Cretaceous and Palaeogene rocks as well as older crystalline. There occur spectacular blocks of Jurassic limestones forming the klippes of Andrychów, Pavlovske Kopce and Štramberg.

During the Miocene tectonic movements caused final folding of the basins' fill and created several imbricated nappes. The nappes are thrusted one upon another and all together overthusted the marine molasses of the Carpathian Foredeep developed on the North European Platform. From thrusting nappes large olistoliths glided down into the foredeep. Recently they are known from deep boreholes from bellow of the nappes. In front of the thrusting Outer Carpathian the molasses of fordeep were partly folded. It occasionally caused the formation of olistostromes, e.g. the Badenian evaporites known from the salt mines of the Wieliczka and Bochnia.

Acknowledgments: This research has been financed by Ministry of Science and Higher Eeducation in Poland, grant no N N307 249733.

## Sedimentary basins evolution and olistoliths formation: the cases of Carpathian and Sicilian regions

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The early stage of basin formation in carbonate platform settings, from rifting to further crustal thinning, is generally characterised by mass movements from the faulted margins towards the stretching and drowning sectors. Avalanches, debris flows deposits with extrabasinal blocks, olistoliths, olistoplaque and olistostromes mark the sedimentary record. Block tilting, related to the normal activity of faults, determines the uplift of basin margins, shedding material for the formation of oliststromes. The onset of basin dynamics could be also marked by magmatic upwelling. During the late rifting stage, mass movements decrease, sediments supply with huge olistoliths and olistostromes is less common and coarse-grained deposits prevail, alternating with periods of pelitic sedimentations. Such sedimentary evolution may be observed in several basin successions, independent of their age and geodynamic setting. Good examples are the Northern Carpathian Basin and the Sicilian carbonate platforms-basins system, compared here because of their similarities.

During the Late Jurassic-Early Cretaceous, the Southern European Platforms system topped by carbonate sedimentation experienced rifting and that resulted in opening of the proto-Silesian Basin. Crustal stretching was accompanied by andesitic-teschenitic intrusions. The Late Jurassic-Early Cretaceous sequences of the proto-Silesian Basin were later split into different tectonic units. Neritic grey, black or brownish marly mudstones deposited during the Kimmeridgian-Tithonian were locally associated with debris flows containing olistoliths derived from the adjacent carbonate platform. The mudstones evolve during Tithonian-Berriasian into pelagic limestones and shales with a complex of turbiditic limestones, suggesting a relatively quiet tectonics. Starting from the Valanginian, turbiditic and conglomeratic sandstones with exotic blocks appear within the calcareous shales. Locally, huge olistostrome appears, containing both extrabasinal olistoliths as well as olistoliths derived from the faulted flanks of the proto-Silesian Basin. These coarse sediments evolve upwards to Hauterivian-Aptian black shales. At the end of early Cretaceous (Barremian-Albian), compressional movements started, increased tectonic activity begun and uplift initiated denudation of the margins and ridges and resulting in very thick-bedded sandstones, conglomerates and occasionally olistoliths deposited during Late Cretaceous and Early Paleogene. An oblique collision of the Inner Carpathian terranes with the North European Plate during the Late Eocene-Early Miocene led to the development of accretionary prisms of the Outer Carpathians; numerous olistostromes were formed during this time.

In Sicily, the onset of basin opening (Imerese-Sicanian) occurred during the Triassic. It was interposed between carbonate platforms (Panormide-Hyblean-Pelagian). In the basal deep-water sediments, lenses of olistostromes with olisholiths and basaltic extrusions related to crustal stretching were deposited at the basin margins. These olistoliths were derived from mass-wasting of the Late Permian-Lower Triassic carbonate platform. Late Triassic sedimentation (pelagic marls and limestones) suggests relatively quiet tectonic activity, followed by increased crustal stretching, as suggested by olistoliths of Lower Triassic clastic limestones embedded upwards. Jurassic-Early Cretaceous sedimentation is represented by deep-water siliceous marls and radiolarites, containing several horizons of carbonate turbidites and breccias derived from erosion of the fault-controlled basin flanks. From the beginning of Late Cretaceous, deposition of basin-plain marls and limestones indicates the mature stage of basin dynamics. Upward in the succesion, thick horizons of resedimented carbonate breccias are very common, indicating the onset of tectonic inversion, from pre-orogenic extension to the chain building.

Acknowledgment: This research has been partly financed by the Ministry of Science and Higher Eeducation in Poland, grant no NN307 249733.

## Pentlandite mineralization related to Albanian Ophiolites

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The Jurassic ophiolites in Albania are characterized by several mineralization types including chromites, Fe-Ni-Cu sulfides and arsenides, Fe-Ti-minerals and minerals of the Platinum Group Elements (PGE). Pentlandite-bearing mineralization is related to upper mantle serpentinized harzburgites, chromitite deposits associated with upper mantle dunites, dunites of the supra-Moho zone, ultramafic-mafic intrusions (wehrlites, lherzolites, pyroxenites and gabbros) and to cumulate layered sequences of olivine-gabbros and gabbronorites. Pentlandite occurs in several mineral associations including Ni-bearing sulfides, Fe-Ni-Cu-Co-PGE-bearing sulfides and chromite + Ni-bearing sulfides + PGM. It accompanies chromite, olivine, pyrrhotite, chalcopyrite, cubanite, magnetite, native copper, valleriite, mackinawite, heazlewodite, millerite and PGM. The chemical composition of pentlandite (metal: sulfur ratios, Fe:Ni ratios and Co and PGE contents) is variable depending on the geological setting, mineral associations and textural relationships. It is suggested that the pentlandite-bearing mineralization hosted within chromitite deposits, related to upper mantle dunites and dunites of the supra-Moho zone, is of primary magmatic origin, but the one hosted within upper mantle serpentinized harzburgites, ultramafic-mafic intrusions and to cumulate layered sequences of olivine-gabbros and gabbronorites is genetically related to hydrothermal activity combined with serpentinization processes, which played an essential role for the remobilization of some elements from the host rocks and the transformation of primary sulfides and PGM.

## Maastrichtian dinosaurs in SW Transylvania (Romania)

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Although the first dinosaur discoveries from the Transylvanian Basin were made at Bărăbanţ near Alba-Iulia as early as the end of the 19th century, the Latest Cretaceous Transylvanian dwarf dinosaurs gained their worldwide notoriety only after Baron F. Nopcsa reported his first discoveries in the Haţeg Basin. Nopcsa realized the dwarfing tendencies of these dinosaurs and related this tendency to their limited environment, which he called “the