PHILOSOPHICAL TRANSACTIONS.

XIX. *An Account of some organic Remains found near Brentford, Middlesex. By the late Mr.* William Kirby Trimmer. *Communicated in a Letter from Mr.* James R. Trimmer *to the Right Hon. Sir* Joseph Banks, *Bart. K. B. P. R. S.*

Read March 4, 1813.

SIR,

MY late brother, in digging clay near Brentford, for the manufacture of bricks and tiles, frequently found the remains of animals and extraneous fossils, which you, Sir, with other Gentlemen of the Royal Society, very often inspected, and the interest which you took in them added much to his ardour in collecting them.

A few days before he was attacked with the illness which terminated in his death, he had drawn up an account of the different strata in which the organic remains in his cabinet were found deposited, with the intention of submitting it to you. His long illness and other circumstances have delayed my communicating to you earlier the enclosed letter, which I found amongst his papers; and I request, Sir, that if you

should deem it of sufficient interest, you will do me the honour of laying it before the Royal Society.

I have the honour to be, Sir,
with great respect,
your much obliged humble servant,
JAMES R. TRIMMER.

Brentford, Feb. 1813.

To the Right Hon. Sir Joseph Banks, *Bart. &c. &c. &c.*

SIR,

My collection of organic remains having been nearly formed under your own eye, and my zeal in the collection, and care in the preservation of them, having been greatly increased by the importance which yourself and other Gentlemen of the Royal Society have attached to them, I do myself the honour of presenting to you the following statement of the manner in which they were deposited in the strata where they have been found; conceiving that however curious the specimens may be in themselves, they can conduce but little to the advancement of geological knowledge, if that part of their history is wanting.

The specimens have been collected from two fields, not contiguous to each other; therefore to avoid confusion, I shall take each field separately, first describing the strata as far as they have come within my knowledge, and afterwards I shall speak of the organic remains as they were respectively found in those strata.

The first field is about half a mile north of the Thames at Kew bridge; its surface is about twenty-five feet above the

Thames at low water. The strata here are first, sandy loam from six to seven feet, the lowest two feet slightly calcareous. Second, sandy gravel a few inches only in thickness. Third, loam slightly calcareous from one to five feet; between this and the next stratum, peat frequently intervenes in small patches of only a few yards wide, and a few inches thick. Fourth, gravel containing water; this stratum varies from two to ten feet in thickness, and is always the deepest in the places covered by peat; in these places the lower part of the stratum becomes an heterogeneous mass of clay, sand, and gravel, and frequently exhales a disagreeable muddy smell. Fifth, the main stratum of blue clay, which lies under this, extends under London and its vicinity, the average depth of this clay has been ascertained, by wells that have been dug through it, to be about two hundred feet under the surface of the more level lands, and proportionably deeper under the hills, as appears from Lord SPENCER's well at Wimbledon, which is five hundred and sixty-seven feet deep. This stratum, besides figured fossils, contains pyrites and many detached nodules; at the depth of twenty feet there is a regular stratum of these nodules, some of which are of very considerable size.

In the first stratum, as far as my observation has extended, no remains of an organised body has ever been found, and as my search has not been very limited, I may venture to say it contains none. In the second stratum, snail shells, and the shells of river fish have been found, and a few bones of land animals, but of inconsiderable size, and in such a mutilated state, that it cannot be ascertained to what class they belong. In the third stratum, the horns and bones of the ox, and the horns, bones, and teeth of the deer have been found, and also, as

in the second stratum, snail shells and the shells of river fish. In the fourth stratum were found teeth and bones of both the African and Asiatic elephant, teeth of the hippopotamus, bones, horns, and teeth of the ox.

A tusk of an elephant measured, as it lay on the ground, nine feet three inches, but in attempting to remove it, it broke into small pieces. When this stratum dips into the clay, and becomes a mixed mass, as before stated, it is seldom without the remains of animals. In the fifth stratum, namely the blue clay, the extraneous fossils are entirely marine, with the exception of some specimens of fruit and pieces of petrified wood, the latter of which may be considered as marine, because when of sufficient size, they are always penetrated by teredines. The other fossils from this stratum are nautili, oysters, pinnæ marinæ, crabs, teeth and bones of fish, and a great variety of small marine shells; this stratum has been penetrated hitherto in this field only to the depth of thirty feet, throughout which the specimens found were dispersed, without any regularity.

