



CLOSING SESSION

BRIEF SUMMARIES AND COMMENTS ON PRESENTATION IN THE SECTIONS

Section 1 — Coal-bearing formations and regional geology

Jiří PEŠEK

Altogether 6 papers were presented in this section. Three of them were dealing with problems related to the origin and development of Tertiary coal deposits, and the other three papers were focused on Carboniferous deposits. As concerns the Tertiary deposits, here are the very brief comments:

Mr. Sachsenhofer of Austria in his paper on the Basin formation and coal deposits in Cenozoic Eastern Alps emphasized the relationship between geodynamics and coal formation. Mr. Inci spoke about depositional evolution of the Soma Basin in the Western Turkey. He described various lithofacies in the Miocene alluvial lacustrine deposits and pointed out the important role of faulting in the origin of coal deposits. Mr. Mach characterized petrographic, floral and sedimentological evidence of changes in lake level in a system of coexisting lakes in the North Bohemian Miocene lignite Basin in the Czech Republic.

As for the Carboniferous deposits, the following papers were presented: Ms. Pronina and Ms. Mikriukova from Russia described the evolution of coal deposits of Early Carboniferous age in the Moscow Basin, Donieck Basin and the Kama area. Even though all these basins are filled with Early Carboniferous deposits, the rank of coal in the Moscow Basin is very low and all seams can be classified to belong among the medium volatile brown coal. Mr. Trzepierczyński spoke about tectonic setting of Carboniferous strata in the Central Poland. Results of drilling showed gradual degradation of Carboniferous relief in direction from the area of the Fore-Sudetic Monocline and the Holy Cross Mts. toward the Kutno region in the Central Polish Placanticlinorium. Local Carboniferous deposits occur at a depth of 1 to 3.5 km, but in the Kutno region they are as much as about 8 km deep. Mr. Kobr described ancient drainage pattern of Stephanian deposits in Central Bohemian basins. The river beds are buried nearly 200 m below the fossil surface. These deposits are of various age but most of them are confined to Stephanian B and C sediments.

Section 2 — Coal resources and their economics

Nicholas J. RILEY¹

Section 3 — Coalbed methane — economic evaluation and geology

Michiel DUSAR

All six papers presented — out of 10 initially announced — contributed to an excellent session with appropriate time for high-quality presentation and discussion. All papers were effectively dealing with gas in coal and coalification, though with different scientific and economic outcome. The topics were always dealt with at the scale of a basin, albeit a mining basin or a sedimentary basin and its orogenic edge, in Poland, Czech Republic, Belgium and Germany. The objective was either the evaluation of the gas potential or the capture and utilisation of gas in active or closed collieries. Therefore, this session could also have been held at a hydrocarbon congress or workshop.

What did we learn from this session?

Careful data collection from exploration boreholes and mining documents and thorough geological inventarisation still form the basis for reliable studies and for any economic application.

¹ Editorial note: summaries were not received

New techniques, such as 2D modelling of burial history and modular technical installations for combined heat-power generation, are vital for reaching success, provided they are applied with sound judgment and after screening of the basic data. It was very satisfying to hear that the American lead in defining concepts for coalbed methane generation and prospectivity is challenged by new findings of Polish and Czech research units for the Upper Silesian coal basin. The importance of biogenic gas in old coal deposits is astonishing and this should be one of the main outcomes of this conference.

Economics have to be integrated in applied geology projects. Cost calculations clearly demonstrated that gas mining can be profitable.

Crucial facts about the geological history are not known yet. Divergent interpretations of apparently simple pieces of information such as coalification gradients hide complex structural histories, with large consequences on gas generation and saturation. Discussions on the missing pieces of the geological history and the best techniques to model these are likely to remain hot topics for some time to come.

This session proves that the economic prosperity of old coal basins should not be considered as a gift from the past. They hold promise for alternative forms of energy supply. It is hoped that the stimulating concepts and developments shown for the Upper Silesian, Campine and Ruhr coal basins can be applied to other coal regions as well.

Section 4 — Coal characteristics — petrographical, geochemical, palynological, laboratory techniques

Barbara KWIECIŃSKA

We had 12 papers from 8 countries: Austria, Australia, Belgium, France, Germany, Poland, Turkey and Ukraine. The petrographical topic comprised the studies of sub-bituminous coals from Leoben, low-reduced and reduced coals from Donets Basin, coal seam 207 from Sandstone series in the Upper Silesia Coal Basin and high rank coals (anthracites, meta-anthracites) from European coal basins. Palynological results were presented additionally in connection with Polish and Ukraine coal basins. Geochemical data included coals from Eastern Alps, lignites from Turkey and bitumens obtained from Polish coals and surrounding rocks. Isotopic studies of sulphur were presented for coals occurring in coal-fields in Turkey. New techniques applied to coal petrology and geochemistry were also described and explained with details i.e. Quantitative High Resolution Transmission Electron Microscopy applied to high rank coals, carbons and graphites, X-ray microfocus computer tomography used for maceral characterisation in three dimensions and Synchronous Luminescence technique used for analysis of aromatic fractions of coal tars. One presentation showed us coal devolatilization phenomena by using a long focal distance microscope.

Section 5 — Thermal maturity and coal rank

Dierk JUCH

S. Ćmiel from the Silesian University, Sosnowiec, Poland presented a large number of coal quality data, which show clear changes near certain faults in the USCB. At very small distances to the fault planes they are caused either by friction heating or by oxidation.

J. Trzepierzynski, also from the Silesian University, informed of the heterogenous development of the geothermal field in the USCB with high values in the West and the distribution of coal ranks. The proposed preorogenic character of the coalification pattern, which was shown mainly at the Carboniferous surface, was debated controversially during the discussion.

E. Francu from the Czech Geological Survey in Brno demonstrated the changes of the burial and thermal history at the rim of the East Bohemian Massif. Based on measurements of the expandibility of illite-smectite and vitrinite reflectance the forward thermal modelling suggests a strong decrease of the palaeotemperature and burial towards the Eastern foreland. The borderline between the Eastern area with pre-tectonic diagenetic conditions and the Western area with syntectonic low grade metamorphism and its relation to the regional structural geology was debated in discussion.

I. Stukalova from the Russian Academy of Science in Moscow reported on the postsedimentary alterations of organic and mineral matter in a Carboniferous unit at the Eastern slope of the Urals. NH_4 bearing mica minerals in association with anthracites indicate to a syntectonic stress metamorphism of the highly deformed and mostly steep dipping strata.

Section 6 — Topics related to environmental protection

Keith D. PHILPOTT²

² Editorial note: summaries were not received