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ON SPECIES OF SOUTH AMERICAN DELPHINIDÆ DESCRIBED BY DR R. A. PHILIPPI IN 1893 AND 1896.

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In 1893 Dr. R. A. Philippi, Director of the National Museum of Chili, described several new species of porpoises and commented on various South American forms previously known. In 1896 he supplemented this by a second paper on the same subject.*

These two papers constitute a valuable contribution to the knowledge of the *Delphinidæ* of South American seas, but, on account of lack of access to recent literature, or for some other reason, many of the different forms are assigned to genera to which they can at present hardly be considered to belong. As I have given the family *Delphinidæ* considerable study and have examined the types of the majority of the species described by Gray and other cetologists, I venture to express below my opinions as to the probable affinities and correct scientific names of the various forms described or mentioned by Dr. Philippi.

*Philippi, R. A., Los Delfinos de la Punta Austral de la América del Sur. <*Anal. Mus. Nac. Chile*, Sec. 1, Zool., No. 6, 1893, pp. 1–18, pls. 1–5. Philippi, R. A., Los Cráneos de los Delfines Chilenos. <*Op. cit.*, No. 12, 1896, pp. 1–20, pls. 1–6.

For the sake of brevity I have cited the earlier paper by its date, 1893, and the later one by 1896, adding the proper page number.

"Delphinus? superciliosus Lesson" (1893, p. 6, pl. 1, fig. 2).

Dr. Philippi copies Lesson's figure of this species and makes a few remarks regarding it, but mentions no new material. It seems hardly probable that the species belongs to the genus *Delphinus*. The shape of the snout would rather indicate *Lagenorhynchus*, though the coloration is not characteristic of that genus.

"Delphinus cæruleo-albus Meyen" (1893, p. 6, pl. 1, fig. 1).

This species, the type-skull of which I examined in 1887, belongs to the genus *Prodelphinus*. (See Bull. 36, U. S. Nat. Mus., p. 62.)

"Delphinus amphitriteus Philippi" (1893, p. 7, pl. 1, fig. 3).

The osteological characters of this species are not given, nor is the skull figured, and it is uncertain, therefore, whether it belongs to the genus *Delphinus* or *Prodelphinus*. The probabilities are much in favor of the latter. Dr. Philippi compares it with *cæruleo-albus*, but points out differences of color and proportions by which it may be distinguished from that species. In this he is no doubt justified, though as *cæruleo-albus* is a South American species and its range of color variation is unknown, later observations may show that there is a closer relationship between these two forms than can now be made out. It is interesting to note the resemblance between *amphitriteus* and the *Delphinus marginatus* of Pucheran, which I consider identical with *Prodelphinus euphrosyne* (Gray); also between the former and the *Delphinus lateralis* of Peale, which is likewise probably a *Prodelphinus* (See Bull. 36, U. S. Nat. Mus., pl. 15, figs. 1 and 3).

"**Phocæna (Hyperoodon?) albiventris** Perez in lit." (1893, p. 8, pl. 2, fig. 3).

"**Tursio (Phocæna) albiventris** Perez" (1896, p. 15, pl. 4, fig. 3; pl. 5, fig. 3; pl. 6, fig. 3?).

Why the generic name *Hyperoödon* should have been used in connection with this species is far from clear, as nothing about it suggests that genus in any way. The use of the generic name *Tursio* is much more easily justified, for Gray, in 1866, included under it one species, *Tursio eutropia*, which is probably closely related to, or identical with, Dr. Perez Canto's *albiventris*. The original type of Gray's *Tursio* in 1844, however, was the species now generally known as *Tursiops tursio*, which is certainly not congeneric with *eutropia*. The point is of no special importance as the generic name *Tursio* was used by Fleming and by Wagler prior to the date at which Gray first employed it.*

