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## **A LONG CONNECTION (750-380MA) BETWEEN SOUTH CHINA AND AUSTRALIA: PALEOMAGNETIC CONSTRAINTS**

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A new paleomagnetic study has been carried out on sediments of middle Cambrian age in the North Sichuan basin (Yangtze Block). Detailed stepwise thermal demagnetizations allowed us to isolate three components. Site-mean direction derived from higher temperature components is  $D/I = 146.9^\circ/-17.1^\circ$  ( $\alpha_{95} = 8.3^\circ$ ) yielding a pole position at  $51.3^\circ\text{S}$ ,  $166.0^\circ\text{E}$ . The fold and reversal tests suggest that remanence was acquired during early stage of sedimentation. Combined with the high-quality early Sinian (748Ma) and middle Silurian poles obtained recently from the Yangtze block, the deriving polar track demonstrates a similar loop to that of Australia. After rotating these key poles from South China to fit that of Australia, the SCB is placed against northwestern Australia. This reconstruction favors the correlations of the Jiangnan Grenville-age orogenic belt with Rudall belt of western Australia, and subsequently late Proterozoic Jiangnan and Officer/Adelaide rift systems. The paleobiogeographic evidences also indicate that this configuration might maintain by the middle Devonian. The reconstruction proposed is contrary to the "missing link" model where the SCB was placed between Australia and Laurentia in the late Proterozoic, and drifted away in around 750 Ma, then a large relative movements during the early Paleozoic.

## **UPPER PALEOZOIC ACANTHODIANS OF THE CZECH REPUBLIC**

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Three stratigraphic intervals yield Upper Paleozoic acanthodian remains in the Czech Republic. All acanthodian bearing strata are non-marine and come from several limnic basins. The oldest occurrences (Westphalian D) come from two localities (Nýřany and Třemošná) that are distant each other about 18 kilometres. Fritsch described two acanthodian taxa from the stratigraphically nearly

identical layer of the cannel coal by the end of the 19<sup>th</sup> century. Both species, *Pseudacanthodes pinnatus* and *Traquairichthys pygmaeus*, are not re-described yet. They could belong to one or two species of the genus *Acanthodes* according to Zidek (oral communication). The small-sized species lived in the special environment of ponds with stagnate water near the bottom (similar like in abandoned channels). The second stratigraphic level is Stephanian B-C interval. Acanthodian remains were detected in the area from the Plzeň Basin in the west to the Krkonoše Piedmont Basin in the east. That means distance more than 200 kilometres. The medium-sized species *Acanthodes fritschi* is characterized by well “ossified” jaws and dermal elements of the head and branchial region (circumorbitals, branchiostegals, gill rakers). Tesserae are always missing. The suprascapula is co-ossified with the scapula. The dorsal fin spine is supported by the small basal plate. The vertebral column is not “ossified”. The smooth scale crowns are posteriorly terminated by very thin spiny projection. Acanthodians of this and next stratigraphic intervals were recently re-described by the author. *Acanthodes fritschi* lived in lakes of various extents from small up to the largest one. The third interval (Asselian to Sakmarian) comprises the youngest acanthodians of the region. Acanthodian findings are known in the area from the Česká Kamenice Basin in the west to the Boskovice Graben in the east. The maximum distance between the finds is about 230 kilometres. Two species were recognized – *Acanthodes gracilis* and *Acanthodes* n. sp. (not published yet). The re-description of the original fossil material of the *Acanthodes gracilis* is planned by Heidtke and Schneider. The new species differs from the *Acanthodes gracilis* in multifold length of pectoral fin dermatrichia. They are almost as long as the pectoral spine. This situation is similar as in pair of the Lower Permian species *Acanthodes bronni* and *Acanthodes tholeyi* from the Saar-Nahe Basin (Germany). The other main features of the new species are in accordance with *Acanthodes gracilis*. That means the worse “ossification” of the jaws and gill rakers, the delicately pitted scale crown with pointed posterior projection (broken off in most cases) etc. The otoliths (mostly one pair) and/or labyrinth infillings were discovered in eight specimens of *Acanthodes gracilis*, one specimen of *Acanthodes* n. sp., and twelve specimens of *Acanthodes* sp. The indication of the radialia of the caudal fin was detected in *Acanthodes gracilis*. The ventrolateral sensory lines amalgamate in the ventral scaly shield into the anteriorly continuing unpaired ventral sensory line. The estimated total specimen length was computed between 61 and 567 millimetres but some body fragments suggest even greater range of lengths. The Lower Permian species lived in lakes of various area and oxygenic conditions at the bottom.

## DEVONIAN VERTEBRATE BIOGEOGRAPHY OF SOUTH CHINA: A REVIEW OF FAUNAL COMPOSITION AND DISTRIBUTION

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The occurrence of early vertebrate fossils (mainly Devonian fishes) in South China has been known for almost a century. But only during recent decades have these fishes received the detailed systematic studies and drawn much attention on account of their diversity and the relatively early geological horizons at which they occurred. The detailed taxonomic descriptions of the Devonian vertebrates from South China over the last forty years, lead to a major increase in the database of described early vertebrate fossils, which are biogeographically and biostratigraphically useful. The Devonian vertebrates from South China, including galeaspid agnathans, placoderms (mainly antiarchs, arthrodires and petalichthyids), acanthodians, chondrichthyans, osteichthyans (mainly sarcopterygians) and various microvertebrate remains, are known from over forty localities. On the paleogeographic setting, these fossil sites can be referred to a major early vertebrate province of Cathaysian Galeaspid Fauna (Region): the South China Province. According to the faunal