The Coal Deposits in the Contact Area between Bohemian Massif and Outer Carpathians

Uhelná ložiska v oblasti styku Českého masívu a vnějších Karpat (Czech summary)

(3 text.-figs)

MILOSLAV DOPITA - JOSEF HONĚK - OTAKAR KUMPERA

Vysoká škola báňská Ostrava, Tř. 17. listopadu, 708 33 Ostrava - Poruba

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In the Moravian and Silesian area, the external coal-bearing molasse zone of the Variscan Orogen is partly overlain by the sediments of an Alpine coal-bearing molasse zone. Namurian A - Westphalian coal-bearing molasse sediments in the Ostrava-Karviná Coalfield show a distinct E-W lithological and structural zonation conditioned by the development in two contrasting tectonic units - narrow western mobile Variscan foredeep and the extensive eastern platform. Coal seams are formed mainly by bituminous coal of a high quality. Most of the coals can be used for coke production. The variegated barren rocks - red beds, occur within different stratigraphic levels. The red beds are of postdepositional origin and represent relicts of the Jurassic and Cretaceous weathering zone. The structure of the Carboniferous strata was influenced by Alpine movements. The coal-bearing Namurian A near Němčičky in South Moravia indicates that the Variscan foredeep sediments were much more extensive and extended to the southwest. The South Moravian Lignite Coalfield originated in the Vienna Basin during the Pannonian and Pontian. It comprises two main seams - Kyjov seam and Dubňany seam, all mined in separated areas. The flat lying coal strata are normall faulted forming a system of grabens and horsts. The seams are formed by xylodetrital and detrital humite brown coals with high ash content.

Introduction

The geological history of the Moravian and Silesian territory includes the development of three geotectonis stages - Precambrian, Variscan and Alpine. The distribution and character of the coal deposits in the Variscan and Alpine stages were influenced by the existence of the Precambrian stable continental block-Brunovistulicum. During the Phanerozoic Eon, the Brunovistulicum played a role of a foreland with respect to the Middle Europian Variscan Orogen and the Alpine Orogen. In Moravia and Silesia both orogens, each of them in different directions (the Variscan Orogen from W to E and Alpine Orogen from SE or S to NW or N) gradually ceased on this block. In this region, an interesting phenomenon can be observed: the Variscan flysch zone and the coal-bearing Variscan molasse foredeep are partly overlain by the Alpine flysch zone and coal-bearing molasse zone. This geotectonic peculiarity led to the development of two coal basins of different age in the frame of two orogens in Moravia and Silesia - the Paleozoic Upper Silesian Coal Basin and Cenozoic South Moravian Lignite Basin.

Upper Silesian Coal Basin

Tectonic setting

The Upper Silesian Coal Basin represents an erosion relict of the easternmost and youngest part of the Moravian-Silesian Paleozoic Basin filling which belongs to the Cambrian, Silurian, Devonian and Carboniferous Systems. The positioning of this basin between the inner parts of the Variscan mobile belt and the inner stable part of the Brunovistulicum resulted in weakening of the endogeneous processes in the center of the Epi-Cadomian platform. This fact resulted in the assymmetric evolution of the basin and caused its E-W paleogeographic, stratigraphic and structural zonation (Kumpera 1971). The Upper Silesian Coal Basin, as the latest molasse stage of the Moravian-Silesian Paleozoic Basin shows a E-W zonality. The Devonian - earliest Carboniferous strata were developed under platform conditions. During the latest Visean, the area of the Upper Silesian Coal Basin was subdivided into two main geotectonic units (Dopita - Havlena 1980):

