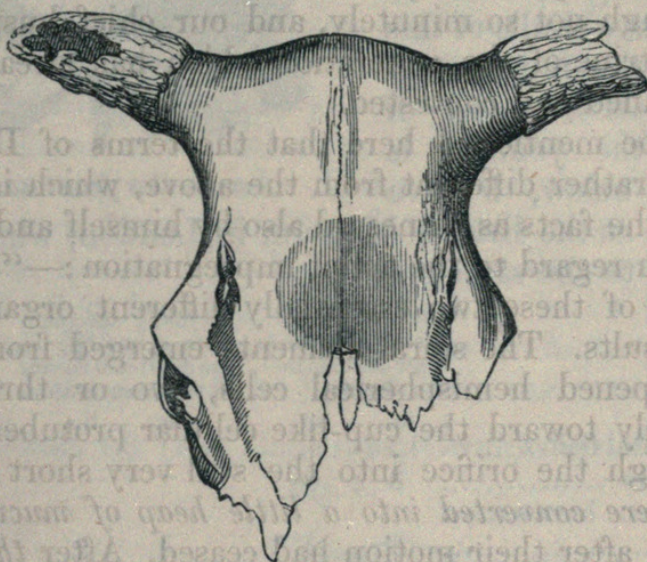


XXXVII.—On the extinct and existing Bovine Animals of Scandinavia. By Prof. NILSSON of Lund.

[Continued from p. 269.]

2. Ox with high occipital ridge (*Bos frontosus*, n. sp.).

Fig. 3.



Bos frontosus.

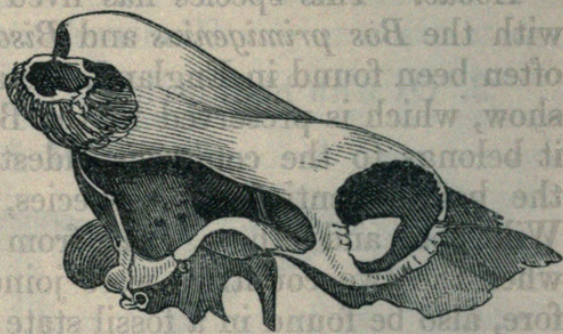
Gen. Char. The forehead convex at its upper part; below smooth, rounded, the ridge of the occiput rising high in the centre, convex; horns short, somewhat depressed at the roots, directed outwards and backwards, then bent forwards.

SYN. *Bos frontosus*, Nilss. K. Vetensk. Akad. Öfversigt, d. 14 April 1847.

Description.—This fossil Wild Ox, of whose skull the museum here possesses both an old and a young specimen, forms a very different kind from any I have yet seen. It has however some remote resemblance to the Bison, through its convex forehead and its horn-pedicles. The old specimen, probably a bull, whose cranium is here delineated in face and profile, has the forehead between the horns convex; below, where it is the smallest, flat-rounded; between the eyes broad, hollowed. The ridge of the occiput thick, rounded, in the centre rising and strongly curved. The nasal bones seem to reach up to the line drawn over the sockets of the eyes. The horn-cores, which rest on longer pedicles than among any known species of Ox, are directed outwards and backwards, also somewhat curved downwards in the same direction as the front of the forehead, above which they do not rise. They have the back and front somewhat flat-round, so that a transverse section would form more or less an oval. The outer edge of the zygomatic process of the temporal bone forms above the socket of the under-jaw nearly a right angle.

The concavity of the temple is at the back transversely obtuse, in front it is obliquely pointed; the hind part (as far as the socket of the under-jaw) twice as broad as the front part; the foramen of the occiput more high than broad. Besides the two skulls of this sort which the museum at present possesses, and of which also the younger is represented below, I have seen a third at the British Museum in London, which probably also belongs to the same species.

Fig. 4.



Bos frontosus.

	An old Bull (?) from Djurmoss near Saxtorp in Scania.		A young specimen from a turf-bog in the district of Skytts in southern Scania.		A rather young one in the Bri- tish Museum.	
	in.	lin.	in.	lin.	in.	lin.
Length of frontal bones	12	4				
Length of orbits	3	0				
Length between horn-crown and orbits.....	5	2	4	2	4	4
Breadth between horn-crown above	8	0	6	2	6	2
Between horn-crown below...	10	0	7	5	8	0
Breadth of forehead's smallest part	7	6	7	1	7	0
Breadth between the upper edges of the orbits	10	4	8	3	0	9
Breadth in the centre above the orbits	8	5	6	5		
The circumference of the horn- core near the roots	8	6	6	6		

The size of these skulls denotes a species of Ox, which, although much less than the *Bos primigenius*, is yet considerably larger than the *Bos longifrons*. It seems to have been about the size of our common cow; from which, however, in form it totally differs. In the museum here are to be seen some loose bones which seem to have belonged to this species. They are found in turf-bogs under the Jaravall in southern Scania, and in such a

Fig. 5*.



