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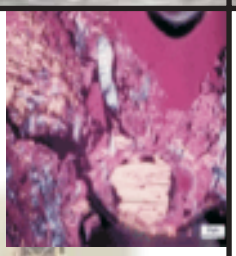

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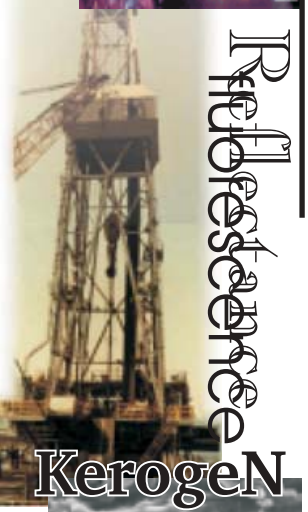

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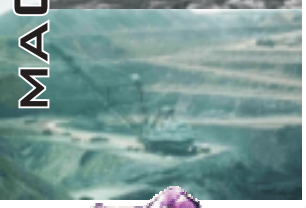

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Special Issue: Coal In Greece

inside this issue

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From the Editor

For the second time an issue of ICCP News is dedicated to a single country. It is hoped that the items presented will whet the appetite for more knowledge of Greek coals and encourage members to attend the meeting. Thanks are due to the Greek members who contributed and apologies to various skilled, ancient artists who provided a backdrop for the cover. It is curious how with modern technologies we often believe that we can improve on original works. Notwithstanding the virtues of our modern models (apologies to Kimon Christanis, Prodromos Antoniadis, Stefanos Papazisimou, Stavros Kalaitzidis, Andreas Iordanidis, Antonis Bouzinos and Cassiani Papanicolaou), I think Mnesicles and the original sculptors of the 'Elgin Marbles' and the of the caryatid porch of the Erectheion would be justifiably horrified at what has been done.

Last time I encouraged members to consider carefully the issues associated with registration of ICCP. Comments were sought on this issue. **The response has been quite disappointing.** I hope that members are holding onto their thoughts until the meeting. Any comments forwarded to the president before the meeting will ensure that your views are heard and properly considered. I again encourage you to think about this issue (see the last newsletter for details) and contribute to the debate.

Associated with the issue of registration is that of revision of the Statutes. Considerable work has been done in the past and is currently being actively pursued by the vice-President. Again I strongly urge members to participate and offer your thoughts and opinions to Lopo. Discussion through the Newsletter ('letters to the editor') is also most welcome.

For the first time in a number of years, no Thiessen Medal was awarded in 2004. This is the ICCP's most prestigious award. Nominations are again called for (see page 27) for 2005. Nomination does not guarantee success as the committee reserves the right not to make an award.

Cheers and happy reading

Peter

From the President

I recently received an Email from Ricky Pinheiro telling me that the ISO coal classification has been published. The same day the yellow ISO update for March 2005 arrived to tell me that indeed it is published as ISO 11760-2005. Achieving publication is a relief after all those years of discussions and then the seemingly interminable stages of the approval process. I referred at length to this standard in the March ICCP Newsletter for 2004. It is a classification for coals that uses vitrinite reflectance for the assessment of coal rank and vitrinite content for a measure of coal type. The grade of coals is expressed in terms of 5 ranges of ash yield. These three properties form a matrix within which coals can be classified, but the document suggests that appraisal of coals should employ the full coal analyses.

The coal classification is a result of over 15 years of work and ICCP has contributed to the work of the relevant committee over most of that time. It is appropriate to record the earlier contributions of two ICCP Presidents representing ICCP, Alan Davis and Manuel Lemos de Sousa. The basic form of the classification owes much to the various schemes put forward by Boris Alpern over a number of years. Thankfully, after a number of other schemes were considered, the simplicity of a rank, type and grade classification won the day and so is now published. Now we need to make sure that the potential users of the ISO classification have access to accurate information about rank and type and the significance of these properties on our website. And what made petrographic measures of rank and type acceptable in the end? Why the Accreditation Program of ICCP made it so.

Although the introduction states that the new ISO classification "is not intended to be used for commercial purposes", I am happy to go on record as hoping it will be used in commercial work. Apart from its technical merits, the new ISO coal classification has the advantage that the criteria are published, unlike the commercial terms such as hard and soft coking coal, not to mention the highly "flexible" term semi-soft coking coal.

WG 19 (Convener Harold Read) is the ISO working group that has carriage of the revision of the ISO standards relating to coal petrology. Not a great deal of progress has been made since this WG met in Shoal Bay in NSW in late 2003. I am a member of this committee to present an ICCP

viewpoint. At the time of writing, it is probable that this WG will hold some meetings during, or immediately before, the ICCP meeting at Patras.

The present intention is that drafts of each of the sections will be circulated prior to a meeting of the WG on the Sunday immediately preceding the ICCP meeting. I have indicated to members of WG 19 and to the Chair of Commission I that I want to take the proposals to an ICCP meeting before they are finalised and there is general agreement so far that this will happen. To give ICCP members an opportunity for comment, it is also intended that the WG 19 working papers will be discussed during a Commission I session at Patras. As soon as the papers are available, they will be posted on the ICCP website. Further details of the process will be in a contribution to this issue from Walter Pickel.

Ricky Pinheiro has suggested that we also try to attend to an administrative problem that has arisen in relation to the WG 19 drafts. When drafts were first sent around, votes were not received from a number of countries (Australia appears to have voted although as far as I know the drafts were not circulated to Australian petrologists). The formality of approval of drafts is that the ***drafts are sent out to the Standards associations in the various countries and votes must be returned through those organizations***. Some replies were, however, received from ICCP members who were not officially accredited as their country's representative and I thank them for that initiative.

Ricky tells me that the voting member bodies of ISO (so-called "P" members) are Australia, Canada, China, Czech Republic, Denmark, France, Germany, India, Italy, Japan, Republic of Korea, Mongolia, New Zealand, Netherlands, Portugal, Poland, Russian Federation, Serbia and Montenegro, South Africa, Spain, Ukraine, United Kingdom and USA.

Besides these voting members, there are other national bodies that have observer status ("O" members; they cannot vote, but they can observe and comment) and these are: Austria, Belgium, Bulgaria, Egypt, Finland, Greece, Hungary, Indonesia, Iran, Ireland, Democratic Peoples Republic of Korea, Norway, Pakistan, Romania, Switzerland, Thailand, Turkey, and Vietnam.

To date, ISO TC 27 WG 19 has received active participation from the following ICCP members either as official Country representatives, or as stated: Harold Read (Australia, Convenor), Canada (David Pearson; also responsible for assisting Harold Read with 7404.2), Germany (Walter Pickel; also responsible for assisting Harold Read with 7404.5), Portugal (Manuel Lemos de Sousa), South Africa (Nikki Wagner, in future to assist Harold Read with 7404.4), Alan Cook (ICCP, also responsible for assisting Harold Read with 7404.1). Ricky Pinheiro, as ISO TC 27 General Secretary, has also participated in WG 19.

We would like to have as wide a range of opinions as possible. Please make sure that if your country is in the "P" list, it has an accredited representative. If it does not, may I make so bold as to suggest you try to gain nomination as the representative. Also try to ensure that documents are circulated for voting. For "O" members, I will undertake to ensure that your views are taken into account.

In another item under the heading of "forthcoming events that appear to have happened", I learned in an email from Elsevier on 25 March 2005 that the Marlies Teichmüller volume was published in Int. Jour. Coal Geol. Exactly when this occurred is less clear. In addition to the selection of papers from the Symposium, this volume contains the Huminite classification.

This time last year I noted that some spot prices for coking coals had reached USD 110 a tonne but conceded that these "presumably were short-term peaks". Since then longer term contracts have been written at about USD 125 per tonne so it appears that 2004 prices were not the peak, and perhaps may not be short-term either. Steam coals have also seen rises, but they are not as dramatic as the rises for coking coals. Prices for cokes are also very high in historic terms.

High growth rates in both China and India appear to be major factors in the high prices for coking coals and presumably a continuation of current (or perhaps higher) prices is dependent on continued high growth rates for these countries. It is possible that growth rates will decrease or coal producers will increase production to a point where they flood the market. The BP data for 2004 (http://www.bp.com/subsection.do?categoryId=95&contentId=2006480) show truly astonishing growth for coal production for China from 999 million tonnes in 2000, to 1450 in 2002 and 1668 million tonnes for 2003. However, the general trends for prices suggest that fuels in general, and coals in particular, will for some time have a more prominent role in economic matters compared with that over the previous 25 years.

The debate continues about when peak oil production will occur. The Association for the Study of Peak Oil&Gas (ASPO) has its website at http://www.peakoil.net/ . The most recent plot of historical oil production and future oil production shows peak oil occurring in 2008. Those who want to believe that all is fine in terms of production capacity point to the flawed study of the Club of Rome that predicted major supply problems for fuels that did not eventuate in the time span then forecast. Some pessimists think that we may already be seeing essentially the peak of oil production. A number of oil companies have expressed some concern about peak oil. BP is quoted at

http://www.thebusinessonline.com/modules/news/view.php?id=29138 as believing that peak oil will occur between 2010 and 2020. IEA assumes that production can rise to about 2030. The problem with this is that the reserves to support production out beyond about 2015, would have to be in fields as large as the super giants of the Middle East, and fields of this size have not been found in the last 30 years or so in spite of (or alternatively because of) vastly improved methods of exploration.

Whenever peak oil production does occur (or was it actually last year!), it must be assumed that the whole dynamics of the supply of fuels will change considerably. Exactly how it will change seems more difficult to predict than the time of the peak production! "End of civilization as we know it", is one phrase that has been used. New discoveries may be small compared with the heady days of the 60s, but if current prices are any indication, they will be extremely valuable.

Anecdotal comment indicates that in addition to high prices, parts of the coal industry are currently suffering from skills shortages in relation to fuel technology. In part, this seems to be driven by the wave of mergers over the past 15 years and the associated pattern of reduction in numbers of staff positions in some large companies. I also note that many Universities now no longer teach the courses that would provide replacements for staff who have been "lost" to the system. How many University departments now run a course that includes a study of microscope optics?

ICCP should be able to play a role in providing a resource for the various industries associated with fuels. At the very least we should be looking to increase our efforts in relation to publishing material arising from the work of ICCP. The website and the news have greatly increased ICCP contributions to publications, but I feel we have only scratched the surface of what can be done. I think there are some exciting developments coming (some really soon!), but there is a mass of material from WGs of ICCP that deserves to be made more generally available.

ACC 27 March 2005
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From the Vice-President

A number of contributions have now been received on the review of the ICCP Statutes. The comments are wide ranging and include topics of membership, responsibilities of the General Assembly versus those of the Council, indemnification and registration, accreditation and minuting of the meetings.

These topics are summarised in this issue of ICCP News (page 21). Since the amount of material is very large, only the topic of membership is covered in detail in this edition of the newsletter. A table detailing the thoughts of various contributors is given. These comments are not all-encompassing and the general members undoubtedly have a range of thougts of their own.

Your thoughts on the issues relating to ICCP membership are welcome. I would welcome any comments you have.

Lopo Vasconcelos
VP, ICCP (mailto:lopo@uninet.co.mz)

Know Your Coal Petrologist #14

The Coal Petrologist in question is on the left. It will probably not help most of you to know that the other two gentlemen are John Ryan (Professor of Accountancy) and Brian Smith (Electrical Engineering). Answer page 29.

PEAT, LIGNITE AND COAL IN GREECE: STATE OF ART AND RESEARCH



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General

Greece occupies an area of ~132,000 km^2 in the southern part of the Balkan Peninsula. It is mainly mountainous and surrounded by the Aegean and Ionian Seas (Fig. 1), where more than 1000 islands emerge. Geologically speaking, Greece is the youngest land of the European continent, since it formed during Neogene and Quaternary times. Now days the plate of Africa subsides beneath the southern and the southwestern parts, from Cefallonia to Crete. Additionally, a counter clockwise rotation of the Arabian plate along the Anatolian Fault (Fig. 1) results in the western movement of Turkey towards the Aegean Sea. These two geotectonic processes, taking place since Late Neogene times, resulted in the formation of a fabulous island mosaic in the Aegean, which belongs to the world's natural heritage. The most obvious consequences of this active geological environment are the activity of the volcanic island arc across the south Aegean, and the seismicity all across Greek territory. These activities together with the intense heterogeneous topography of the mainland, and the mild Mediterranean climate had a significant influence to the human activities and the development of the ancient Greek Civilization.