The proper name for *Delphinus eutropia* Gray is *Cephalorhynchus eutropia*. Whether *P. albiventris* of Perez Canto is really identical with that species is not entirely certain, though there is a strong probability that such is the case. I was at first inclined to associate *albiventris* with *Lagenorhynchus obscurus* (Gray) which it certainly resembles in proportions, though not exactly in color. Dr. Philippi's figures of the skull, however, show that his species is a *Cephalorhynchus*, and his measurements agree well with those of the type-skull and other specimens of *C. eutropia*, except that the beak appears to be a little longer. Dr. Perez Canto's description and figure of the exterior show that the color-pattern resembles that of other species of *Cephalorhynchus* except that the posterior lateral white mark is not divided by an anteriorly-directed arm of black, to form a trident. The shape of the pectoral fins is that of a *Cephalorhynchus*. As the exterior of *C. eutropia* has remained unknown hitherto, this identification, if correct, is of much interest. The type and another specimen of *C. eutropia* in the British Museum are from the coast of Chili, and the skull in the United States National Museum is also believed to be from that locality.

Trouessart cites *albiventris* under the genus *Cephalorhynchus*,

*See Palmer, T. S. Notes on three genera of Dolphins. <Proc. Biol. Soc. Washington, XIII, 1899, p. 23.

with a mark of interrogation.* After Dr. Perez Canto had sent a description of the species to Dr. Philippi, he published one himself in the Actes de la Société Scientifique du Chili, 5, p. 227, 1896, under the name of *Phocæna albiventris*.

"**Phocæna philippii** Perez in lit." (1893, p. 9, pl. 3, fig. 2).

"**Acanthodelphis** (**Phocæna**) **philippii** Perez Canto" (1896, p. 8, pl. 3, fig. 2.)

The description of this species published by Dr. Philippi in 1893 was accompanied by a figure of the exterior (pl. 3, fig. 2). This figure was replaced in 1896 by a rather better one from another individual, showing the tubercles on the dorsal fin, etc.; figures of the skull were also added (1896, pl. 2, fig. 2; pl. 3, figs. 1–5

From the latter it is obvious that Dr. Perez Canto was correct in referring the species to the genus *Phocæna*. It seems scarcely advisable to give generic rank to the later name, *Acanthodelphis*, which Gray established in 1866 as a subgeneric name for Burmeister's *Phocæna spinipinnis*, since the characters on which the distinction is based are those of proportions and of the dermal tubercles. In cranial characters *spinipinnis* does not differ from *Phocæna*.

Dr. Philippi's figures of *philippii* show (as he himself recognized) that this species is most closely allied to *spinipinnis*. He considers that it should be regarded as distinct on account of the shape of the head, the size of the mouth and the shape of the caudal margins; also because of certain differences in the details of the skull. So far as the external characters are concerned, the shape of the head is the only one which would seem to me likely to be of importance. The shape of the caudal peduncle in Burmeister's figures is probably due to an artist's misconception. It will be noticed that it is followed in all Burmeister's figures without regard to what genera and species

*Trouessart, Cat. Mam., 1898–99, p. 1041.

they represent.* Dr. Philippi's figures go to the other extreme, and show the caudal region as an elongated cone. It is not likely that a photograph would substantiate either of these forms, so that this character is hardly worth insisting upon. The dimensions of the body appear to be quite alike in the two species. The excellent figures of the skull *P. philippii* show that it is very closely allied to *spinipinnis*. The differences in detail which Dr. Philippi points out seem to me individual rather than specific. It is to be remembered that *P. spinipinnis* is a South American species, though from the Atlantic instead of the Pacific.

On the whole, I am inclined to the opinion that *spinipinnis* and *philippii* are specifically identical.

Trouessart cites *philippii* under the genus *Cephalorhynchus*, with a mark of interrogation,† but I am unable to find any warrant for that association.

After Dr. Perez Canto had sent the description of this species to Dr. Philippi, he decided to publish an account of it himself, which he did in the Actes de la Société Scientifique du Chili, 5, p. 227, 1896, under the name of *Phocæna philippii*.

