Rivista Italiana di Paleontologia e Stratigrafia	volume 103	numero 2	pagine 259-262	Settembre 1997

A NEW FIND OF *HEMISYNTRACHELUS* (CETACEA, DELPHINIDAE) FROM PIACENZIAN SEDIMENTS OF RIO STRAMONTE (NORTHERN APENNINES, ITALY)

GIOVANNI BIANUCCI

Key-words: Cetacea, Delphinidae, Systematics, Pliocene, Northern Apennines, Italy.

Riassunto. Viene descritto un cranio incompleto di *Hemisyntrachelus* sp. (Cetacea, Delphinidae) scoperto nelle marne argillose piacenziane di Rio Stramonte (provincia di Piacenza). Questo nuovo ritrovamento conferma l'alta frequenza, nel Pliocene, di *Hemisyntrachelus* nell'area periadriatica.

Abstract. An incomplete skull of *Hemisyntrachelus* sp. (Cetacea, Delphinidae) is described from the Piacenzian clayey marls of Rio Stramonte (Piacenza, Italy). The new find confirms the abundance of *Hemisyntrachelus* in the peri-Adriatic area during the Pliocene.

Introduction.

In the spring of 1991 Mr. Migliorini discovered a fossil delphinid skull preserved in Pliocene clayey marls that crop out near Rio Stramonte, a small stream in the northern Apennines (Piacenza, Italy) (Fig. 1). The specimen was collected by the Gruppo Paleontologico "La Xenophora" of Castell'Arquato (a village near the discovery locality) and following restoration, is now kept in the Geological Museum of Castell'Arquato.

The Pliocene sequence of Rio Stramonte has been referred to the Piacenzian (Monegatti & Ranieri, 1987).

The holotype of *Hemisyntrachelus cortesii* (Fischer, 1829) and another almost complete skeleton of this species were found in the same locality in the past (Cortesi, 1819; Cuvier, 1823; Del Prato, 1897; Cigala Fulgosi, 1990). More generally, several significant cetacean fossils, including two almost complete skeletons of balenopterid, have been discovered in the northern Apennines of Piacenza province, in the same facies known in the literature as "argille azzurre"(see Francou, 1985). Another probable balenopterid was recently excavated (1986) in this area by the Gruppo Paleontologico "La Xenophora". This specimen, retrieved from Lower Pliocene sediments of Monte Oliveto, also is preserved in the Geological Museum of Castell'Arquato.

Systematic description

Class **Mammalia** Linnaeus, 1758

Order Cetacea Brisson, 1762

Suborder Odontoceti Flower, 1762

Family *Delphinidae* Gray, 1825

Genus *Hemisyntrachelus* (Brandt, 1873)

Type-species: *H. cortesii* (Fischer, 1829)

Hemisyntrachelus sp.

(Fig. 2-3)

The specimen consists of an incomplete skull (lacking the rostrum, part of the left side of the neurocranium, the right antorbital process and the hamular processes of the pterygoids). The auditory bones, the mandible, the teeth and all of the postcranial skeleton are not preserved.

The skull size is larger than that of contemporary *Tursiops*, but more closely resembling that of *Hemisyntrachelus*, a genus recently re-described and referred to the family Delphinidae (Bianucci, 1996, 1997). The wide exposition of the frontals, in dorsal view, suggests an immature animal, like the specimen described by Sacco (1893). The left dorsal portion of the braincase is lost and an endocranial cast is exposed. In lateral view, the temporal fossa is relatively large and is antero-posteriorly elongated as in *Tursiops* and *Hemisyntrachelus*, while differing from the round-shaped fossa of the con-

- Dipartimento di Scienze della Terra, via S. Maria, 53, 56126 Pisa (Italy).

