

James Douglas
A dissertation on the history of the earth
London
1785

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A
DISSERTATION
ON THE
Antiquity of the Garth,
READ AT THE ROYAL SOCIETY, 12th MAY, 1785.

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By the Rev. JAMES DOUGLAS, F. A. S.

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A
DISSERTATION
ON THE
ANTIQUITY OF THE EARTH.

MANY extravagant notions having been lately propagated on the subject of animal and testaceous petrifications, I have presumed to transmit to this learned Society some important facts, which may possibly admit of "data" for a more comprehensive inquiry into these phenomena.

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On the 18th of June, 1773, an excavation was made in the yard of Mr. James Best, of Chatham, for the foundation of a store-house. The labourers, at the depth of twelve feet, discovered the bones of a very large animal. They were deposited in a stratum of drift or river sand, blended with a kind of clay, of a yellowish grey tinge. The superior soil, within a few lines of the stratum which covered the bones, was a compact and native brick loam, with horizontal veins of a blackish hue running through it. This vein of loam extends in an horizontal direction through the town of Chatham, about twenty feet above the level of the river Medway at high water-mark, and about one hundred yards from the strand at the same level.

By the position of the bones, and the fragments that were reserved, they appear to have belonged to one entire animal. Those which I procured consisted of an under jaw, with two of the "molars", two inches broad, a curvated tooth, the drawing here subjoined being a fac simile of both, vide FIG. 1 and FIG. 2, and which in the year 1781 I presented to the museum of Sir Ashton

PLATE I.

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Lever. I also preserved the fragments of the blade-bone, which bone was two feet long, ten inches wide at the broad end, and four inches at the smallest; these, with several fragments of tusks and bones, I have here submitted to the inspection of the Society. The remaining bones of the animal were carted to a small distance from Mr. Best's yard, and scattered with the soil over a pasture ground, excepting some few specimens which Mr. Best gave orders to be saved, and which have since been mislaid: from the minutes, which are in my possession, taken on the spot by the Reverend T. Austin of St. Margaret's, near Rochester, and late minor Canon of that cathedral, they appear to have consisted of several ends of joint bones, parts of the shank bones, some a foot and upwards in length; a large rib, three inches broad, and the small end towards the point, of a rayed or coarse yellowish tusk, about three inches in circumference, with several of the vertebrae

The bones are deprived of their animal salt,

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and some, especially the jaw, are permeated with a lapidescent matter. As their size greatly exceeded those of our common domestic animals, particularly the teeth, they were ignorantly reported to

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be of an elephant, and ascribed to one of those which writers without reason supposed to have been transported into this country by the Emperor

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Claudius. The human mind, on these occasions, being but too often tempted to yield to the marvellous, the "molares" in question were by many

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learned men, considered as similar to those which are recorded in the Philosophical Transactions, No. 403, by Sir Hans Sloane; whereas their form and size show them to be in every respect dissimilar. An elephant has only one grinder on each side; this animal has three; and their structure so very different, these being of a graminivorous and carnivorous kind, and in comparison so much smaller, that all analogy whatever must be out of the question. Judging therefore of the difference in the structure and size of the teeth of an animal that is both graminivorous and carnivorous, and of the proportion of the other bones, I did not hesitate to decide on these animal remains to

+ P. 7. l. 5. for one read two.

Ditto, l. 7. for graminivorous read graminivorous.

Ditto, l. 8. for carnivorous read carnivorous.