"Phocæna posidonia Philippi" (1893, p. 9, pl. 2, fig. 1).

The skull of this species is not figured or described, but judging from the shape of the head, it should be assigned to the genus *Lagenorhynchus*. There is nothing about it which suggests a *Phocæna*. Dr. Philippi compared it with *L. fitzroyi*, which he very properly considers as closely allied to it, having

*Beddard (Book of Whales, 1900, p. 251) regards the caudal ridges shown in Burmeister's figure of *P. spinipinnis* as "the most remarkable character," and views it as a survival of an embryological character. I cannot subscribe to this opinion for the reason given above. It is true that Dall's figure of *Phocæna dallii*, which I copied in Bull. 36, U. S. Nat. Mus., pl. 37, fig. 1, shows similar ridges, but I believe this to be an inaccuracy also. It appears to be a matter of special difficulty to make a correct graphic representation of the caudal region of a cetacean. Some artists exaggerate the thinness of the superior and inferior margins, while others give this region the shape of a truncate cone, and do away with the ridges altogether.

† Trouessart, Cat. Mam., 1898–99, p. 1041.

the same form and an equal number of teeth. He considers, however, that it is distinguishable by the color and the shape of the head. So far as the latter is concerned, it will be seen by consulting Bull. 36, U. S. Nat. Mus., p. 88, where the outline of the head of the type of *L. fitzroyi* is given, that Waterhouse's figure is not likely to be correct in this particular. The difference in color is considerable and constitutes a sufficient reason for regarding *L. posidonia* as a separate species, though it could be wished that the sketch of *L. fitzroyi* had more the appearance of accuracy. It should be noted that *L. posidonia* and *L. fitzroyi* are from localities on the coast of Chili separated by about 450 miles.

"**Phocæna d'orbignyi** Philippi" (1893, p. 10) "(**Delphinus cruciger** D'Orb. non Quoy et Gaim.)."

Dr. Philippi regards it necessary to rename the *Delphinus cruciger* of d'Orbigny (1847) on account of its being preoccupied by *D. cruciger* Quoy and Gaimard (1824). As I explained in 1889,* Quoy and Gaimard's species was one of those founded on porpoises "vus en mer et dessinés à distance." I do not consider it, therefore, as having any validity. Such being the case, it seems to me that *D. cruciger* d'Orbigny and Gervais may be allowed to stand.

"**Phocæna lunata** (**Delphinus**) Lesson" (1893, p. 11, pl. 3, fig. 3).

This name was applied by Lesson† to a kind of porpoise seen in the bay of Concepcion, Chili. He remarks: "We were unable to kill a single individual." In view of this statement, it seems to me that the species has no status.

"**Phocæna cruciger** (**Delphinus**) Quoy and Gaimard" (1893, p. 11, pl. 3, figs. 4 (**bivittata**) and 5).

This species, and the *D. bivittata* of Lesson, which Dr. Philippi cites in the same connection, are among those "vus en mer

*Bull. 36, U. S. Nat. Mus., p. 91.

†Voyage of the *Coquille*, Zoology, I, 1826, p. 182.

et dessinés à distance." They do not appear to me to merit serious consideration. F. Cuvier very justly remarks regarding these and other similar species:

These dolphins having been seen by trained men, by observers whose experience is the result of long practice, promise some day to really enrich natural history; but until they have been found again and their skins have been collected, so that their principal parts can be studied, we can only regard them as probable types of species destined to be established at some time more or less near.*

The object of assigning this species both to *Phocæna* and to *Delphinus*, or what is intended thereby, is not clear. In the index it is cited under both genera.

"**Phocæna obtusata** Philippi" (1893, p. 12, pl. 3, fig. 1).

This remarkable species is quite unlike any porpoise with which I am acquainted, especially as regards coloration. As no part of the skeleton is figured or described, it is impossible to decide whether the species really belongs in the genus *Phocæna*. Certainly the pattern of coloration is very different from that of any other species of the genus. The shape of the fins and head suggest relationship with *Cephalorhynchus*, but the color-pattern does not agree. Further information regarding this species will be received with much interest. The size of Dr. Philippi's specimen would suggest that it was not fully adult.

