

## **Prof. Flower on the skull of a beluga.**

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Prof. Flower exhibited the skull of a Beluga, or White Whale, *Delphinapterus leucas* (Pallas), which has been presented by His Grace the Duke of Sutherland to the Museum of the Royal College of Surgeons, and made the following remarks:—

As this cetacean has been but rarely observed in the British seas, and as there is but one known instance in which a specimen has been taken alive and authenticated by preservation of its remains<sup>1</sup>, the circumstances relating to its capture, as described in a letter from the Rev. Dr. Joass, of Golspie, may be worth recording:—

“It was found close to the salmon-nets near the Little Ferry, about three miles to the westward of Dunrobin, Sutherlandshire, at ebb tide, on Monday, June 9th, 1879, caught by the tail between two short posts to which a stay-rope of the stake-net was fastened (see fig. 1); and a Salmon of 18 lb. weight, which was supposed to have been the object of its pursuit, was found in front of it. It measured 12 feet 6 inches in length. The tail was 34 inches across, and the flippers 17 inches long. It was a female, and had 20 teeth in the

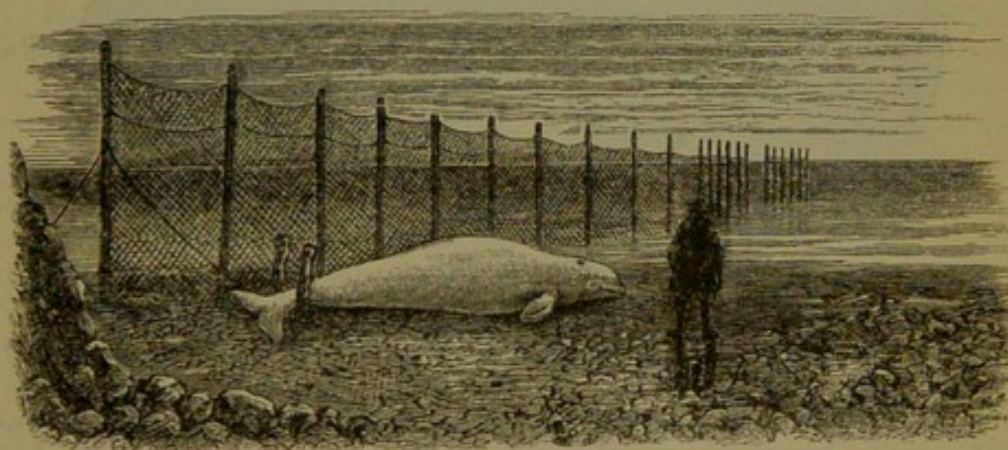


Fig. 1. The mode in which the Beluga was caught. From a sketch by the Rev. Dr. Joass.

upper jaw and 16 in the lower. The stomach contained a few flakes of fish, which from size and colour might have been Salmon. It was found, on cleaning the skeleton, that in its efforts to escape the Whale had broken its back between the third and fourth lumbar vertebræ; and it had a recent granulating wound on the frontal pad, extending about five inches transversely, and about three inches broad, the lower edge being on a line between the eyes. I have heard since that two days before its capture it was seen off Cracraig by Brora fishermen who were lying at their lines. At first they thought it a human body; as it approached *against the ebb*, they took it for a ghost! At still closer quarters they saw that it was a living beast of some kind bearing down upon them, and plied it with stones (their spare sinkers), hoping that it would turn aside and not oblige them to leave their ground; but it hardly heeded them, and so they

<sup>1</sup> Bell's British Quadrupeds, 2nd edit. p. 440.



dropped their lines and sheared off. It went below near Collieturn, but was up again at Kintradwell, and still heading westward against the tide."

