



ICCP news

FOUNDED 1953

NEWS OF THE INTERNATIONAL COMMITTEE FOR COAL AND ORGANIC PETROLOGY

No. 7

March, 1993

Aachen

FROM THE PRESIDENT

This issue of the ICCP NEWS is the first in its new format. At the 1992 meeting, the General Assembly of the ICCP agreed that the subject matter covered by its newsletter would be expanded to include items of information and short articles of technical interest to our membership. Several Regional Coordinators have volunteered to assist the Editor by soliciting items from members in their geographic region for publication in the ICCP News. Alternatively, members may submit items directly to their Regional Coordinator or to the Editor. The Regional Coordinators for the ICCP News are listed in the imprint at the end of this issue.

Examples of the items which could be included in the ICCP News would be notices of forth-

coming meetings, book reviews, reports of new petrographic techniques such as sample preparation or microscopic analysis, experiences with new types of equipment or materials, or the reports of activities of regional groups of petrographers. These items could be informal, short or provisional reports of a type which may not be appropriate for formal publication in a journal.

I encourage members to support the ICCP News, our Editor and the Regional Coordinators by making a special effort to get the new newsletter off to a good start. Please consider whether you have anything to contribute. We would all like to hear from you.

Alan Davis, President

Attention!

This is the last notice that the 45th Annual Meeting of the ICCP will be held from September 26th to October 2nd, 1993 in Chania, Crete/Greece. If you have not mailed your application until now but you are intending to take part in this meeting, please, contact immediately Prof. Dr. Th. Markopoulos, Technical University of Crete, Department of Mineral Resources Engineering, 127, El. Venizelou Str., Chania 73133, Crete/Greece.

Reflections about the Results of the Inquiry concerning the Vitrinite Classification

by

Monika Wolf, Aachen

1. The procedure

After its last meeting with its controversial discussion about a new subdivision of the maceral group vitrinite, the ICCP started an inquiry in order to resolve the matter. All full and associated members were asked to choose between the proposal by the editorial group of ICCP (Proposal 1), a proposal by Alan Davis (Proposal 2) or the existing subdivision published in the 2nd Edition of the Handbook (Proposal 3). More than 200 questionnaires were mailed. 48 responses came back in time (30.01.1993), 4 later on. The result is:

	number of votes	
	in time	after dead line
Proposal 1	29	3
Proposal 2	15	1
Proposal 3	1	0
undecided	3	0

Those for whom it was important to think about this fundamental problem are about 25 % of all ICCP members. This is a high percentage in relation to our experiences with round-robin analyses. However, is it enough response for such an essential problem with which all petrographers are concerned? I do not think so and I am disappointed about this low level of interest. I understand well that not all members are able to take part in our annual meetings but I do not understand that they do not take part in inquiries and do not use this chance of participation.

The result of the inquiry will be the basis for the definition of macerals within the vitrinite group

to be used in the 3rd Edition of the ICCP Handbook. Therefore it will influence the coal petrographic practice far into the third millenium.

2. Comments on the two proposals from participants of the inquiry

In order to avoid a rash decision, the ICCP members were asked to give reasons for their choice. These short comments have shown that even the old vitrinite subdivision published in the Handbook was not well understood. Therefore misunderstandings of the new systems occurred.

Those, who are in favour of Proposal 1 have repeatedly pointed out the good agreement between lignite and bituminous coal classification and that the system is simple. A remark such as "the problem of crypto-macerals remains unsolved" or the proposal to group collotelinite and collodetrinite among the crypto-macerals show that the proposal was not well understood by all members.

Similar uncertainties are visible in the arguments for Proposal 2. Several times it was mentioned that this proposal is a "single maceral nomenclature independent of rank". The comment "Proposal 2 is more sympathetic to the genesis of coals", appears to be somewhat unsympathetic to the principles of the Stopes-Heerlen system. References to genetic aspects were given several times in relation to Proposal 2, and one contributor "never found telinite to be usable in practice". All these arguments show the need for a discussion of some fundamentals of coal petrology.

3. Additional remarks to the two Proposals

In Proposal 1 only the three main categories - group, subgroup, maceral - were worked out and compared to the corresponding lignite

macerals in order to show the relationship. Of course, further studies by etching or fluorescence will show more details and this has to be mentioned in the sheets of the macerals. For example, desmocollinite (collodetrinite) will break up into cryptovitrodetrinite and cryptocorpocollinite (both not visible before etching) and cryptogelocollinite (disappeared after etching) which was mentioned in the description of Proposal 1. The intention of the vitrinite editorial group was to show the principle and not to go too deeply into details before a general agreement exists.