Ancient Greek mythology and religion (twelve gods, tens of godheads) reflect, among other things, the need to describe and understand the natural processes taking place in this geologically active land. During Classical Times (500-200 B.C.), several authors and philosophers tried to describe precisely and explain several natural phenomena. However, only a few references deal with coals, for example, Pausanias (2nd century A.D.) described self-combustion phenomena of lignite in Central Peloponnese, and Theophrastus (4th century B.C.) referred to quality differences between coals originating from Chios Island and Peloponnese.

Geological Setting and Coal Formation

The topographic and geological setting of Greece is a result of the geodynamics during the last stages of

Fig. 1 *Schematic map of Greece*

Alpine orogenesis, which took place during the Mesozoic and Cenozoic eras. Before that, most of the present continental margins of the Greek territory constituted the floor of the Tethys Ocean. Therefore, coal-forming conditions during the Palaeozoic and Mesozoic eras were established only on some land blocks emerged from place to place.

Low-volatile bituminous coals of *Carboniferous* age outcrop in Kardamyla (Chios Island), Tharrounia (Central Euboea) and in Monemvasia (S. Peloponnese; Fig. 2). However, these deposits have no economic value, since the coal occurs in lenticular beds less than 1 m thick and 2 m long, being mainly hosted within clay shales (Koukouzas and Koukouzas, 1995; Koukouzas, 1998).

Mesozoic coals are not known, since most of the land at that era was occupied from the Tethys Ocean and mainly calcareous sedimentation prevailed, resulting in the formation of huge limestone masses outcropping all over the country.

Fig. 2 *Pre-Neogene coal-bearing deposits of Greece: 1. Tharrounia, 2. Monemvasia, 3. Kardamyla, 4. Ionian Flysch, 5. Alexandroupolis, 6. Paranesti, 7. Orestias, 8. Kotyli, 9. Middle Hellenic Trough*

With the onset of the *Cenozoic* era, due to the Alpine thrusting and folding, the Greek geotectonic segments started to emerge from the Tethys Ocean and the land began to take shape. Several piggy-back, as well as syn-orogenic foreland basins developed during Eocene-Oligocene, in which flysch sediments and molasse were deposited, respectively. Occasionally, palaeoecological conditions favoured peat formation, and hence thin layers of bituminous coal occur in several areas.

Eocene coals of high-volatile bituminous rank are hosted in the flysch sediments of Western Greece and Central Peloponnese, as well as in the molasse of Thrace (Orestias and Alexandroupolis coals). Although the quality of these coals is good (ash < 20%, net calorific value > 21 MJ/kg), the beds are thin without significant lateral expansion.

During *Oligocene* times, peat-forming environments continued to develop in the basins of Thrace and Eastern Macedonia, where gradually the palaeoenvironmental conditions turned to more terrestrial (fluvial-lacustrine sedimentation in intermontane basins). Most of these high-volatile bituminous coals occur in thin beds of short lateral extent and hence are of limited economic importance. The exception is the Orestias deposit (in Thrace; Fig. 2) which could be exploited. Additionally, peat-forming conditions were also established in the Middle Hellenic Trough, under marine to brackish influence providing with thin lenticular beds of high-volatile bituminous to sub-bituminous coals.

In general, most of the Eocene-Oligocene coal strata formed in paralic basins under estuarine or deltaic conditions. Although some of these coals display properties suitable for exploitation (i.e. ash content and calorific value), their reserves are limited.

Neogene - Quaternary

During the post-Alpine orogenesis a new tectonic phase with NW-SE and NE-SW trending extension took place in Greece. This resulted in extensive faulting and subsequent formation of several grabens, in which peat accumulation was active from Early Miocene till Upper Pliocene and thereby providing economically beneficial sub-bituminous coal and lignite deposits. The extensional tectonic regime continued during Quaternary times resulting in the formation of Pleistocene grabens, the sedimentary filling of which also includes significant lignites and peats. In some of these basins, peat accumulation is still taking place.

Miocene coal-bearing strata occur across the country in several intermontane basins, of which the most significant are these of Florina-Ptolemais-Servia, Euboea, Elassona, Serres, Lokrida, as well as several other basins on the islands of Crete, Chios, Samos, and Lesvos (Fig. 3). On the other hand, the deposits of Moschopotamos and Tsotylion were formed in paralic basins. The Lower Miocene coals are of

Fig. 3 *Miocene coal-bearing deposits of Greece: 1. Serres, 2. Florina, 3. Ptolemais, 4. Moschopotamos, 5. Tsotyli, 6. Servia, 7. Elassona, 8. Almyros West, 9. Lokrida, 10. Kymi, 11. Aliveri, 12. Istiaia, 13. Paliouras, 14. Lesvos, 15. Chios, 16. Chania, 17. Heraklion, 18. Plakia, 19. Lassithi*

sub-bituminous rank, whereas these of Upper Miocene are lignite. Most of the Miocene deposits contain xylite-rich lignite derived from Cupressaceae/Taxodiaceae forest swamps.

During *Pliocene* times, peat accumulated along almost the whole territory, providing thick lignite beds. Compared to the Miocene mires, the peat-forming vegetation was different: the trees diminished from the northern-Greek mires, and reed/sedges dominated. It is evident that climatic changes in the transition from Miocene to Pliocene prevented the expansion of arboreal vegetation in lowland areas, apart from some minor exceptions (e.g. Kalaitzidis *et al*., 2004).

The most significant Pliocene lignite-bearing basin continues to be the Florina-Ptolemais-Servia Basin. Rifting in several other places in Greece also resulted in the initiation of lignite formation at Almyros, Larissa, Pellana, Kalavryta, Rhodes, Attica, Grevena, Pyrgos-Olympia, Corinthos, Messinia, Aitoloakarnania, Preveza (Fig. 4). Most of these areas represent intermontane basins. The lignite-bearing sequences of this era are thick and have significant lateral development. On the other hand, palaeomires that formed in paralic basins, in deltaic plains or in back-barrier environments provided thin lenticular lignite beds without significant lateral development (e.g., Pyrgos-Olympia basin; see Papazisimou, 2002).

The favourable conditions to peat formation continued during the entire Quaternary in several mentioned (Miocene-Pliocene) basins. Additionally, mires also developed in newly formed grabens. The most significant *Pleistocene* lignite-bearing basins are these of Drama and Megalopolis, whereas the 190 m thick Philippi peat is the thickest peat deposit worldwide (Fig. 5). Other Pleistocene lignite strata of more or less significant extent also occur in Ptolemais, Ioannina, Lokrida, Candanos, Assea, and Pyrgos-Olympia. The general peat-forming framework did not change from Pliocene to Pleistocene, and again the intermontane lignite sequences contain thick seams with great lateral extent, whereas in the paralic deposits the lignite beds are thin and lenticular. The Upper Pliocene-Middle Pleistocene organic sediments are of low lignite rank (peaty lignite).

Fig. 4 *Pliocene lignite-bearing deposits of Greece: 1. Komotini, 2. Drama, 3. Serres, 4. Florina, 5. Kastoria, 6. Ptolemais, 7. Servia, 8. Elassona, 9. Larissa, 10. Grevena, 11. Ioannina, 12. Almyros East, 13. Preveza, 14. Katouna, 15. Aitoloakarnania, 16. Oropos, 17. Raphina, 18. Megara, 19. Corinthos, 20. Kalavryta, 21. Pyrgos-Olympia, 22. Pellana, 23. Afissos, 24. Messinia, 25. Chomatero-Koroni, 26. Rhodes*

Fig. 5 *Pleistocene lignite-bearing deposits of Greece: 1. Drama, 2. Philippi, 3. Nissi, 4. Ptolemais, 5. Ardassa, 6. Ioannina, 7. Katouna, 8. Corinthos, 9. Megalopolis, 10. Pyrgos-Olympia, 11. Candanos*

Holocene peat accumulation is recognized in several modern mires, some of which display peat thickness reaching 15 m. Most of the peatlands represent topogenous mires, whereas several small transitional mires occur in the mountainous area of northern Greece (Christanis *et al*., 1999). Peat genesis in modern times took place mainly under terrestrialization of formerly lacustrine environments, whereas paludification of small areas

also occurred. Additionally, most mires (fens) are developed in intermontane basins and only on the western coast of Greece and on Zakynthos Island (Fig. 6), some paralic and back-barrier peatlands

Fig. 6 *Holocene peatlands of Greece: 1. Philippi, 2. Elatia, 3. Lailias, 4. Kali Pediada, 5. Vorras, 6. Mikri Prespa, 7. Nissi, 8. Chimaditida, 9. Ioannina, 10 Kalodiki, 11. Voulkaria, 12. Katouna, 13. Xinias, 14. Keri, 15. Agoulinitsa, 16. Chotousa, 17. Agios Phloros*

occur (Christanis, 1996; Christanis *et al*., 1999).

Reserves

Greece has in total 69 lignite-bearing basins hosting more than 110 deposits (Koukouzas and Koukouzas, 1995; Papanicolaou *et al*., 2004). The proven lignite reserves are estimated at approximately 6.7 Gt, of which 4 Gt are considered economically recoverable. Almost 64% of the mineable reserves are located in the Florina-Ptolemais-Servia Basin. Additionally, the Philippi peat deposit amounts reserves of 4.3 Gm^3 (bulk peat) that correspond to 1.5 Gt lignite (with GCV of 8.4 MJ/kg and 36% moisture).

Probable lignite reserves (up to a depth of 500 m) are estimated approximately to 1.6 Gt, and may reach ~2.3 Gt. It should be noticed, however, that within these reserves some sub-bituminous coal deposits are also included.

Quality and characteristics

The quality of the Greek coals varies by means of age (rank), depositional environment and lithotype. In general, small deposits reveal more uniform physical and chemical features, whereas in large deposits lateral and vertical variations among the seams often occur.

Our knowledge about the Palaeozoic and Mesozoic deposits is limited. The Cenozoic deposits have been studied in most detail (Koukouzas and Koukouzas, 1995; Papanicolaou *et al*., 2005). In terms of averages, net calorific values (as-received basis) range from 3.5 MJ/kg (Ioannina peaty lignite) to 29 MJ/kg (Kotyli sub-bituminous coal). In the deposits under exploitation, CV ranges between 4 MJ/kg (Megalopolis) and 10 MJ/kg (Florina), with an average of 6 MJ/kg (Ptolemais). Moisture ranges from 65% in the Pleistocene peaty lignite to 55-60% in the Pliocene lignites, and decreases to 9% for the Palaeocene sub-bituminous coals. The distribution of the volatile matter (dry, ash-free basis) is similar, with the Pleistocene lignites having ~39%, the Pliocene (Ptolemais) 35%, the Miocene (Serres) 18% and the Eocene (Alexandroupolis) ~10%. Accordingly, the fixed carbon content ranges between 8% (Pleistocene) to 30% (Miocene) or 40% (Eocene).

The ash yield, as a function of inorganic influx during deposition, varies significantly among the deposits and also within the same deposit. In general, the Greek coals display high values of ash yield, ranging up to 40% (on dry basis), since the majority formed in topogenous mires that developed in narrow grabens. The close proximity of the surrounding margins, together with a high-energy relief resulted in intense transportation of clastic material through the surface runoff. Moreover, the active tectonic regime in most of the basins in relation to climatic changes resulted to frequent alternations of organic and inorganic sedimentation. Additionally, the majority of the deposits have been influenced by post-orogenic faulting and hence, the lateral extent and morphology of the lignite seams is not uniform, as well as the dipping of the lignite layers increases with age.

Due to the calcareous-rich margins and basements of most of the basins, coals are rich in $CaCO_3$. Enrichment in silicates (clay minerals) is also encountered, depending on the occurrence of surrounding metamorphic and magmatic rocks or flysch sediments. The distribution of trace elements, particularly of toxic elements, is also a function of the basement rocks; for example enrichment in Pb, Zn, Ba, As, Mo, W, Sb and U is observed when the basement and/or the margins consist of metamorphic rocks, e.g. in the Drama basin. On the other hand, sulphur distribution is related to the palaeoecological conditions. It is high in paralic deposits as expected (e.g. 4% on dry basis in Plakia), and low in intermontane basins. Nevertheless, evaporites in the surroundings may increase the S content. Sulphur usually occurs in contained minerals such as gypsum, pyrite and

marcasite. The S_{total} in the exploitable lignites reaches up to 1% and the combustionable up to 0.5% on average.

