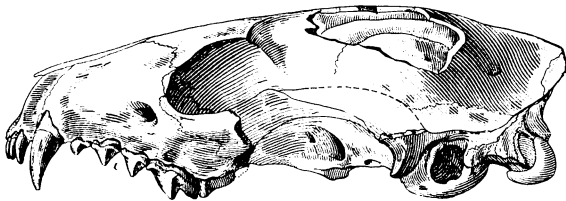


ART. XXXII.—*On the Skull of Amphictis*; by E. S. RIGGS.

THE genus *Amphictis* has so far been made to include three species: *A. antiquus** from Saint-Gerard-le-Puy, and *A. leptorhynchus** and *A. ambiguus*† from the Quercy phosphorites. All of these forms are based upon mandibular characters, and so far only a single upper tooth has been described.‡ The genus is characterized by Schlosser as follows:§ “Diese Gattung zeichnet sich vor Allem aus durch den einfachen Bau der *Pr* und durch die Länge des unteren zweiwurzigen *M*₂. Die Vorderpartie dieses Zahnes besteht aus einem Aussen- und einem Innenzacken, der Vorderzacken ist schon sehr undeutlich geworden. Der Talon ist sowohl am *M*₁ als auch am *M*₂ als Schneide entwickelt, wenigstens der Hauptsache nach.”

An almost complete skull (No. 11455) in the Princeton collection from the Phosphorites probably belongs to this genus, although it is decidedly smaller than the specimens hitherto referred to it, and the means of positively determining it as such are not at hand.

Lateral view of the skull $\times 1$.

The upper dentition is, I3, C1 P4, M2. The incisors have conical crowns slightly compressed antero-posteriorly. The third is much larger than the first and second. The canines are somewhat recurved and are oval in cross section. The first premolar is still functional, but has lost the anterior root. The second is larger, two-rooted, concave on both borders and retains a slight basal cingulum posteriorly. The third premolar is only a little larger than the second but has a basal cingulum on the anterior as well as on the posterior side. The sectorial is similar to that of *Putorius*, but has a stronger internal tubercle and a less prominent anterior cingulum. There is no fissure between the median cusp and the heel as in the civets.

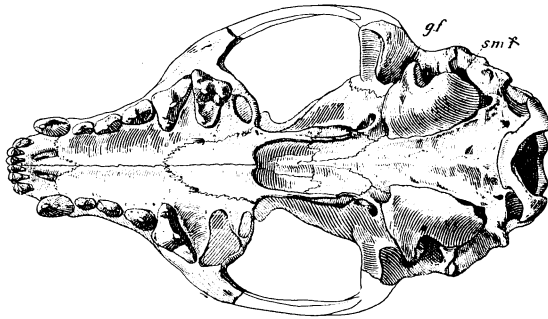
* Pomel, Catalogue méthodique, p. 63.

† Gervais, Zoologie et Paleontologie, gen. ii, p. 51.

‡ Schlosser, Die Lemuren, Chiropteren, etc., des europäischen Tertiars, p. 121.

§ Idem, p. 118.

The first molar bears three small but well-marked tubercles. Of these the inner one is the largest; it is flanked by a prominent internal cingulum which may be regarded as an incipient fourth cusp. The outer tubercles are shifted mesially, leaving a broad external surface which is elevated to form a marked prominence at the acute antero-external angle. In outline the anterior border is convex, the posterior concave. The second molar has been lost from both sides of the specimen, but the alveolas show that it was reduced to a single-rooted tooth.



Base of the skull $\times 1$.

The characters of the base of the skull show affinities with both the mustelines and the Viveridæ. The alisphenoid canal is present as in the viverines and the older fossil cats. The otic bullæ are well inflated and there is no inferior lip to the auditory meatus, as is true of the viverines; but the tympanic walls are much thickened and inclose but a single cavity, into which the meatus externus enters at the middle much as in the mustelines. The paroccipital processes are free from the bullæ and are directed backward, downward and outward as in the early Carnivora and Creodonts. The mastoid processes are blunt and inconspicuous, but lie close to the meatus and form part of its posterior wall as in certain mustelines. The posterior nares open on a line with the last molars; the pterygoids are grooved infra-laterally.

The posterior lacerate foramen opens at the posterior border of the bulla near the stylo-mastoid as in *Bassaris*,* and the carotid foramen lies just in front of it as in that form. The foramen ovale and the posterior opening of the alisphenoid canal lead into a common fossa, as in the civets and the early cats. The post-glenoid foramen opens at the extremity of the anterior rim of the auditory meatus and is partially concealed

* Flower, Proceedings of the Zoölogical Society of London, 1869, p. 10.

by it. The posterior palatine foramina appear just back of the maxillo-palatine suture.

The occiput is nearly perpendicular. The lambeloidal ridges are prominent only at the inion. There is no sagittal crest; the *linea semicircularis* are only slightly marked and do not unite until they reach the occiput, enclosing a narrow sagittal area. The cranium is expanded, showing a large and well-convoluted brain.

The frontal region is concave along the median suture; the nasals are narrow and slender as in the civets. The post-orbital processes are only slight, but back of them there is a marked notch-like constriction.

The measurements are as follows:

	M.
Length of skull from incisors to condyles . . . . .	.074
Breadth across mastoid processes . . . . .	.031
Height of occiput above condyles . . . . .	.021
Glenoid cavity to incisors . . . . .	.054
Breadth across post-orbital processes . . . . .	.019
Occiput to incisors . . . . .	.076
Incisors to last molar . . . . .	.085
Length of molar dentition . . . . .	.026
Breadth of incisor dentition . . . . .	.008
Breadth across first molars . . . . .	.027
Length of base of sectorial . . . . .	.008
Breadth " " . . . . .	.0055
Length of base of first molar . . . . .	.006
Breadth " " . . . . .	.0085
Greatest breadth of nasals anteriorly . . . . .	.007
Breadth of nasals at middle . . . . .	.004

It will be seen that *Amphictis*, though by no means a primitive form, has many characters in common with both *Mustelidæ* and the *Viveridæ*. The general proportions of the skull are musteline. The structure of the inner ear, and of the paroccipital and mastoid processes are essentially characteristic of that group, as are also the presence of the glenoid, and the distinct condylar foramina. But on the other hand the short and expanded auditory meatus, the inter-sagittal space, the character of the molars, and the presence of the alisphenoid canal ally it to the *viverines*. Thus the genus forms a connecting link between the two families and furnishes further evidence in support of Schlosser's theory that they are of common origin.*

* Die Lemuren, Chiropteren, etc., de europäischen Tertiärs, p. 107.