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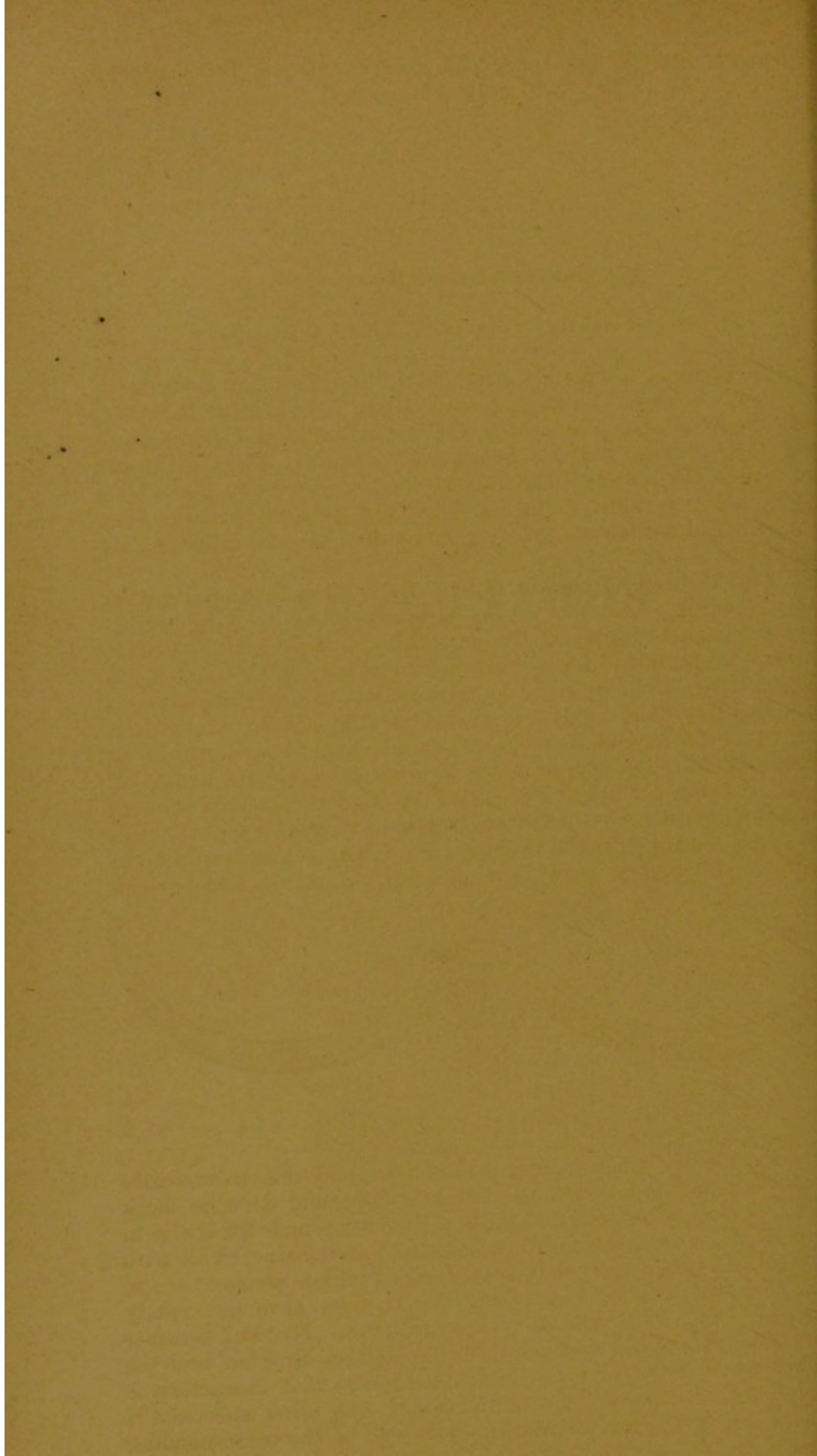


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ON BUBALUS BAINII.

