

# The type material of *Coelodonta antiquitatis* (Blumenbach) (Mammalia: Perissodactyla: Rhinocerotidae)

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## Introduction

Beside the woolly mammoth (*Mammuthus primigenius*), the giant deer (*Megaloceros giganteus*) and the cave bear (*Ursus spelaeus*) – the woolly rhinoceros (*Coelodonta antiquitatis*; Figs. 1a-1b) is one of the most remarkable members of the Pleistocene *Mammuthus-Coelodonta* faunal complex. During the Late Glacial, *Coelodonta antiquitatis* was widespread over most of Eurasia, with exception of the areas at latitudes north of 70° and the outermost northeastern parts of Arctic Siberia. In the final step of the Late Pleistocene *Coelodonta antiquitatis* became extinct. The last available records for Great Britain are around 15,000 years ago (e. g. Stuart 1982), for remaining Europe as late as 14,000 to 12,500 years ago (e. g. Kahlke 1994). The latest records from Western Siberia have an age around 10,800 years ago (Orlova et al. 2004).



## Naming of the woolly rhinoceros

In 1799, Johann Friedrich Blumenbach (1752–1840; Fig. 2) proposed the first scientific name (*Rhinoceros antiquitatis*) for the woolly rhinoceros in the 6th edition of his “Handbuch der Naturgeschichte” (Fig. 3). In the same volume he also proposed the scientific names *Elephas primigenius* and *Cervus giganteus* for the woolly mammoth and the giant deer.

The current generic name (*Coelodonta*) was mentioned by Bronn (1831) for the first time, together with *Coelodonta boiei*, a younger synonym of *C. antiquitatis*, recombined by several authors since the 1930s.



## Origin of the material

Blumenbach's description of the new species is based on material from the collections of the former “Royal Academic Museum” at the Georg-August University of Göttingen. This material comes from two different localities in Germany and Siberia.

The largest amount was collected in the middle of the 18th century at the southern margin of the Harz Mts. (Lower Saxony, Germany). One humerus comes from an area near the village of Scharzfeld, while all the other material still available was excavated by farmers near the village of Düna, around the year 1751. Some of these fossils were sent to University of Göttingen, where they were received by the Natural History teaching Professor of Philosophy Samuel Christian Hollmann (1696–1787; Fig. 4). Thinking first about elephant remains, he realised by comparing the fossils with already published anatomical descriptions of elephants (e. g. Mullen 1682, Blair 1710), that the newly discovered bones must have their origin in another large mammal, largely unknown in Europe.

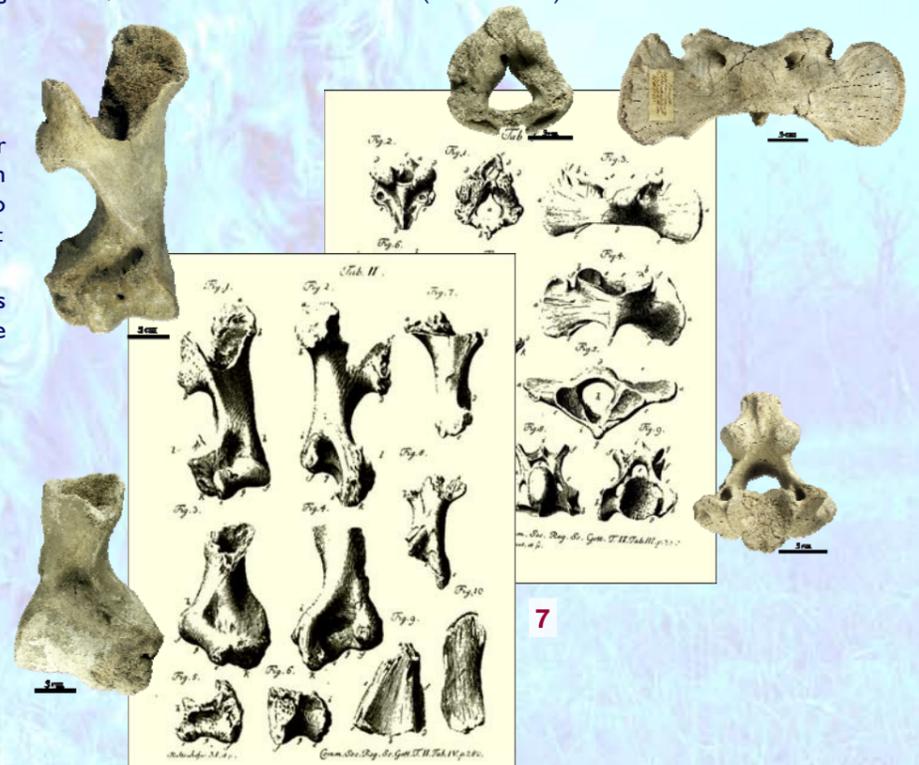
He also remembered a comparable living animal called “Rhinozerus”, which was exhibited in Göttingen some years previously. Hollmann submitted a fossil tooth to his colleague Johann Friedrich Meckel (1724–1774) with the request to compare this tooth with the teeth of “Rhinozerus” (“dead or alive”) on its journey through Europe. Meckel had success with his mission in Paris and could confirm Hollmann's assumptions. In the following year, S. C. Hollmann published his results in Latin in the “*Commentarii Societatis Regiae Scientiarum Göttingensis*” (Hollmann 1753a, 1753b; Fig. 5). This work represents the first anatomical description of a rhinoceros. The material consists of pieces of bone of several adult as well as juvenile individuals, therefore the variation in AMS <sup>14</sup>C datings are very large.

The second part of the material originates from Western Siberia, in the area of Ufa, Republic of Bashkortostan. The material was donated by Baron Georg Thomas von Asch (1729–1807; Fig. 6) at the end of 18th century – one of the most famous persons in the German–Russian exchange of science in the second part of 18th century (Reich & Gehler 2005). This material was mentioned for the first time by Blumenbach (1791) in the 4th edition of the “*Handbuch der Naturgeschichte*”, and was rediscovered in 2005 (Gehler 2006).

## The type material

In detail, the still-preserved syntype material comprises an incomplete humerus from Scharzfeld (Lower Saxony, Germany), two premolars (40,830 ± 430/± 370 years BP), an occiput fragment, an atlas, an axis, a pelvic fragment, two incomplete humeri, a femoral fragment (20,000 ± 80 years BP) and two incomplete tibiae from Düna (Lower Saxony, Germany; Fig. 7) as well as an occiput fragment (40,610 ± 340 years BP) and the anterior part of a skull from Western Siberia (Fig. 8).

The existence of this type material is widely known and a lectotype of *Coelodonta antiquitatis* has never been selected. However, unquestionably, a lectotype should be selected from the available original material. With the present contribution the authors would like to stimulate this discussion.



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**Figure captions:** 1a-1b: Life-sized model of a woolly rhinoceros based on the fossil record [Built by Remie Bakker, The Netherlands; Photo's Rene Bleuuanus, Sqzi, Arkel, the Netherlands]; 2: Portrait of J. F. Blumenbach (1823); 3: Title page of Blumenbach's 6th ed. of his “*Handbuch der Naturgeschichte*” (1799); 4: Portrait of S. C. Hollmann; 5: Title page of Hollmann's important description, published in 1752; 6: Portrait of Baron G. T. von Asch; 7: Parts of the syntype material of Düna, Lower Saxony, Germany in comparison with the published copperplates by Hollmann (1752); 8: Parts of the syntype material of Western Siberia (the anterior part of a skull was combined with the posterior part of another skull).