

THE SYSTEMATIC POSITION OF THE PRIMITIVE ODONTOCETE
XENOROPHUS SLOANII (MAMMALIA, CETACEA) AND TWO NEW TAXA
FROM THE LATE OLIGOCENE OF SOUTH CAROLINA, U.S.A.

SANDERS, Albert E., The Charleston Museum, 360 Meeting St., Charleston, SC 29403, U.S.A.

Described from a partial skull minus the braincase found in Late Oligocene beds near Charleston, South Carolina, the archaic odontocete Xenorophus sloanii Kellogg, 1923, was removed from the family Agorophiidae and placed in incertae sedis by Whitmore and Sanders (1977), who figured a new Xenorophus-like specimen with the braincase preserved and regarded it as Xenorophus sloanii. Continued studies of that specimen and other related material from Late Oligocene (Lower Chattian) beds near Charleston now demonstrate that it is not referable to the genus Xenorophus but constitutes a new genus and species. Three other skulls from near Charleston, representing another new taxon morphologically similar to Xenorophus sloanii and perhaps referable to that genus, demonstrates the general form of the cranial region missing in the holotype of X. sloanii. A new family is necessary to accommodate Xenorophus sloanii and the two new taxa from South Carolina.

Currently known only from the Late Oligocene Ashley and Chandler Bridge formations in the vicinity of Charleston, the new Xenorophus-like animals retain the parietals as a major portion of the skull roof and differ from all other known cetaceans in having a prominent premaxillary crest bordering the narial opening and by the broadening and thickening of the premaxilla laterally over much of the supraorbital region beside and beneath the maxilla.

The new genus is more highly evolved than Xenorophus in that the braincase in the former is situated farther forward than in Xenorophus, the anterior wall of the braincase extending beyond and below the level of the posterior margin of the supraorbital processes of the frontals. Although the braincase is missing in the holotype and only known specimen of Xenorophus, the anterior wall of the braincase of that form clearly lies entirely behind the posterior margin of the supraorbital processes, as demonstrated also in the new species allied to X. sloanii. This major difference in the relative positions of the braincase in the two genera reflects an evolutionary trend toward the shortening of the anteroposterior length of the skull and suggests that two subfamilial groups are represented.

Whitmore, F.C., and A.E. Sanders. 1977. Review of the Oligocene Cetacea. Systematic Zoology 25(4):304--320. (December 1976)