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LIX.—On Balænoptera patachonica and B. intermedia

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Several examples were found in the Ceylon collection received from Mr. Thwaites.

EXPLANATION OF PLATE XXII.

Fig. 1. Nyctalops crassicaudata: *a*, profile, greatly enlarged; *b*, cephalothorax, abdomen, and falces, upperside, with legs truncated and palpi absent; *c*, underside, showing maxillæ and sternum; legs and palpi truncated; *d*, first two joints of right palpus, from outer side in front; *e*, hinder extremity of abdomen, showing caudal appendage, from underside; *f*, profile of fore part of cephalothorax, showing falx and fang; maxilla and portion of first joint of palpus truncated; *g*, natural length, exclusive of caudal appendage.

Fig. 2. Nyctalops tenuicaudata: *a*, left palpus, from outer side; *b*, hinder extremity of abdomen, showing caudal appendage; *c*, left leg of fourth pair, from the outer side; *d*, first two joints of right palpus, from outer side, rather in front; *e*, natural length, exclusive of caudal appendage.

LIX.—On Balænoptera patachonica and B. intermedia.

By Dr. H. BURMEISTER*.

AN interesting acquisition is the skeleton of the whale met with in our river near the mouth of the Rio de Juan during the month of August. Unfortunately the skeleton is not complete, owing to the negligence of the people who cleaned it provisionally; it wants the extreme point of the tail and the ends of both fins, which defect greatly diminishes its scientific value.

The skeleton belongs to the species which I have described (Proc. Zool. Soc. 1865, p. 191) under the name of *Balænoptera patachonica*, and completes our knowledge of that species, founded on an imperfect specimen, which showed some characters of importance—and proves, by its perfect identity with that specimen, that the other whale received last year (see Boletín, p. vii) does not belong to the same species, but is quite different, as I can now confidently prove by comparison of the two entire skeletons.

The whale now found was, according to the information given by the sailors, 22 varas or 58 feet in length; but as I did not see the animal before the body had been dried, I cannot accurately describe its external appearance. Therefore the only subject for comparison is the skeleton, the general characters of which I will now give.

The specimen in question was, like the other, rather young—as is proved by the vertebræ separate from the free apophyses,

* Translated by Miss Miers from the 'Boletín del Museo público de Buenos Aires,' 1871, from a corrected copy with additions sent by the author.

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and also by the skull, in which the maxillary bones are easily separated from their sutures. Although the entire skeleton is not shorter than that of the species described in the 'Boletin' (p. viii), the whole breadth is less, which is a proof that this was a more slender species than that found last year. In order to prove this difference, I give some of the principal measurements of the cranium, naming last year's species *Balænoptera intermedia*, on account of its affinity with the species above described as *B. patachonica*, adding to these measurements those of the third and much smaller species described as *B. bonaërensis*.

Measurements in English inches.

	<i>B. intermedia.</i>	<i>B. patachonica.</i>	<i>B. bonaërensis.</i>
Length of the base of the cranium from the occipital hole to the tip of the vomer	128	122	80
Breadth of the cranium between the anterior points of the orbits	68	62	42
Central breadth of the vertex between the temporal fossæ	39	33	24
Length of the plane of the vertex	32	28	26
Length of the upper jaw ..	102	102	70
Length of the lower jaw ..	136	138	92
Length of the intermaxillary bone	102	100	63
Breadth of the base of the nose	19	16	10½
Length of the apophysis of the temporal bone	24	22	12
Width of the shoulder-blade	40	37½	32
Greatest breadth of the cranium, between the apophyses of the temporal bones	72	67	48

The vertebral column has had probably sixty-two to sixty-four vertebrae—that is to say, four less than in the other species; but not more than fifty-eight and a half have been preserved, the end of the tail with the caudal fin having been cut off by the sailors, who found the body of the animal floating in the river. Each one of these vertebrae has a smaller body than the corresponding one in the other species, although its apophyses are a little longer and also rather broader. In order to prove this remarkable difference, I give the measurements of

the thirty-fifth vertebra in each individual, which vertebra is one of the largest of the skeleton. This vertebra in *B. patachonica* has a height in the body (with the spinous apophysis) of 30 inches, of which 10 are occupied by the body, and a breadth between the transverse apophyses of 34 inches, the breadth of the body being 12 inches; whereas in *B. intermedia* the same vertebra is 28 inches in height, with 12 inches in height of the body, and 32 inches in breadth, with 14 inches in breadth of the body; which difference appears to me sufficient indication of a specific difference between the two animals.

