

**Article IX.**—DESCRIPTION OF AN APPARENTLY NEW PORPOISE OF THE GENUS *TURSIOPS*, WITH REMARKS UPON A SKULL OF *TURSIOPS GILLII* DALL.

BY ROY C. ANDREWS.

PLATE X.

In 1908, Mr. John T. Nichols published in this 'Bulletin' a paper entitled, 'Notes on Two Porpoises captured on a voyage into the Pacific Ocean'<sup>1</sup> in which he discussed a specimen of the genus *Tursiops*, captured in approximately Lat. 12° N., Long. 120° W.

The skull, alone, of this porpoise was preserved and after comparing it carefully with the great series of *Tursiops* in the U. S. National Museum, Mr. Nichols came to the following conclusion: "This animal is quite different from *Tursiops gillii*, and probably different from *T. truncatus* of our Atlantic coast, though the material is not sufficient to warrant separating it positively from that species" (*l. c.*, p. 218).

During the recent expedition of the U. S. S. 'Albatross' to Lower California waters, under the leadership of Dr. Charles H. Townsend, two beach-worn, but fairly perfect, skulls of porpoises were secured on Santa Catalina Island in the Gulf of California, and one skull at San Bartolome Bay on the west coast of Lower California. The first two (Nos. 31830 and 31831) are unquestionably specifically identical with Mr. Nichols's specimen and seem to demonstrate that the species is new.

Mr. Nichols has very kindly asked me to describe the new form, and, at his request, I take pleasure in naming it *Tursiops nuuanu*, after the ship from which he secured the type specimen.

***Tursiops nuuanu* sp. nov.**

Type No. 35045, ad. Approximate locality, Lat. 12° N., Long. 120° W., December 6, 1906.

"Color slaty black, grayer from throat to vent. Approximate length, 7¼ feet" (*l. c.*, p. 217).

*Skull.*—Temporal fossæ much smaller than in *T. truncatus*. Orbits not so curved, due to a shortening of the posterior, downward-projecting spurs of the orbital processes of the frontals. The maxillary and frontal orbital processes, and the plates

<sup>1</sup>Notes on Two Porpoises captured on a voyage into the Pacific Ocean. By John Treadwell Nichols. Bull. Amer. Mus. Nat. Hist., Vol. XXIV, 1908, Art. XIV, pp. 217-219, pl. xiv. The plate is here reprinted.

of the maxillæ just postero-external to the maxillary notches, are much thinner than in *T. truncatus* or *T. gillii*. The malar along its outer free border is longer and thinner, the vomer visible between the backward prongs of the two pterygoids is wider, and the beak is flatter distally than in *T. truncatus*.

The small size of the temporal fossæ of the three specimens representing *T. nuuanu* is, to my mind, alone strong evidence of its specific distinctness from *T. truncatus*. Because of the small fossæ, and the orbital thinning of the maxillary, frontal and malar bones, the skull presents, in a lateral view, quite a different appearance from that of *T. truncatus* and one which is decidedly striking when skulls of the two species are together.

In regard to the vomer, after examining the great series of *T. truncatus* skulls in the National Museum, Mr. Nichols said: "On the under side of the back of the cranium at the posterior border of the inferior nares, the vomer is visible between the backward prongs of the two pterygoids. At this point its sides are flaring, and it is much broader than either pterygoid alone. There is considerable variation in the series of *truncatus* skulls examined as to the comparative breadth of the vomer, but it is generally narrower than in No. 35045, even to less than half the breadth of a single pterygoid; and its sides are not flaring, *i. e.*, they have a more parallel tendency. . . .

"There is a *truncatus* skull<sup>1</sup> in the National Museum Collection from off Hatteras, N. C., which has the conditions back of the maxillary notch perhaps more like those of No. 35045 than like those found typically in *truncatus*. In the 'Ostéographie des Cétacés,' Van Beneden and Gervais, there is a figure<sup>2</sup> of a skull of *T. truncatus* from Cette, France, which shows plainly the vomer-ptyergoid conditions, and they are very like those of No. 35045" (*l. c.*, pp. 218, 219).