Coal petrographic features

Coal-petrographic research has been undertaken mainly in the Neogene and Quaternary sub-bituminous coals and lignites (e.g. Cameron *et al*., 1984; Georgakopoulos and Valceva, 2000; Antoniadis *et al*., 2004), and our knowledge concerning the older deposits is limited to only the bituminous coal of central Euboea (Papadeas, 1998).

Concerning the lignites, the maceral group distribution is almost similar in most of the cases, with huminite ranging from 60-95% (mmf), whereas liptinite and inertinite occur with values ranging among 5-20% each. The distribution of the maceral-subgroups and macerals is rather more scattered. Most of the Miocene coals (xylite-rich, e.g. in the Florina basin) are rich in telohuminite, particularly ulminite, and also contain some densinite. The younger Pliocene and Pleistocene lignites reveal bimodal features with either telohuminite or detrohuminite dominating, according to the depositional environment. The mineable deposits (Ptolemais and Megalopolis) are usually rich in attrinite with lesser amounts of densinite.

Production - utilization - environmental aspects

The electricity sector of Greece is based on lignite combustion, which nowadays accounts for approximately 67% of the domestic power demand. The remaining is provided by hydropower and imported oil and natural gas. The utilization of renewable sources such as wind power or geothermal energy is still limited (Koukouzas *et al*., 2004). Lignite exploitation is mainly carried out by the Public Power Corporation S.A. (P.P.C.), which exploits the largest lignite deposits and owns the power plants and the country's electricity net. Today lignite mining is taking place in open pits at the basins of Florina-Ptolemais (Lignite Centre of Western Macedonia, LCWM) and Megalopolis (Lignite Centre of Megalopolis, LCM). There are also some private companies that exploit small Miocene deposits providing P.P.C. with additional coal quantities of relative better quality than the Plio-Pleistocene deposits.

Annual lignite production in 2003 reached 68.12 Mt (54.58 Mt from LCWM, 13.54 Mt from LCM), which ranks Greece second in EU and fifth worldwide in lignite production. The lignite is consumed almost in totally for power generation in 8 plants (6 in LCWM and 2 in LCM), with a total capacity of 5,288 MW. All these plants use conventional pulverized coal-combustion systems. Small amounts are utilized for the production of briquettes. P.P.C. is planning to exploit the Elassona deposit (Fig. 4) in the near future.

Environmental policy in Greece has to conform to the EU Large Combustion Plant Directive (88/609/EEC), according to which there are certain limits on the total national emissions of pollutants (e.g., SO_2 and NO_x). Regarding SO_2 emissions, the problem is minor in the Ptolemais power plants (~1 kg/GJ for 2000), since the Ptolemais lignite is poor in sulphur and rich in Ca that binds S, forming solid Ca-S phases. Moreover, the new power plant at Meliti (Florina basin; see Fig. 3) will be equipped with a wet flue-gas desulphurization unit. On the contrary, the Megalopolis lignite is S-rich (average emission ~2.6 kg/GJ for 2000) and thus, a desulphurization unit operates there. NO_x emissions are low and coincide with the EU directive's limits.

All the units are equipped with electrostatic precipitators that control the particle emissions. Toxic element emissions and radioactivity in the vicinity of the power plants are, in general, not exceeding prescribed limits (Koukouzas *et al*., 2004).

Greece has also signed the United Nations Framework Convention on Climate Change. However, Greece is among the countries that can increase the emission of the Kyoto gases, up to 25% by 2008-2012 compared to the 1990 levels. By the end of 2004 Greece has submitted to EU the National Allocation Plan, according to which the annual CO_2 emission licence of the power industry for the period 2005-2007 rises up to ~52 Mt (source Greek Ministry of Development).

Trends in the Lignite Sector

Besides the basic geological research, the nowadays trend in lignite science in our country concerns the beneficiation of lignites, as well as the application of "clean" coal technologies (e.g. Pressurized Fluidized Bed Combustion), in order to improve combustion efficiency, as well as to introduce a more sustainable utilization. Particularly, due to energy market liberalization, P.P.C. has to be more competitive by terms of mining and combustion techniques, but also taking into consideration the environmental aspects. Additionally, there are several opportunities for P.P.C. but also for domestic and foreign investments to obtain profit from other applications, such as utilization of combustion by-products (fly ash) in the cement industry or even the application of low-quality lignite for soil improvement. Another field of research that will be favoured in the near future refers to the rehabilitation of the mining sites and the management of the lignite-industry wastes. All

these fields require interdisciplinary approach and there is a need for a more close cooperation between scientists, government and investors in order to establish a comprehensive action plan for the Greek Lignite Sector.

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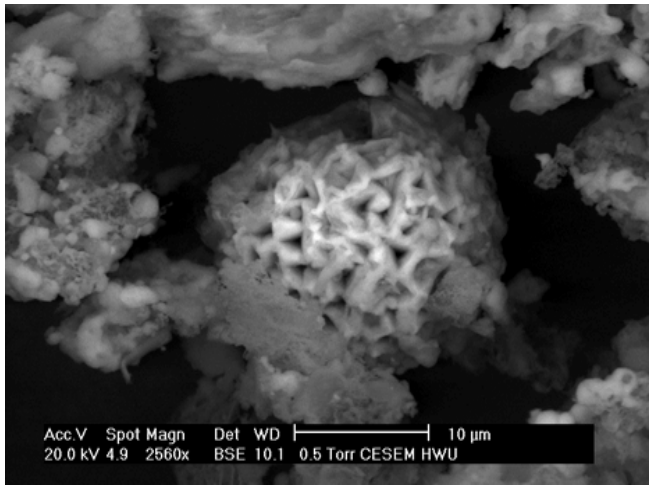
Other Greek Musings

Andreas Iordanidis
mailto:aiordanidis@yahoo.co.uk

"Organic Geochemistry and Petrology of Amynteo lignites, northern Greece" was the PhD topic completed April 2002, at the Department of Mineralogy-Petrology-Economic Geology, School of Geology, Aristotle University of Thessaloniki, Greece. This study investigated coal petrography of several lignites as well as organic geochemical studies using GC, GC-MS, FTIR, solid state 13C NMR and EPR techniques. This and subsequent research was conducted at several research institutes around Europe (Germany, the Netherlands, Scotland, Spain).

Recent research has focussed on the characterization of fly ash and airborne particles using Environmental Scanning Electron Microscope (ESEM). This work is being conducted as part of teaching fellow/researcher duties at the Department of Geotechnology and Environmental Engineering of the Technological Educational Institute (TEI) of Kozani, Greece. The following ESEM microphotograph of fly ash particles collected from a Greek power plant shows well preserved remnants of pyrite framboids.



ESEM image of fly-ash from a Greek power plant

Greek Lignite - Some Recent Work

Prodromos Antoniadis
mailto:antoniad@metal.ntua.gr

Antoniadis, P., Papazisimou, S., Christanis, K., Mavridou, E., Gentzis, T. (in press) Paleoenvironmental conditions of the Mavropigi Lignites, Ptolemais Basin (Greece) : A petrological Study, Energy Sources (in press)

Antoniadis, P., Papazisimou, S., Christanis, K., Mavridou, E., Gentzis, T. (in press) Petrographic characteristics of the Kardia Lignites (Core KT6A-3), Ptolemais Basin (Greece), Energy Sources.

Antoniadis, P., Mavridou, E., Gentzis, T. (in press) The Notio Pedio (Southfield) Lignite Deposit in the Ptolemaida Basin, Greece : Depositional conditions as revealed through petrography, Energy Sources.

Antoniadis, P., Abatzi, S., Mavridou, E., Gentzis, T. (in press) Reconstruction of the Paleoenvironment of the Lignite Deposit at Pontokomi (Sector 6), Ptolemaida Basin, Greece, Based on maceral composition, Energy Sources.

Antoniadis, P., Mavridou, E., Gentzis, T. (in press) Petrography and paleoenvironmental conditions during formation of the lignite deposit at Prosilio, northern Greece, Energy Sources 26, 1201-1217, 2004

Antoniadis, P., Gregor, H., Mavridou, E. (2004) The Seed- and fruitflora from the Prosilio Lignite Deposit (Northern Greece) and it's Paleoenvironment Interpretation, Flora Tertiaria Maditeranea, vol.11, p.11-19, München.

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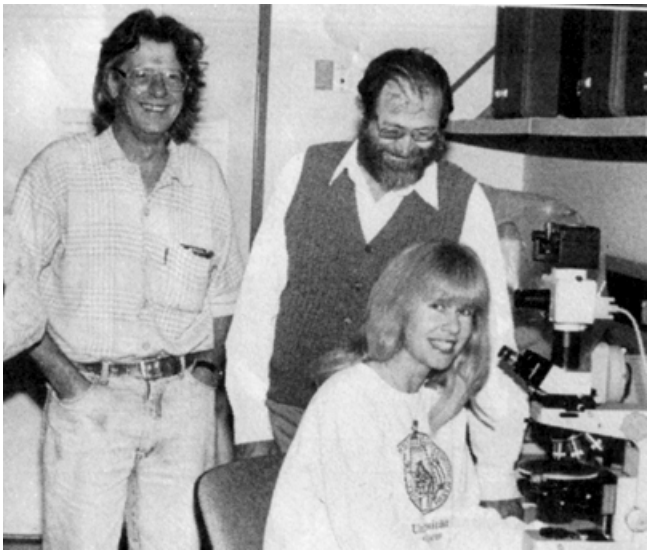
Antoniadis, P., Gregor, H., Mavridou, E. (2003) Paleoenvironmental Interpretation Based on Seeds and Fruits of the Domenikon Lignite Deposit (Thessaly, Greece), Flora Tertiaria Maditeranea, vol.7, p.17-37, München.

Antoniadis, P., Gregor, H., Mavridou, E. (2003) The Seed- and Fruitflora from the Mavropigi Lignite Deposit (Greece) and it's paleoenvironmental Interpretation, Flora Tertiaria Maditeranea, vol.7, p.1-15.

Know Your Coal Petrologist #15



From the same institution as KYCP#14 are the next two unknowns (both standing). Again, it will be of little help to know that Dr Uschi Graham is seated at the microscope. Answer page 29.

FROGS IN CHORUS

The chorus frogs in the big lagoon
Would sing their songs to the silvery moon.
Tenor singers were out of place,
For every frog was a double bass.
But never a human chorus yet
Could beat the accurate time they set.
The solo singer began the joke;
He sang "As long as I live I'll croak,
Croak, I'll croak,"
And the chorus followed him: "Croak, croak, croak!"

The poet frog, in his plaintive tone,
Sang of a sorrow was all his own;
"How shall I win to my heart's desire?
How shall I feed my spirit's fire?"
And the solo frog in his deepest croak,
"To fire your spirit," he sang, "eat coke,
Coke, eat coke,"
And the chorus followed him: "Coke, coke coke!"

Abridged from: Paterson, A.B. ("Banjo") and Lindsay, Norman (Illustrator) (1933) The Animals Noah Forgot. The Endeavour Press, Sydney. 62pp.

Report of Commission 1 for April 2005 ICCP News

Several progress and status reports were received from Commission 1 for this issue of the Newsletter. I would like to thank all those, who were able to contribute.

One of the pressing issues of the commission arises from Aivars Depers' resignation as convener of the Accreditation Program, a position, which he has filled with excellence, outstanding patience and his trademark dry sense of humour.

ICCP seeks expressions of interest to fill the position of the

CONVENER OF THE VITRINITE REFLECTANCE AND MACERAL GROUP ANALYSIS FOR COALS ACCREDITATION PROGRAM

The position of convener for the vitrinite reflectance and maceral analysis Accreditation Program of the ICCP is vacant. This is an important part of ICCP work and we are seeking a suitable person to fill the position.

The convener will be responsible for organizing the exercises. The position of convener requires a person with a good knowledge of statistical data evaluation who is willing to undertake the significant workload of setting up a schedule for analyses, organizing the samples to be sent and evaluating the results. The convener will be supported by the Accreditation Committee.

If the new convener wishes, the task of sample handling and storage can be done separately. One possibility it to outsource this part of the work in the program to a commercial laboratory that is not connected with petrographic work.