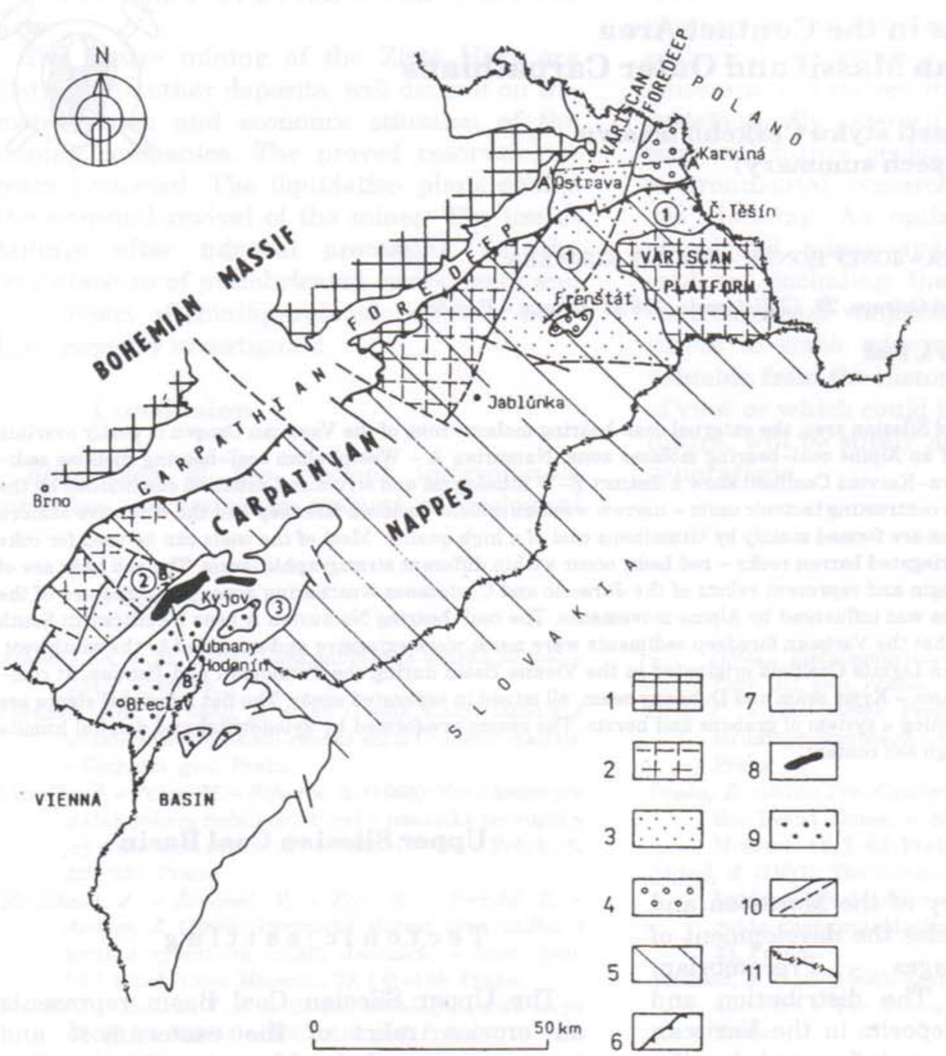

Fig. 1. Schematic map of the coal deposits in the contact area between Bohemian Massif and Outer Carpathians. *1* – outcrops of Paleozoic rocks; *2* – Paleozoic and Precambrian rocks below Outer Carpathian nappes; *3* – paralic molasse (Namurian A) below the cover; *4* – terrigeneous molasse (Namurian B – Westphalian); *5* – Carpathian nappes; *6* – Carpathian front; *7* – Neogene; *8* – Kyjov seam; *9* – Dubňany seam; *10* – important faults; *11* – state boundaries. Numbers in the map: 1 – Ostrava–Karviná Coalfield; 2 – coal-bearing Namurian A near Němčičky; 3 – South Moravian Lignite Coalfield.

a) The young Variscan foredeep, represented by a narrow zone along the western margin of the molasse basin.

b) The Upper Silesian stable block (Kotas 1982), an extensive eastern part of the basin.

In these two units, marine molasse of the latest Visean – earliest Namurian A age, coal-bearing paralic molasse of the Namurian A (E_2 Zone) and coal-bearing continental molasse of the Namurian B – Westphalian age, were deposited. Due to the intensive mining and prospecting activity, the coalbearing molasse deposits are well known in the Ostrava–Karviná Coalfield. The relict of Namurian paralic molasse sediments was found in South Moravia by drilling accomplished between 1970 and 1979.

Ostrava–Karviná Coalfield

The Ostrava–Karviná Coalfield represents the southern part of the paralic and limnic Upper Silesian Coal Basin. The Ostrava–Karviná Coalfield extends over 1800 km² in the southern part of the basin, the southernmost limits are still unknown. More than 60 % of the geological reserves in the Upper Silesian Basin were deposited during the Namurian.

