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Two New Genera of Eocene Crocodylians

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In a study of the literature of the Tertiary Crocodylia in connection with the preparation of a monograph on the fossil Crocodylia as a whole, some interesting facts have been noted regarding *Crocodylus arduini* Zigno. These facts indicate generic distinction between this species and other species assigned to the genus *Crocodylus*.

Almost invariably long snouts in the Crocodylia are associated with relatively long and slender teeth. This is true in the Teleosauridae (*Teleosaurus*, *Steneosaurus*, *Mystriosaurus*, etc.), in the Pholidosauridae (*Pholidosaurus*, *Teleorhinus*, etc.), in the Gavialidae (*Gavialis*, etc.), and in both the tomistomine and crocodyline sections of the Crocodylidae (*Tomistoma*, *Crocodylus acer*, and *C. cataphractus*, etc.). In the short-snouted species (in the Alligatoridae, the Goniopholidae, and forms of the Crocodylidae), the teeth are relatively stout, and some of them are large.

In the type of *Crocodylus arduini* the snout is long and slender, being intermediate in this respect between that of *Crocodylus acer* Cope and that of *C. cataphractus* Cuvier of the present time in Africa. The teeth, however, are comparatively large. Other characters, such as the shape of the premaxillo-maxillary suture on the palate, the shape of the premaxillary foramen, and the relative size and arrangement of the premaxillary teeth, depart distinctly from the usual conditions of the genus *Crocodylus*.

In order to provide an adequate systematic place for the species *Crocodylus arduini* a new genus is proposed.

¹ Contributions to the Osteology, Affinities, and Distribution of the Crocodylia, Number 42.

MEGADONTOSUCHUS,¹ NEW GENUS

TYPE: *Crocodilus arduini* Zigno.

LOCALITY AND LEVEL OF TYPE: Eocene of Italy.

CHARACTERS: Long, moderately slender snout; teeth relatively large in size, short and stout in proportions; premaxillo-maxillary suture on palate extending directly inward from the shallow premaxillary notch for about four-fifths of its length, then bending sharply inward and forward to meet its opposite at the midline slightly posterior to the level of the anterior borders of the fourth premaxillary teeth. Apparently four teeth in each premaxillary; of these the alveoli of the first are not preserved in the type of the type species; the second, third, and fourth are equal in size and are equidistant from one another. The premaxillary foramen on the palate is distinctive. It is relatively long and narrow. Its anterior and posterior thirds are distinctly rounded anteriorly and posteriorly, respectively, and their lateral borders are essentially parallel. The central third, however, expands rapidly to about twice the breadth of the anterior and posterior portions. This gives the whole aperture essentially the shape of an elongated quatrefoil.

The supratemporal fenestrae are of moderate size. The mandibular symphysis is long.

Several species of Eocene crocodiles from the vicinity of Sheppy, in Kent, England, have been described and later have been considered synonymous by various authors. In 1836 Buckland described his *Crocodilus spenceri*, basing it on an incomplete skull. Later Owen described *C. toliapicus*, considering it to be the same as *C. spenceri*, but, noting an informal use of the term *toliapticus* by Cuvier, applied that name to his species. Owen also described *C. champsoides* from different material. In his 1888 "Catalogue" Lydekker considered all three of these species to be the same, along with *C. arduini*, as noted above. He applied the name *C. spenceri* to all of them.

The characters of these forms have been reviewed by the present writer as a phase of the preparation of the monograph on the fossil Crocodilia. The result of the present study appears to indicate greater degrees of difference between these species than was realized earlier, and also very definite differences between all of them and typical species of the genus *Crocodilus*. As a result the genus *Kentisuchus* is proposed to include Owen's *Crocodilus toliapicus* as its type and also Owen's *C. champsoides*. *Crocodilus spenceri* is referred to it provisionally.

¹ In allusion to the relatively large size of the teeth.

KENTISUCHUS, NEW GENUS

TYPE: *Crocodylus toliapicus* Owen.

DIAGNOSIS: The characters are based primarily on the observed characters of the type species, but characters of *K. champsoides* are included where they are not discernible in the *toliapicus* type. The snout is moderately long and slender, somewhat paralleling the proportions of *Leidyosuchus*. The premaxillary constriction is shallow. The portion of the premaxillaries anterior to the constriction is long. The external narial aperture is located far forward with respect to the constriction. The expansion of the snout at the level of the fifth maxillary teeth is slight, varying somewhat among the species. The constriction posterior to this expansion is never deep and may be almost negligible. The orbits are subcircular, being slightly longer than they are broad. Their axes of greatest length converge sharply in the anterior direction; this character is especially pronounced in the type species. The interorbital plate is relatively narrow and flat. The supratemporal fenestrae are of moderate size, being distinctly smaller than the orbits; they are approximately as long as they are broad. In *K. champsoides*, at least, the frontal bone is excluded from any participation in their anterior borders by an expansion of the parietal. The quadratojugal bone has no acute anterior process such as is present in *Crocodylus*. The premaxillo-maxillary suture on the palate does not extend far backward.

The symphysis is moderately long, occupying about one-third of the total length of the jaw; the splenial bones participate in its composition. There are 20 alveoli in each ramus. The teeth are of moderate size and are rather regularly spaced.

The snout is slightly narrower than in *Leidyosuchus*, and the symphysis is relatively longer. The shape of the snout differs from that of *Enneodon*. The teeth are smaller, and the long axes of the orbits are more oblique in position than in *Megadontosuchus*. The snout is less slender, the symphysis is shorter, and the supratemporal fenestrae are smaller, than in *Tomistoma* and *Gavialosuchus*. The proportions of the skull are altogether different from that of *Osteolaemus*, *Osteoblepharon*, and the genera recently described by Kühn (*Weigeltisuchus*, etc.). The presence of 20 alveoli in each ramus of the jaw contrasts sharply with the characteristic 15 of *Crocodylus*.

The characters of the type species of both of these genera, with reproductions of the original type figures, will be included in the contents of the monograph on the Crocodylia.

Tomistoma (Melitosaurus) champsoides Hulke, from the Miocene of Malta, is a different form.

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