Also in Proposal 2 it was the intention of Alan Davis to keep it readable. Therefore the correlation to the lignite nomenclature was omitted. It was not said that the scheme should cover both, lignite and bituminous coal.

Both proposals wish to define what is visible in incident white light and I cannot believe that "the newly proposed 'macerals' ... cannot be distinguished in polished particulate samples which normally serve for petrographic analyses".

4. Some principles of the Stopes-Heerlen-System to characterize coal compounds in reflected light microscopy

4.1. The term maceral

The term "maceral" was introduced to coal petrography by STOPES (1935). In the edition of 1971 of the Handbook it is said, that "macerals are the microscopically recognizable individual constituents of coal", and in the draft accepted by Commission 1 during the meeting in Porto Alegre 1991 it is said more precisely and somewhat expanded "macerals are the smallest recognizable organo-petrographic entities in coal and other sediments". Since the maceral analysis is a point by point analysis, the identification of a maceral is focussed at a point. Following the Stopes-Heerlen-System macerals are defined by

their reflectance properties, colour, shape and relief. Except for the shape the different characteristics reflect physical and chemical properties and vary during coalification. The maceral classification of the Stopes-Heerlen-System has been developed for industrial purposes. Therefore it is of no interest whether a certain mineral is surrounded by other macerals or by minerals. Some anomalies may be solved by using microlithotype analysis or by creating maceral varieties which "can be expanded as required" following the Handbook. M. Teichmüller summarizes all these considerations in her arguments for the retention of the old vitrinite classification with one sentence: "The microscopic appearance ... must remain the only criterion for the distinction of macerals."

4.2. What is telinite?

The definition within the second edition (1963) is somewhat vague and partly wrong. However, it seems that this old definition persists in the heads of coal petrographers until today. It says that telinite "shows more or less clearly defined cell structure" and that "the cells are generally filled with collinite", which is wrong. Most of the woody material which is transformed to telinite shows either layers of cell walls pressed together, since the wood underwent a phase of swelling within the wet peat, or they consist of open, empty cells or cells filled by resinite, corpocollinite (phlobaphinite) or minerals. Therefore in the supplement of 1971 telinite is defined more precise and this definition is also used in the draft for the third edition of the ICCP Handbook. In my view most important are the statements that telinite "shows more or less distinct, although often deformed, cell structure" and that "the cell walls are always gelified" (my underlining). No general gelification occurs. "The cell cavities are either round or oval or completely compressed to lines. They are occasionally empty; mostly, however, they are filled with other substances".

This definition is helpful since it allows the correct designation of a substance below the cross wires in the microscope and it allows the clear distinction between vitrinites showing only gelified cell walls and vitrinite which is completely gelified, so that no clear division between cell wall material and the homogenizing amorphous humic matter is possible (telocollinite resp. collotelinite). The definition of telocollinite in the draft for the third edition contains the sentence "former cellular structures may be visible by the shadow of different reflectance of the cell walls ...".

Since the revised definitions of macerals in the third edition should be applicable also for organic matter in sediments it is necessary to have a term which describes the pure cell wall material, for this occurs in sediments more often than in coals. But also the maceral analysis of a coal shows the need for the maceral telinite, especially in cases where coalified woody remains are filled with other substances.

The greatest difficulty is the correct distinction between "cell walls pressed together" and "vitrinitic tissues homogenized more or less by secondary amorphous humic matter". The transition between both is fluid. Alan Davis has had this in mind, I assume, when he proposed the subdivision of homovitrinite (telocollinite) in one maceral showing cell structure and another one without cell structure. Perhaps we can find an agreement if we restrict in the future the term telinite to single cell walls separated one from the next by other macerals (minerals) or empty cell cavities, and that the massive maceral collotelinite is subdivided into one sub-maceral showing cell structures and another one without cell structures. This grouping would also allow a one hundred percent correlation with the lignite nomenclature.

I would be very glad to get contributions of the ICCP Members especially relating to this item.

4.3. Shall we accept the Stopes-Heerlen-System in the future?

In order to have a simple international acceptable system we should stay with our proven rules, I think. In relation to coal quality and also to kerogen quality it is of no interest whether e.g. a spore is found isolated within desmocollinite (collodetrinite) or whether it belongs to a sporangium. It is also not very important whether a grain of corpocollinite occurs within telinite or desmocollinite.

Those working in the field of coal facies analysis need a very detailed petrographic system which may vary from case to case and which never will find general international acceptance. Moreover, associations of macerals may be described using the microlithotype classification as was expressed before.

It is my sincere hope that the result of the inquiry will lead to an acceptable agreement between the different groups, and that we can find it quickly.