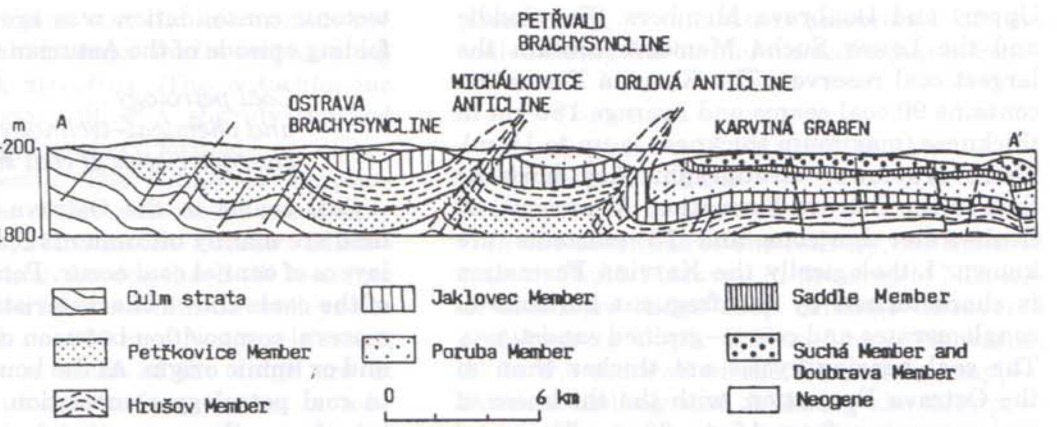

Fig. 2. Geological cross-section of the Ostrava–Karviná Coalfield. Location of the section line A–A' is shown on Fig. 1

Lithostratigraphy of the coal-bearing sediments

In the Ostrava–Karviná Coalfield the coal-bearing strata are divided into the Ostrava and Karviná Formations. The Ostrava Formation (Namurian A–E_2 Zone) is a paralic, coal-bearing molasse, which developed gradually from the Namurian A marine molasse. The Ostrava Formation reaches a maximum thickness of 3000 m and decreases towards the east and south in the area of the Upper Silesian stable block to 100 m or less. Lithologically, the formation is very heterogeneous, comprised of sandstones, siltstones, claystones, volcanoclastic rocks, and coal beds. In this formation, the prevalence of fine to medium-grained sandstones (40–60 % of the total sedimentary column) is typical, while coarse-grained sandstones and conglomerates are rare.

The Ostrava Formation contains more than 170 coal seams with an average thickness of 73 cm. Stratigraphic distribution of different sedimentary rocks show cyclic repetitions reflecting changes of environments of deposition on a coastal plain. The thickness of cycles varies from 6 to 20 m. Most commonly they are about 15 m thick.

The Ostrava Formation has been subdivided into the Petřkovice, Hrušov, Jaklovec and Poruba Members, each several hundred meters thick. The sequence of the s.c. Prokop Seam Member defined by Havlena (1964) belongs to the lowermost part of the overlying Karviná Formation (to the Saddle Member) according to new results (Dopita 1987). The coal-bearing parts of each of the four members are separated by thick sedimentary sequences which lack coal beds, and were deposited during marine transgressions. At present, about 80 horizons of marine and brackish environments with rich fauna (Řehoř – Řehořová 1972) are known. These, together with more than 100 fresh-water horizons, 17 coal tonsteins and over 20 layers of "whetstone" rocks, all serve to correlate and aid in identifying the coal seams.

The principal change of facies in the Ostrava Formation are towards the east and south. The thickness of the marine and brackish horizons decreases eastward. Similarly, the thickness and number of the coal seams is less in the eastern and southern parts of the coalfield.

After deposition of the Ostrava Formation and after a short period of tectonic stabilization and a short depositional hiatus, a tectonic inversion took place. The inversion was associated with strong tectonic movements in the hinterland. The extensive region of the Upper Silesian block became the main area of subsidence in the basin, while the major part of the western mobile belt started to rise. One of the consequences of the Namurian movements was a further disintegration of the tectonic units into mosaic of small blocks. The Namurian tectonic inversion and the structural rearrangement cut-off the basin from the sea.