Those interested in undertaking this work should contact Walter Pickel
mailto:walter.pickel@organicpetrology.com

Temporal variations of coal: The data of the working group are under review at the moment by Lopo, supported by Walter, and a report on the outcome will be given at the forthcoming meeting. I would like to thank Kimon Christanis for two Greek lignite samples, which I could forward to the convener of ***the Standardization Working Group*** (see below) in order to get the next round robin exercise under way. I would encourage everybody to participate in this exercise. The samples are very interesting (and can be kept by the analysts!). Please contact Harold Read if you wish to participate. Those who signed up already at the last meeting, please confirm your interest (mailto:Harold.Read@Organicpetrology.com). The samples will be sent out shortly.

The ***YAG Standard*** calibration has been successfully continued and we (Dave Pearson, Walter Pickel) are inviting everybody, who wants to check his standard, to bring it to the next meeting or send it to us for evaluation.

The ***New Handbook Edition*** is progressing along the structure, as discussed in Budapest (see table below). Members who volunteered to contribute or wish to do so now, please send relevant material to Petra David (mailto:petra.david@tno.nl).

Table 1: Draft Handbook Structure

Introduction
Definitions
Definition of coal
Definition of Kerogen
Definition of Maceral
Definition of Microlithotype
Definition of Lithotypes
Definition of Rank/Coalification
Macerals
Microlithotypes
Carbominerites
Lithotypes
Brown coal lithotypes
Hard coal lithotypes
Other micropetrological terms
Graphite, semi-grahite,
Natural coke
Natural char
Pyrolytic carbon
Bitumens
Mineral bituminous groundmass
Methods
Sample preparation technique
Polished blocks
Maceral analysis
Reflectance analysis
Fluorescence analysis (I+II)
Future developments

On matters of editorial work, the CLASSIFICATION OF HUMINITE has just been published in the most recent issue of the Int. J. of Coal Geology (vol. 62). Reprints of this article will be sent to all ICCP members.

The following reports were received from Commission 1:

ACCREDITATION PROGRAMME

Aivars Depers

The 2004 Exercise was conducted last year. The exercise was very well supported and 73 people initially took part. Six participants were students and 10 were new petrographers. Two petrographers took part in the exercise, but did not register. During the course of the exercise, 4 participants withdrew from the exercise. Two petrographers were denied accreditation for the vitrinite reflectance method and one petrographer was denied accreditation for the maceral content method. One petrographer resigned from the Accreditation Programme. Three petrographers failed to submit their data, despite a number of reminders and a final date (early February, 2005) being given for receipt of data.

Accreditation certificates were posted out to successful petrographers in early January, 2005 and the Accreditation website has been updated recently (http://www.iccop.org/acredit_accredited.htm).

The Accreditation Committee is proud to announce that the following ICCP Accreditations have been gained:-

Fredy ARANGO ARIAS
Colin J. ATKINSON
Elvira BARCELONA
Helen M. BEATH
Kathy. E. BENFELL
Gerd BIEG
Gareth R.L. CHALMERS
M. Manuela COELHO MARQUES
Peter J. CROSDALE
Petra DAVID
Alfonso P. DE LA CRUZ
Noelia DEL VALLE FRANCO RONDÓN
Brian DU CANN
Vivien M. DU CANN
Marjorie J. ELLIS
Mohinudeen M. FAIZ
Deolinda FLORES
Elizabeth GAWRONSKI
M. Ángeles GÓMEZ BORREGO
Carsten GUVAD
Paul C. HACKLEY
R. Eric HATFIELD
Werner HILTMANN
James C. HOWER
Zeba IMAM
Barry M. JENKINS
Barry M. JENKINS - MACE300
Dagmar JOA
Paul JOHNSON
Johan P. JOUBERT
Wolfgang KALKREUTH
Márcio L. KERN
Ralf LITTKE
Kenneth W.G. LOUDON
Jhumjhumi MAITRA
Neil R. MANERY
Hrusi K. MISHRA
Gareth D. MITCHELL
José R. MONTES SÁNCHEZ
Nicholas A. MOORE
Axel NELLES
Jane NEWMAN
Graham D. O'BRIEN
Donna M. O'CONNOR
David E. PEARSON
David E. PEARSON - Digipet
Jennifer S. PEARSON
Henrik I. PETERSEN
Walter PICKEL
Sandradurage P. RANASINGHE
Harold W. READ
Kathrin REIMER
Martin J.K. REINHARDT
Daniel RIGG
Pravin K. SHARAN
Raymond J. SMITH
Michael SPENNEMANN
Ben STONEHOUSE
Maria A. TOMICA
Harry VELD
Angelika VIETH
Nicola J. WAGNER
Chris WILSON

Congratulations on your individual results.

Aivars Depers
Deolinda Flores
Rosa Menéndez
Walter Pickel (Chairperson)
Accreditation Committee

ICCP PEAT-PETROGRAPHY WORKING GROUP - REPORT OF THE 2004 EXERCISE

Kimon Christanis and Stavros Kalaitzidis
Section of Earth Materials/Department of Geology/University of PatrasGR-26500 Rio-Patras Greece

1. Introduction

During the 55th ICCP Annual Meeting held in 2003 in Utrecht, a new Working Group dealing with Peat Petrography has been established under Commission I. It was decided to carry out the first round-robin exercise using peat photomicrographs. Sixteen ICCP members had expressed their willingness to participate in this exercise, which has taken place during 2004; twelve have conducted it.

2. Aims of the WG

The aims of this WG are:

a. to bring together petrographers that deal with the petrographical and petrological features of peat, but also scientists from other disciplines that have an interest in "peat science",
b. to examine the applicability of the existent maceral terminology (huminite, inertinite and liptinite), in accomplishing the desirable targets,
c. to assess/evaluate the necessity of an additional nomenclature scheme for the microscopic-petrographical constituents of peat, and to which directions this scheme would be feasible to apply for. Some preliminary directions can include:

✓ coal science (i.e. maceral precursors),
✓ soil science (i.e. considering peat as organic-rich soil, histosol),
✓ research on organic-rich sediments (i.e. dispersed organic matter),
✓ material science (i.e. applications in industry, environmental protection etc.),
✓ botany (i.e. phytogenic approach),

d. to propose a terminology that will accomplish the specifications for a comprehensive description of peat microscopic constituents or establish that the existing classifications are sufficient.

3. Objective - Methods

The achievement of the above-mentioned targets needs a thorough review of the up today relevant publications in order:

✓ to have a comprehensive approach of the various applications of peat petrography, and
✓ to record the different terms and descriptions that referred to peat microscopic units.

Thus, the first step was to provide the WG participants with a thorough list containing references on previous peat-petrography studies. Thereafter, a photo-gallery file containing 49 peat photomicrographs was sent per e-mail to the participants. The images were obtained from polished blocks of peat under white reflected light. The material chosen was the Philippi peat, originated from a topogenous mire located in NE Greece. The concept was to check on the applicability of the terminology of both the huminite and inertinite groups. The participants were asked to determine on the photomicrographs 85 macerals in total of both groups, i.e. to name and comment each maceral, without getting any guidance on the terminology. Each participant could apply his choice of terms.

The members that conducted the exercise were (in alphabetical order):

Antonis Bouzinos
Kimon Christanis
Janet Dehmer
Joan Esterle
Deolinda Flores
Ángeles Gómez-Borrego
Mária Hámor-Vidó
Stavros Kalaitzidis
Wolfgang Kalkreuth
Bertrand Ligouis
Walter Pickel
Ivana Sýkorová

4. General remarks

This exercise is a first approach and the main concept is to reveal the complexity of the peat micro-constituents. As a first step, only macerals as seen under white reflected light are presented. From the replies it is evident that without fluorescence it is difficult, if not impossible, to identify accurately all the constituents present in the peats. Another issue is the quality of the images and more specifically the ability to get images without internal reflections. The latter cannot be avoided because of the immature (thus partly translucent) nature and the soft texture of peat.

Most of the macerals belong to the huminite group, whereas some inertinites and liptinites are also included. Apart from the terms adopted by ICCP, a variety of terms are used for macerals of the huminite group, e.g. *degraded* or *grey* textinite, *eu-textinite*, *textinite I* or *II*, e*piderminite*, *semidensinite*. These differentiated terms indicate the need to distinguish among tissues that underwent variable degree of gelification. The term *semidensinite* was applied as an intermediate phase of attrinite and densinite, and the term *epiderminite* refers to certain tissues representing epidermal humic cell walls.

5. Statistics

The absence of certain choice options causes some difficulties to the statistical evaluation of the replies, since the replies were sometimes descriptive and not univocal. Hence, in these cases the most obvious maceral is chosen in order to evaluate the results statistically.

The first index that can be calculated refers to the degree of agreement, which by turn reveals the complexity of peat petrography. The average agreement in the maceral identification was only 58%, with a range from 25 to 100%. Meaning that on average only 7 participants identified the same maceral, and 5 participants provided a different term. It is evident that the answers were different in most of the cases. The lowest percentage (25%) refers to cases that only 3 participants provided the same term. It should be also pointed out that the "agreed" maceral was not always the correct one. However, at this first approach, the aim is not to measure the correctness of the replies, but to evaluate the response of participants to peat micro-constituents, and eventually to plan a more comprehensive exercise, in which the correctness will be measured. In Figure 1 we can observe the scatter of the replies. Total agreement among the 12 participants has been achieved only for 6 constituents, whereas in most of the cases (26 times) more than 4 macerals have been proposed.

It is also important to mention that in some cases none of the participants could provide the maceral but the maceral subgroup only. If the replies are grouped in maceral subgroups, regarding huminite, then the average agreement in the identification increases to 74%, with the lowest percentage still remaining at 25%.

A second index that can be calculated with regard to the ability of participants to identify the

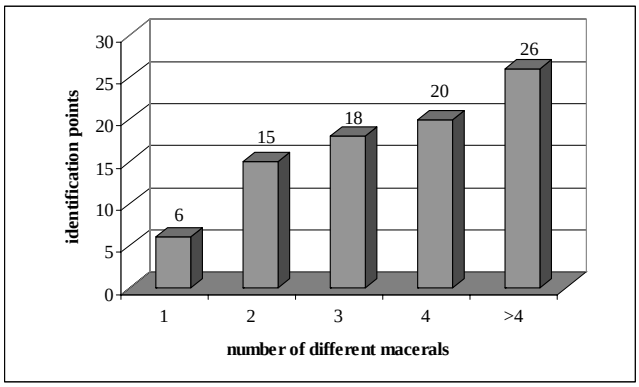


Figure 1. *Variance of the participant's identifications.*

micro-constituents. The success in agreeing on the micro-constituents on a maceral (again not necessarily the correct one) level is presented in Table 1. It is obvious that, in general, the participants have low to moderate success. However, considering the lack of fluorescent pictures the results are considered as satisfying.

Table 1. *Success (expressed in %) of participants (P1-12) to point the "common" maceral*

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
69	72	65	69	47	62	58	58	76	49	47	67

Another parameter that was evaluated is the different degree of agreement with regard to different macerals/maceral groups, meaning which macerals are easily identified by the majority of the participants. The inertinites are easily identifiable, although in some cases there are different opinions, as shown in Figure 2.

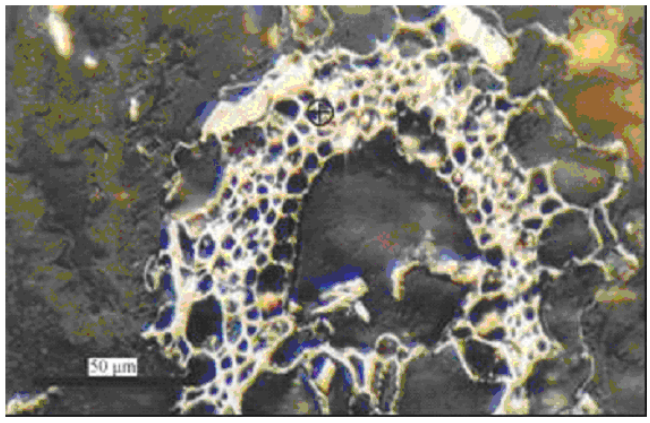


Figure 2. *Fusinite: seven participants identified it, whereas 5 participants identified it as funginite*

On the contrary, the identification of huminites is more complicated, as shown in Figure 3. Variances occur mainly among corpogelinite and gelinite, texto-ulminite and eu-ulminite, and in some cases there is a question if the observed maceral belongs to liptinite group.