The fifty-eight and a half vertebræ are distributed in the following manner. There are seven well separated in the neck; the five posterior very slender, two inches thick in the body, and with two free apophyses excepting in the first two (the atlas and axis), which are a good deal larger and have not free apophyses, the atlas on both sides, the axis on the anterior side. The axis has two large closed lateral wings, including an oval aperture; the three following are open, with two curved apophyses, but separated at the end; the sixth has a lower and shorter apophysis; and the last has no lower apophysis at all. In *B. intermedia* all the vertebræ of the neck are broader in the body, but the apophyses are shorter; and this species has a lower and tolerably large apophysis on the sixth vertebra, which is wanting only on the seventh.

The seven vertebræ of the neck are followed by sixteen dorsal vertebræ, with the same number of pairs of ribs—that is, one pair more than in the other species, now called *B. intermedia*. This difference seems to me of great importance, principally on account of the constant difference of the corresponding ribs, which are all longer and larger to the very end in *B. intermedia* than in *B. patachonica*, and very different also in the shape of the upper part of the rib, and of the tubercle of each rib. Each rib of the first pair is $3\frac{1}{2}$ feet in length in *B. patachonica* and $3\frac{3}{4}$ in *B. intermedia*. In the former species the head of the rib is slender and the tubercle rather large; in the latter the small tubercle can scarcely be said to be separate, and the head of the rib is larger, scarcely separated from the neck, which is also large. The second rib of *B. intermedia* is 5 feet in length, and the same rib in *B. patachonica* $4\frac{1}{3}$ feet; the longest rib, which is the sixth, measures in the former species 7 feet 2 inches, and in the latter 6 feet 8 inches. We may infer from these differences that the body of *B. intermedia* must have a much larger circumference than that of the other species, and that its general shape must be less slender, as we said at the beginning of our comparison.

The number of the lumbar vertebræ is seventeen in *B. patachonica* and sixteen in *B. intermedia*. After these vertebræ there come in *B. patachonica* thirteen, and in *B. intermedia* sixteen caudal vertebræ, with free lower spines or hæmapophyses, the last of these spines being in both species open—that is to say, divided into two separate laminæ, larger in *B. patachonica* than in *B. intermedia*. At last, to the end of the tail, follow nine or ten vertebræ, successively smaller, of which, in both species, the last six have been lost. The fifty-eighth vertebra in *B. patachonica* has almost the same bulk as the fifty-ninth vertebra of *B. intermedia*, but is a little larger in the body; which permits us to suppose that the total number of vertebræ in the two species was not the same, but that *B. patachonica* had several vertebræ less than *B. intermedia*, although the last inferior spine is situated in both species on the same vertebra, *i. e.* the fifty-fourth. All these differences seem to me to indicate a specific difference in the two animals.

Of the fins only the shoulder-blade and the humerus have been preserved in the skeleton of *B. intermedia*, the sternum also is wanting; but in that of *B. patachonica* we have the fins almost quite complete, the smallest inner finger alone having been lost. The sternum also has been preserved: this has nearly the shape of the same bone in *B. physalus*; but the large central excision of the anterior portion is absent in our species, and in place of it there is a small hole in the centre of the same portion, which measures 17 inches in breadth, and the whole sternum 15 inches in length, the central aperture occupying $2\frac{1}{4}$ inches of this extension, and commencing $2\frac{1}{2}$ inches behind the slightly excavated anterior margin. The narrow posterior portion of the sternum is 8 inches long and 5 inches broad at first, but $2\frac{1}{2}$ at the end.

The shoulder-blade presents nothing of importance; it is 23 inches in height and $37\frac{1}{3}$ at its greatest breadth. The humerus is 18 inches long; and each bone of the forearm is 25–26 inches in length, the cubitus above having behind a large salient angle. The pectoral fin is 6 feet in length and 18 inches in breadth at the beginning of the forearm, the projecting angle of the olecranon being occupied by a large, sharp, triangular cartilage. There are the usual five carpal bones, and in the terminal portion of the fin five fingers, as with all the *Balænoptera*. In these fingers the first (external) one has four bones, namely one metacarpal and three phalanges, the four measuring $4\frac{1}{2}$, 4, $3\frac{3}{4}$, and 3 inches in length. In the second finger, which is longer, there are six large bones and a small terminal point as indication of a seventh; these articulations are $5\frac{1}{2}$, 5, 4, $2\frac{3}{4}$, 2, and $1\frac{1}{2}$ inch in length. The third

finger is but little shorter than the second, though somewhat longer than the first, and has the same bones as the second, though each one is rather smaller— $4\frac{1}{2}$, $4\frac{1}{8}$, $3\frac{1}{4}$, 3, 2, and $1\frac{1}{2}$ inch in length. The fourth finger (which ought to contain, according to analogy, one metacarpal bone and three phalanges, being the shortest of all) has been completely lost from both fins.