"**Delphinapterus leucorrhamphus** (**Delphinus**) Péron" (1893, p. 15, pl. 4, figs. 2 and 3).

Dr. Philippi quite properly inquires why Lacépède changed the name *leucorrhamphus* in Peron's manuscript to *peronii*. So it was, however, and the latter name under rules now generally adopted is binding. The generic name *Delphinapterus*, however, was originally applied by Lacépède to the white whale or beluga. Later, Lesson transferred it to *leucorrhamphus* or

*Hist. Nat. des Cétacés, 1836, p. 225.

peronii, which was not correct. The latter must take the next valid generic name which is *Lissodelphis*. The proper name of the species under consideration, therefore, is *Lissodelphis peronii* (Lac.).

Dr. Philippi gives an excellent figure of the species, from a specimen taken east of Patagonia, which is the exact counterpart of the figure published by Gray and copied in Bull. 36, U. S. Nat. Mus., pl. 21, fig. 1.

The opinion is expressed by Dr. Philippi that the animal referred to this species by Lesson* really represents a separate species to which he gives the name *Delphinapterus lessonii* (*op. cit.*, p. 17). My own opinion in the matter was expressed in 1889, in Bull. 36, U. S. Nat. Mus., p. 79, as follows:

"Lesson's figure (Voyage of the *Coquille*, pl. 9, fig. 1) represents a dolphin with white flukes and an elongated beak, which characters are also mentioned in the text. This may be a distinct species, though it is more than probable that the figure is inaccurate."

The measurements of Lesson's and Philippi's specimens show more agreements than discrepancies.

"Globiocephalus globiceps (Delphinus) Cuv." (1893, p. 17).

"Globiocephalus chilensis Philippi" (1896, p. 7, pl. 1, figs. 3 and 4).

Dr. Philippi had two skeletons from the coast of Chili, which in 1893 he regarded as belonging to *Globicephala globiceps* (= *G. melas*), but in his paper of 1896 he describes them as a new species, under the name of *G. chilensis*.

The figure and measurements of the skull given by Dr. Philippi indicate that *chilensis* is a separate species of the group of which *melas* is typical. In this group of blackfish the premaxillæ do not cover the maxillæ completely in the anterior portion, and there is a large sagitate white mark on the inferior surface of the body. Dr. Philippi does not describe the color of

*Voyage of the *Coquille*, Zoology, I, pt. 1, p. 180.

chilensis, but the skull presents the character just mentioned. The measurements indicate that the rostrum of the skull is longer relatively than in *melas*, and the cranium narrower. In Dr. Philippi's two skeletons the number of vertebræ was 54 and 57 respectively. If the specimens were complete, this would indicate a specific difference, as in *G. melas* there are 59 or 60 vertebræ.

Globiocephalus grayi Burmeister, with which Dr. Philippi compares his specimens, does not belong to that genus, but is identical with *Pseudorca crassidens* Reinhardt.

"**Delphinus chilensis** Philippi" (1896, p. 10, pl. 2, fig. 3).

This species is founded on a foetus 24.6 cm. long. It is probably either a *Delphinus* or a *Prodelphinus*, but one can hardly hazard an opinion without knowing something of the characters of the skull, which is neither figured nor described by Dr. Philippi. It seems undesirable to found species on foetal specimens in this difficult group of animals. The uncertainties are already sufficiently formidable, and ought not to be added to.

"**Eutropia dickii** Gray" (1896, p. 11).

An examination of the type of this species which I made in 1884, convinced me that it belonged to the genus *Cephalorhynchus*. The correct name is *C. eutropia*. (See Bull. 36, U. S. Nat. Mus., p. 112.)

"**Tursio? panope** Philippi" (1896, p. 14, pls. 4–6, fig. 2).

