

## Early descriptions of whales

Many of the early descriptions of whales and their behaviour and ecology were published in languages other than English. These were often sections in books or articles that were more broad in scope, for example general works on zoology or geography. If translations into English exist at all, they are often not precise with respect to the cetacean component. The Journal invites submissions of such descriptions. Submissions should include: full bibliographic information; a brief introduction to the author and the work in which the description is included; the full text in the original language; and a careful translation.

**D'ORBIGNY, A. 1834. NOTE ON A NEW CETACEAN GENUS, FROM THE RIVERS OF THE CENTRAL PART OF SOUTH AMERICA. [NOTICE SUR UN NOUVEAU GENRE DE CÉTACÉ, DES RIVIÈRES DU CENTRE DE L'AMÉRIQUE MÉRIDIONALE. NOUVELLES ANNALES DU MUSÉUM D'HISTOIRE NATURELLE, 3:28–36].**

### Introduction

Alcide Dessalines d'Orbigny (1802–1857) spent his youth in La Rochelle, collecting and studying marine animals during his free time. He was the son of Charles Marie Dessalines d'Orbigny, a surgeon of the French Navy, and a distinguished naturalist. Appointed as a correspondent of the *Muséum d'Histoire Naturelle*, Paris in 1821, d'Orbigny became a naturalist traveller for this institution during the following years. In 1826 he was nominated by the *Académie des Sciences* for a mission in South America, where he explored between 1826 and 1833 (Taquet, 2002). D'Orbigny began his journey up the Parana River, and systematically visited its banks and those of its tributaries over the next 14 months. Upon returning to Buenos Aires, he explored the pampas surrounding the capital on the request of the Government of Argentina. His first scientific exploration of the northern part of Patagonia followed for the next eight months. At the end of his travels, he sailed from Montevideo to Chile, and then on to Bolivia, where he stayed from early 1831 until June 1833 (Pilleri and Gehr, 1977). D'Orbigny finally returned to France in February 1834. He had collected more than 400 insect species, 150 crustacean species, 150 fish species, more than 100 reptile species, more than 600 species of molluscs (Gaudry, 1859) and several mammalian species. His travels are described in the first two tomes of a series entitled *Voyage dans l'Amérique méridionale* (Travel Through South America), including 7 tomes and 11 volumes (illustrated by some 500 plates), that he published alone or in cooperation between 1835 and 1847. Tome IV (1), entitled *L'homme américain* (The American Man), is considered a pioneering contribution to anthropology in France. In 1853, d'Orbigny became Professor and the first Curator of Palaeontology at the *Muséum d'Histoire Naturelle*, Paris. He subsequently concentrated most of his activity on fossil invertebrates (Taquet, 2002).

The new cetacean species described by d'Orbigny in 1834 (*Inia boliviensis*) was later reviewed and confirmed by d'Orbigny and Gervais (1847), who recorded that '*Inia boliviensis* might have been known to naturalists earlier than supposed'. Indeed, they compared it with *Delphinus geoffrensis* (de Blainville, 1817), which was represented by one stuffed specimen in the *Museu da Ajuda* of Lisbon, and was thought to originate from Brazil<sup>1</sup>. However, it was not until 1870, when the skull of this specimen was prepared

separately, that the generic identity of these two species could be settled (Robineau, 1989). The two were considered synonyms by all authors until van Bree and Robineau (1973), while conducting a study on skulls, observed that the specimens from Bolivia had more teeth than non-Bolivian specimens. Moreover, these authors pointed out that the rapids and water falls of Rio Madeira, between Porto Velho and Guajara Mirim, constitute a barrier likely to isolate Bolivian dolphins. Therefore, they proposed a sub-specific status for this population: *Inia geoffrensis boliviensis*. The study by Pilleri and Gehr (1977) revealed additional morphological differences, and the specific status of *Inia boliviensis* was finally restored, a conclusion supported by Da Silva (1999) (original article not seen but cited in da Silva and Martin, 2000). However, Rice (1998) acknowledged only one species for the genus *Inia*, with three sub-species. Indeed a third sub-species was recognised as *I. g. humboldtiana* (Pilleri and Gehr, 1978), from the Orinoco River system. It is noteworthy that d'Orbigny also contributed to the description of another South American cetacean species, the Franciscana *Pontoporia blainvillei* (Gervais and d'Orbigny, 1844) (Robineau, 1989).