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have belonged to the Hippopotamus; but to be more accurate, and to remove all doubt as to the

authenticity of a discovery of this consequence in our island, I compared the fossil "molares" with those of the recent ones in the jaw of the above animal in the Museum at Leicester House; the confirmation was manifest: there was very little difference in the size, and no difference in the structure; excepting that the fossil seemed to have belonged to an older animal, which in mastication had worn the teeth flat, or rather obliquely on their interior side towards the mouth. The Hippopotamus has two small curved teeth between the two projecting lower tusks; and on comparing of FIG. II. which is the boney part that enters the ivory, it will be found perfectly similar to the recent tooth of the said animal. I shall now beg leave to wave all further detail as to the typical marks of these bones, and permit them to assert their identity with those gentlemen, who are skilled in the science of comparative anatomy: if therefore the following conclusions from this discovery may in the smallest degree tend to explain the cause of these phenomena found in the bowels of the earth, or to establish any principles for the

+ P. 8. l. 15. for boney read bony

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advancement of the science of Cosmography, the time which I have employed in many practical researches of this nature, will I trust be of some service, and I hope justify me in a further prosecution of this study.

These hippopotamic remains being discovered petrified and entire, in a soil which had been formed by the residue of the waters, it should seem that they must have been deposited by this cause. The account of the deluge in holy writ might incline the learned to suppose that this animal had been floated from those regions, which in respect to climate, were congenial to its existence, and to have been left on the spot where it was found in its fossil state; but when we consider the great distance of the Medway from the Nile, or other rivers near the tropics, where these kinds of animals are now known to inhabit; and when we have no authority from the Pentateuch to conclude that any extraordinary convulsion in Nature had impelled animals at that period from their native regions to countries so remote, so we have no natural inference for concluding that the deluge was the cause of this phaenomenon.

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Had the deluge stranded animals under these circumstances, the superior parts of the chalky cliff where these fossil remains were found, would exhibit many palpable effects to have established this cause; with the retreat of the waters, animal as well as marine productions would have been also deposited; nor would the partial stratum of native loam extend itself to a certain altitude on the chalk; which, as being so evidently the effect of alluvion, the very summit of the neighbouring

land would produce some marks of this nature; since we are instructed that the waters of the deluge covered the whole face of the earth: at all events therefore we must conclude, that these animal remains were deposited at an epoch separable from that of the deluge as recorded by Moses; but when evidence so powerfully militates against this instance, and that the stratum of the river soil is only discovered twenty feet above the level of the river at high water mark, and one hundred yards from the strand, on the same level in which the animal was found, it must consequently be admitted by rational deduction that these hippopotamic remains were placed in that stratum by the

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river, which at some remote period had laved those heights; and hence it will naturally follow, that as the Hippopotamus is known to be the inhabitant of muddy rivers, like those of the Nile and the Medway, it should therefore argue that this animal was the inhabitant of these regions, when in a state of climature to have admitted of its existence.

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<This is the second fossil rhinoceros to be reported from Kent. (The first was discovered at Chartham in 1668 and described in a pamphlet by Somner (1669).) The find was made in Chatham, in June 1773, by workmen digging a basement: it seems that they found a large part of a single animal, in gravel overlain by a 12-foot-thick blanket of loess. Some notes were made at the time by a local clergyman, the Rev. Thomas Austen (d. 1790); some of the bones were kept. From Austen's notes, and from some fragments which he had acquired, Douglas wrote up this account of the discovery. It forms the beginning of a long essay on the history of the earth which was read at the Royal Society in May 1785 and published that same year (at the author's expense, I take it, not under the Society's auspices). Historians of geology have felt obliged to read it, but the rest of us probably have better ways to spend our time. (The text is available online, however, should anyone want to look at it.) Douglas mistakenly supposed (just as Somner had done) that the creature was a hippopotamus. One fragment – part of a mandible with two teeth in place – was donated by him to the Leverian Museum (i.e. the vast collection of curiosities assembled by Sir Ashton Lever, on show at Leicester House in Leicester Square). When that collection was auctioned off (which happened in 1806), this fragment was bought by Henry Warburton, who presented it to the museum of the Geological Society. That is where it was seen by Richard Owen (1846, pp. 341–2). In 1911 the Geological Society's collection was transferred to the British Museum (Natural History). That is where the fragment ought to be now; but it does not (or not yet) show up in the online catalogue. From the context, I assume that the rhinoceros was a woolly one (like the one from Chartham). But Owen was not sure, and I do not know whether anyone has made a definite identification. – C.F. April 2011.>