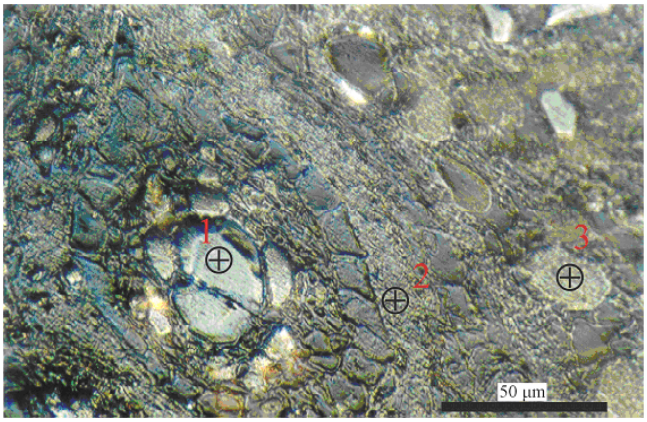


Figure 3. *Point 1: 7 participants for gelinite, 5 for corpogelinite. Point 2: 9 participants for ulminite, 1 for textinite, 1 for densinite, 1 for gelinite 1. Point 3: 6 participants for corpogelinite, 5 for gelinite, 1 unknown*

6. Conclusions

A general conclusion from this first exercise is that peat-petrography appears to be complicated in terms of "how a petrographer faces the problem".

Two general trends encountered:

1. handling peat exclusively as lignite precursor (simplified approach without too complicated discriminations, apart that of the huminite terminology), and
2. handling peat as lignite precursor but also as the "product" of plant decomposition (i.e. introducing either in the terminology or in the comments (a) an origin/genetical approach, and/or (b) an assessment of the humification degree).

These preliminary results show that the existing huminite terminology is quite satisfactory to identify peat micro-constituents. However, minor modifications may be needed in order to describe better the pathways of humification and gelification, at such low rank levels. It is evident from the obtained results that fluorescence is very important for peat petrography. Hence, the exercise for 2005 will include also fluorescence, and we are looking forward to get more consistent results.

Everyone, who feels ready to join us in this adventure, is welcome to the Working Group!

New techniques for reflectance measurement and maceral counting

Gerd Bieg
Ruhranalytik/Laboratorium für Kohle und Umwelt/Wilhelmstr. 98/44649 Herne/Germany

At the end of 2002, Ruhranalytik, Laboratory for Coal and Environment, encouraged the Technical Office Hilgers to develop a new instrument for reflectance measurement and maceral analysis. Several motives gave rise to this decision.

1. The Prior Company (former Swift) in England stopped the production of automatic point counters and mechanical stages.
2. The microscope manufacturers do not offer special microscopes for coal petrography anymore, but offer instruments without Berek prisms or rotating stages.
3. The variety of new oil immersion objectives is limited and spare parts for the old measuring microscopes has become rare.
4. The spare parts for the old photometric systems become rare or are not anymore available.

The requirements for the new instrument were to combine maceral analysis and reflectance measurements in one instrument, in order to enable maceral counts without using point counters and to enable manual and, in a later step, also automated reflectance analyses. The time needed for the analyses should be within the limits of analyses carried out with the "old" techniques and the device should be more convenient to handle than the older equipment. Furthermore, counting and measuring procedures should strictly follow the requirements of the standards ISO 7404 respectively DIN 22020.

In April 2004 the new equipment was installed in the laboratory. The complete measuring system comprised a Leica motorized microscope DMLA with Smith beam splitter, adjustable limiters for the field diaphragm and illumination aperture, motorized nosepiece, Leica scanning stage, focus wheel, xyz-manipulator, digital monochrome camera Basler A102F Gamma 1 (15 pictures/s), fire wire connector, computer, printer, LCD-TFT-screen 1280 x 1024, power supply, mouse with focus control and oil immersion objectives 32x and 50x. The software"Diskuss Fossil" for the measurement of reflectance was developed on basis of the Hilgers Diskus program.

Before the device was integrated in the laboratory's daily routine work, numerous samples

of seam coals and blends were analysed and compared with the results obtained `classically`. The software for the maceral analysis was installed in June 2004 and also checked very thoroughly against results from the point counter method. Some improvements concerning the configuration of the screen window, histogram and the operation of the system were suggested by collaborators of Ruhranalytik during the testing-phase and adopted by Hilgers.

Comparison of results from reflectance and maceral analysis showed no differences in the results from the Hilgers methods and the normal, `classical` ones. Even the calibration of reflectance standards which requires a high level of accuracy produced perfect results.

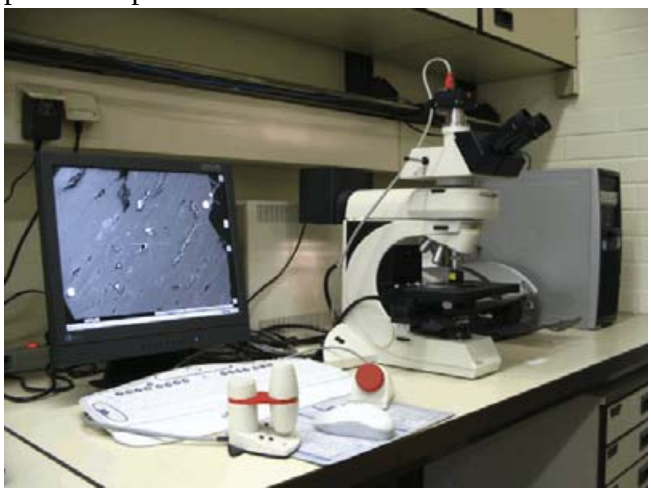


Figure 1. *The new instrument for reflectance measurement and maceral analysis*

Hence, in July 2004 the new microscope was fully integrated and has been used since then for routine coal petrographic analyses at Ruhranalytik.

Petrographers who are familiar with the device will perform analyses within the time limits of the "old" working methods but with much more convenience. There is no need to change the microscope because maceral analysis and reflectance measurements can be performed successively. A digital camera shows the live image on screen in full resolution and the measurements can be carried out at any position of the image. The petrographer is able to keep a relaxed physical position in front of the device because the maceral counting is also conducted on screen. Measuring, counting and focussing are done single handed with a computer. The stage is moved automatically to the spacing of gridlines as defined by the petrographer. It is possible to leave the gridline by using a xyz-manipulator but the stage returns to the grid automatically before a new measurement is made.

Determination of parasitic reflections and calibration of the system before the measurement is done similar to the `classical` instruments.

The Diskus program also offers the opportunity to save the screen image as photo at any time during reflectance and maceral analyses. Many tools for lettering, indexing and archiving images are available and the photo documents can be used to visualize special observations, for instance in test reports. Moreover, Diskus enables discussions of the live image on screen.

The new measuring microscope was introduced to the participants of the ICCP meeting in Budapest 2004 where the device could be tested and even standards were calibrated (see ICCP News 33).

Figure 2. *Orthoplan with new analysis equipment*

In the meantime, Ruhranalytik has replaced one of the older measuring devices fitted on a Leitz Orthoplan microscope. It transpired that older microscopes can be also be easily equipped with the Hilgers fossil system and the results of the reflectance measurements and maceral counting are reliable. The advantage is that one savings of more than 50% of the costs by using the old microscope but it is disadvantageous that an automated stage cannot be installed. Hence, the sample has still to be moved by means of a mechanical stage and focussed manually and the measurement is taken with help of a foot pedal. On the other hand, the old microscope is equipped with a rotating stage, which enables the operator to measure the maximum reflectance.

It is planned to demonstrate the microscope again during the ICCP-meeting in Patras 2005. Up to then the Technical Office Hilgers intends to develop oil-free observation and measurement of

coal samples, improving the image digitally to a degree comparable to oil immersion images. It remains to be seen if the images will be satisfactory, but if so, then petrographic analysis will be significantly advanced.

Petrographers who are interested in the new instrument may directly contact:

Carl H. Hilgers Technisches Büro
Hauptstr. 82, 53639
Königswinter, Germany
http://www.hilgers.com

ICCP STANDARDISATION WORKING GROUP

Harold Read

Grainmounts have been prepared and polished for two Greek lignites. These will be sent to those petrographers, who, at the last ICCP meeting advised Secretary Commission 1 that they were interested in participating in the exercise.

ICCP Huminite Classification should be used for maceral analysis; copies will be supplied either with the samples or separately by email. Huminite macerals used for reflectance measurement (random) should be identified and reported with the reflectance results.

The samples are not considered 'easy' to analyse as they contain much mineral matter. Fluorescence is considered necessary to identify most of the liptinite present.

If possible, results should be emailed by early June to allow sufficient time to for compilation and circulation to participants before the ICCP meeting.

TABLE OF HUMINITE SUBDIVISION

Maceral Group	Maceral Subgroup	Maceral	Maceral Type	Maceral Variety
HUMINITE	TELO-HUMINITE	Textinite		A (dark)
				B (light)
		Ulminite		A (dark)
				B (light)
	DETRO-HUMINITE	Attrinite		
		Densinite		
	GELO-HUMINITE	Corpohuminite	Phlobaphinite	
			Pseudophlobaphinite	
		Gelinite	Levigelinite	
			Porigelinite	

CLEAN COAL TECHNOLOGIES - RECENT ADVANCES AND APPLICATION OF ORGANIC PETROLOGY

Commission I: New Methodologies and Techniques in Organic Petrology Working Group

Introduction

A working group on "New Methodologies and Techniques in Organic Petrology" was established within Commission I at the 52nd ICCP meeting in Rio de Janeiro, August 2000.

The Working Group was set up to review new methods and techniques that may be of assistance in advancing the science of coal petrology, to familiarise ICCP members with the principles and operation of these techniques, and to indicate to members their application in coal petrology studies. The main objective of the group is to review new methods and techniques that can be applied to Coal and Organic Petrology, including the elemental and organic chemistry of coal macerals, the nature of coal minerals, maturation studies, coal-combustion problems and environmental issues.

The White Paper gives the opportunity to publicize the research and give information about recent international progress in individual research fields. The first edition of the White Paper, with several contributions on topics related to organic matter/mineral matter interactions is available on the ICCP home page.

Further Activities - Call for New Contributions

The second edition of the White Paper is open for further contribution. For the 2005 edition it is proposed to focus on recent advances in applications of organic petrology to characterization of coal and coal by-products for clean coal technologies.

Innovative new energy technologies are taking coal research in new directions. Clean coal technologies such as gasification, oxy-fuel combustion, extraction of coal bed methane, and CO_2 capture and storage place new demands on understanding the performance of coal in processes that are unique and different from conventional utilisation technologies. State-of-the-art analytical processes and techniques provide an enhanced toolkit that must be used to unlock these new developments in coal science and engineering. The success of Clean Coal Technologies depends in part

upon the extent to which coal characterization research is able to provide the foundation knowledge.

For this understanding to be achieved, knowledge in recent advances in analytical methods and techniques such as (but not limited to) QEMSCAN, CCSEM, Electron Microprobe, High Resolution Transmission Electron Microscopy, DTGA, Automated Scanning Image Analysis, methods for determining the mode of occurrence of trace elements, and various surface analysis methods is required.

The White Paper is a great opportunity to publicize innovative research. You are encouraged to submit an extended abstract (short communication or paper) as a contribution to the White Paper if you are working on or developing new methodologies or techniques, which can be applicable to improve our understanding of coal performance in Advanced Clean Coal Technologies.

The second edition of the White Paper will be presented at the next ICCP meeting in Patras, Greece, and a series of short presentations by Invited Speakers will be given at the meeting.

Instruction for Authors

Abstracts of up to 3 pages (including figures, tables and references) will be accepted. Please leave 2 cm margins on all sides, use single spaced 12-point Times Roman (or similar font).

Describe the background to the methods and emphasize their novelty. Include information about recent international progress in the field, emphasizing the scope and application of the technique(s) rather than details of the results obtained. Refer only to refereed papers that are widely available.

Deadline for submission: July 2005

For further information please contact:

Dr Lila W. Gurba
Cooperative Research Centre for Coal in Sustainable Development
Qld Centre for Advanced Technologies, Technology Court, Pullenvale
PO Box 883
Kenmore
Queensland 4069, Australia
mailto:Lila.Gurba@ccsd.biz
mailto:L.Gurba@unsw.edu.au

For the following months, please send requests with regard to Commission 1 to me (mailto:walter.pickel@organicpetrology.com), as the Secretary, Deolinda Flores, is enjoying a sabbatical, for which I would like to wish her all the best.