The subsequent terrigenous molasse of the Karviná Formation (Namurian B, C and Westphalian) was thus deposited in a landlocked basin (Havlena 1982), surrounded by an elevated hinterland. The contact with the underlying Ostrava Formation is erosional and is associated with a hiatus. The syndepositional block movements of the basement influenced the deposition. The Formation is subdivided into the Saddle, Suchá (Lower and

Upper) and Doubrava Members. The Saddle and the Lower Suchá Members contain the largest coal reserves. The Karviná Formation contains 90 coal seams and average 180 cm in thickness (maximum thickness is up to 16 m). There are fewer stratigraphic key horizons than in the Ostrava Formation. At present, 30 fresh-water horizons and 13 tonsteins are known. Lithologically the Karviná Formation is characterized by the frequent horizons of conglomerates and coarse-grained sandstones. The coal-bearing cycles are thicker than in the Ostrava Formation, with the thickness of cycles varying from 15 to 30 m. The total thickness of the Karviná Formation reaches 1000 m.

Variscan structures

The spreading of Variscan endogeneous processes led to the E-W structural zonation in the basin (Kumpera 1980). The structure of the Ostrava-Karviná Coalfield is therefore characterized by two dominant tectonic styles. The more complicated fold-fault style prevails in the western part of the basin in the narrow, western, young Variscan foredeep. This structural zone is characterized by narrow, overturned anticlines over 80 km long, with eastern vergency. These folds are complicated by reverse faults. The Michálkovice Fold and Orlová Fold, striking NNE parallel to the western margin of the basin are the most important structures of this type. Synclines are in contrast broad, open and relatively short. The largest structures of this type are the Ostrava Brachysyncline and Petřvald Brachysyncline. The Karviná coal-mining district lying to the east from of the Petřvald Brachysyncline, shows the simplest structure of the whole Moravian-Silesian basin. Subhorizontal strata and the predominance of normal fault systems is typical of this region. The longitudinal Karviná graben and the cross-oriented Doubrava horst are the largest and most important structures controlled by fault systems in the eastern part of the coalfield. In addition to the dominant east-west zonation, significant changes of structure in the north-south direction can be also observed. The fold structures in the southern part of the Ostrava-Karviná Coalfield are simpler than those in the northern part. This difference results from a more rigid behavior of the southern part of the Precambrian basement. Grygar (1987) proposed that the basin developed during final stages of the strike-slip directed Variscan Orogeny. The tectonic consolidation was brought about the folding episode of the Asturian tectonic phase.

Coal petrology and chemical-technological characteristics of coal seams

Coal seams in the Ostrava-Karviná Coalfield are mainly bituminous coal. Occasionally, layers of cannel coal occur. Petrographic study of the coals shows characteristic differences in maceral composition between coals of a paralic and or limnic origin. At the boundary a "break" in coal petrology composition occurs. At this boundary, there is an abrupt increase in abundance of inertinite in coals; in the lower part of the Karviná Formation in comparison to the Ostrava Formation coals. In the Saddle Member, inertinite content of the coals may exceed 80 %. One of the attractive properties of the coals in the Ostrava-Karviná Coalfield is their low sulphur (less than 0.7 %) and the low phosphorus (0.02 – 0.11 %) content. As a result of the large variation in coal rank and secondary effects of oxidation on coal, particularly in the vicinity of red beds, a wide range of coal types of medium to high degree of coalification are present. In agreement with the general tectonic development of the basin the degree of coalification decreases to the east.

Red beds

The variegated barren rocks, so-called red beds, occur within different stratigraphic levels of the Upper Carboniferous in the Ostrava-Karviná Coalfield. Their presence was recorded within the whole southwestern part of the Upper Silesian Basin. Their occurrence is associated with changes in coal properties and morphology of the coal seams. The known data point toward the postdepositional origin of the red beds. They represent relicts of Jurassic and Cretaceous weathering. These processes of alteration affected mainly coal seams; the weathering is expressed by alteration of coal matter, or by the decrease of coking properties of the coal.

