

## An arctomorph carnivoran skull from the Phosphorites du Quercy and the origin of procyonids

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The size and morphological characteristics of a skull of an arctomorph carnivoran mammal from Mouillac (old collection of the Phosphorites du Quercy, of unknown age) in France closely match those of the holotype of the earliest known procyonid *Pseudobassaris riggsi* and another skull referred to this species, both from old collections of the Phosphorites du Quercy (Caylus and Mouillac), probably earliest Late Oligocene in age. The skull is more primitive in morphology than those of *Pseudobassaris riggsi* and every other known procyonid, plausibly approaching a hypothetical primitive procyonid morphotype. The only, but methodologically fundamental, departure from this morphotype is the lack of the procyonid suprameatal fossa, which is the crucial synapomorphy of the family Procyonidae. To explain the phylogenetic and taxonomic status of the arctomorph represented by the skull, three competing hypotheses are put forward. Hypothesis A, which considers the arctomorph as an individual of *Pseudobassaris riggsi*, assumes that the procyonid suprameatal fossa first appeared in a common ancestor of *Pseudobassaris* and other procyonids but was still of variable occurrence within *Pseudobassaris riggsi*. Hypothesis B, which proposes the arctomorph as a member of a new *Pseudobassaris* species ancestral to *Pseudobassaris riggsi*, concludes that the procyonid suprameatal fossa arose in *Pseudobassaris riggsi* and in the Procyonidae independently, excluding *Pseudobassaris* from the procyonids. Hypothesis C, which recognizes the arctomorph as a representative of a new species of a new genus of the paraphyletic procyonid stem group, presumes that the procyonid suprameatal fossa originated in a common ancestor of *Pseudobassaris* and other procyonids after the new genus had become detached from the ancestral stock of the Procyonidae.

**Key words:** *Pseudobassaris*, Procyonidae, Oligocene, Quercy, France.

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