Bos frontosus.

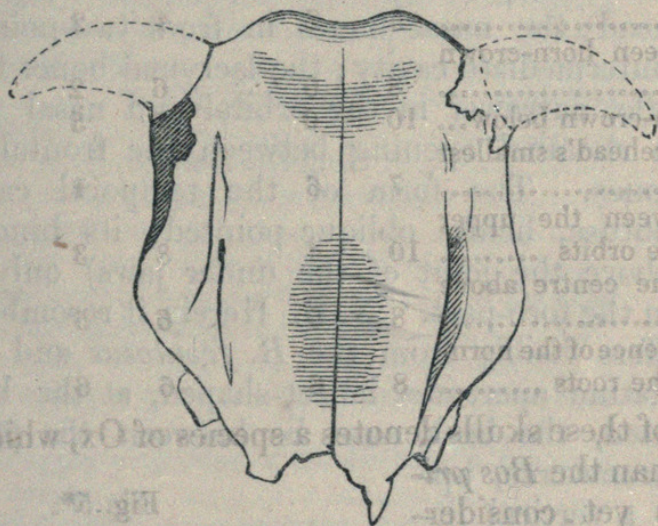
* In the series of remains of the skull and horn-cores of the *Bos longifrons* preserved in the British Museum and that of the College of Surgeons, there

state as plainly shows they belonged to a more ancient period than that in which tame cattle existed in this country.

Abode.—This species has lived in Scania contemporaneously with the *Bos primigenius* and *Bison europæus*; that it has also often been found in England, the above-mentioned cranium will show, which is preserved in the British Museum. As with us, it belongs to the country's oldest postpliocene fauna: it, like the before-mentioned Ox species, together with the Reindeer, Wild-boar and others, came from Germany during that period when the two countries were joined together. It must, therefore, also be found in a fossil state in Germany, although as yet it has nowhere been observed. If it ever was tamed, and thereby in the course of time contributed to form some of the tame races of cattle, it must have been the lesser large-growth, small-horned, and often hornless race, which is to be found in the mountains of Norway, and which has a high protuberance between the setting-on of the horns above the nape.

3. Dwarf Ox (*Bos longifrons*, Owen), figs. 6 & 7.

Fig. 6.



Bos longifrons.

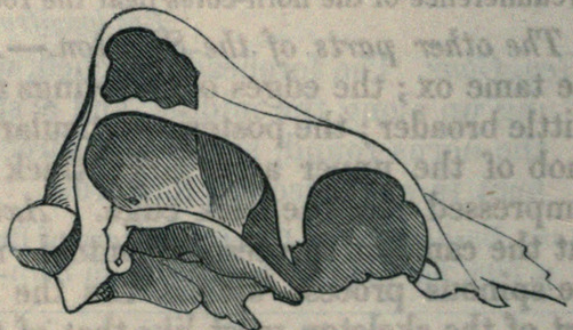
Gen. Char. The forehead flattened, with a prominent edge standing up along the middle, and a smaller indenting backward; the horns round, small, and directed outwardly upwards, and bent in one direction forwards.

SYN. *Bos longifrons*, Owen's History of British Fossil Mammals and Birds, p. 508, fig. 211 (the forehead with horn-cores).

are intermediate gradations in the convex rising of the occipital ridge and the length of the pedicles of the horns, which affect the value of those characters as specific distinctions between the *Bos longifrons* and *Bos frontosus*. The specimen (fig. 5) would seem to indicate that the typical characters assigned by the learned Scandinavian naturalist to his *Bos frontosus* were similarly modified or departed from in the specimens discovered in Scania.—ED.