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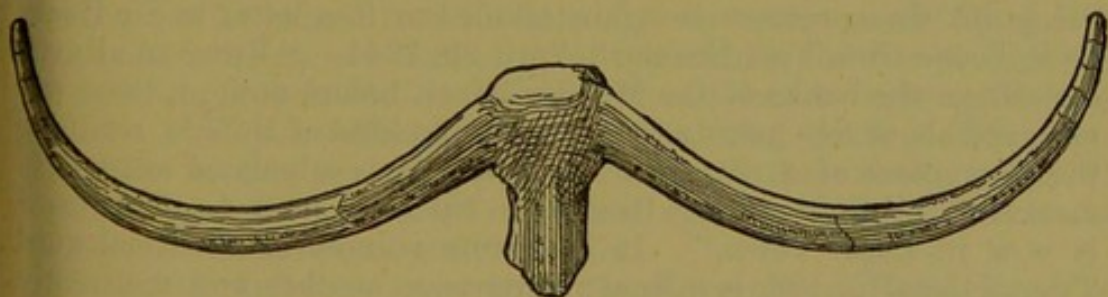


ON *BUBALUS BAINII* (SEELEY).

By Professor H. G. SEELEY, F.R.S., F.G.S., etc.

VERY little is known in England of the Tertiary deposits of South Africa. Some marine beds are found, as at Bathurst, where the limestone is full of teeth of *Carchadon* and *Lamna*, and shells of *Turritella* *Ostrea*, *Donax*, and *Lucina*. The shells are preserved in the Albany Museum. I was informed that these beds are 300 to 400 feet above the sea. The teeth shown to me in their worn, polished, yellowish tone rather recalled the condition of Red Crag fossils.

All over the interior of the Colony freshwater Tertiary deposits have filled up ancient valleys, and sometimes existing rivers have cut channels for short distances through these accumulations. I noticed them sometimes to have been partially eroded and again filled up, before modern river denudation laid the existing sections bare. In these older muds and gravels are remains of a terrestrial fauna which no longer lives in Africa. I had no opportunity of determining its antiquity, or of making an approximate list of its fossils; but my attention was called by M. Peringuey to some of these remains in the South African Museum at Cape Town. Besides these newer Tertiary fossils, there are one or two which would be of exceptional interest if their African origin could be established.



Cranium of *Bubalus Bainii*, Seeley.

They are evidently very ancient acquisitions, and the circumstance that they are not mentioned by the elder Bain, and have no mark indicating presentation, refers them to a time too remote for tradition to be helpful. One is the middle portion of a mammalian skull with the teeth worn down to the alveolar margin, which seems to me to be the *Hippopotamus sivalensis* and the trustees have generously entrusted me with the specimen for determination. The skull is rather smaller than the Indian specimens in the British Museum, and the teeth are worn down to the alveolar border, so that characteristic details of dental structure are obliterated. The other specimen is the distal end of the femur and proximal end of the corresponding

tibia of an enormous proboscidian. The extremities of these bones had a circumference of about 80 centim. They are as heavily mineralized as Karoo fossils with which they had become associated, and though free from matrix, are so like Siwalik specimens, that it is possible that they may have been brought from India. In this uncertainty I may mention that I once found in a newly unpacked collection of Dicynodont bones from South Africa in the British Museum, an undoubted Mammalian fragment, which was rejected as being a Siwalik fossil, which had accidentally dropped among the other bones. Still the possibility of such a fauna being represented at the Cape is of sufficient interest to justify this reference to specimens without a history.