In addition to the description of *Inia boliviensis* (not quoted integrally hereafter), which was illustrated by two good figures, d'Orbigny's text is interesting for several reasons. The initial range assigned to this species appears to be much larger than it is today (Pilleri and Gehr, 1977, fig. 5; da Silva and Martin, 2000), and according to d'Orbigny, the species was usually observed in groups of three to four individuals. Pilleri and Gehr (1977) considered that such groups were rare. D'Orbigny's remarks on the species colouration and behaviour are also interesting; moreover the anthropologic dimension of his work is clearly revealed by, e.g. considerations of language diversity derived from the variety of the names given by local people to *Inia boliviensis*. D'Orbigny chose as a generic name the word used by the Guarayos, a small nation then completely unknown to scientists that he highly appreciated.

We have tried to reproduce as closely as possible d'Orbigny's style (clarifying information is given in square brackets). The punctuation reproduces that of d'Orbigny as far as possible.

### English translation

When we entered into High Peru (or Bolivia), the inhabitants of the city of Santa Cruz de la Sierra described to us a large fish that we identified as a cetacean; this animal was

<sup>1</sup> The type of *Inia geoffrensis geoffrensis* was collected by Alexandre Rodrigues Ferreira in about 1790, and first deposited in the *Museu da Ajuda*. In 1810 the specimen was transferred to the *Muséum d'Histoire Naturelle*, Paris by E. Geoffroy St Hilaire.

supposed to be present in all rivers of Moxos territories, up to the river ports of Santa Cruz and Chiquitos; this relation appeared all the more strange to us as the rivers quoted were the first tributaries of the Rio Mamoré, that flows into the Amazon, at a distance of more than seven hundred leagues from the sea. We first saw these animals near the places inhabited by the Guarayos, hence we could easily be convinced that they were true cetaceans; we subsequently encountered them in all the rivers of Moxos Province; but all attempts we made to obtain some of them were fruitless since at no instance were the Indians of this country able to use a harpoon; and we had lost the hope of ever obtaining them when we were informed that the Brazilian soldiers of Principe de Beira Fort were accustomed to catch them to obtain oil for lighting. Although it was a long and perilous travel, we hesitated no longer to undertake it in order to collect this animal.

On our arrival in these wild regions, separated from civilised places by a huge distance, the captain of this *presidio* or galley gave, on our request, the necessary orders to prepare harpooning operations ... The fourth day we were informed that one of these cetaceans had just been harpooned, and indeed it was quickly brought to us still alive. It was placed on a large table, where it remained alive for five to six hours, which gave us time enough to study it; we immediately recognised its similarity of shape with the dolphins, but with fairly different features than those displayed by the entire order of piscivorous cetaceans, such as the presence of hairs on its snout, and teeth that nearly become molars posteriorly. We made drawings from life of this animal that was immediately described with great care.

When learning, on our arrival in France, that a dolphin from the Ganges was known, we thought to find in this animal similar characteristics as those of our species; but comparative observations revealed the huge difference that exists between them: this difference is so great that it can be considered as generic ... All these characteristics, together with a poorly visible dorsal fin, incite us to propose the creation of a new genus ... We assign to it the following characteristics [p.31–32: description of the genus *Inia* and the species *Inia Boliviensis*] ... The specimen described was female, it was pregnant and its foetus was ready to be delivered; its vulva was much swollen, the mammary glands, which are lateral to the vulva, were full of milk that we expelled by pressing them. On a table where we had placed it, this female cetacean gave birth to a fully grown foetus the snout of which was also displaying hairs. The colours most characteristic for this species are the following: the upper part of the body is pale bluish, turning to pinkish underneath; the tail and arms are bluish, but these colours are quite variable; we observed some specimens that were reddish nearly all over, others entirely covered with a blackish colouration, and at last spotted or striped individuals. Those inhabiting large rivers generally display a paler colour; but those entering the numerous lakes connected to rivers during the rainy season, and that stay entrapped in these lakes during the dry season, become nearly black and lose this colour but a long time after returning to the rivers.

We found this species in all the rivers running in the huge plains of Moxos Province (Republic of Bolivia), and those that form the Rios Mamoré and Guaporé, which themselves constitute the Madeira River, one of the main arms of the Amazon; this cetacean is present up to the foot of the last mountains along the East side of the eastern Cordillera, more than seven hundred leagues from the sea; we are sure that it never goes to the ocean, and that it permanently remains in

the rivers quoted above; it would actually be difficult for this slow swimming animal to proceed up the nineteen cascades of the Rio Madeira that are situated between 9° and 10° South. Brazilian traders who did several times the trip from Matogrosso to Para, assured us that these dolphins are present only above the level of the cascades, in the numerous rivers situated between 10° and 17° South, and between 64° and 70° West of Paris [meridian].