The Alpine structural stage

Since the latest Carboniferous, a period of dry land lasted until the origin of the external zones of the Carpathian mobile belt. As early as late Mesozoic, the southernmost areas of the basin probably formed a part of the Carpathian flysch belt basement. During the Neogene, the Ostrava-Karviná Coalfield was incorparated into the Outer Carpathian foredeep. The Alpine tectonic movements rejuvenated the older major faults emphasizing the basin block structure. The autochtonous Neogene sediments filled a sharply marked pre-Tertiary paleorelief formed on Carboniferous deposits. The dominant morphological elements of the paleorelief are deeply incised valleys (Dětmarovice Furrow, Bludovice Furrow) which border the E-W trending Ostrava-Karviná Ridge. While the valleys are filled by more than 1000 m of Neogene clastics, the Carboniferous rocks of the ridge are at times exposed at the surface. Coarse or medium-grained basal Neogene (Lower Badenian) clastics, known among miners as the Ostrava detrit, fill the basal parts of the valleys. They form a reservoir for a large volume of overpressured mineralized and gasified ground water. After the deposition of the Lower Badenian strata, the late Styrian orogenic process resulted in the subhorizontal overthrust of the Outer Carpathian nappes over the Neogene of the southern parts of the Outer Carpathian foredeep.

Effect of Geology on Mining

The Ostrava-Karviná Coalfield is remarkable in that during deep mining, many geologic problems complicating the coal mining are encountered: a complex coal seam development, complex tectonic structures, erosion wash-outs, the red beds in the coal-bearing Carboniferous, the anomalous geomechanic phenomena, complicated paleorelief of the coal-bearing Carboniferous and water bursts.

Coal-Bearing Carboniferous near Němčičky

In the seventies of our century, for the first time in South Moravia, in the area of Nikolčice-Kurdějov Ridge deep drillings discovered coal-bearing Upper Carboniferous (Namurian A) in the footwall of the Carpathian nappes. Further drilling and following the interpretation of Adámek et al.(1980) enabled us to suggest that the Variscan foredeep continues to the east of Drahanská vysočina Upland and other areas, which are at the present time covered by Mesozoic and Cenozoic sediments and by Carpathian nappes.

The deep borehole Jablůnka 1 situated about 12 km to the south of the known limit of the Ostrava-Karviná Coalfield found the Petřkovice Member and Hrušov Member in the interval 2900-3855 m beneath the surface. The general course of the Upper Silesian Basin between the vicinity of Jablůnka and Němčičky area is unknown till now. This Paleozoic is partly deeply buried under the Outer Carpathians and partly disturbed by a transverse fault system of Sudetic strike. The continuation of the Paleozoic is locally disrupted by horst structures where Paleozoic rocks were eroded.

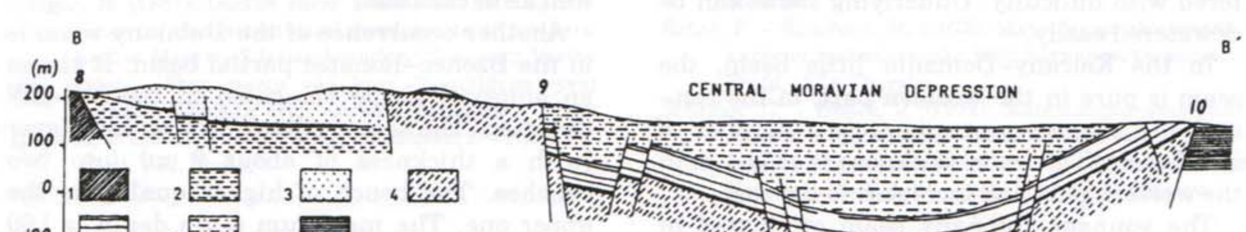

Fig. 3. Geological section of the South Moravian Lignite Basin. Location of the section line B-B' is shown on Fig. 1.
1 - Paleogene of the Ždánice unit; *2-4* - Pannonian: *2* - zone A (basal sandy horizon); *3* - zones B, C (grey series with the Kyjov seam and yellow sandy series); *4* - zone E (greenish-grey series); *5* - Pontian: zone F (coal series with the Dubňany seam and overlying seams); *6* - Dacian: zones G, H (varriegated series); *7* - Lower Pannonian not divided; *8* - Bulhary fault; *9* - Steinberg fault; *10* - Lužice fault (elaborated after Ilčík 1976)

The South Moravian Lignite Coalfield

This coalfield represents a part of the Neogene Vienna Basin. The sedimentation began in the Burdigalian and with frequent stratigraphic breaks lasted until the Pliocene (Dlabač 1958). Sedimentation included brackish and freshwater environments. The lignite basin proper originated in the Pannonian and Pontian (Jiříček 1972) and is of a paralic type. Above the basal sandy horizon (zone A), the Kyjov seam originated in the north-western part of the basin in a sequence of alternating sands and clays (zone B). The following sandy zone C is conformably overlapped by the mostly pelitic zone D and marl–sandy zone E having a characteristic greenish–grey colour. At the base of the E zone, considered to be already of the Pontian age, the Dubňany seam was formed. The E zone is also termed a coal series. It is covered by the largely clayey variegated series of Dacian age (zones G and H) – Ilčík 1976.

