaria
Ilha do Fundao, Quadra 7
21910 Rio de Janeiro, RJ
Brazil

South Africa:

Dr. R. Falcon
Falcon Research Laboratory
P.O. Box 41086
Craighall
Johannesburg
Republik of South Africa

Europe:

Dr. Monika Wolf
Mergelskull 29
47802 Krefeld
Germany