Walter Pickel, March 2005

57th Annual Meeting of the International Committee for Coal and Organic Petrology - ICCP Patras, 19-23th September 2005

***** Can members please send in pre-registration forms**
*** Deadline for submission of Abstracts is June 3
*** a second circular will be posted in mid-April

More information is available in: ICCP News #33 or :
mailto:christan@upatras.gr
http://www.geology.upatras.gr/epy

A proposal to reconfirm and alter the Statutes of the ICCP: Synthesis of the Comments received to date

Peter Crosdale, Lopo Vasconcelos, Kimon Christanis, Walter Pickel, Alan Cook

Below you can see some issues rising from the need to alter the ICCP Statutes. There are many more, but these are those that the Council thinks to be more urgent to solve. The others will be put for discussion gradually.

The following issues are put for discussion now, with this issue of the newsletter focussing on membership:

1) Membership
Much discussion exists on maintaining or not the two membership categories: associate and full. Pros and cons exist. Majority opinion appears to be to have only one category of normal membership. Most of the arguments for this structure suggest that this is simpler and more appropriate. When the two categories were set up, ICCP was changing from its early form of being a small club. Are there now any good reasons to retain a structure that might have been appropriate for 1982 but is widely believed to be inappropriate for 2005?

2) General Assembly vs. Council responsibilities
The present statutes define GA as the maximum organ for decision, and that is seen as a slowing factor for the normal Activities of ICCP. It needs, however, to be recognized that normal attendance at annual meetings mean that the General Assembly comprises about one third of members, perhaps a little more of active members. There are few mechanisms available for seeking views from the full membership - votes for positions on Council and appeals for contributions through the Newsletters being the main ways currently available. Also the statutes should define clearly the roles of all council members and executive committee. How do members see the balance between rapid actions (basically that means Council having powers to make decisions between meetings) and the formality of the General Assembly making decisions. It can be argued that Council is in a better position to seek views of all the membership compared with the General Assembly. How can ICCP members present their views to a greater extent than has been the case in the past?

3) Indemnification and Registration
Not being a registered organization means that council members are probably not legally protected. As a non-registered organization, we cannot undertake certain actions, such as holding copyright. On the positive side, there are many things that ICCP would be able to undertake as a registered organization that it cannot do at present. The downside is increased formality, the upside is increased standing in the scientific community.

4) Accreditation
Being an important activity of ICCP, the statutes must be clear on this. No proposals exist up to now on this issue, so contributions are welcome. This ties in with item 3, the standing of Accreditation is important and would be advanced if ICCP were a

registered organization.

5) Minuting of meetings.
The current statutes are adequate for the Plenary Sessions and the Commisssions but not for Council. Consideration also need to be given about approval of Council minutes. Normal practices would be for Council to have the power of approval, but there should be a mechanism where all members have an opportunity to comment before Council minutes are approved.

MEMBERSHIP

The table below summarises the discussions to date on the issue of membership and how it appears in the statutes. The table is organised as follows: in the left hand column is given the EXISTING text of the statutes, followed by comments in *ITALICS* by the various contributors; in the right hand column is the PROPOSED wording for a new version of the statutes, also with some comments in italics.

CLAUSE	NEW PROPOSAL
3. MEMBERSHIP *PC - Distinction between Associate & Full Members has no useful benefits & restricts ability of ICCP to maximise participation by people interested to join. I would like to see these 2 combined into a single "Member" category.* *PC - Associate Members are prohibited from voting for important positions of Council [11b(i)].* *PC - Associate Members should be compensated for reduced privileges by reduced fees. This situation alienates an important and large part of ICCP. Creates a kind of elitism not healthy in ICCP. However, discussion is based on the assumption that the 5 existing categories of membership will be retained.* *LV - Agrees on the elimination of category Associate Member, and create a single category, maybe Ordinary Member.* *LV - Nominations/elections to Council positions could be restricted to members with at least 5 years of ICCP membership (including honorary and retired; whether Institutional Member could vote or not, see ahead)* *KC - Agrees. Believes ICCP is already mature to unify the associate members with the ordinary members* *WP - Supports to get rid of the distinction between full and 'half-full' members. However, there might the option to either make any new member a full member after 2 years automatically or on their first appearance on a meeting, where they could receive a welcome from the general assembly. The latter might be a way to increase participation at meetings* *AC - Necessary to fix classes of membership*	None LV - If the 2 categories are merged into only 1, say ordinary member, much of the comments below can be deleted.
3a. There shall be 5 categories of membership: Associate, Full, Retired and Honorary and Institutional Members *PC - Strange mix where membership categories are defined using different ranges of criteria and in some cases including some, but not all, of the restrictions/privileges of different categories. Privileges of each category should be clearly stated here and not randomly distributed throughout the document.*	None
3a (i) ASSOCIATE MEMBERSHIP: shall be the first category in which organic petrologist may participate in ICCP activities. An Associate Member shall pay an annual fee determined in accordance with Statute 4	**3a (i) ASSOCIATE MEMBERSHIP** shall be the first category in which organic petrologists may participate in ICCP activities. Associate members have the right to become members of Commissions, Subcommissions and Working Groups and participate in their activities including voting for the Chair and Secretary. Associate members do not have the

	right to vote for the positions of President, Vice-President, Treasurer or Editor or to be elected to any office which holds a position on Council or to participate in voting to alter the Statutes. An Associate Member shall pay a membership fee determined in accordance with Statute 4
3a (ii) FULL MEMBERS: shall be experts in organic petrology with long-standing experience and participation in ICCP activities. A minimum of five years experience in organic petrology shall be required before an Associate Member may be elected to Full Membership. A Full Member shall pay an annual fee determined in accordance with Statute 4	**3a (ii) FULL MEMBERS** shall be experts in organic petrology with long standing experience and participation in ICCP activities. A minimum of five years experience in organic petrology shall be required before an Associate Member may be elected to Full Membership. Full Members retain all the rights of Associate Members as well as have the right to vote for and be elected to any office which holds a position on Council and to participate in voting to alter the Statutes A Full Member shall pay a membership fee determined in accordance with Statute 4. *LV - As stated before, I do not agree with this subdivision. If we decide to consider only Member (ordinary or whatever designation decided), we must review all articles where Associated and Full members are refereed to.* *KC - Agrees*
3a (iii) RETIRED MEMBERS: Associate and Full Members may exercise the option to become Retired Members and shall then retain their former rights including voting rights on payment of a reduced annual fee determined in accordance with Statute 4	**3a (iii) RETIRED MEMBERS** Associate and Full Members may exercise the option to become Retired Members and shall then retain their former rights including voting rights, but with the exception that they shall not hold office, on payment of a reduced membership fee determined in accordance with Statute 4
3a (iv). HONORARY MEMBERS: shall be those, if any, drawn from the Full and Retired membership in accordance with Statute 3(b)(iv) below. An Honorary Member shall not be liable to pay an annual fee. Honorary Members shall retain the rights of Full Members. *PC - It should be acknowledged that cases may arise where an Associate Member of long standing may have also made significant contributions to ICCP such that the Council would like to make them an Honorary Member. At present this is not allowed.* *LV - If Associate Member disappears, problem is solved* *KC - Also agrees*	**3a (iv) HONORARY MEMBERS** shall be those, if any, drawn from the Associate, Full and Retired membership in accordance with Statute 3(b)(iv) below. An Honorary Member shall not be liable to pay a membership fee. Honorary Members shall retain their former rights including voting rights, but with the exception that they shall not hold office.
3a (v). INSTITUTIONAL MEMBERS: Institutional Members shall be those firms, institutions of higher learning, or other organisations interested in fostering the science of organic petrology. Institutional Members shall have the right to appoint a person as their designated representative. Such a person does not have to be a member. Institutional Members shall enjoy all the privileges of the Society except that they, or their representatives, shall not hold office or vote. Notwithstanding any of the above limitations, a designated representative of an Institutional Member, who is also an individual member, may so continue to exercise his/her membership rights and privileges on his/her own behalf *PC - it is probably desirable for Institutional Members to have at least some voting rights, particularly for the positions of Chair and Secretary of the Commissions to which they belong* *LV - Why not full voting rights? If they pay fees and are entitled to receive all info/doc from ICCP, why not vote?* *KC - We have to distinguish between voting rights and office holding. The representatives of Instit. Members have to have full voting rights. But they cannot hold offices* *WP - how many institutional members do we have?*	**3a (v) INSTITUTIONAL MEMBERS** Institutional Members shall be those firms, institutions of higher learning, or other organisations interested in fostering the science of organic petrology. Institutional Members shall have the right to appoint a person as their designated representative. Such a person does not have to be a member of the Association. Institutional Members shall enjoy all the privileges of the Society except that they, or their representatives, shall not hold office and may only vote for the positions of Chair and Secretary of the Commissions to which they belong. Notwithstanding any of the above limitations, a designated representative of an Institutional Member, who is also an individual member, may so continue to exercise his/her membership rights and privileges on his/her own behalf.

LV - Propose the creation of Student Members category, with reduced fees and no voting rights. By Student I mean an undergraduate taking a degree in an "organic petrology related" course at BSHonors level. MSc and PhD students can apply to "ordinary" membership. *KC - I agree with the addition of this category. However, I would suggest to include also the MSc and PhD students, since I hardly believe that BSc students attend such meetings.* *WP - you want to get rid of the distinction between full and associate members and then you introduce the student member? Apart from that, how many institutions do you know, where you can get a degree in Organic Petrology', thus for how many people would this status be applicable?*	
3b. Election to Membership *PC - There are inconsistencies in that applications for Associate and Full Membership are determined by the Council on behalf of the General Assembly while application for Honorary and Institutional Membership are determined by the General Assembly. In practice, the Council decides ALL membership applications - in my experience, the General Assembly has never considered any membership application* *PC - It seems desirable to me to have a uniform system for all categories in which the Council puts RECOMMENDATIONS to the General Assembly for approval by the General Assembly i.e. leaving the power to decide membership applications with the membership. In practice, the General assembly would normally follow the recommendations of Council. The General Assembly is deemed to be the supreme body (Statute 6) and should have control over who is or is not accepted to be a member* *LV - I agree that Honorary Members should be approved by the General Assembly. It is a Honor that is given to somebody, and this must be confirmed by the supreme body, even to give the act its real value. But for Institutional, Full and Associate (or Ordinary), Council must have the power to decide and communicate to the General Assembly. Council is elected, not nominated. Therefore, it represents the will of the members and this should mean CONFIDENCE on the council members.* *LV - This applies to other issues ahead, when the issue of Council power is raised* *KC - I agree with this opinion (uniform system, decision by the supreme body).*	None
3b (i). ASSOCIATE MEMBERS: Proposals for election to Associate membership or Institutional Membership shall be sent to the General Secretary on an approved form which may be obtained from any of the officers of the ICCP. The application shall be supported by a sponsoring Full Member. The Council of the ICCP shall consider the application together with the sponsor's statement, and then, on behalf of the General Assembly, determine whether it is to be accepted or rejected *PC - Proposals for election to Associate membership or Institutional Membership shall be" is at variance with 3b(v) in that it provides 2 different avenues to apply for Institutional Membership* *KC - No problem if Associate Members do not exist* *PC - Proposals for election to Associate membership or Institutional Membership ….. form which may be obtained from any of the officers of the ICCP." the underlined section does not seem necessary, especially since we have an approved form available on our web site* *LV - Agree!* *PC - What does "an approved form" mean? Approved by whom?*	**3b (i) ASSOCIATE MEMBERS:** Proposals for election to Associate Membership shall be sent to the General Secretary on a form approved by Council. The application shall be supported by a sponsoring Full Member. The Council of the ICCP shall consider the application together with the sponsor's statement, and provide a recommendation to the General Assembly, where it will be determined whether it the application is to be accepted or rejected. The applicant shall lodge a non-refundable fee of one full years membership along with the application *LV - Council must decide and communicate to General Assembly* *KC - See my comments further below* *KC - Delete category of Associate Member*