The skeleton is that of a perfectly adult animal, all the epiphyses

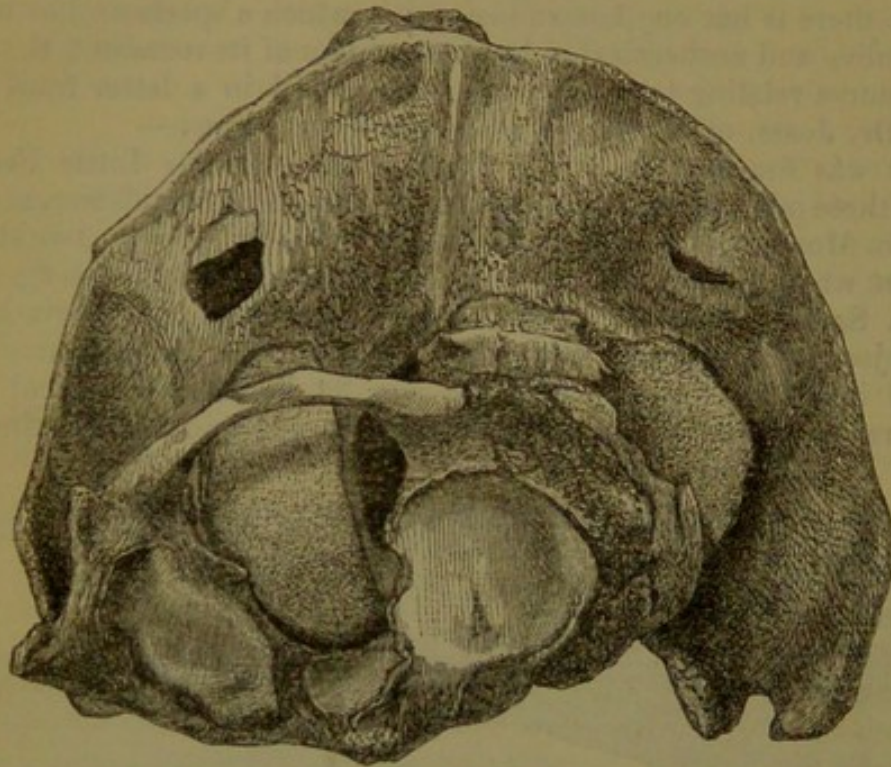


Fig. 2. Posterior surface of skull of Beluga, with dislocated atlas.  
One-third the size of nature.

of the vertebræ being united to the bodies. The spine of one lumbar vertebra has been recently broken off close to the base, probably the injury referred to in Dr. Joass's letter.

On examining the skull a most remarkable evidence of old injury and subsequent recovery showed itself. The atlas has been dislocated off the occipital condyles to the left side and tilted a little obliquely, so that the right transverse process is somewhat higher than the left. The dislocation has been complete, the whole of the surfaces formerly in apposition being now free from each other. The prominent inner edge of the left articular surface has passed beyond the outer edge of the condyle and lodged in the hollow which bounds it externally, and so has been prevented by the contraction of the cervical muscles from returning into its place. In this position the bones have become firmly fixed by deposit of new osseous matter around the right side of the joint, and partially covering the exposed right condyle. The aperture for the passage of the spinal cord is narrowed to a chink scarcely three quarters of an inch in greatest transverse diameter. The articular surfaces, as far as they can be seen, have preserved their normal form, and are only slightly rougher than is natural, which clearly shows that the dislocation was traumatic, and not occasioned by disease of the joint. Indeed there is no evidence of



any previous disease in this or any other part of the vertebral column. The formation of new bone, resulting in ankylosis, is what might naturally be expected to occur as the consequence of such an injury, and is the usual sequence of dislocation of the atlas, when not immediately fatal, in the human subject.

In the present case it is difficult to imagine how such an accident can have been occasioned, as in the case of an aquatic animal there is no possibility of a fall on the head, the common cause of such dislocations. Even a violent collision of the head against a rock or ship can scarcely have produced such displacement, in the case of an animal floating freely in the water, unless there were some counterpressure causing resistance on the part of the trunk. The animal certainly had received a blow on the fore part of the head, as at about three inches from the apex of the rostrum, on the right side, there is a roughened surface on which new bone has been thrown out, very probably at the same date as that at the occiput, and long antecedent to the recent wound observed at the time of its capture.

However the injury may have been brought about, the specimen affords a remarkable illustration of recuperative power, as the laceration of all the parts around the articulation, and effusion of blood from the plexus surrounding the cord, must have been considerable, and the ability to pursue and capture living prey must have been, for a time at least, greatly interfered with. The spinal cord itself being of comparatively small diameter in proportion to the size of the aperture through which it passes, seems to have escaped serious injury, and to have accommodated itself to the abnormal position of the surrounding bones. After recovery the head was fixed in a very abnormal position with regard to the body, which may account for the wandering of the animal so far from its natural habitat, and for the facility of its capture.

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[*From the* PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF  
LONDON, November 18, 1879.]

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