The Kyjov seam occurs in the area of the Rakvice block in two separate areas. The larger part situated between Čejč, Hovorany and Kyjov has a shape elongated in the SW–NE direction. The smaller partial basin located between Kelčany and Domanín has an E–W elongation.

In the Hovorany–Kyjov area, the average seam thickness varies from 2.5 to 3 m with the maximum being greater than 6 m. The seam is either pure or contains a number of interlayers. The seam is limited by balk and erosion (Schejbal – Honěk 1972). The maximum depth below the surface is 160 m. The seam is faulted by longitudinal (NNE–SSW to NE–SW) and transverse normal faults striking WNW–ESE to NW–SE (Buday 1963). The throw attains 3–20 m. The faults form a system of grabens and horsts. There are water–bearing sandy horizons in the underlier and roof of the seam. Overlying sands show an unfavourable granulometric composition and can be dewatered with difficulty. Underlying sands can be dewatered easily.

In the Kelčany–Domanín little basin, the seam is pure in the western part, in the central and eastern parts there is a number of interlayers. The seam thickness is of 1–4 m in the western part and increases to the east.

The younger Dubňany seam originated in the area south of the Kyjov seam. The most important area containing the Dubňany seam is the Central Moravian Depression situated between Břeclav, Podvorov, Mutěnice, Dubňany, Hodonín and Tvrdonice (Krejčí – Žídková 1987). In the north–west it is bounded by the Steinberg fault, in the south–west by the Lužice and Lanžhot faults. Other longitudinal normal faults divide the depression into blocks forming grabens and horsts. In the south, the seam outcrops, toward the east it is found at depth (over 300 m at the most). The seam dip varies between 3 and 5°, in the proximity of marginal faults, larger dips can occur.

Sandy horizons in the E zone represent water–bearing collectors. The underlying bed of the Dubňany seam is mostly formed by clay passing into the seam. In the northern part of the depression, the average seam thickness is of 3.5 m, in the south it increases to 5–6 m (Honěk 1972). In the area, four benches, separated by thin dirtbands containing abundant clastic impurities, can be distinguished. To the south, the thickness of these interlayers increases and so does the ash content in the coal benches. In an area behind the Podvorov–Hrušky line, interlayer thickness quickly increases, and the seam splits into unworkable benches. The total seam thickness increases to 10 m and more (Čepelová 1986).

At the top of the Dubňany seam, the so-called coal series was deposited. It consists of grey clays, silts and sands showing distinct cycles of sedimentation. In the fine–grained parts of the cycles dark clays, coal clays and thin lignite seams are present. The coal-forming sedimentation reoccurred several times, but never has produced an economically significant seam. In the northern part of the depression the coal series is 50–60 m thick. In the southern part the thickness of the coal series increases to more than 120 meters. The granulometric composition of the underlying as well as the overlying water–bearing horizons is mostly unfavourable (Cyroň 1984). Sands and silts can be dewatered with difficulty, some of them show the character of floating sand. When mining, a protective bench of lignite is usually left in the roof as well as at the base.

Another occurrence of the Dubňany seam is in the Bzenec–Rohatec partial basin. It shows an elliptical shape elongated in the NE–SW direction. The seam is divided by an interlayer (with a thickness of about 2 m) into two benches. The bench of higher quality is the upper one. The maximum seam depth is 160 m. Longitudinal normal faults divide the basin into elongate blocks.

In a small tectonic block between Mutěnice and Hovorany, the Dubňany seam located in a shallow syncline with a N–E axis was mined by the Ivanka Mine in 1946–1958. The seam thickness varied between 2 and 4 m.

The Dubňany seam has been found in some areas out of the territory of the Czech Republic. Behind the state border, the Dubňany seam continues into Austria. The seam is split into several benches, mostly of low quality, separated by thick interlayers. In the Slovak Republic, the Dubňany seam is found in some tectonic blocks, the most important of which is an occurrence in the Kúty trough. In the locality of Čáry the Záhorie Mine is in operation.