These dolphins are caught only by Brazilian people from the Beira Fort on Guaporé River ... the peaceful inhabitants of Moxos Province just admire them and never try to catch them. According to Brazilian people, this dolphin never bears more than one calf at once, and truly has an extraordinary attachment for it; indeed, it often occurs that a female, reluctant to abandon her calf that has just been harpooned, follows the pirogues until she shares the same fate. Conversely, calves seem to have a great affection for their mothers and follow her for a long time; we have seen very large calves still accompanying their mothers.

When the cetaceans are not disturbed, they will come slowly and much more frequently than marine species to breathe at the water surface; but if they are scared by something, they double their swimming speed that is never as fast as that of marine dolphins. They are almost never seen isolated; most often, three or four individuals are gathered, and their groups are seldom larger. Their hearing seems to be much more developed than that of other dolphins; we have often seen them stopping at the noise of pirogue paddles, and approaching to blow several times as if to express some curiosity behaviour. They chase the numerous fishes that abundantly stock all the rivers, and from time to time they come to the surface to chew their prey, which is never done by marine species...

Brazilian people from Principe de Beira Fort call these dolphins *Bote*, and the Spanish *Bufo*. The natives of the countries inhabited by this animal also have their own words for naming it in their languages: the Guarayos name it *Inia*, the Chapacuras *Sisi*, the Baure *Ihui*, the Jtonamas *Puchca*, the Cayuvava *Potohi*, the Jten *Sata*, the Pacaguaras *Cachoicana*, the Movimas *Pathi*, the Canichacas *Nituya*, and lastly the Moxos *Aico*. These names are all very different, and are given to the same animal by small tribes all neighbouring each other, which may give some idea of the language diversity encountered in South America, especially in its warm parts.

### Original text

En pénétrant dans l'intérieur du Haut-Pérou (ou Bolivie), les habitants de la ville de *Santa Cruz de la Sierra* nous parlèrent d'un grand poisson que, par leur description, nous reconnûmes comme un cétacé; cet animal habitoit soi-disant dans toutes les rivières de *Moxos*, et remontoit jusqu'aux ports de *Santa-Cruz* et de Chiquitos; cette relation nous parut d'autant plus étrange, que les rivières qu'on me citoit étoient les premiers affluents du rio Mamoré, qui va se jeter dans l'Amazone, c'est à dire à plus de sept cents lieues de la mer.

Nous vîmes les premiers de ces animaux près des lieux habités par les Guarayos, et dès lors il fut facile de nous convaincre que c'étoient de véritables cétacés; nous les rencontrâmes ensuite dans toutes les rivières de la province de Moxos; mais tous les moyens que nous employâmes pour les obtenir furent inutiles, les indiens de ce pays n'ayant jamais su se servir d'un harpon; et nous désespérions de parvenir à les posséder, lorsque nous apprîmes que les

soldats brésiliens du fort du *Principe de Beira* en faisoient la pêche pour se procurer de l'huile nécessaire à leur éclairage. Quoique ce voyage fut périlleux et long, nous n'hésitâmes plus à l'entreprendre afin d'obtenir cet animal.

A notre arrivée dans ces contrées sauvages, séparées des lieux civilisés par un espace immense, le commandant de ce *presidio* ou galère, donna, sur notre prière, les ordres nécessaires pour faire harponner... le quatrième jour on vint nous prévenir qu'un de ces cétacés venoit d'être harponné, et en effet on ne tarda pas à nous l'apporter tout vivant.

Nous le fîmes placer sur une grande table, où il vécut pendant cinq à six heures, ce qui nous donna suffisamment de temps pour l'étudier; nous reconnûmes dès ce moment son analogie de forme avec les dauphins, mais avec des caractères bien différents de ceux de l'ordre entier des cétacés piscivores, tels par exemple que la présence de poils sur le museau, et des dents qui deviennent presque molaires postérieurement. Nous avons dessiné sur le vivant cet animal que nous avons immédiatement décrit avec beaucoup de soins.