Description.—As far as we yet know, this is the smallest of all the Ox tribe which lived in a wild state in our portion of the globe. To judge from the skeleton, it was 5 feet 4 inches long from the nape to the end of the rump bone, the head about 1 foot 4 inches, so that the whole length must have been 6 feet 8 inches. From the slender make of its bones, its body must rather have resembled a deer than our common tame ox; its legs at the extremities are certainly somewhat shorter and also thinner than those of a crown-deer (full-antler'd red-deer). The skull is long and narrow, even more so than that of the deer; the forehead upwards (over the eyes) flattened, with an edge going along the frontal seam, which is most prominent upwards, and ends with a rounded indenting backwards; between the eyes is a more or less considerable depression, above which there is often a rising, and beneath which lies the incision for the nasal bones, which go right up to the line, drawn between the lower borders of the orbits. [Thus the frontal bones are not longer in this species than they are in the *Urus* or *Taurus*.] The horn-cores small, cylindrical, short, curved only in *one* direction forwards, sometimes, though seldom, downwards in the plane of the forehead; the nasal bones in front two-pointed, with a deep small intermediate cavity; the lacrymal bones flat, broadest in the middle, narrower in the orbital and nasal parts: there is always a rhombal opening between the frontal, nasal, and lacrymal bones. The form of the temporal cavity behind transverse-obtuse, before oblique-pointed; its hinder part (to the angle above the joint of the under jaws) only one-fourth broader than the fore-part. N. B. Herein it resembles the tame Ox, but differs visibly from the *B. frontosus* and *Urus*. The anterior palatine apertures lancet-shaped, at the back oblique inward-pointed, the back ones lie between the palate bones; the nape transverse, upwards with a vertical indenting, downwards with a vertical edge over the circular foramen of the nape (fig. 7). The skull of this species varies considerably in size and even something in form, according to its age and sex. I have in my possession the fragment of a forehead with horn-cores of a very old individual which seems to have been a *bull*; the distance between the horn-cores upwards is 5 inches 3 lines, and the circumference of the horn-

Fig. 7.

*Bos longifrons.*

cores near the roots 7 inches 1 line. Another I have measured, whose breadth above the upper margin of the orbits was 7 inches 5 lines: this measured between the horns upward 5 inches 2 lines. The length of the frontal bone 8 inches 4 lines. The horn-cores are sometimes flat above, and rounded underneath. In a younger specimen, probably a cow, the horn-cores are exceedingly small, scarcely more than 3 inches long, and at the root 4 inches 2 lines in circumference. This species is however always known by a protuberance upon the upper part of the forehead in the front, and an indenting behind. The usual dimensions of young specimens are as follows:—

	ft.	in.	lin.
Length of the skull from the edge of the nape to the front edge of the intermaxillary bones	1	4	0
Length from the roots of the horns to the upper edge of orbits	0	3	4
„ of orbits.....	0	2	4
„ from the orbit to the end of the maxillary bone.....	0	8	4
„ of intermaxillary bone's front edge	0	10	0
„ from the edge of the nape to the incision of the nasal bones	0	7	2
Length of the horn-core's greatest curvature (behind)	0	4	0
„ of the nasal bones.....	0	6	0
„ of the row of molar teeth in the upper jaw	0	5	2
„ of the under jaw	1	1	2
„ „ „ to the back edge of the condyloid process in a line.....	1	1	6
Breadth between the horn-cores upwards	0	5	0
„ over the forehead's narrowest part about	0	5	4
„ of the occipital condyles	0	3	2½
„ between the upper edges of the orbits nearly.....	0	7	0
„ transversely over the centre 5 in. 6 lin., over the chin	0	4	5½
„ over the side projections of the nose	0	5	1
„ over the nose	0	2	6
Height from the upper projection of the forehead to the base of the cranium	0	5	5½
Height from the upper projection of the forehead to the edge of the foram. magn.	0	4	0
Circumference of the horn-cores near the root	0	4	3

The other parts of the Skeleton.—*Atlas* in form like that of the tame ox; the edges of the wings a little reflected, and behind a little broader; the posterior articular processes small, short; the knob of the upper arch large, thick; of the under arch more compressed over the back edge. *Axis* like that of the tame ox, but the canal in process. odontoid. not so roundly excavated; the spinous process. spinos. has the front edge angular. The rest of the skeleton most like that of the tame ox, but each bone, in proportion to the length, is more slender and thin. *Atlas*: the breadth over the wings 4 inches 5 lines, under the length of the curve 1:3; *axis* about 3 inches. The length of *shoulder-blade* 11:4, breadth 6:1; from cav. glen. to spin. 1:7; os hu-

meri 8:6; breadth of lower joint's superficies 2:4. *Radius* about 10 in. *Metacarp.* 7:3; breadth of lower articular surface 2 in. The pelvis in a right line 1 ft. 2 in. 2 lin. Foram. obturat. oval, in front somewhat narrower. *Os femoris* 11:4. *Tibia* 11:4. Metatarsus 8:4. First toe-joint 2 in., second 1:2; the hoof 2:2.

