

Petrographic composition and origin of the Dębowiecki conglomerate, Carpathian Foredeep (Poland) – preliminary results

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The Dębowiecki conglomerate is a coarse-grained Miocene sediment, which occurs in the western part of the Carpathian Foredeep between Cieszyn, Jastrzębie and Bielsko (Poland). This unit includes varigrained conglomerates and coarse-grained sandstones. The thickness of the unit may reach up to 260 m. The Dębowiecki conglomerate was mentioned for the first time by Petrascheck (see Konior 1965). However, Tołwiński (1950) described this conglomerate in detail and placed it into the so-called “dębowiecki layers”.

This research aims to determine the composition and origin of the Dębowiecki conglomerate's clastic material. At current stage, 22 samples from the Dębowiecki IG 1 borehole were selected. The fraction larger than 2 mm was used for the petrographic analysis. Four petrographic groups were distinguished among the clastic material. Mudstones, sandstones, fragments of carbonates and crystalline rocks have been identified.

Mudstone pebbles form the largest group, amounting to 23–57%. They are represented by gray, gray-brown to black rocks. Pebbles characterized by high cohesiveness dominate. Sharp-edged and subrounded clasts are predominant, which may indicate a short transport of the material from the source area. Gray, very concise mudstone pebbles with poorly encased grains are very similar to the Carboniferous mudstones which can be found south-west from Dębowiec. It can therefore be assumed that a large part of the material

comes from direct substratum of the Dębowiecki conglomerate made of productive Carboniferous, namely the Poręba beds, which are included to the paralic series. The Poręba Beds (Namurian A) occur within the Upper Silesian Coal Basin (Kotas & Malczyk 1972).

The sandstones are represented by numerous petrographic varieties (3–24%). The light-grey, with a tinge of brown sandstones, with silica or silty-silicate cement may be of productive Carboniferous origin. The light-green, fine-grained sandstones with glauconite resemble flysch deposits. The dark-grey sandstones may be of Culm origin.

The white-yellow, white or beige limestone clasts (0–11%) indicate the similarity to the Devonian carbonates known from the Śląsk Cieszyński basement. Some of them have also strong affinity with the carbonate exotics from the Carpathians. Among magmatic rocks (0–6%), the granitoids are prevailing. They may come from the flysch deposits, or from the Cieszyn Ridge.

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