Lorsque nous apprîmes à notre arrivée de France que l'on connoissoit un dauphin du Gange, nous pensions y retrouver des caractères analogues à ceux de notre espèce; mais des observations comparatives des deux espèces nous ont fait connoître l'énorme différence qui existe entre les deux: cette différence est telle qu'elle peut-être considérée comme générique... Tous ces caractères, réunis à une dorsale peu apparente, nous font proposer la formation d'un nouveau genre... Nous lui assignons les caractères suivants [p.31-32: description du genre *Inia* et de l'espèce *Inia Boliviensis*]. L'individu qui a servi de type à cette description était une femelle, elle était pleine et prête à mettre bas; sa vulve étoit fortement gonflée; les mamelles qui sont latérales à la vulve, étoient remplies de lait que nous fîmes sortir par la pression. Ce cétacé femelle accoucha sur une table où nous l'avions placé, et mit au monde un fœtus à terme, dont le museau étoit également muni de poils. Les couleurs les plus propres à cette espèce sont les suivantes: le dessus du corps est bleuâtre pâle, passant au rosé en dessous; la queue et les bras sont bleuâtres, mais ces teintes sont très variables; nous avons observé des individus presque entièrement rougeâtres, d'autres entièrement recouverts d'une teinte noirâtre, et enfin d'autres individus tachetés ou rayés. Ceux qui habitent les grandes rivières sont généralement d'une couleur plus pâle; mais ceux qui s'introduisent dans les nombreux lacs qui communiquent avec les rivières à la saison des pluies, et qui y restent retenus au temps des sécheresses, deviennent presque noirs, et ne perdent cette couleur que long-temps après être rentrés dans les fleuves.

Nous trouvâmes cette espèce dans toutes les rivières qui traversent les immenses plaines de la province de Moxos (république de Bolivie), et qui vont former les rios *Mamoré* et *Guaporé* qui constituent plus loin la rivière de Madeiras, un des premiers bras des Amazones; ce cétacé remonte jusqu'au pied des dernières montagnes du versant E. de la Cordillère orientale, à plus de sept cents lieues de distance de la mer; il nous paroît certain qu'il ne descend jamais jusqu'à l'Océan, et qu'il se tient constamment dans les rivières que nous venons de citer; d'ailleurs il seroit difficile à cet animal, qui nage peu rapidement, de pouvoir remonter les dix-neuf cascades du *rio Madeiras*, qui se trouvent entre les 9° et 10° de latitude sud. Des négociants brésiliens, qui ont fait plusieurs fois le voyage de *Matogrosso* au *Para*, nous ont assuré que ces dauphins habitent seulement au-dessus des cascades, c'est à dire dans les nombreuses rivières comprises entre les 10° et 17° de latitude sud, et entre les 64° et 70° de longitude ouest de Paris.

C'est seulement au fort de *Beira* sur la rivière du *Guaporé*, que les Brésiliens en font la pêche... les paisibles habitants de toute la province de Moxos, se contentent de les admirer, sans jamais chercher à les prendre. D'après la narration des Brésiliens, ce dauphin ne fait jamais plus d'un petit à la fois, pour lequel il paroît avoir un attachement vraiment extraordinaire; en effet, il arrive souvent qu'une femelle, pour ne pas abandonner son petit qu'on vient de harponner, suit les pirogues jusqu'à ce qu'enfin elle partage le même sort. De leur côté les jeunes dauphins paroissent avoir également beaucoup d'affection pour leur mère, qu'ils suivent pendant long-temps; nous en avons vu de très grands qui l'accompagnoient encore.

Lorsque rien n'inquiète les cétacés, ils viennent lentement et beaucoup plus fréquemment que les espèces marines, respirer à la surface de l'eau; mais si quelque chose les effraie, ils doublent la vitesse de leur marche qui n'est jamais aussi rapide que celle des dauphins marins. On ne les voit presque jamais isolés; le plus souvent trois ou quatre individus sont réunis, et il est rare que leur troupe soit plus nombreuse. Le sens de l'ouïe paroît être bien plus prononcé que dans les autres dauphins; nous les avons vus souvent s'arrêter au bruit des pagaies des pirogues, et venir souffler à plusieurs reprises de manière à annoncer un certain mouvement de curiosité. Ils poursuivent les nombreux poissons qui abondent dans toutes les rivières, et ils viennent de temps en temps à la surface mâcher leur proie, ce que ne font jamais les espèces marines...

Les Brésiliens du fort du *Principe de Beira* nomment ces dauphins *Bote*, et les Espagnols *Bufeo*. Les nations indigènes des contrées qu'habite cet animal ont aussi leur nom propre pour le désigner dans leur langage: les Guarayos le nomment *Inia*, les Chapacuras *Sisi*, les Baures *Ihui*, les Jtonamas *Puchca*, les Cayuvava *Potohi*, les Jten *Sata*, les Pacaguaras *Cachoïcana*, les Movimas *Pathi*, les Canichanas *Nituya*, et enfin les Moxos *Aico*. Tous ces noms si disparates entre eux, donnés au même animal par de petites tribus voisines les unes des autres, peuvent donner une idée de la diversité des langages qu'on rencontre dans l'Amérique méridionale, et particulièrement dans les parties chaudes.

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