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Paleoherpetofauna from the Early Miocene Locality of Les Cases de la Valenciana (Catalonia, Spain)

Poster Presentation

The Miocene record of the Vallès-Penedès Basin (NE of the Iberian Peninsula) has provided a rich and diverse herpetofauna (amphibians and reptiles), which is known in the literature since the early 20th Century, thanks to the pioneering work of Bergounioux and, subsequently, Crusafont and Hoffstetter. However, the early Miocene localities have received little attention in comparison to the middle and late Miocene ones from the same basin, and furthermore no comprehensive study of the herpetofauna assemblages of any locality of this area has been conducted for more than fifty years. Here we report on the herpetofauna from the Early Miocene (MN4) site of les Cases de la Valenciana (Gelida, Alt Penedès), including the published remains discovered in the 1950s by Crusafont and the new findings recently recovered by the team of the ICP in the new excavation campaigns from 2012 until 2016. Two turtles, including a large tortoise *Titanochelon* cf. *bolivari* and a freshwater turtle *Ptychogaster* (*Ptychogaster*) cf. *emydoides*, a snake cf. *Python* sp., and an alligatoroid crocodylian *Diplocynodon* cf. *ratelii* are identified. The recorded herpetofauna suggests various ecological environments: arid landscapes with open woodland are inferred for the heliophile testudinid; a riparian forest for the semiaquatic ptychogasterine; as well as a small and shallow lake, indicated by the presence of the small alligatoroid. According to the rodent fauna, the age of the site is constrained between 16.3–16.0 Ma, thus it provides an excellent opportunity for the study of the composition of the fossil reptiles of the area during the Miocene Climatic Optimum (17–15 Ma).

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The Dentition of *Mosasaurus lemonnieri* (Mosasauridae) from the Campanian and Maastrichtian of Belgium

Poster Presentation, Student Contribution

Mosasaurus lemonnieri is a mosasaurine mosasaurid originally described from the lower Maastrichtian (obtusa Zone) of the Cijly area, Mons Basin, southern Belgium. Despite being represented by numerous specimens, the knowledge of certain aspects of its anatomy is still incomplete. For example, the dentition of *M. lemonnieri* has been compared to that of other *Mosasaurus* taxa even though only a general description of the teeth of *M. lemonnieri* has been published. An assessment of the dentition of *M. lemonnieri*, based on observations and measurements of 359 teeth in 15 individuals (incl. holotype), from the upper Campanian to upper Maastrichtian strata of Belgium (3 individuals from Spiennes, 11 from Cijly-Malogne, and one from Saint-Symphorien), revealed morphological variability with possible taxonomic implications. In most individuals, the labial and lingual surfaces are fluted. However, as the size of the individuals increases, the labial surface becomes faceted. The carinae are unserrated in all but one of the studied specimens (contrary to what has been claimed). Finely serrated carinae were observed only in the individual from Saint-Symphorien (upper Maastrichtian) which might suggest a taxonomic distinction. As in *M. hoffmannii*, the distal carina is positioned labially in the anterior and middle parts of the jaws of *M. lemonnieri* but moves to a distal direction in posteriorly-situated teeth. Linear discriminant analysis (LDA), using morphometric data obtained from the tooth crowns of 6 taxa represented in the Upper Cretaceous of Belgium and the Netherlands, correctly classified ~80 % of the teeth of *M. lemonnieri*, suggesting their good distinguishability on a regional scale.

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Reappraisal of the 'Dorking Specimen': An Upper Cretaceous Brachauchenine Pliosaurid from England

Poster Presentation

Brachauchenine pliosaurids were marine macropredatory reptiles that might have been the only evolutionary lineage of pliosaurid plesiosaurs that crossed the Jurassic-Cretaceous boundary. Yet progress in understanding their origins and phylogenetic relationships has been hindered by limited knowledge of Early Cretaceous brachauchenine pliosaurid diversity and disparity relative to Late Cretaceous members of the clade. Late Cretaceous brachauchenines currently include only three valid taxa: *Brachauchenius lucasi* and *Megacephalosaurus eulerti*, initially described from the Turonian of Kansas, as well as '*Polyptychodon*' *hudsoni* from the Turonian of Texas. In Europe, the clade has long been represented by the widely distributed taxon *Polyptychodon interruptus*. However, recent reappraisal of the original type material of *Polyptychodon* from the mid-Cretaceous of England has shown that *P. interruptus* lacks diagnostic features, prompting a revision of all available specimens attributed to this classic taxon. Arguably the most complete is a partial cranium from the Cenomanian–middle Turonian of Dorking, England. This has been dubbed the 'Dorking specimen', and was first described in 1860 by Sir Richard Owen, who referred it to *Polyptychodon interruptus*. Its historical association has also subsequently prompted suggestions that the specimen be designated the neotype of *P. interruptus*. Though incomplete, its morphology allows for comparisons with other brachauchenines, suggesting its potentially distinct nature. The phylogenetic placement of the specimen further supports the affinity with other Late Cretaceous brachauchenine pliosaurids, which clearly occupied apex-predator niches in marine ecosystems (including those of Europe) up until the end of the Turonian.

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Anatomy and phylogeny of a New, Peculiar Species of *Saurichthys* from Monte San Giorgio (Ticino, Switzerland)

Poster Presentation

European Fossil Fish Symposium

Saurichthys (Actinopterygii, Osteichthyes) is an iconic Triassic genus, characterized by a highly specialized morphology. Over 40 species of this ambush predator are known from marine and freshwater localities worldwide. Of these, six species have been previously described from marine Middle Triassic beds of the UNESCO World Heritage Site Monte San Giorgio (Canton Ticino, Switzerland and Lombardy, Italy). Recent, systematic excavations in a newly-discovered, fossiliferous interval of the Meride Limestone (Sceltrich beds, Ladinian), brought to light several new specimens of *Saurichthys*. The material includes complete individuals, mostly belonging to a new species with a peculiar anatomy. The new species resembles *Saurichthys curionii*, known only from older beds of Monte San Giorgio, in many characters, but it is clearly distinct from the latter in several features. The new species is characterized by unsegmented paired and unpaired fins with branched lepidotrichia, presence of ossified haemal spines in the whole axial skeleton, and diamond-shaped mid-lateral scales. A cladistic analysis is presented to reveal the interrelationships of the new species from the Sceltrich beds.

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Carcharodontosaurian evidence in the Upper Jurassic of Portugal: Filling the Gap

Poster Presentation

A new carcharodontosaurian theropod from the Upper Jurassic of the Lusitanian Basin is here discussed. This new carcharodontosaurian is represented by two specimens, SHN.019 and SHN.036, collected in sediments from the upper Tithonian and upper Kimmeridgian–lower Tithonian, respectively. These specimens share with other carcharodontosaurian theropods some synapomorphies, including the presence of a well-developed ventral ridge in the anterior caudal centra, the anteroposterior length of the pubic distal expansion being more than 60% of the pubic shaft length, the iliac articular surface of the ischium is deeply concave, and the ventrally rather than anteroventrally oriented pubic peduncle. In addition, they share an unusual combination of features with some carcharodontosaurians such as *Neovenator* and *Acrocanthosaurus*, including the presence of a robust suboval eminence on the lateral