The second field is about one mile to the westward of the former, one mile north of the Thames, and a quarter of a mile to the eastward of the river Brent; its height above the Thames, at low water, is about forty feet. The strata are, first, sandy loam, eight or nine feet, in the lowest three feet of which it is slightly calcareous. Second, sand, becoming coarser towards the lowest part, and ending in sandy gravel from three to eight feet. Third, sandy loam highly calcareous, having its upper surface nearly level, but gradually increasing in thickness from a feather edge to nine feet. Below this are two strata of gravel and clay, as in the other field, but as these strata have been only occasionally pene-

trated in digging for water, nothing therefore is known with respect to them, but that they exist there.

In the first stratum, as in the other field, no organic remains have been observed. In the second, but always within two feet of the third stratum, have been found the teeth and bones of the hippopotamus, the teeth and bones of the elephant, the horns, bones, and teeth of several species of deer, the horns, bones, and teeth of the ox, and the shells of river fish

The remains of hippopotami are so extremely abundant, that in turning over an area of one hundred and twenty yards in the present season, parts of six tusks have been found of this animal, besides a tooth and part of the horn of a deer, part of a tusk, and part of a grinder of an elephant, and the horns with a small part of the skull of an ox. One of these horns I had an opportunity of measuring, as it lay on the ground, and found it to be four feet and a half in length, following the curve, and five inches in diameter at the large end; it was found impracticable to remove it, otherwise than in fragments, which I have preserved, and have hopes of being able to put a considerable part of it together. The immense size of this horn is rendered more remarkable, by another horn from the same spot, which measures but six inches in length. Though this stratum is so extremely productive of the remains of animals, yet there are but few good cabinet specimens from it, owing, it is presumed, to their having been crushed at the time they were buried, and to the injury they have since received from moisture. It is necessary to remark, that the gravel stones in this stratum do not appear to have been rounded in the usual way by attrition, and that the bones must have been deposited after the flesh was off,

because, in no instance have two bones been found together which were joined in the living animal; and further, that the bones are not in the least worn, as must have been the case had they been exposed to the wash of a sea beach.

In the third stratum, viz. calcareous loam, have been found the horns, bones, and teeth of the deer, the bones and teeth of the ox, together with snail shells and the shells of river fish.

Brentford, in the neighbourhood of which are the fields I have mentioned, is situated on the north bank of the Thames, and is six miles west of London.

The fall of the Thames from Brentford to its mouth at the Nore,* is estimated at seven feet.

I have the honour to be,
with great respect, Sir,
your much obliged
and obedient humble servant,

WM. KIRBY TRIMMER.

Brentford.

* Col. MUDGE, Trigonometrical Survey, p. 85.

Fig. 1.