Congress Reports

The Chinese Coal Petrology Group

by

Wang Jie, Xuzhou, Jiangsu

The Chinese Coal Petrology Group was established in 1981 when the first meeting took place in Taian, Shan Dong Province. The second symposium was held in Kuming, Yunnan Province, December 1984 and the third one in E-Mei-San, Sichuan Province, October 1992.

The aim of the Coal Petrology Group is the exchange of information and the presentation of papers during its congresses. The group and its

meetings are organized by ten Committee Members.

The last meeting which took place from October, 12 to October, 17 1992 was attended by 103 members. 134 papers were presented. During the Plenary Session Prof. Wang Jie and Prof. Jin Kuili - both are ICCP members - gave reports about the activities of the ICCP during the last years and about the progress of the meetings they have had attended.

Short Report on the 3rd Latin American Congress on Organic Geochemistry

by

the Organizing Committee of the 3rd ALAGO Congress, Rio de Janeiro

The 3rd Latin American Congress on Organic Geochemistry was held in Manaus (Amazon) from 22nd to 25th November. About 140 geochemists, geologists and chemists were put together representing countries such as Argentina, Brazil, Chile, Colombia, Cuba, England, France, Germany, Mexico, Portugal, Spain, Switzerland, Tanzania, United States (USA) and Venezuela. 31 papers were presented in oral session and more than 80 papers in the poster session. The topics of this congress comprised: Geochemical evaluation of South and Central-American sedimentary basins; Analytical techniques applied to organic geochemistry; Molecular level characterization and biological controls on organic matter deposition; Environmental organic geochemistry; Basin Processes: Petroleum generation, maturation, migration and biodegradation and Organic geochemistry and petrography of coals. The Opening ceremony was held in the world-famous Amazon Opera-House in the presence of the Ministry of Strategy Themes and the Governor of the State of Amazon among other authorities.

Besides the technical sessions of the congress two field trips took place on days subsequent to the event. On Thursday participants had the opportunity to visit the campus of the University of Amazon and the National Amazon Research Institut (INPA). On Friday 42 participants took a special flight to the PETROBRAS production field, at Urucu region, 700 km from Manaus. This field trip was kindly offered by PETROBRAS and the people which went to this trip were awarded with the unique opportunity to do an helicopter flight over the Rain forest and visiting PETROBRAS environmental activities including a magnificent orchidarium.

A Workshop on Organic Geochemistry was held in the Amazon University a week before the congress with the purpose to make public organic geochemistry in the universities.

The 3rd ALAGO Congress was sponsored by: BIOSYM TECHNOLOGIES, CNPq (National Research Council-Brazilian Agency), EDISA-HP, FAPERJ (State of Rio de Janeiro Research Foundaton), Federal University of Amazon, FINEP (Brazilian Federal Agency of Research and Projects Sponsor), FINNIGAN-MAT, IBM-Brazil, INPA (National Amazon Research Institut), PETROBRAS (Brazilian Petroleum Company), SEMACT (State of Amazon - Environment, Science and Technology Secretary) and VARIG-CRUZEIRO Brazilian Airlines. ALAGO is grateful for the support and assistance of these companies and institutions.

Book Review

Coal Bearing Depositional Systems, by C.F.K. Diessel (1992), 721 p. 356 fig. 40 tabl. (Springer).

This exciting book addresses as well organic petrologists as sedimentologists. As the author points out in the preface, this book is -the very successful- attempt to "build a bridge across the

conceptual gap between coal petrology and sedimentology". The book is divided into ten chapters as follows:

- 1) Introduction
- 2) The conditions of peat formation
- 3) The coalification process
- 4) The coal petrographic entities
- 5) Coal facies and depositional environment
- 6) The relationship between coal and interseam sediments
- 7) Coal producing sedimentary environments
- 8) Coal formation and sequence stratigraphy
- 9) Coal producing tectonic environments
- 10) Concluding remarks

Chapter 2 deals with peat composition in relation to peat-forming environments, climate and the evolution of peat-forming plants. Chapter 3 contains a description of the coalification process with, according to the aims of the book, reasonable emphasis on the biochemical stage. Chapter 4 gives a concise outline of the petrographic organic and inorganic constituents of coal, supported by a fine choice of photographs. Chapter 5 introduces facies related parameters based on petrographic analysis, as the well known TPI (tissue preservation index) and the GI (gelification index). A brief review of organic and inorganic chemical parameters with relevance for the depositional environment is added. Chapter 6 deals with the relationship between coal and interseam sediments. In chapter 7 a summary and classification of coal-forming sedimentary environments is given and related to the petrographic composition of the coal. In chapter 8 the sedimentological concept of sequence stratigraphy is related to coal formation. Chapter 9 deals with the coal-forming environment and its relation to plate tectonics.