Abode.—This slender-built almost deer-like species of Ox has existed wild contemporaneously with the forementioned animals in the south and west of Scania; and, as it appears, was found here in great numbers, probably in large flocks, in the vast forests with which the land was everywhere covered. It is not till within the last few years that our attention has been directed to its fossil remains, and already I have obtained several both of skulls and skeletons. In the Zoological Museum in Lund is preserved a skull which was taken up from a deep turf-bog near the Cathedral in Lund; and the back part of the skull with the horn-cores of a very old specimen was found, while digging a well, at the depth of nine ells, likewise in Lund. From a turf-bog in the district of Skytts I have obtained a skull; and from a turf-bog belonging to the parsonage of Nöbbelöf, in the district of Ljunit, two skeletons of this species of Ox have been dug up during this summer. At the close of the late meeting of Naturalists in Copenhagen, Professor Steenstrup exhibited a recently dug-up skull belonging to this species found in a turf-bog in Seeland. In Ireland and England several remains have been found in different places, and in relatively older earth-beds. In England they have been found together with the bones of the mammoth and rhinoceros (Owen, p. 510); they have been found in earth-beds over which lay a bed of marine shells, and over that a bed of freshwater shells (p. 511): in Ireland they have been found in freshwater marl under turf-bogs, together with the bones of the *Cervus megaceros*, from which we can form an idea of their great antiquity; but they have also been found in the same turf-bogs, whence Professor Owen draws the conclusion that this species of Ox continued to live there even after the last-mentioned species of animal was already extinct. With us, in the south of Scania, it lived contemporaneously with the Reindeer, *Bos primigenius*, and *Bos frontosus*: it was certainly among the Herbivora that came into the country after the 'period of destruction,' when the fields were again clothed with grass, bushes and forests. With us, and, as far as we know, over all Europe, they were, as wild, exterminated before the so-called historic period. That this same species of fossil remains might be found in Germany also is more than merely probable, although none as yet have been noticed. How far this species of Ox in former times has any-

where been tamed, and so as to form the stock now living of any tame race, has not perhaps through any comparisons been fully shown; but Prof. Owen supposes that the small-grown, small-horned, often hornless cattle in Wales and in the Highlands of Scotland descended from that race which he considers was tamed before the invasion of the Romans, by the original inhabitants; when, on the conquest of the country, they fled with their herds to the woody mountain-tracts. If it exists among us in any tame race of cattle, it would seem to be in the so-called *Finn* cattle.

The forehead more broad than long, convex: the horns set on anterior to the ridge which separates the forehead from the occiput. The intermaxillary bones never reach up as far as the nasal bones.

XXXVIII.—*Observations on Mr. Morris's paper on the Excavating Sponges.* By ALBANY HANCOCK, Esq.

To Richard Taylor, Esq.

DEAR SIR,

Newcastle-upon-Tyne, Oct. 15, 1849.

I HAD much pleasure on reading in the last Number of the 'Annals,' Mr. Morris's abstract of the papers published by Dr. Nardo and M. Michelin on the *Excavating Sponges*, and am only sorry that I was not aware of the investigations of these naturalists at the time I drew up my own observations on the subject. The access to scientific works in the country is very limited, and those referred to by Mr. Morris I have had no opportunity of seeing.

When, in my paper read at the Swansea Meeting of the British Association, I first stated my belief that *Cliona* excavated the chambers it inhabits, the assertion met with such general opposition, that I must confess I am now somewhat surprised on being informed that this subject had been so fully discussed some years ago; so far at least as relates to the question whether or not these sponges make the holes in which they are found concealed. Indeed it seems strange that there should ever have been two opinions on this point; for after the attention has once been called to it, a single specimen, in good condition, is sufficient to convince the inquirer that *Cliona* does really form its complicated habitation. This appeared to me so evident on examining the first specimens I procured, that had this fact not been disputed by naturalists of great eminence, I should never have thought it necessary to have dwelt so long on it. At that time I should have had great pleasure in quoting Nardo or Michelin in confirmation of this part of the argument, which was



Nilsson, Sven. 1849. "XXXVII.—On the extinct and existing Bovine Animals of Scandinavia." *The Annals and magazine of natural history; zoology, botany, and geology* 4, 349–355. <https://doi.org/10.1080/03745486009494846>.

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