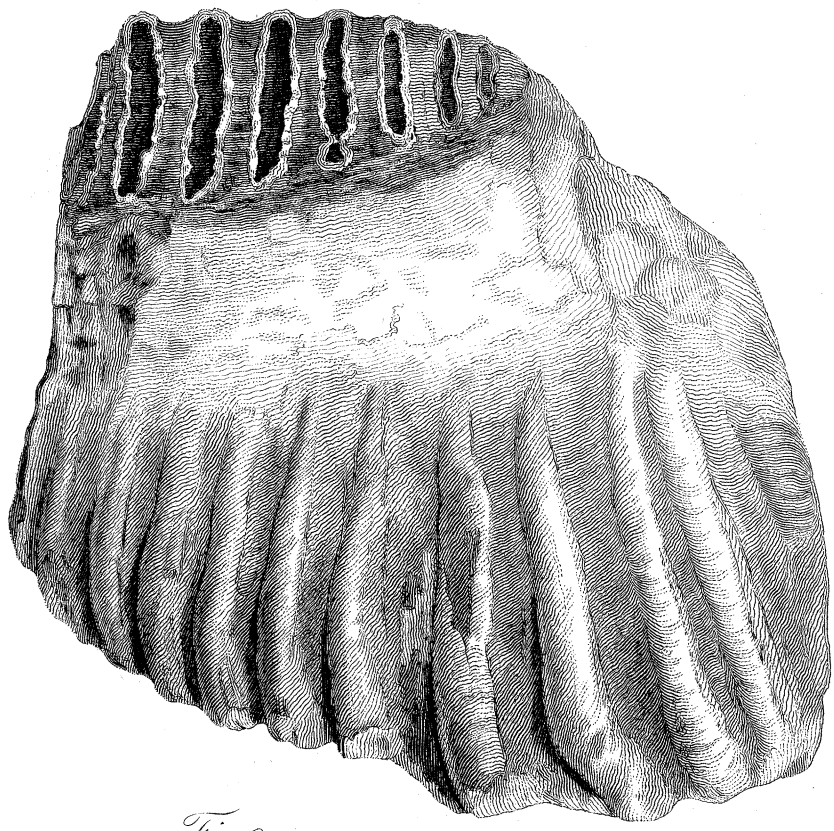
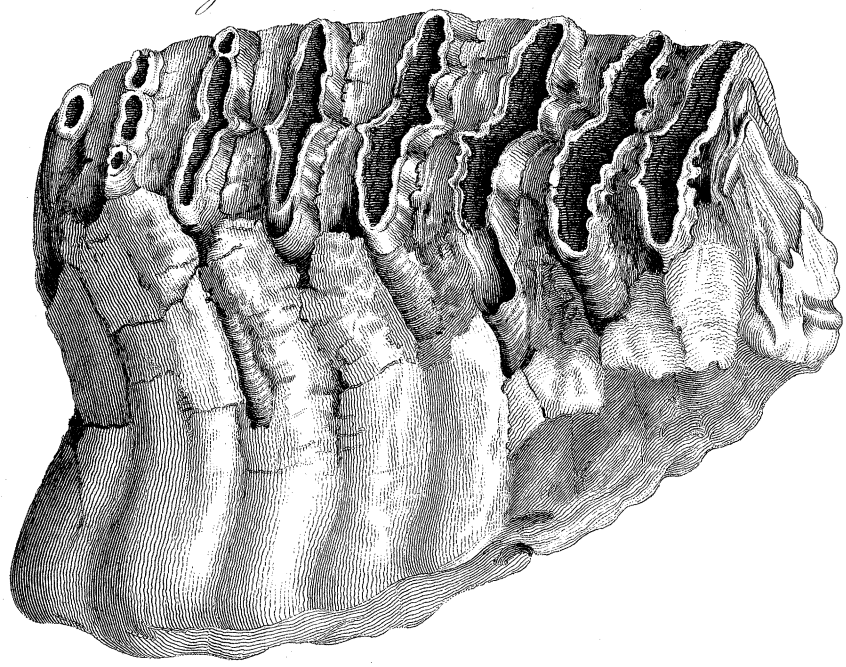