LV - By Council, in my opinion *KC - Agrees*	
3b (ii) FULL MEMBERS: To attain Full Membership candidates must demonstrate their level of experience by sending to the General Secretary a curriculum vitae comprising a candidature letter, a list of their publications and the name of one sponsoring Full Member. The Council of the ICCP shall consider the proposal together with sponsor's statement, and then, on behalf of the General Assembly, determine whether it is to be accepted or rejected	**3b (ii) FULL MEMBERS:** To attain Full Membership candidates must demonstrate their level of experience by sending to the General Secretary a curriculum vitae comprising a candidature letter, a list of their publications and the name of one sponsoring Full Member. The Council of the ICCP shall consider the proposal together with sponsor's statement, and provide a recommendation to the General Assembly, where it will be determined whether it the application is to be accepted or rejected *KC - Agrees* *LV - Council must decide and communicate do General Assembly*
3b (iv) HONORARY MEMBERS: Proposals for the nomination of Honorary Members shall be made by the Council of the ICCP and determined by the General Assembly	**3b (v) HONORARY MEMBERS:** Proposals for the nomination of Honorary Members shall be made to the Council of the ICCP. The nomination shall be supported by a sponsoring Full Member. The Council of the ICCP shall consider the nomination together with the sponsor's statement and provide a recommendation to the General Assembly, where it will be determined whether the nomination is to be accepted or rejected.
3b (v). INSTITUTIONAL MEMBERS: Proposals for the nomination of Institutional Members shall be made by the Council of the ICCP and determined by the General Assembly *PC - Institutional Members should also apply on an approved form with supporting documentation (like Associate or Full Members) for the Council to consider the application* *LV - Also agree that they should apply* *KC - Agrees*	3b (v) INSTITUTIONAL MEMBERS: Proposals for election to Institutional Membership shall be sent to the General Secretary on a form approved by Council. The application shall be supported by a statement from the institution outlining its role in fostering the science of organic petrology. The Council of the ICCP shall consider the application, together with the supporting statement, and provide a recommendation to the General Assembly, where it will be determined whether the application is to be accepted or rejected *KC - Agrees* *LV - Council must decide and communicate do General Assembly* *LV - All this will speed up membership application: If application is approved by Council during the 1st semester of the year, a full fee should be paid. If during the 2nd semester, a full fee must be paid. But payment only after acceptance, and not with application. It is not fair. We are not a consulate, where I have to pay for the visa when applying to it, not knowing whether I will be given one or not*

Discussion on this table is welcome from all members. Please send your comments to Lopo Vasconcelos mailto:mailto:lopo@uninet.co.mz

DEADLINE FOR NEXT ICCP NEWS :

13TH JUNE 2005

ICCP Services

- ★ **ICCP Reflectance Standard**
- ★ **Accreditation Programme**

For more information contact the Commission I chair Dr. Walter Pickel :
mailto:walter.pickel@organicpetrology.com

Membership Matters

Response to the ICCP Photo-Membership Directory (included with ICCP News 33) was positive and members seem to like the addition of the photos very much. There have even been 7 unsolicited photos sent in for inclusion in the next directory!

Two members have retired in January of this year, **Krystyna Kruszewska** and **Werner Hiltmann**, both of whom are long-standing members and have made innumerable valuable contributions over many years. Naturally we consider that retirement only means retirement from their employment and we hope it does not include retirement from ICCP activities.

Krystyna Kruszewska

Werner Hiltman

Also to be missed is **Per Rosenberg** who has resigned. Per has been promoted to another position in the Geological Survey of Denmark and Greenland (GEUS) as head of a Department dealing with water pollution. Per wrote: *"Please send my regards to all, I wish to thank for a great time in the ICCP."* We wish Per all the best in his new career.

Directory Updates

Since issuing ICCP News #33 the following changes to members' contact details have been reported:

Carla Viviane **Araujo** - *e-mail address:*
carla@petrobras.com.br

Kevin F. **De Vanney** - *postal address:*
3102 Braun Avenue
Murrysville, PA 15668
U.S.A.

Michael Clay **Frank** - *postal address*:
#8 - 2251, Cameron Street
Regina
Saskatchewan S4T 2V9
CANADA

Werner **Hiltmann** - *postal and e-mail addresses*:
Schneppenhorststrasse 14
30457 Hannover
GERMANY
E-mail: whiltmann@hotmail.com
Werner has retired from the Bundesanstalt für Geowissenschaften und Rohstoffe (Federal Institute for Geosciences and Natural Resources) in Hannover, Germany.

Kuili **Jin** - *e-mail address*:
The listed e-mail address >res@cumtb.edu.cn<is inactive. Please notify new address.

Hrusikesh K. **Mishra** - *phone and fax*:
Tel.: +91-651-242 2383 / 242 2078 (Off.)
Tel.: +91-651-242 2202 (Res.)
Fax: +91-651-223 1851 / 223 1447

Magdalena **Misz** - *phone*:
Tel.: +48-32-291 36 89 546

Gilles **Nicolas** - *e-mail address*:
The listed e-mail address >gilles.nicolas@totalfinaelf.com< is inactive. Please notify new address.

Henrique J. **Pinheiro** (Ricky) - *postal address etc.*:
Springlake Holdings Pty Ltd
c/o Snelling and Associates
P.O. Box 6070
Rivonia 2128
Sandton
SOUTH AFRICA
Tel.: +27 11 803 0197
Tel.: +27 82 892 9331 (Cellular)
Fax: +27 11 803 0174
E-mail: ricky.pinheiro@springlake.co.za

Benjavun **Ratanasthien** - *e-mail addresses*:
scgli008@chiangmai.ac.th
benjavunr@hotmail.com

Per **Rosenberg** - *resigned*

Maristela Bagatin **Silva** - *postal and e-mail addresses*:
Rua José do Patrocínio, 132 ap. 03
Cidade Baixa
90.050-000 Porto Alegre - RS
BRAZIL
E-mail: maristelabs@terra.com.br

Mahendra P. **Singh** - *e-mail addresses*:
mpsingh02@yahoo.co.in
mahendrapratap57@rediffmail.com

Jaroslawa **Szwed-Lorenz** - *e-mai address*:
The listed e-mail address >jarka@ig.pwr.wroc.pl < is inactive. Please notify new address.

Please update your contact details with the Treasurer when necessary

Rudi Schwab, 25 March 2005
mailto:rudi.schwab@btinternet.com

ICCP Awards and Calls for Nominations

ICCP offers a number of awards to recognise outstanding achievements in coal and organic petrology at various stages of career development. Awards available and a brief summary are given below. Full details on the nature of the award, its terms and conditions and how to apply can be found on the ICCP home page a t http://www.iccop.org or by contacting the chair of the award committee (see inside front cover).

Young Scientist Award Call for Nominations

For recent higher degree graduates under 35 years of age who have potential to make outstanding contributions in the field of coal and organic petrology during their career. The award consists of:

-$500US cash
- 3 years of ICCP Membership
-a certificate

In addition, the ICCP Council may invite candidates of exceptional merit to attend the next ICCP meeting to present their results. In this case, up to an additional $1500US will be provided to cover expenses. Meeting costs will be included.

Applications close on **December 31** of each year and should be sent to:

Dr A.C. Cook
Chair ICCP Young Scientist Award Committee
Keiraville Konsultants Pty Ltd
7 Dallas Street
Keiraville, NSW 2500
Australia

Organic Petrology Award

The Organic Petrology Award recognises outstanding contributions by coal and organic petrologists at an intermediate stage of their career. It is limited to applicants under 50 years of age. The award consists of a bronze medal and a certificate. Applications for the award are called for every second year. The next call will be in 2006.

Thiessen Medal Call for Nominations

This is the highest award offered by ICCP. It recognises a lifetime of achievement and outstanding contributions in the fields of coal and organic petrology. The award consists of a bronze medal. Awards are made sporadically but applications are called for every 2 years. Nominations close on **APRIL 30th 2005** and should be sent to:

Dr R.M. Bustin
Chair, Organic Petrology Award Committee
Department of Geological Sciences
University of British Columbia
6339 Stores Road
Vancouver, B.C. V6T 2B4
Canada

ICCP Classifieds

A free service to ICCP members. Send your 'For Sale', 'Wanted to Buy', 'To Give Away' etc. to the editor.

WANTED TO BUY

- Objective: Leitz 50/0.85 P oil , Infinity/0
  Dave Pearson
  mailto:dpearson@coalpetrography.com
- Point counter stage only
  Peter Crosdale
  mailto:peter.crosdale@energyrc.com.au

DONATION NEEDED

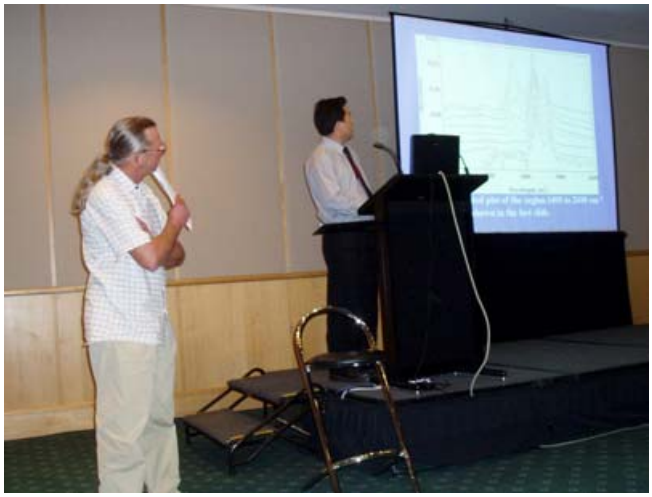
- an old working photomultiplier microscope for vitrinite reflection measurements;
- a point counter;
- the last edition of COAL - Van Krevelen's.

for the Carbochemistry Laboratory's benefit (Industrial Chemistry Faculty -University Politehnica Bucharest) which is deeply involved in petrological activities (graduation diplomas and Ph.D. students of Prof. Cornelia Panaitescu).

Contact: Dr. Georgeta Predeanu:
mailto:gpredeanu@metal.icem.ro or
mailto:gpredeanu@yahoo.com

News from TSOP

The 21st Annual Meeting of TSOP was held in Sydney, Australia from September 26 to October 1, 2004. Despite earlier concerns at the prospect of meeting outside North America, the function was an outstanding success, with 110 registrants from more than 15 different countries and a total of 92 papers presented in oral or poster form. The meeting began with a field trip to the historic torbanite mining area of Joadja, in the southwestern Sydney Basin, led by Adrian Hutton, followed by a short course on the analysis and significance of mineral matter in coal, presented by Colin Ward and David French.



Photoograph 1: *Aivars Depers (left) as a thoughtful Session Chair during the presentation by Zhongshng Li (right) in the TSOP/ICCP technical session on New Techniques and Applications (photo - Colin Ward)*

The main meeting program was held at the Crowne Plaza Hotel at Coogee Beach, and included technical sessions on petroleum source rocks, coal-bed methane and CO_2 sequestration, organic geochemistry, and coal characterisation and resources for sustainable development. A special session on new techniques and applications for organic petrology was also included, held in conjunction with ICCP, as well as a wide-ranging series of papers on more general organic petrology topics.

Keynote papers on petroleum source rocks, coal bed methane and Organic Petrology were presented respectively by Bob Davis (Woodside Energy Limited), Romeo Flores (US Geological Survey) and Andrew Scott (Royal Holloway, University of London). A plenary paper was also presented by Alan Cook, as President of ICCP, outlining the history of ICCP and the role of its different activities. The program included the 2004 Kenneth Mosher Memorial Lecture, presented by Claus Diessel, and an introduction by Frank van Schagen, Chief Executive Officer of the Co-operative Research Centre for Coal in Sustainable Development, to the sustainable development session.

Photograph 2: *Alan Cook (ICCP President) and Aivars Depers in deep discussion with TSOP 2004 Meeting Conveners Colin Ward and Neil Sherwood (photo - Claus Diessel)*

A total of 27 people participated in the post-meeting field trip to the Newcastle area, north of Sydney. Although featuring some world-class outcrops, and also a world-class guide in the form of Claus Diessel, this trip became even more memorable when the wildest combination of wind and rain in more than three years descended on the area, dampening the scenery but not the enthusiasm of the group involved. Despite the weather, the trip provided a spectacular end to a well-attended and highly successful meeting.