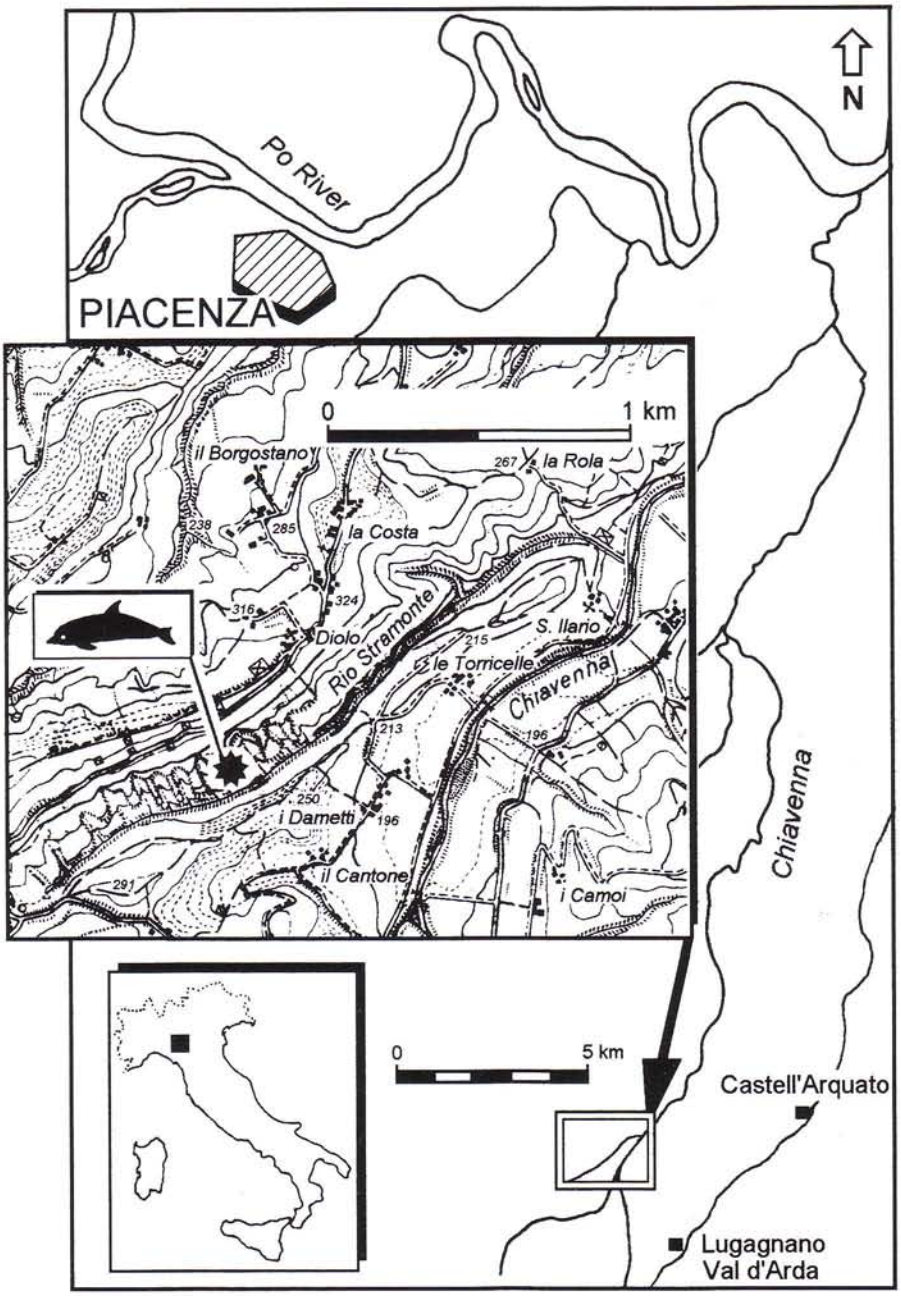

Fig. 1 - Geographic location of *Hemisyntrachelus* sp. described.

temporaneous genus *Astadelphis* Bianucci, 1996. The orbit is placed relatively anteriorly, as in *Hemisyntrachelus*, and the zygomatic process of the squamosal is anteroposteriorly elongated. Among the living genera, this process more closely resembles that of *Pseudorca* than the short process of *Tursiops*.

The skull size, the shape of the temporal fossa, the advancement of the orbit and the elongation of the zygomatic process of the squamosal indicate that the specimen belongs to the genus *Hemisyntrachelus*. A specific attribution is not possible since the rostrum and the mandible, defining characters of the two species *H. cortesii* and *H. pisanus* are lacking in this specimen.

Width of rostrum at base	180
Width of premaxillae at base of rostrum	106
Greatest postorbital width	320

Tab. 1 - *Hemisyntrachelus* sp. Estimated measurements (in mm).

Discussion.

