

New semionotiform from Ettling (Late Jurassic of southern Germany)

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Among the fossil lagerstätte representing the Late Jurassic Solnhofen Archipelago in the Franconian Alb in southern Germany, Ettling stands out because of its extremely well preserved fossil fishes. Although only few of the identified taxa have been studied so far, Ettling has already provided a rich fish fauna with an amiid, an ionoscopid, an ophiopsid, *Furo*, macrosemiids, pycnodontiforms, aspidorhynchids, and several teleosts including ichthyodectiforms, and the orthogonikleithrids *Orthogonikleithrus* and *Leptolepides*. Here we present a new semionotiform genus characterized by a unique combination of primitive and derived characters and one autapomorphy: the presence of an additional row of 6 scales aligned with the 3 paired ventral caudal basal fulcra and the following five caudal fin rays. At first glance, the fish approaches the macrosemiids in overall similarity and, although it lacks the sinapomorphies of that group, a first cladistic analysis shows its sister-group relationship with the Macrosemiidae. This sister-group relationship is supported by one uniquely derived feature: the presence of a single paired of extrascapular bones, which do not reach the midline and are placed lateral to the parietal bones. Furthermore, this relationship is also supported by two homoplasies: a high number of anterior infraorbital bones and a relatively small interoperculum.

Symposium J – Poster

New controversial neopterygian from the Triassic of Monte San Giorgio

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A new basal neopterygian, very abundant in the Besano Formation (Latest Anisian-Earliest Ladinian) and Meride Limestone (Early-Late Ladinian) of the Monte San Giorgio, which has been wrongly referred to *Archaeosemionotus* Deecke 1889, is currently being thoroughly studied for the first time based on the numerous specimens at the Paläontologisches Institut und Museum of the Zürich University and excellently preserved specimens recently recovered during the excavations started in 2006 by the Museo cantonale di storia naturale of Lugano in the Cassina beds (lower Meride Limestone). The

fish represents a new taxon and has shown a complex morphology with a mixture of amiiform and semionotiform features. Among these controversial features, the pattern of bones in the roof of the skull, with a pair of large nasals sutured at the midline and suturing a thin, nearly V-shaped median rostral anteriorly, is the typical condition in amiiforms. On the other hand, the presence of anterior infraorbital bones and a large quadratojugal taking part in the single lower jaw articulation are typical of semionotiforms. Therefore, the fish cannot be assigned to one or the other fish groups.

The close phylogenetic relationship between *Amia* and *Lepisosteus* and, thus, between amiiforms and semionotiforms in a monophyletic Holostei has been proposed in several phylogenetic analyses of molecular and morphological data. Within this context, the new taxon might represent a basal holostean and its peculiar morphology throws light on the evolution of several characters that have been proposed as synapomorphies at different levels within the Halecomorphi. The new neopterygian taxon is thus very important to explore the monophyly of the Holostei and the phylogenetic relationships within this major group.

Symposium F – Poster

Drift in Miocene mammalian biodiversity hotspots along a latitudinal gradient

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In 2005, the question 'What determines species diversity?' was selected as one of the 25 most important fundamental but unanswered questions in science. For paleontologists the challenge is now to reconstruct biodiversity patterns of the past. Historical data can show how hotspots came to be, and, more importantly in these days of crisis, how they came to their demise. The difficulty lies in that no single locality gives a complete overview of the biodiversity in a particular period. On the generic level, we have combined data from mammal localities within squares of 2x2 degrees, and plotted the number of taxa per square. This has been done for localities in Europe and Asia Minor up to 40°E longitude, one of the most intensively studied areas in mammal palaeontology. The procedure was followed for each mammal zone in the Miocene and beginning of the Pliocene. The maps clearly testify of the patchiness of the fossil record. However, when comparing the data from different zones, there is initially a distinct trend of a southward movement of the hotspots. This leads to a climax in MN 9 in the area around Barcelona. This remarkable hotspot in diversity is followed by a period in which the diversity is more evenly distributed. Making separate analyses for small and large mammals shows that the pattern is much better observable in rodents and insectivores than in the ungulates and carnivores. Presumably, this is due to the higher completeness of the fossil record of micromammals.