Numerous references (completed by an author index) increase the value of this book. The selection of many geological examples from Gondwana coals, due to the author's experience, are a further interesting source of information,

especially for European and North-American readers.

For the organic petrologist this book contains plenty of information about how to use his analytical results in a sedimentological context and thereby it is a good supplement to the classical textbooks dealing with organic petrology.

Walter Pickel, Aachen.

FINALLY

Semi-inertologic Pamphlet

by

(It was once...) - A field geologist, Drill Hammer, was charged by its company to prospect a promising sedimentary basin. Very soon, he discovered a thick black seam but rather dull and ashy. He hesitated, could he label and map this seam as "coal"? He decided to consult his distinguished colleague, Cole Blackburn, member of a famous organisation (ICCP) devoted to coal petrology for more than 50 years. - DH: Dear Dr. Blackburn, is my sample a coal or a carbonaceous shale? - CB: Sorry, dear Drill, but we have no precise limit between coal and shale, moreover this question is out of ICCP scope - DH: But I need a name for my report, if I have more organic than mineral matter, can I use the name "coal"? - CB: Sorry I don't know - DH: Still, would it not be possible to state if the facies is more humic than sapropelic or lacustrine, it is important for my basin - CB: My dear, sorry, but there is no precise and official international delimitation between humic and sapropelic coals - DH: But don't you label your coals by their dominant (> 50 %) component? - CB: No, we prefer to use directly maceral proportions - DH: But percentages are not nomenclature, I need a name for my rock sample, I cannot map

analytical data! - CB: You must know that we have tried in ICCP to produce a coal classification, we worked for more than 10 years on one project but it has been rejected because it was schematically over-complicated and not good enough to satisfy the majority, the minority and the others! ... of past, present and future ICCP members - DH: Clear!, then you have a better one ready - CB: No, it is of no interest for ICCP - DH: But what can I do to designate my rock sample - CB: I suggest you could go and see your porter, he is in charge to feed the central building heater, he carries coal every day, he surely will label properly your sample!

Morality: no morality! Helas.

Conclusion: It is better to be young - rich-healthy than old-poor-ill ... this has nothing to do with the preceding text, but it is just for the pleasure of having at least one sentence approved by the majority, the minority plus the others ... -

PS: Those who will be able to recognize the author will receive a special gift.

(The gift is a kiss for ladies and a chart for the gentlemen.)

MISCELLANEOUS

Request of the Editor

When we distributed the last News we got back some mail since the address was not correct. Who knows the most recent address of the following ICCP members:

- Swapan Kumar Bhattacharya
- P.L.M. Fourmont
- Gerard Gonzalez
- J.L. Pittion

Please, send your information to the editor.

Handbook of Coal Petrography

- State of the art -

by

D. Murchison, Newcastle upon Tyne

The 2nd Edition of the International Handbook of Coal Petrography was published in 1963 by CNRS, Paris in English, French and German using a loose-leaf format with ring files. The 1st and 2nd Supplements to the 2nd Edition were published respectively in 1971 and 1975, again by CNRS.

The 2nd Edition was corrected and reprinted in 1981, but is again out of print; the 1st Supplement was corrected and reprinted in 1985. All copies of the 2nd Supplement in English were purchased from CNRS in 1986 and brought to Newcastle upon Tyne. **The 3rd Supplement in English has now been completed and is available.** Details of the 2nd Edition and the Supplements and their costs are given below.

2nd Edition (1963):

161 pages, 15 tables, 7 figures and 46 plates
Cost: £ 16.00 + p&p OUT OF PRINT.

1st Supplement (1971)

(corrected and revised 1985):

232 pages, 23 tables, 7 figures, 22 plates
Cost: £ 20.00 + p&p

2nd Supplement (1975):

58 pages, 7 plates
Cost: £ 1.50 + p&p

3rd Supplement (1992):

124 pages, 6 figures, 20 plates
Cost: £ 15.00 to £ 20.00 + p&p

If you wish to order any of the Supplements please contact

Prof. Duncan G. Murchison
Newcastle Research Group in Fossil
Fuels and Environmental Geochemistry
Drummond Building
The University
Newcastle upon Tyne NE1 7RU
England
Telefax: 091-261-1182

Imprint

Editorial management:

Dr. Monika Wolf
Lehrstuhl für Erdöl und Kohle
der RWTH Aachen
Lochnerstraße 4-20
D-5100 Aachen

Layout:

T. Gleu, Aachen
R. Würopulos, 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
People's Republic of China

North America:

Dr. St. Bend
Department of Geology/E.R.U.
University of Regina
Regina, Saskatchewan
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
(acting until decision 1993)
Lehrstuhl für Erdöl und Kohle
der RWTH Aachen
Lochnerstraße 4-20
D-5100 Aachen
Germany