

V. ON THE EUROPEAN PLIOCENE AND POST-PLIOCENE SPECIES OF THE GENUS RHINOCEROS.¹

AFTER examining all the collections in England and Italy and those of Lyons, Montpellier, &c., I have come to the conclusion that there were four distinct Pliocene and Post-Pliocene species of Rhinoceros, three of which have long been confounded by Cuvier and other palæontologists under the name of *Rhinoceros leptorhinus*. I have carefully examined at Stuttgart the materials on which Kaup's and Jäger's *Rhinoceros Merckii* is founded. It is not a distinct species, but is identical with the Grays Thurrock species, or *Rhinoceros leptorhinus (miki)*. The *R. Lunellensis* of Gervais is founded on a young jaw with milk-dentition, which is not to be depended on for determining distinctions. So, also, the *Rhinoceros elatus* of Croizet, and the *R. mesotropus* of Aymard, found in Auvergne, are not distinct species. I have examined the chief collections in Auvergne. The specimens in M. Pichot's collection and in the Museum of Le Puy are mainly *R. Etruscus*, while the *R. mesotropus* of Aymard comprises both *R. leptorhinus* and *R. antiquitatis*. The four species may be classified as follows :—

PLIOCENE.

I. No bony nasal septum.

1. *Rhinoceros leptorhinus* (Cuv. *pro parte*).
Syn. *R. megarhinus* of Christol.

II. Partial bony septum.

2. *Rhinoceros Etruscus* (Falc.).
Syn. *R. leptorhinus* (Cuv. *pro parte*).
3. *Rhinoceros hemitæchus* (Falc.).
Syn. *R. leptorhinus* (Owen *pro parte*).

POST-PLIOCENE.

III. Complete bony septum.

4. *Rhinoceros antiquitatis* (Blumb.).
Syn. *R. tichorinus* (Fischer and Cuvier).

¹ The introductory remarks have been compiled by me from two letters, addressed by Dr. Falconer in 1862 to Mons. Lartet, of Paris, and Col. Wood, of Stouthall, Swansea, and from his note-books. The important essay on *Rhin. hemitæchus* was written in 1859, but is now for the

first time published. The notes on *Rhin. leptorhinus*, including the lengthened description of the Cortesi cranium at Milan, on *Rhin. Etruscus* and on *Rhin. antiquitatis*, are extracted from the author's note-books.—[Ed.]

1. *Rhinoceros leptorhinus*.—This is the original and typical *Rhinoceros leptorhinus* of Cuvier, founded on Cortesi's Monte Zago cranium. It is the species described by Christol as *R. megarhinus*, and is the only Pliocene or Post-Pliocene European species that had not a nasal septum. To this belongs the celebrated Cortesi cranium in the Museum at Milan, which I have carefully examined. With this species also I have identified the *Rhinoceros* remains found in the Sub-Apennine beds of Piacenza, in the Val d'Arno upper beds, at Montpellier and Lyons, and at Grays Thurrock in Essex. The *Rhinoceros*, however, found in the Elephant-bed of the Norfolk coast is different.

2. *Rhinoceros Etruscus*.—This species, like the following, had an incomplete bony nasal septum, but it had a comparatively slight and slender form. It is met with, along with *Elephas (Loxodon) meridionalis* and *Mastodon Arvernensis*, in the lower beds of the Val d'Arno, and in the 'Submarine Forest-Bed,' or super-imposed blue clays of the Norfolk Coast, immediately underlying the boulder-clay; but, as yet, it has been found in none of the ossiferous caves of Britain. With this species, also, I have identified the remains of a *Rhinoceros* submitted to me by Professor Ansted, which were found a few miles from Malaga, in white marl, overlying Pliocene blue clay abounding with shells.

3. *Rhinoceros hemitechus*.—This species has been described by Professor Owen as *R. leptorhinus*. It has the nasal septum incomplete in the centre, and it differs from *R. antiquitatis* (*R. tichorinus*) in other cranial characters, as well as in those of the teeth. I am satisfied on this point, after examining the entire dentition of both young and old animals. *Rhinoceros hemitechus* accompanies *Elephas antiquus* in most of the oldest British bone-caves, such as Cefn, Durdham Down, Minchin Hole, and other Gower caverns. It is also found at Clacton in Essex (e.g. The 'Clacton *Rhinoceros*'), and in certain beds in Northamptonshire. It is also met with in Italy.

From some of these localities, entire skulls and a great portion of the skeleton have been obtained.

4. *Rhinoceros antiquitatis* (*R. tichorinus*).—This species had a complete bony nasal septum. It is found in the newer Pliocene deposits of Kent, Surrey, and Essex, and associated with *Elephas primigenius* in caverns of the same date. *Elephas antiquus* with *Rhinoceros hemitechus*, and *Elephas primigenius* with *Rhinoceros antiquitatis*, though respectively characterizing the earlier and later portions of our period, were probably contemporary animals; and they certainly were companions of the cave-bears, cave-lions, and cave-hyænas, and of some at least of the existing mammalia. There can be no

reasonable objection to the name *Rhinoceros antiquitatis*. South of the Rhine, that is in Geneva, France, and Italy, all modern palæontologists call the species *Rhinoceros tichorinus*; but, north of the Rhine, in Germany, Holland, Scandinavia, and Russia, the most eminent authorities designate it *Rhinoceros antiquitatis*. A name in science ought not to be a disputed point of mere geographical predilection. Blumenbach named it first *Rhinoceros antiquitatis*. Fischer de Waldheim, a palæontologist of no great authority, changed the name into *Rhinoceros tichorinus*, and Cuvier adopted Fischer's name without acknowledgment. Desmarest called it *Rhinoceros Pallasii*. Blumenbach's names of *Elephas primigenius* and *Mastodon Ohioticus* are now accepted by everyone; and there is no reason why his *Rhinoceros antiquitatis* should be rejected for a more modern name. Living neither north nor south of the Rhine, I have no geographical predilections, and as an impartial foreigner I accept the earliest name, viz. Blumenbach's; besides, the name *Rhinoceros tichorinus* is faulty, inasmuch as three species had a nasal septum.

L.—ON RHINOCEROS HEMITECHUS, AN EXTINCT SPECIES PREVAILING IN THE GOWER CAVES, SOUTH WALES.¹

In two previous communications (Quart. Journ. Geol. Soc. for Nov. 1857, and vol. xiv. p. 81),² I have attempted to trace the distribution of the fossil Proboscidea, with some of their constant associates, in the newer Tertiary deposits of England, and in corresponding deposits on the continent of Europe. One important branch of the inquiry concerns the fossil remains of the ossiferous caves; but my examination of the cave-collections was not, at the time, sufficiently extended to warrant well-founded conclusions on the subject. I had seen undoubted evidence of the occurrence of *Elephas antiquus* and *Hippopotamus major*—both Pliocene forms—in several of the English caverns; but I was in doubt regarding the associated fossil species of *Rhinoceros*. Since then I have had opportunities of examining most of the great cave-collections in the metropolitan and provincial museums, and of investigating, on the spot, the conditions under which the remains were associated in several of the most productive caverns. Some of the results appear to be of sufficient interest to warrant my bringing them before the Society,³ although with less detail of evidence, and in a more restricted form, than the nature of the case might seem to demand. But the general subject is so extensive in its relations as hardly to

¹ The MS. of this essay was found among Dr. Falconer's papers, and is now for the first time published.—[Ed.]

² See *antea*, pp. 1 and 76.—[Ed.]

³ The paper was evidently intended for presentation to the Geological Society.—[Ed.]