I confess that I am unable to determine even the genus to which this singular species belongs. The quite thin orbital edges, the (apparently) separate pterygoids and straight mandible suggest *Lissodelphis*, but the small number of teeth and above all the extraordinary curviture of the expanded proximal

end of maxilla, do not accord with that genus. Indeed the character last mentioned is not present in any genus of the *Delphinidæ* with which I am acquainted. If the drawings of the skull are correct in this particular, the species probably represents a genus not hitherto known. Further study of the type-specimen can alone resolve the problem.

"**Tursio platyrrhinus** Philippi" (1896, p. 16, pl. 4, fig. 1; pl. 5, fig. 1; pl. 6, fig. 1?).

I am of the opinion that this species should be assigned to the genus *Cephalorhynchus*, and that in spite of the differences in the skull shown by the figures, it is probably the same as the *albiventris* Philippi, which I consider identical with *C. eutropia* (Gray). Dr. Philippi remarks of it:

The nasal bones are very peculiar, are flat and do not extend out at all; they do not touch the intermaxillæ as in the foregoing species (*albiventris*) but only the maxillæ, and each exhibits a large oblique cavity, which occupies the middle of the bone, The beak is a little narrower than in the preceding species, and I should have referred the two skulls of *T. platyrrhinus* to that species, if I did not believe that the different form of the nasals is a distinguishing character of the greatest importance.*

In view of the great amount of individual variation in the form of the nasals in all species of the *Delphinidæ*, it does not seem probable that this character alone is sufficient for the separation of species.

It will be noted that the shape of the beak in *T. platyrrhinus* as given on pl. 4, fig. 1, is very different from that in *albiventris*, but by examining the contour of the same skull shown in pl. 5, fig. 1, it becomes obvious that the outline in the former case is incorrect. I cannot help suspecting also that figure 3, plate 6, is intended to represent *platyrrhinus*, and figure 1 of the same plate, *albiventris*.

The species mentioned or described by Dr. Philippi and their probable identity as indicated above are as follows:

Op. cit., p. 16.

Name of species mentioned or described by Dr. Philippi.	Probable identity.
Delphinus? superciliosus Lesson.	*Lagenorhynchus? superciliosus* (Lesson.)
Delphinus cæruleo-albus Meyen.	*Prodelphinus cæruleo-albus* (Meyen).
Delphinus amphitriteus Philippi.	*Prodelphinus amphitriteus* (Philippi).
Phocæna (*Hyperoodon*) *albiventris* Perez Canto. *Tursio* (*Phocæna*) *albiventris* Perez Canto.	*Cephalorhynchus eutropia* (Gray).
Phocæna philippii Perez Canto. *Acanthodelphis* (*Phocæna*) *philippii* Perez Canto.	*Phocæna spinipinnis* Burmeister.
Phocæna posidonia Philippi.	*Lagenorhynchus posidonia* (Philippi).
Phocæna d'orbignyi Philippi (=*D. cruciger* d'Orbig., non Quoy et Gaim.).	*Lagenorhynchus cruciger* (d'Orbigny and Gervais).
Phocæna lunata (*Delphinus*) Lesson.	Not based on specimens.
Phocæna cruciger (*Delphinus*) Quoy and Gaimard.	Not based on specimens.
Phocæna obtusata Philippi.	*Cephalorhynchus? obtusata* (Philippi).
Delphinapterus leucorrhamphus (*Delphinus*) Peron.	*Lissodelphis peronii* (Lacépède).
Globiocephalus globiceps (*Delphinus*) Cuv. *Globiocephalus chilensis* Philippi.	*Globicephala chilensis* Philippi.
Delphinus chilensis Philippi.	Based on a foetus.
Eutropia dickii Gray.	*Cephalorhynchus eutropia* (Gray).
Tursio? panope Philippi.	New genus?
Tursio platyrrhinus Philippi.	*Cephalorhynchus eutropia* (Gray).