The Dubňany and Kyjov seams consist of humite brown coal which falls according to the degree of coalification into the brown coal hemiphase. The major part of seams is formed by xylodetrital and detrital coals. From the viewpoint of both petrographic composition and technologic properties, the Kyjov and Dubňany seams are alike. The total water content in coal from both seams is about 45% W_t^r. In parts of the basin being mined, the average ash content A^d varies from 18 to 25 %, 22–30 % in coal mined – with corresponding heating value Q_i^r=9.5–8.3 MJ/kg. The total sulphur content is S_t^d= 1–2.5 %, arsenic content is As^d= 15–40 g/t.

Today the Dubňany seam is exploited by two mines. Most of the production is utilized in the Hodonín power plant, with a minor part being sold retail. Further mining activity in the district depends on the existence of this power plant.

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Uhelná ložiska v oblasti styku Českého masívu a vnějších Karpat

V oblasti styku Českého masívu a vnějších Karpat jsou vnější flyšové a molasové zóny středoevropských variscid zčásti překryty vnějšími zónami alpid. K molasové zóně variscid řadíme hornoslezskou černouhelnou pánev. Její jz. moravskoslezská část je známa pod názvem ostravsko-karvinský revír. Sedimentace paralické uhlonosné molasy (ostravské souvrství – namur A, zóny E_2a , E_2b) zde navazuje na mořskou, převážně pelitickou molasu. Vývoj paralické molasy má odlišný ráz v mobilní oblasti úzké mladovariské předhlubně na Z a ve stabilní oblasti rozsáhlého hornoslezského bloku na V. Tyto oblasti se výrazně odlišují mocností, uhlonosností, litologií a strukturně-tektonickou stavbou. Sedimentace kontinentální molasy (karvinské souvrství – namur B, C – westphal A) následovala po hiátu v podloží sloje Prokop, spojeném s geotektonickou inverzí. Sloj Prokop patří k sedlovým vrstvám karvinského souvrství. V ostravsko-karvinském revíru se setkáváme se širokým spektrem černého uhlí jak z hlediska uhelně-petrografického složení,tak chemicko-technologických vlastností. Geologické poměry v pánvi výrazně ovlivňují hornickou činnost, jež se setkává s řadou důlně-geologických problémů, jako jsou nestálý vývoj slojí, složitá strukturně-tektonická stavba, anomální geomechanické jevy (důlní otřesy, průtrže uhlí a plynu), komplikované hydrogeologické poměry, existence pestrých vrstev a s nimi spojené alterace uhelné hmoty až vymizení slojí, složitý pokarbonský reliéf apod.

Uhlonosný karbon u Němčiček je považován za j. pokračování uhlonosných sedimentů mladovariské předhlubně.

Jihomoravská lignitová pánev se dvěma hlavními slojemi (kyjovskou a dubňanskou) se vytvořila v závěru vývoje vídeňské pánve během pannonu a pontu. Hornickou činnost zde ovlivňují zejména složité hydrogeologické poměry. V současné době se již těží jen dubňanská sloj. Rozhodující podíl těženého lignitu je dodáván do tamní elektrárny, na jejímž dalším provozu je závislá budoucnost hornické činnosti v tomto revíru.

RECENZE

R. W a l t e r : **Geologie von Mitteleuropa**. – 5. Auflage, mit Beiträgen von P. Giese, H. W. Walther und H. Dill. E. Schweizerbart'sche Verlagsbuchhandlung (Nägele u. Obermiller), Stuttgart, 1992.

Neobyčejně pestrý geologický obraz i složitý vývoj střední Evropy přímo vybízí k syntetickému a přehlednému zpracování. Po klasické Bubnoffově Geologii Evropy to byl hlavně P. Dorn a později R. Brinkmann a F. Lotze, kteří shrnuli geologické poměry střední Evropy v opakovaně vydávané "Geologie von Mitteleuropa", jejíž páté vydání zpracoval profesor univerzity v Cáchách R. Walter za přispění prof. P. Gieseho (kapitola o geofyzikálních poměrech) a H. W. Walthera a H. Dilla (stať o nerostných surovinách). I když nové vydání tematicky navazuje na vydání předchozí , je jeho obsah zpracován nově jak v textové, tak obrazové části.