Of the bones at the side of the sexual aperture, corresponding to the bones of the pubis of the pelvis, one has been preserved, very similar to the same bone in *B. physalus*. It is slender and nearly a foot long, compressed and slightly arched, with a projecting and rather sharp angle on the upper margin, $\frac{3}{4}$ inches above the termination. To conclude, the hyoid apparatus is composed of the three bones which are well known in all whales, of which the middle one much resembles the same bone figured in the work of Van Beneden and Gervais, pls. x. & xi. fig. 15; but the two lateral ones are not externally so bulky as those in the same figure. The central bone has a transverse length, measured in a straight line, of 26 inches; and each of the lateral processes is $15\frac{1}{4}$ inches long.

We have also the hyoidal apparatus of *B. intermedia*. It is a little larger; its middle portion measures 31 inches in length; and each anterior horn is somewhat larger in bulk though shorter, $14\frac{1}{2}$ inches in length. In the middle portion the two angles at which the horns are united are shorter and more divergent; and the whole shape of the apparatus is slightly different from that of the other species. For the rest, I can affirm that not a single bone of the one skeleton is identical in shape or size with the corresponding bone of the other; and this proves clearly a specific difference between the two animals.

Unfortunately I am not acquainted with the sex of my skeleton of *B. patachonica* so as to certify definitely that the indicated differences are not sexual; but they appear to me of too great importance to admit this supposition. I have also under my notice the whalebone-plates of the two animals; but those of *B. intermedia* are too much destroyed for a complete description. Those of *B. patachonica* are composed of 350 laminæ on each side of the mouth, of which the 136 smaller ones at the end are all white, also the underside of the others, with the bristles of the whole; whereas the beards of the plates of *B. intermedia* are completely black, and there is no vestige of the whitish colour of the other species.

It follows from the explanation here given, according to my views, that there are actually three well-defined species different from the *Balænoptera* of our coast of the Atlantic Ocean, which are distinguished in the following manner:—

1. *B. intermedia*. The largest; 58 feet long, with a head 14 feet in length and 6 feet in breadth, and 8 feet high at the middle of the body; has the most robust figure, most bulky cranium; and its vertebræ number at least sixty-six (besides the sixty-one preserved there being five to six wanting), which number may be divided into seven cervical, fifteen dorsal, sixteen lumbar, and sixteen caudal with spines beneath.

2. *B. patachonica*. Rather smaller, although not shorter; but has a more slender figure and less bulky head, $5\frac{1}{2}$ feet broad, although also 14 feet in length; of the fifty-eight and a half vertebræ preserved, seven are cervical, sixteen dorsal, seventeen lumbar, and thirteen caudal with under-spines, also wanting the five to six terminal vertebræ. This species is described in the 'Proc. Zool. Soc.' 1865, p. 191.

3. *B. bonaërensis*. The smallest, 30 to 32 feet in length, with a head 7 feet long and 4 feet wide, and a vertebral column of forty-eight vertebræ, divided into seven cervical, eleven dorsal, twelve lumbar, and eighteen caudal; but only the nine anterior have under-spines. The skeleton of this species was described by me in the 'Proc. Zool. Soc.' 1867, p. 707.

POSTSCRIPT.—In the description, instead of nine under-spines of the tail it should be twelve, as I have lately found three more bones on the skeleton, each open and composed of two separate pieces; the number of vertebræ is exactly the same as in the European species. Mr. Turner of Edinburgh is of Dr. Gray's opinion, and separates *Sibbaldius* from *Physalus*. I have seen the Ostend specimen of *Sibbaldius* at Leipsic, and cannot understand how M. van Beneden could unite this gigantic animal with the slender *Physalus*, which I know very well, from the daily inspection of the skeleton in the museum of Greifswald.

Buenos Ayres,
September 25, 1872.

H. B.

LX.—On some new Species of Reptiles and Fishes collected by J. Brenchley, Esq. By Dr. ALBERT GÜNTHER, F.R.S.

THE following diagnoses are taken from an account of the reptiles and fishes collected by J. Brenchley, Esq., in Polynesia, the East Indies, and Central Asia, and kindly presented by him to the Trustees of the British Museum. This account, which contains more detailed descriptions, was prepared some time ago for a large work which Mr. Brenchley has in the press; but as the execution of the numerous plates with which the work will be illustrated may cause a further delay in its publication, I have thought it best to publish now the following shorter notices.