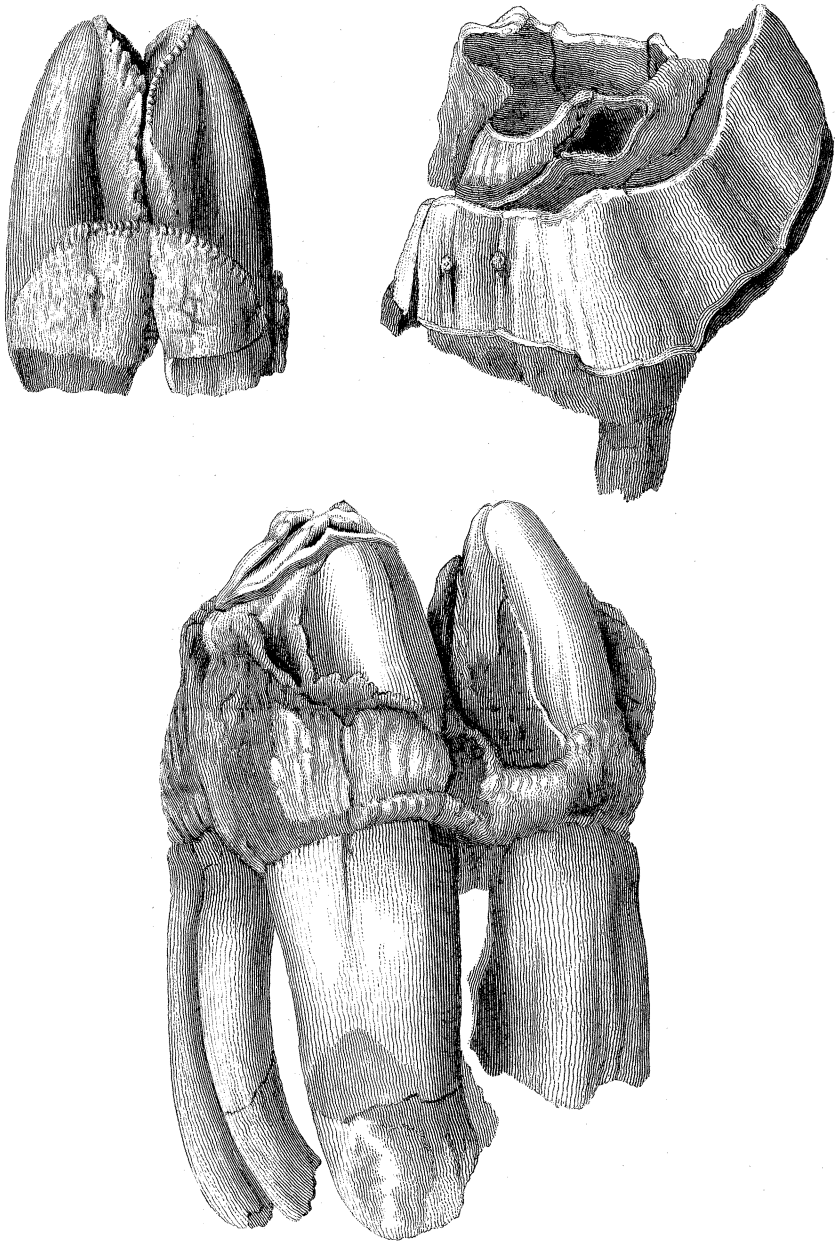
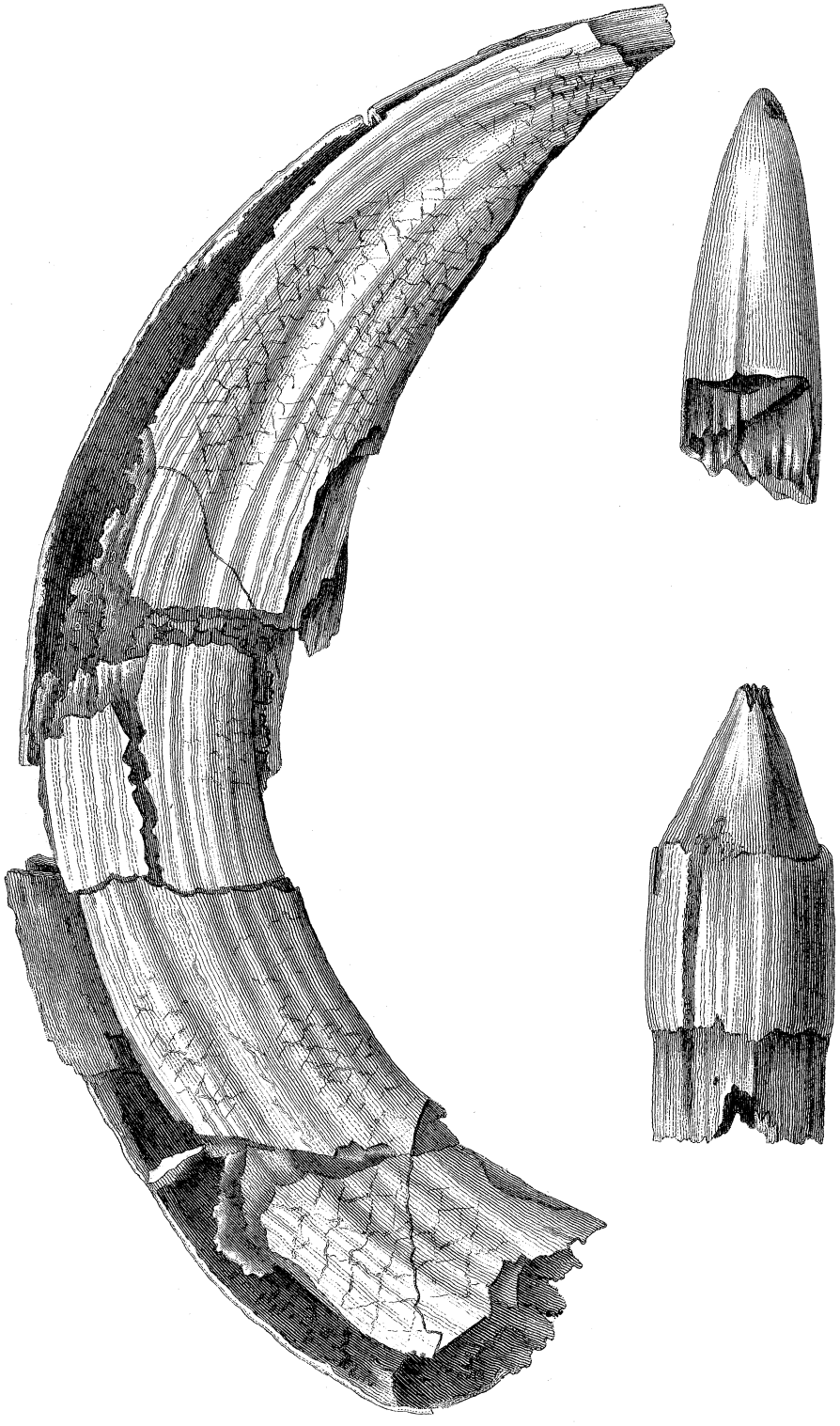