Pojem střední Evropy je chápán dosti široce a kniha se zabývá problematikou území od j. okraje Skandinávie po předpolí Alp a od brabantského masívu na Z až po Svatokřížské hory na V, tj. kryje naprostou většinu německého území a části států přilehlých, včetně naší republiky. Vlastní alpsko-karpatský orogen již do knihy pojat není.

Obsah je rozdělen do šesti hlavních částí. Prvá obsahuje základní regionálně geologické dělení, přehled paleogeografického vývoje a geofyzikální obraz stře 'ní Evropy jako celku. Další části jsou věnovány předkvartérním jednotkám Středoevropské nížiny (od Severního moře po Polskou nížinu) a kvartéru Středoevropské nížiny (včetně Severního a Baltského moře). Nejrozsáhlejší je část o zvrásněných proterozoických a paleozoických jednotkách, kde je látka podrobně členěna podle orografických celků, od brabantského masívu a Arden až po Český masív, který je v podstatě dělen na saxothuringikum, lužickou vrchovinu a Západní Sudety, v. okraj a jádro Českého masívu (bohemikum, moldanubikum). Další část je věnována mladopaleozoickým, mezozoickým a kenozoickým pokryvným útvarům (včetně alpského předpolí a molasy) a poslední část podává na více než padesáti stranách přehled rudních i nerudních nerostných surovin. Dílo zakončuje obsáhlý (50 str.) výčet literatury (do r. 1989) a věcný a lokalitní rejstřík.

Na díle je třeba ocenit zejména věcné pojetí látky, její utřídění do logických regionálních celků, klasickou formu názorných ilustrací (mapová schémata, profily, stratigrafické kolonky – celkem 151 obr.) a celkovou stručnost textu, který se soustřeďuje pouze na základní data, především o stratigrafii a tektonice. Tento přísný výběr látky je vzhledem k únosnému rozsahu pochopitelný, znamená však, že do obsahu nemohy být pojaty mnohé charakteristické znaky a skoro žádné zajímavosti. Tím se ovšem četba stává poněkud méně záživnou. Je také škoda, že kniha je bez fotografických příloh. Je to druhá stránka důsledné věcnosti a zhuštěnosti textu. Záporně může působit i okolnost, že vlastní text neobsahuje citace prací, teprve na konci jednotlivých kapitol nalezneme abecední výčet odkazů na literaturu, který není svázán s textem.

Je přirozené, že zvýšená pozornost je věnována terénům na německém území. Český masív na našem území však není podceněn, i když text přináší pouze ryze základní data. Je zřejmé, že autor čerpal poznatky o našem území hlavně z jednotlivých částí Svobodovy Regionální geologie (1966) a ze souhrnu Suka et al. (1984). Výběr další literatury o našem území je spíše namátkový.

Z hlediska regionální geologické klasifikace je jistě pozitivní, že moldanubikum a bohemikum (s Barrandienem) je řazeno po vzoru O. Kodyma sen. k jádru Českého masívu. Označení lugikum se sice ojediněle vyskytuje, dává se však přednost Západním Sudetám (Westsudeten), na v.okraji Českého masívu se rozlišuje moravosilesikum a sudetikum, což vzhledem k Západním Sudetám působí nomenklatoricky nedůsledně. Z hlediska stratigrafické terminilogie lze uvítat zavedení termínu "Formation" pro souvrství, i když zastaralé "Schichten" a dokonce "Serie" se ještě místy objeví. Stupňové dělení odpovídá běžné evropské praxi kromě spodního devonu, kde se autoři nedokázali odpoutat od v Německu zakořeněných názvů gedinne a siegen a v karbonu od názvů dinant a siles. Nové stratigrafické směry jako eventostratigrafie, sekvenční stratigrafie, stejně jako plate-tektonické koncepce, se díla nedotkly.

Jako celek můžeme nové vydání Geologie střední Evropy považovat za dílo užitečné, a to zejména pro ty čtenáře, kteří hledají ryze základní data o geologickém složení a stavbě. Neuspokojí ty, kdo hledají logickou syntézu, vztahy mezi regiony nebo zajímavé osobité rysy. Naši čtenáři v něm sice nenaleznou nové poznatky o našem území, ale kniha jim snadno poskytuje zhuštěné informace o jiných středoevropských oblastech. To je též hlavním důvodem, proč lze dílo doporučit. Cena 98 DM plně odpovídá obsahu i kvalitě knihy.

Ivo Chlupáč