In No. 31831, from Santa Catalina Island, the shape of the vomer is almost identical with the corresponding bone in Mr. Nichols's specimen. In the other Santa Catalina Island skull (No. 31830) the sides of the vomer are somewhat less flaring but still closely approach the condition seen in the type.

The thinning of the orbital processes of the maxillæ and frontals, and the length of the malar, while very striking in the type and in the two Santa Catalina Island specimens, must be considered as characters of doubtful importance since all three bones, in this respect, are subject to much individual variation.

In the following table the ratios of the length of the temporal fossæ to the total length of the skull of six specimens of *T. truncatus*, three of *T. nuuanu* and two of *T. gillii* are given.

<sup>1</sup> Nat. Mus. No. 21538. Off Hatteras, N. C. U. S. F. C.

<sup>2</sup> Van Beneden and Gervais, 1868-1879, Ostéographie des Cétacés, pl. xxxiv, fig. 6.

Species.	Collection and Cat. No.	Locality.	Length of skull. mm.	Length of temp. fossa. mm.	%	Depth of temp. fossa. mm.	%
<i>T. truncatus</i> <sup>1</sup>	U. S. Nat. Mus. 12276	Beaufort, N. C.	471	113	23.9	73	15.5
"	U. S. Nat. Mus. 12274	"	470	112	23.8	82	17.4
"	U. S. Nat. Mus. 12016	Ft. Macon, N. C.	450	110	24.4	79	17.5
"	U. S. Nat. Mus. 22081	Hatteras, N. C.	440	107	24.3	73	16.8
"	U. S. Nat. Mus. 22085	Hatteras, N. C.	413	104	25.1	77	18.6
"	A. M. N. H. 22989	Pelham Bay, N. Y.	451	110	24.3	83	18.4
<i>T. nuuanu</i>	A. M. N. H. 35045	Pacific O., 12°N., 120° W.	482	104	21.5	73	15.1
"	A. M. N. H. 31830	Santa Catalina Is., G. of Cal.	510	104	20.3	72	14.1
"	A. M. N. H. 31831	"	473	90	19.0	78	16.5
<i>T. gillii</i>	U. S. Nat. Mus. 12054	Lower Cal.	540	135	25.0	85	15.7
"	Mus. d'Hist. Nat. a3060	Monterey, Cal.	508	117	23.0	74	14.5

It will be seen from the foregoing table that in all the skulls of *T. truncatus* the proportional length of the temporal fossa is considerably greater than in *T. nuuanu*. Again the average of the relative lengths of the fossæ in the six specimens of *T. truncatus* is 24.3%, while in the three skulls of *T. nuuanu* it is only 20.3%.

The relations of *T. nuuanu* and *T. gillii*, which also occurs along the coast of Lower California, are most interesting because the former species differs from the latter in just the characters which separate *T. gillii* from *T. truncatus*.

In his 'Review of the Delphinidæ' Dr. F. W. True speaks as follows regarding *Tursiops gillii*:<sup>2</sup>

"In *T. tursio* the optic canal rises gradually to the level of the antero-internal border of the frontal, and the whole inferior surface of the frontal is nearly plane. In *T. gillii* the optic canal ends abruptly without reaching

<sup>1</sup> Measurements of U. S. Nat. Mus. specimens kindly furnished by Dr. F. W. True.

<sup>2</sup> A Review of the Family Delphinidæ. By Frederick W. True. Bull. U. S. Nat. Mus. No. 36, 1889, pp. 43, 44.

the level of the prominent rounded antero-internal border of the frontal, which latter bone is deeply concave.

"In the wall of the temporal fossa of *T. gillii* the lower part of the parietal appears as a narrow band between the anterior margin of the squamosal and the posterior margin of a backward extension of the frontal, while in *T. tursio* the frontal has no backward extension and the parietal is broad inferiorly."