Fig. 2.

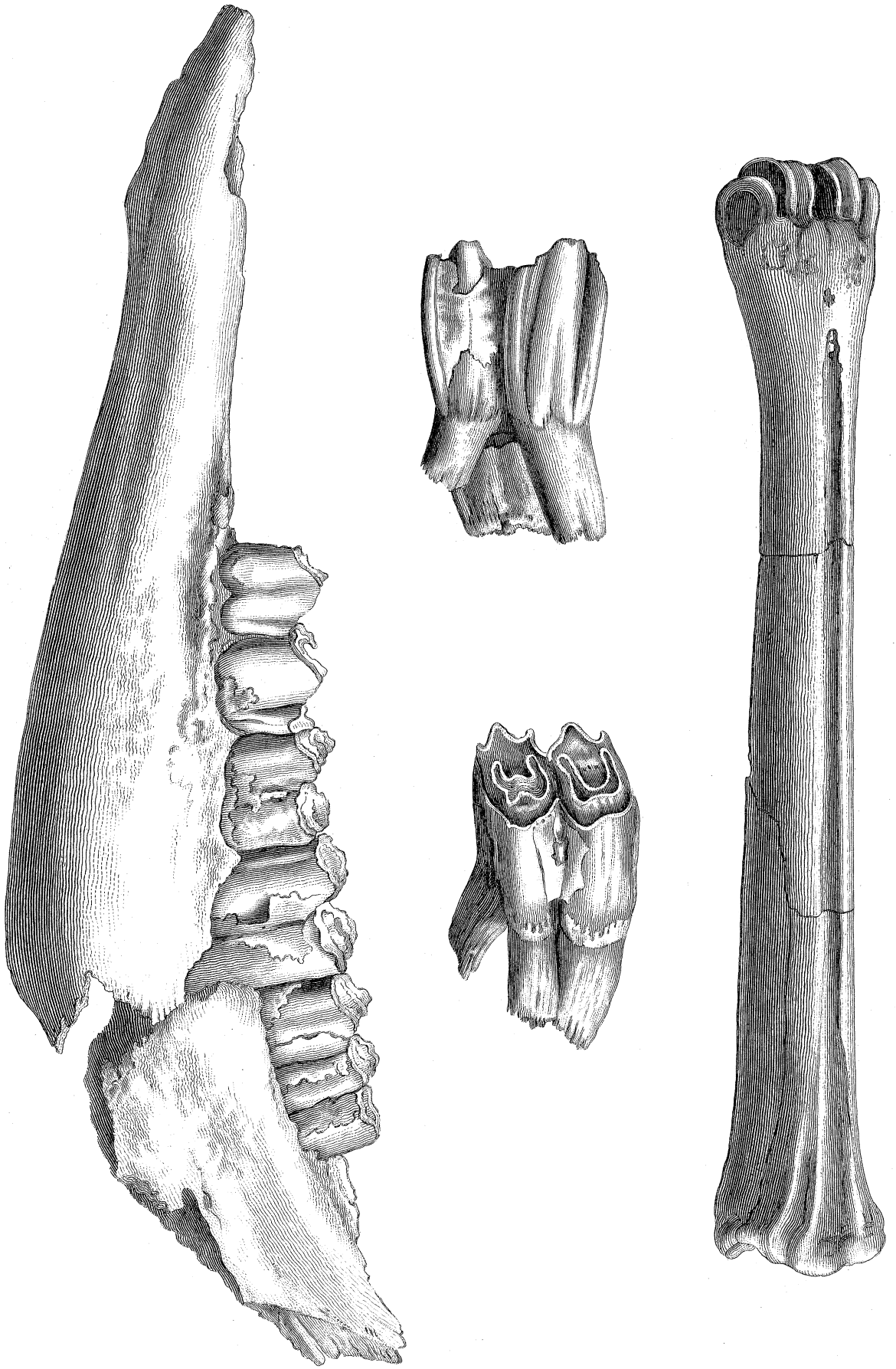


T. Basire sc.

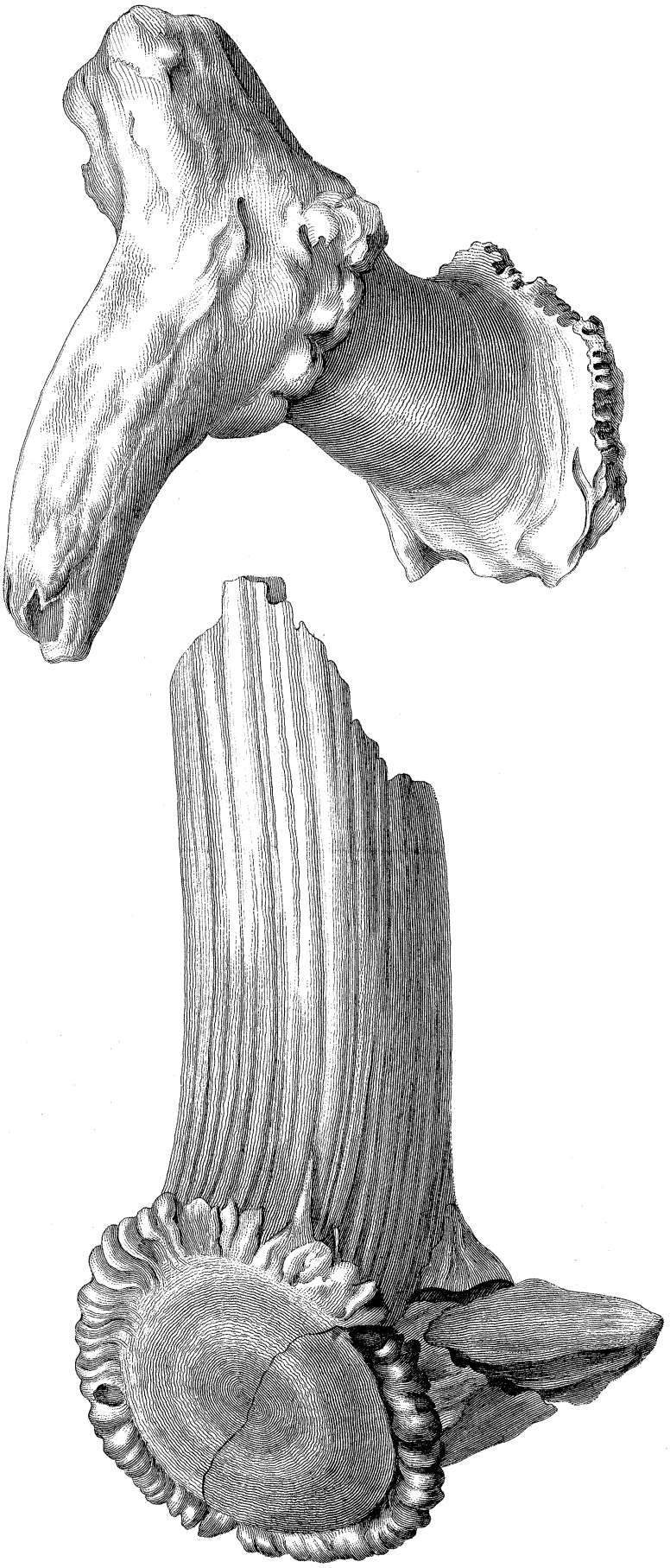




P. Basire sc.



P. Basire sc.



I.t Basire sc.

EXPLANATION OF THE PLATES.

The following sketches (see Plates VIII, IX, X, XI, XII.) will give a tolerably correct idea of the state in which the bones were found.

PLATE VIII.

Fig. 1. The grinding tooth of an Asiatic elephant.
Fig. 2. The grinding tooth of an African elephant.

PLATE IX.

Three grinding teeth of the hippopotamus.

PLATE X.

A tusk and fore tooth of the hippopotamus.

PLATE XI.

Bones of the deer kind. A lower jaw, two grinding teeth, and a bone of the leg.

PLATE XII.

Two portions of the horns of the deer. One set upon a bony pedicle, which is not the case in any recent deer, except in a small species found in Prince's Island in the East Indies.