The discovery of a new specimen of *Hemisyntrachelus* confirms the relative abundance of this fossil genus in the Pliocene of the Peri-Adriatic area. In fact, 11 of 16 significant delphinid records are referred to this genus (Bianucci, 1996, 1997). Particularly in the Emilia

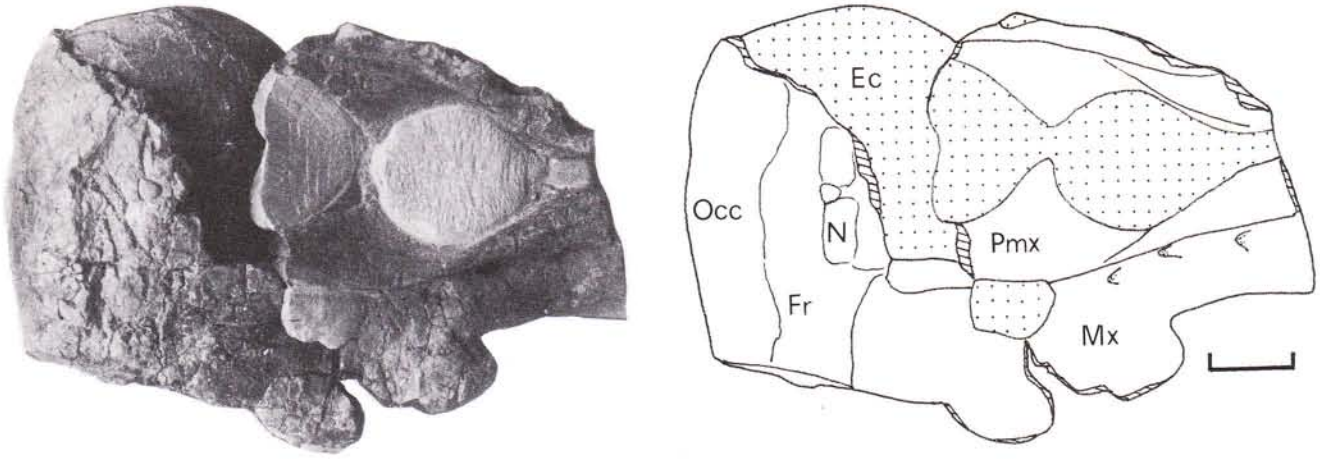

Fig. 2 - *Hemisyntrachelus* sp. Rio Stramonte (northern Apennines, Italy), Piacenzian. Incomplete skull in dorsal view. Ec, endocranial cast; Fr, frontal; Mx, maxilla; N, nasal; Occ, occipital; Pmx, premaxilla. Scale = 5 cm.