Another mammalian fossil is better authenticated. In the Proceedings of the Geological Society of London, vol. iii. November 20th, 1839, the first evening communication was "Extract from a letter addressed to Dr. Andrew Smith by A. G. Bain, Esq., dated Graham Town, Cape of Good Hope, February 21st, 1839, and communicated by Charles Darwin, Esq. The object of this extract is to announce the discovery by Mr. Martin Smith of the piths and portions of the head of an ox in the alluvial banks of the Moddar, one of the tributaries of the Orange River, and 40 feet below the surface of the ground. The piths with the breadth across the os frontis measured 11 feet 7 inches, but it is calculated that 5 inches had been broken off the end of each tip; and the circumference of the piths at the root was 18 inches. The orbits were situated immediately under the base of the horns. Part of the upper jaw containing five molar teeth, and other fragments of the head, as well as a cervical vertebra, were found at the same time." With time Mr. Bain's estimate of the original size of the horn cores extended. For in the Trans. Geol. Society, series 2, vol. vii. p. 59, the specimen is again alluded to in a letter to Sir Henry de la Beche from Fort Beaufort, April 29, 1844. "From an alluvial deposit on the banks of the Moddar River, before noticed, there was obtained about five years ago the skull of a kind of Buffalo, retaining the bony cores of a pair of horns which it is calculated must have measured full fourteen feet from tip to tip when perfect. This fossil is now in Cape Town." In the same volume of the Geological Transactions, p. 192, is a final reference to another and apparently similar animal. Mr. A. G. Bain in a paper on the Geology of South Africa, read Nov. 15th, 1852, says, "I ought perhaps to mention that I have frequently heard of animal remains being discovered in the alluvium, differing from those of existing animals; and I discovered at Bloemhoff, in the Division of Graaf Reinet, about 10 feet below the surface, in a marly alluvial soil, some remains of an extinct ruminant, consisting of a skull, with the core of one horn attached, the former being of extraordinary length in proportion to its breadth. Its forms part of the collection of 1847 [sent to the Geological Society] and must speak for itself. I have no doubt a diligent search in the deep ruts or ravines which everywhere intersect the great plains of the interior would produce a vast number of extinct mammalian remains perfectly new to science."

What became of the second specimen is not evident, but I make no doubt that the former is the beautiful ornament which hangs from the gallery in the South African Museum at Cape Town, partly because Mr. Thomas Bain, who assisted in collecting specimens, has always believed that specimen to be his father's fossil, and partly because it agrees with Mr. Bain's description published in 1839. I therefore propose to name it *Bubalus Bainii*.

This Buffalo has the largest pair of horn cores known in the genus. They are remarkable not only for length, but for curvature; the horn bending first forward and then backward in a curve, which lies in one plane, which otherwise rather suggests the form and curvature of Mammoth tusks. The transverse measurement in a straight line between the extremities of the horn cores, which are nearly parallel to each other, is 8 feet 6½ inches measured by M. Peringuey. But on the right side the curve extends 1½ inch further outward from the middle line of the skull than on the left side. M. Peringuey, of the South African Museum, had the kindness to verify for me Mr. A. G. Bain's measurement; and as now preserved the length along the posterior or concave curvature is 11 feet 1 inch, which corresponds sufficiently with 11 feet 7 inches obtained by Mr. Bain probably by taking the outer curve. The horn cores are also remarkably cylindrical, the flattening being moderate, a character of some interest when compared with the flattened form of the horn cores in the large *Bubalus palæindicus* of the Nerbudda. The face is long and narrow, rounded above the orbits, flattened from side to side and concave in length between the frontal and nasal region. The length of the head as preserved is 22½ inches, but with the slight restoration at the back of the head and the lost premaxillary prolongation in front it would be several inches longer. In general character this fossil approaches nearest to the South African Buffalo, so far as can be judged from its state of preservation; and it probably bears much the same relation to that type which the *Bos primigenius* of our own gravels and superficial deposits has to existing British cattle. It is not without interest to find that South Africa is no exception to the general law, that some of the existing races of animals have been preceded by allied species of larger size, as in Europe, South America, and Australia.

I am indebted to a grant from the Government Grant Fund of the Royal Society for the opportunity of identifying the specimen described fifty-two years ago by Mr. Bain. The figure is from a photograph taken for me by Mr. Allis, of Rosebank, Cape Town, and is on the scale of about one millimetre to the inch.