The three specimens of *T. nuuanu* have the optic canal and the inferior surface of the frontal exactly as in *T. truncatus*. In the wall of the temporal fossa of *T. nuuanu* the lower part of the parietal is somewhat narrower than in *T. truncatus* but still closely approaches the condition seen in that species, and the frontal is not extended backward as in *T. gillii*.

Dr. True believes the large condyle of the mandible to be an additional distinguishing character of *T. gillii*. The mandibular condyle of the type specimen of *T. nuuanu* is exactly as in *T. truncatus*, *i. e.* its greatest diameter is contained two and one half times in the greatest depth of the ramus, as against two times in *T. gillii*.

The vomer-pterygoid condition and the small temporal fossa of *T. nuuanu*, characters distinguishing that species from *T. truncatus*, are apparently not of value in separating it from *T. gillii*. In two skulls of *gillii* the vomer is considerably expanded between the backward prongs of the pterygoids and in one (No. 32015 A. M. N. H.) the temporal fossa seems to be relatively small although the rostrum is so badly broken as to make an accurate estimate of the skull's total length very difficult.

### **Tursiops gillii Dall.**

Dr. Townsend was fortunate in securing at San Bartolome Bay, on the west coast of Lower California, the skull of a porpoise which seems to be referable to *Tursiops gillii* Dall.

This specimen is of importance since, so far as I am aware, but two other skulls and the type mandible have been thus far recorded; it also apparently shows that two species of *Tursiops* actually do occur upon the Lower California coast.

Through Dr. True's kindness a skull (No. 12054) of *Tursiops gillii* in the U. S. National Museum collection was forwarded to me for examination and comparison with the one secured by Dr. Townsend at San Bartolome Bay.

This specimen (A. M. N. H., No. 32015) has lost the distal portion of the rostrum and is otherwise damaged, but it presents all the characters

given by Dr. True as diagnostic of the species and makes it worth while to note others not mentioned by him.

A striking feature of the San Bartolome Bay specimen is a strong constriction of the palatine bones just opposite the anterior tips of the pterygoids. In the U. S. National Museum skull the narrowing of the palatine region is less pronounced but still fairly well marked. The character does not show in any of the specimens of *T. truncatus* which I have examined nor is it to be found in the three skulls of *T. nuuanu*.

The widening of the posterior portion of the vomer between the backward prongs of the two pterygoids is strongly developed in the San Bartolome Bay skull and less so in the U. S. National Museum specimen. This may be an additional character of value in distinguishing *T. gillii* from *T. truncatus*.

The teeth of *T. gillii* are very heavy and the beak is somewhat flatter than in *T. truncatus* due to a depression of the intermaxillæ.

The mandible of the San Bartolome Bay skull was not secured, consequently it is impossible to say as to whether or not it has the large condyles of the other specimens of *T. gillii*. The condyles of both skulls of *T. gillii* now before me are striking in their large size when compared with either *T. truncatus* or *T. nuuanu*.

Measurements of the Skulls of *Tursiops nuuanu*.

	No. 35045 Pacific Ocean, 12° N., 120° W.	No. 31830 Santa Catalina Is., Gulf of Cal.	No. 31831 Santa Catalina Is., Gulf of Cal.
Total length.....	482	510	473
Length of beak.....	267	281	256
Breadth of beak at base of notches.....	117	135	126
"    "    "    its middle.....	74	80	77
"    of intermaxillæ at middle of beak.....	40	42	45
Greatest breadth between outer margin of intermx. proximally.....	85	95	86
Tip of beak to anterior margin of superior nares.....	321	325	310
Breadth of skull (orbital).....	218	221	—
"    between posterior margins of temporal fossæ.....	156	—	159
Length of temporal fossa.....	104	104	90
Depth "    "    "    .....	73	72	78
Length of mandible.....	408	—	—
"    "    symphysis of mandible.....	54	—	—
Depth between angle and coronoid.....	86	—	—
Number of teeth (maxilla).....	22	—	—