The TSOP Council also changed at the Sydney meeting. Councillors for 2004-2005 are:

- President — Colin Ward
- President-elect — Peter Warwick
- Vice-President — Joan Esterle
- Secretary/Treasurer — Mike Avery
- Editor — David Glick
- Councillor (2003-4) — Zhongsheng Li
- Councillor (2004-5) — Tim Pratt

The next TSOP meeting will be held in Louisville, Kentucky, from 11-14 September, 2005. Conveners are Jim Hower (mailto:hower@caer.uky.edu) and Maria Mastalerz (mailto:mmastale@indiana.edu). Further information is available from http://igs.indiana.edu/tsop2005 , as well as the TSOP web site (http://tsop.org).

Photograph 3: *Claus Diessel presenting the 2004 Kenneth Mosher Memorial Lecture at the TSOP meeting (photo - Colin Ward)*

TSOP 2005 ANNUAL MEETING

The Society for Organic Petrology (TSOP), 22th Annual Meeting, September 11-14, 2005, Louisville, Kentucky USA. Information:

Dr. James Hower
Center for Applied Energy Research
University of Kentucky, 2540
Research Park Drive
Lexington, KY 40511-8410,
Phone: +1-859- 257-0261
Fax +1-859- 257-0360
mailto:hower@caer.uky.edu

Abstracts are due on April 30, 2005. Oral and poster sessions will be held on September 12-13. Conference themes include CO_2 sequestration, coal utilization, coalbed methane, coal petrography, organic geochemistry. A special technical session on dispersed organic matter will be held. There will be a workshop on Sept. 11 on CO_2 sequestration. Field trips will be to the Falls of the Ohio (Sept. 11) and an underground mine (Sept. 14). Further details: http://igs.indiana.edu/tsop2005 .

TSOP 2005 STUDENT GRANT PROGRAM

The Society for Organic Petrology (TSOP) invites applications for graduate student research grants. The purpose of the grants is to foster research in organic petrology (which includes coal petrology, kerogen petrology, organic geochemistry and related disciplines) by providing support to graduate students from around the world, who demonstrate the application of organic petrology concepts to research problems.

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

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

Application Deadline: TSOP graduate student research grant application deadline is May 1, 2005. Grants will be awarded in September, 2005. Detailed information and an application form on the TSOP web site http://www.tsop.org/grants.htm or applications may be obtained from:

S. J. Russell
Shell UK Exploration and Production
1 Altens Farm Rd.
Nigg, Aberdeen
AB12 3FY
United Kingdom
Fax: +44(0)1224 88 3689 ;
mailto:suzanne.j.russell@shell.com

MaryAnn Love Malinconico
TSOP Outreach Chair

Answers to Know Your Coal Petrologist #14 &#15

The petrologist in question in #14 is Alan Cook, seen here at the first Senate meeting of The University of Wollongong in January, 1975

More entries from the University of Wollongong in #15, this time Aivars Depers (left) and Adrian Hutton (right) are seen discussing their 1995 research on roof dust in houses.

Appeal for Samples

At the Budapest meeting, it was agreed to establish Accreditation Programs both for coal blends and for vitrinite reflectance in dispersed organic matter. The convener for the coal blends is:

Dr. Isabel Suárez Ruiz
Instituto Nacional del Carbón - CSIC
Apartado 73
33080 Oviedo SPAIN
Phone +34-98-511 9090 Fax: +34-98-529 7662
mailto:isruiz@incar.csic.es

and the *pro temporare* convener for vitrinite reflectance in dispersed organic matter is

Alan Cook
7 Dallas St
Keiraville
NSW 2500, Australia
Phone +61-2-42 299 843 Fax +61-2-42 299 624
mailto:alanccook@iccopozemail.com.au Note: 'iccop' should be removed from ISP name to use this address

Both conveners are anxious to receive samples of suitable materials for use in the new accreditation programs. Some specifications for samples for the two programs are set out in that table.

Preferred	Blends	V R DOM
Sample weight	40 kg	2-4 kg
Grain size	-5 mm with minimum -72 mesh	-4 mm
Rank	Mean vitrinite reflectance 0.60% to 1.6%	0.40% to about 3.0%
Range of vitrinite reflectance in sample	Coals should be single seam	Sample should be isometamorphic with a small range of vitrinite reflectance values
Type	Mineral content should be less than about 7%, a range of vitrinite contents is acceptable	The proportion of dispersed organic matter in the sample should be in the range 1% to about 15%, preferably with vitrinite more abundant than inertinite, high liptinite rocks can be used, but the more complex rocks types will not be used in the initial stages
Address for samples	Dr. Isabel Suárez Ruiz	Alan Cook

ICCP will assist with costs for sending suitable samples to the conveners. Contact should be made with the relevant convener to determine the suitability of any given sample before material is sent to the convener.

Within the blend program, the aim will be to prepare three component blends with little or no overlap in the vitrinite reflectance ranges for the components. Participants will be asked to determine the vitrinite reflectance of each component, the overall vitrinite reflectance of the blend and the blend composition together with the vitrinite content of each blend component.

In the vitrinite reflectance program for dispersed organic matter, the aim will be to determine the ability of analysts to determine vitrinite reflectance for samples with relatively well-defined vitrinite populations. It is not intended to be a test for the maceral analysis of some of the more difficult assemblages of dispersed organic matter but rather a test of the ability to provide vitrinite reflectance data for vitrinite within a range of sedimentary rock types over a wide range of rank or maturation.

We hope to receive an overwhelming response!

Isabel Suárez Ruiz Alan Cook

Thermal Indices WG participants required

Dear Colleagues of Commission II,

I would like to invite you to participate in the next round robin exercise of the Thermal Indices WG. Results of the last year exercise were presented at the Budapest meeting and a report was sent to the participants of the exercise. In the last ICCP meeting in Budapest, it was agreed that we would continue this exercise analysing the Posidonia and Asturian Carbonaceous shales previously studied by the Qualifying Vitrinite for Reflectance WG.

The proposed exercise will include the following analyses:

- Spectral fluorescence measurements on alginite and sporinite
- Total organic carbon determination
- Rock-Eval Pyrolysis
- Extraction, gas chromatography and GC-MS (gas chromatography-mass spectrometry)

The purpose of this exercise is to compare the results provided by different laboratories and investigate the deviations of maturity parameters in marine type II and type III facies. Vitrinite reflectance analyses were already obtained by the Qualifying Vitrinite for Reflectance WG.

Your participation is very important for this WG. Please let me know if you are able to participate and also if you can provide any additional analysis. Additional information will be provided for those interested in participating in this exercise.

Best Regards,
Carla Viviane Araujo
mailto:carla@petrobras.com.br

Coke WG participants required

At the last ICCP Meeting in Budapest we decided to continue the work in the coke petrography working group. We discussed to compare in a first step the results of coke texture analyses carried out by various analysts. Therefore I would like to initiate a round robin exercise. I will send a coke sample to all interested members (we would hope so). I suggest that in this first approach, each participant will analyse the coke sample choosing his preferred analysis method/technique. The results will be compared with the coke texture results as obtained by the TKS (Thyssen Krupp Stahl) method, which was presented at the Budapest Meeting (a brief description of this method will be sent out with the samples).

At the Patras Meeting in September the results and methodologies will be presented and discussed with the aim to develop a methodology for a subsequent round robin exercise.

Members, who are interested to participate, please contact Heike Eickhoff

mailto:Heike.eickhoff@tks-cs.thyssenkrupp.com

Discussion: Pyrite Formation

The question was raised about pyrite formation in peat [Nikki Wagner, ICCP News 33, p38] by photographs of pyrite crystals within a cutinite band. The photographs reminded me of a small study made many years ago that might be applicable in this case.

While studying dispersed organic matter along with rock thin sections of middle Cretaceous rocks from Mississippi, USA, I noted in some foraminifera tests an organic liner covering the inner test wall, see photos 134, 135 and 137. This liner is thin, and brown as shown in the colour photos, and appears to be a food source on which the pyrite bacteria feed. This use of the liner as a food source continues until exhausted. Then the acid water surrounding the tests attacks the calcium carbonate of the foraminifera tests, gradually dissolving them, and all that is left in this case are spheres of pyrite crystals.

Why do we interpret the mechanism of pyrite formation as bacterial? Neavel (1966) “shows that FeS in peats can only form by bacterial activity since on the basis of reaction kinetics there is insufficient energy for a purely chemical reduction of sulphates to disulphides.” This reaction presupposes sufficient supplies of both sulphur and iron. It strikes me that bacteria could be key in your case of pyrite nodule formation.

Jack Burgess

Reference

Neavel, R.C. (1966); Sulfur in coal; its distribution in the seam and in mine products. Ph.D. Thesis, Pennsylvania State University, 332 pp.

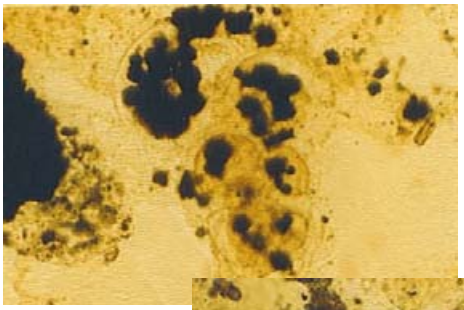


Photo 134

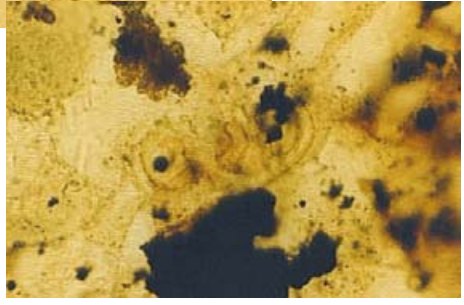


Photo 137

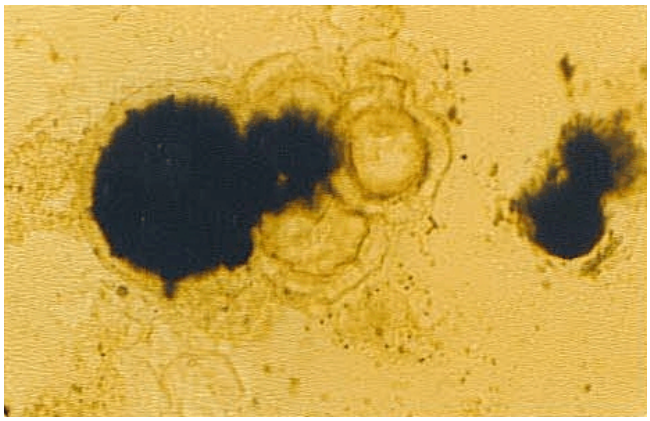


Photo 135 *Pyrite formation in foraminifera tests - see discussion by Jack Burgess, page 31*

WHAT'S HAPPENING

11 - 15 April 2005

The World of Coal Ash, Lexington, Kentucky, USA
Contact : Dr Jim Hower
mailto:hower@caer.uky.edu
http://www.worldofcoalash.org/

April 12 - 13, 2005

Global Coal 2005, New Delhi, India
Contact: Dr A.K. singh
mailto:globalcoal2005@rediffmail.com
mailto:singh_ak2002@yahoo.co.in

11 - 14 September 2005

22nd Annual TSOP Meeting, Louisville, Kentucky, USA
http://www.tsop.org

18 - 23 September 2005

57th Annual Meeting of ICCP, Patras, Greece
Contact : Assoc. Prof. Dr. Kimon Christanis
mailto:christan@upatras.gr
http://www.iccop.org

Planned Future ICCP Meetings

2006	Indonesia
2007	Victoria, Canada
2008	Oviedo, Spain
2009	Porto Alegre, Brazil
2010	Belgrad, Serbia and Montenegro

ICCP Publications

ICCP Handbook

★ *International Handbook of Coal Petrography 2nd Edition (1963)* (in English) as CD ROM
PC and Mac Compatible
Requires Adobe Acrobat Reader Ver. 4 or above
ICCP / TSOP member - $25US (including postage)
ICCP non-member - $50US (including postage)

★ *International Handbook of Coal Petrography, supplement to the 2nd edition*, second print (in English) 1985 US$30

★ *International Handbook of Coal Petrography, 2nd supplement to the 2nd edition* (in English) 1986 US$10

★ *International Handbook of Coal Petrography, 3rd supplement to the 2nd edition* (in English) 1993 US$20

Prices do not include shipping unless stated (approx US$15 in Europe and outside Europe US$23 per item) or cost of money transfer.

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