

Provenance of Carboniferous sediments of the Gurktal Nappe and implication for Alpine and pre-Alpine tectonics.

FISCHER, S., WIPFLER, K., GRUBER, CH., STEFANZL, CH., KURZ, W. & FRITZ, H.
Institut für Erdwissenschaften, Universität Graz, Heinrichstraße 26, A- 8010 Graz, AUSTRIA

Carboniferous conglomerates of Central Austroalpine domains concentrate along the western and northern boundary of the Gurktal Nappe System, close to the contact to surrounding crystalline complexes. They are known as Königstuhl Conglomerate and Paal Conglomerate, respectively, and are considered to be part of the upper tectonic nappe complex within the Eastern Alps. All of them have distinctive tectonic features and disputable relationships with their substrate. They are largely inverted sedimentary successions in direct contact to crystalline complexes, namely the Pfannock Gneiss, the Bundschuh Gneiss and the Ackerl Gneiss. The actual tectonic contacts are normal and strike-slip faults and shear zones of supposed late Cretaceous age, although hints for earlier stacking structures are preserved. Provenance studies of conglomerates next to surrounding crystalline complexes show that pebbles were derived from a metamorphic source nearby. The pebble spectrum includes garnet bearing micaschist, chert, gneiss boulders and various mylonites. Presence of high-temperature and low-temperature mylonite pebbles provide link between pre-Late Carboniferous tectonism and Late Carboniferous deposition. We suggest that the surrounding crystalline basement was exhumed close to surface and deposited in nearby sinks. Presence of detritus derived from the Gurktal Nappe Complex (Murau Nappe) and from the Pfannock-Bundschuh-Ackerl Complexes suggests that both units were in contact before the Late Carboniferous. This precludes the existence of an Alpine tectonic structure and opens questions upon the extend of upper Central Austroalpine nappes in general. Although there is need for serious verification we discuss the model that the Bundschuh nappe system and the Murau nappe complex were assembled during Variscan stacking and are not separated by an Alpine thrust. The actual contact between both units is defined as Cretaceous extensional and strike-slip shear zones.

The Polzberg Fauna (Lower Austria): overview and preliminary taphonomic results from a Carnian Fossilagerstätte

FORCHIELLI, A.,^{1,2} PERVESLER, P.,² & ASCHAUER, B.²

¹ Freie Universität Berlin

² Universität Wien, Institut für Paläontologie

Exceptionally preserved fossils are rare: the preservation of highly volatile tissues and soft parts is unusual in the history of the Earth, but provides a huge amount of information.

The exceptionally preserved fauna of the Fossilagerstätte Polzberg (Lower Austria) in the Reingraben Shales is barely noticed worldwide and little has been clarified on the different preservational pathways of this Late Triassic Fossilagerstätte. The fauna is dominated by nektonic organisms, mainly fishes and cephalopods, but gastropods, bivalves and arthropods are also present. The occurrence of soft part preservation in taxa (arthropods, cephalopods, fishes) from the Polzberg Fossilagerstätte characterizes it as a conservation deposit.

The organic material in the sediment, the presence of tiny pyrite crystals, the absence of sessile organisms and the lack of bioturbation suggest dysoxic to anoxic bottom conditions of the Reingraben Shales. Taphonomic studies on cephalopods and arthropods show extremely well preserved shell material with presence of organic matter. The preservational model of the Polzberg Fossilagerstätte is most likely more complicated than hitherto expected, and probably influenced by a taxonomic factor.