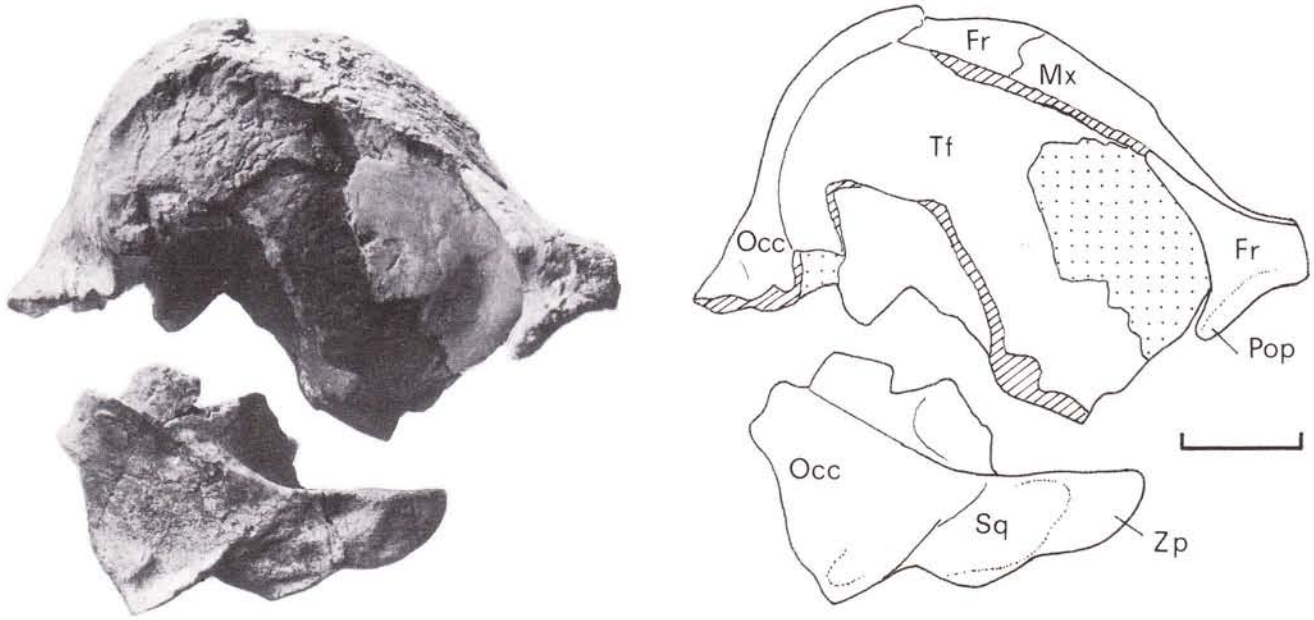

Fig. 3 - *Hemisyntrachelus* sp. Rio Stramonte (northern Apennines, Italy), Piacenzian. Neurocranium of the incomplete skull in lateral view. Fr, frontal; Mx, maxilla; Occ, occipital; Pop, postorbital process; Sq, squamosal; Tf, temporal fossa; Zp, zigomatic process of the squamosal. Scale = 5 cm.

area (provinces of Piacenza, Parma, and Bologna) all well-preserved delphinid records (7 specimens) belong to *Hemisyntrachelus*.

The abundance of this genus might be related to its feeding habits (*Hemisyntrachelus* was probably a generalist and opportunistic predator) and the restricted width of the Peri-Adriatic basin. This last condition might not have favoured the diffusion of open sea delphinids such as *Stenella*, that instead inhabited the paleo-Thyrrenian sea.

Acknowledgements.

I thank Dr. P. Miculan for information concerning the new cetacean finds and for his assistance during my visit to the Geological Museum of Castell'Arquato. I also wish to thank the director of this museum, Dr. C. Francou, for granting me access to the fossil cetacean collection. I am grateful to Prof. W. Landini (Dipartimento di Scienze della Terra, University of Pisa) for useful discussions and suggestions. I am also indebted to Dr. D. J. Bohaska (Washington) for critically reading the manuscript.

The illustrations are by the author and the photos by Mr. M. Gini (Dipartimento di Scienze della Terra, University of Pisa) and the author.

REFERENCES

Bianucci G. (1996) - The Odontoceti (Mammalia, Cetacea) from Italian Pliocene. Systematics and Phylogenesis of Delphinidae. *Palaeont. Ital.*, Pisa (in press).

Bianucci G. (1997) - *Hemisyntrachelus cortesii* (Cetacea, Delphinidae) from Pliocene sediments of Campore Quarry (Salsomaggiore Terme, Italy). *Boll. Soc. Paleont. Ital.*, v. 36 (1, 2), Modena (in press).

Cigala Fulgosi F. (1990) - Predation (or possible scavenging) by a great white shark on an extinct species of bottlenose dolphin in the Italian Pliocene. *Tert. Res.*, v. 12, pp. 17-36, Leiden.

Cortesi G. (1819) - Saggi geologici degli Stati di Parma e Piacenza. V. of x + 165 pp., Maino, Piacenza.

Cuvier G. (1823) - Recherches sur les ossements fossiles, où l'on rétablit les caractères de plusieurs animaux dont les révolution du Globe ont détruit les espèces. Tome Cinquième, I Partie. V. of 405 pp., G. Dufour & E. D'Ocagne, Libr., Paris.

Del Prato A. (1897) - Il *Tursiops Capellinii* Sacco del Pliocene Piacentino. *Palaeont. ital.*, v. 3, pp. 1-14, Pisa.

Fischer J.B. (1829) - *Synopsis Mammalium*, V. of 512 pp., Sumtibus J.G. Cottae, Stuttgart.

Francou C. (1985) - I cetacei del Pliocene Piacentino. V. off 77 pp., Ammm. Prov., Piacenza.

Monegatti P. & Ranieri G. (1987) - Osservazioni paleoecologiche sulla sezione pliocenica di Rio Stramonte (Piacenza). *Boll. Acc. Gioenia Sci. Nat.*, v. 20, pp. 287-308, Catania.

Sacco F. (1893) - Il delfino pliocenico di Camerano Casasco (Astigiana). *Mem. Soc. Ital Sci.*, v. 9, pp. 1-15, Napoli.

Received December 11, 1996; accepted April 24, 1997.