

thoracic, abdominal, lumbar, and sacral vertebræ, but again appearing between the thirty-fourth and thirty-fifth vertebræ, rapidly increasing in size, (forming a safe canal for the blood vessels), and gradually decreasing, together with the neural and articular processes, until the *centrum* appears like a minute cylinder, divided in the middle of its length, indicating the part which gives way when the tail is accidentally injured. This fissure can be observed in the thirty-eighth vertebra, and a separation may consequently take place in any of the remaining vertebræ. From the peculiar form of the *medulla spinalis*, I feel assured, that when injured, the complete vertebræ will not be reproduced, but will present the appearance as seen in the skeleton No. 1, in which the total number of vertebræ is fifty; and the termination of the tail is composed of a deposit of earthy matter of about one inch in length. The series of triangular processes, considered by Dr. Günther as true ribs,—similar to the false or floating ribs in the mammalia—appear to me, after a careful removal of the integuments, to be dermal productions, much resembling those rib-like processes as seen in the engraving of the Plesiosaurus.

ART. III.—*On the Anatomy of the NAUTINUS GREYII, Gray, or Brown Tree Lizard of New Zealand.* By F. J. KNOX, L.R.C.S.E.

[Read before the Wellington Philosophical Society, August 14, 1869.]

DURING the month of January, 1862, a specimen of this reptile was sent to me by a friend, and I examined it with great care. Many points of great interest presented themselves to me, more especially the separation of the tail. In an animal so highly organized, *more especially in the skeleton*, it appeared to me to be an impossibility, that the complex mechanism of so important a part of the animal economy should be suddenly removed, and not only the life of the animal in no way jeopardized, but that the tail, in its entirety, would be reproduced. Nay, more, that the animal had been seen, after the violent separation of the tail, to search for it, and stick it on again! I found, on careful dissection, that the statement, in so far as the detaching of the tail from the body, was correct, but that the separation not only occurred at a particular part of the spine, but presented an obstacle to its regeneration, which appeared to me, and still appears, impossible. I found the divided or separated surface finely dovetailed; the one (proximal extremity of the skin) presenting no dentations, but a perfectly smooth margin; the scales surrounding the part arranged in symmetrical order, whilst on the separated part or tail, eight wedge-shaped processes projected beyond the skin of the tail. (See preparation of the dried skin.) These eight processes were entire, and not caused by a tearing process, but were arranged in pairs:—

Dorsal margin	1 pair
Abdominal margin	1 "
Lateral margin	2 "
Total	8

As I attentively observed the separation of the tail, I found that a delicate white cord was gradually leaving a canal in the tail portion. This I recognised to be the *medulla spinalis* (see preparation in phial), and necessarily rendered, in my belief, the power of reproduction still less possible. I may add that the tail in the living animal is in no respect brittle, as stated by some

recent authors, but elastic and prehensile. The food of the *Nautilinus Greyii* I found to consist of insects of the *Orthoptera* order.

I conclude this short notice by drawing the attention of the Society to the remarkable similarity in the skeletons of the *Nautilinus Greyii*, and the *Tuatara*.

LIZARD.—1862.—*External characters.*

Total weight	260 grains.
LENGTH.	
Snout to cloaca	in. lines. 3 6
Cloaca to tip of tail	4 0
Total length	7 6
Snout to nostrils	0 1
„ to centre of eye	0 5½
„ to cleft of mouth	0 7½
„ to ear	0 10
Greatest circumference round the abdomen	2 0

ART. IV.—*On the BALÆNIDÆ or Whales with Baleen.* By F. J. KNOX, L.R.C.S.E. *With Notes on the Cetacea, in the Colonial Museum, Wellington,* by DR. HECTOR, F.R.S.

(With Illustrations.)

[Read before the Wellington Philosophical Society, September 18, 1869.]

Observations on the Natural History of the Balænidæ, or that division of mammiferous animals called Cetacea, having the remarkable substance known in commerce as Whalebone (Baleen), as a substitute for teeth.

THE habitat of the Cetacea has necessarily rendered it a difficult task to obtain reliable descriptions of them. The naturalist and practical whaler know nothing about the anatomy of the animal, and they accordingly record measurements of the external surface. In those Cetacea of large size great inaccuracy occurs even in obtaining this very deficient character in determining genera or species. For example, in describing Cetaceans, the naturalist and practical whaler invariably include the tail in their measurements, thus adding from ten to fifteen feet to the actual length of the skeleton; and when the sex and age of the animal are also not given, the result must be the erroneous increase in the number of species. Hence, a carefully prepared skeleton, the sex of the specimen, and, if possible, the anatomy of the viscera, are imperatively required to enable the naturalist to determine with accuracy either genera or species.

The following observations are the result of the dissection of three specimens of the Balænidæ; and the author proposes to reduce the number of Balænidæ to four, distinguished by the following characters :—

	Average length of adult animal.
<i>Balæna Mysticetus</i> , or Right whale . . .	55 to 65 feet
<i>Rorqualus major</i> (Knox), Hump-back . .	80 to 100 „
„ <i>minor</i> (Knox)	20 to 25 „
„ <i>Sp.</i> , Trigger-fin, Sulphur-bottom . . .	30 to 55 „