

Non-Human Primates in the Work of Ulisse Aldrovandi (1522-1605)

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Introduction

In the second half of 16th century a group of scholars and natural philosophers, interested in collecting and transmitting the *summa* of natural knowledge that had been produced so far, appeared in Europe. They worked on the knowledge of ancient authors trying to reaffirm the exact meaning of the ancient texts correcting the distortions of the medieval tradition.

They also added and included into their work the new contemporary information from researches on local nature and from travel literature, especially that of the recently discovered worlds. The medieval contributions continued to be followed, as well as some fantastical reports ("monstrua") of the oral tradition, but all within a context of critical attitude. Among them Ulisse Aldrovandi, an Italian physician and an "encyclopedic naturalist" native of Bologna, was one of the most important. This research shows a revision of his work about non-human primates (NHP).

Materials and Methods

All the works (books, manuscripts and iconographic samples) of Aldrovandi which include or mention NHP were examined. Particular attention was given to the literary sources used by Aldrovandi. Many of them were identified after an accurate analysis of the American and African travel literature of the 16th century (see Veracini, 2010). The *Tavole* (watercolour plates of the Aldrovandi's Museum) were obtained by the official web-site of the Bologna University: <http://www.filosofia.unibo.it/aldrovandi/>. The identification of the NHP *taxa* was based upon morphological keys for taxonomic rank, according to the descriptions available in literature. As a general reference, primate taxonomy follows Groves (2005).

Results and Discussion

Aldrovandi's works about NHP include 10 watercolour plates (*Tavole*) and the Chapters *De simia*, *De cercopitheco*,

De cynocephalo and *De papione* of the book *De quadrupedibus digitatis viviparis* published after his death in 1637. Some of the watercolour plates were engraved and then printed in the *De quadrupedibus* as a complement to the text. In the *Tavole* 9 different primate *taxa* were depicted: 5 African monkeys (genera *Papio*, *Cercopithecus*, *Macaca* and *Chlorocebus*) and 4 Neotropical primates (genera *Callithrix*, *Cebus* and *Sapajus*). Starting from the watercolours' analyses and from the names used by Aldrovandi to describe these primates, it is possible to recognize the taxonomy and the sources he used. Each of these primate categories will be deeply explored in the *De quadrupedibus*. The watercolours showing African monkeys are rich of inscriptions explaining their characteristics. Very interesting are the author's lists of all the names used so far to describe such primates, where he tries to resume their features in the name, a similar method will be improved later with the Linnean Binomial system. For example as regards baboons he utilized: *Cepos*, *Cynocephali species*, *Cynoprosopos*, *Simia porcaria*, *Kiber Avicenna* etc., where *Cepos* are monkeys with tail, *Cynocephali* are the dog-headed species and the others names are the descriptions given by Aristotele and other authors. The Barbary macaque (*Macaca sylvanus*) is called *Simia pithekos*; the term *simia* had been used to indicate monkeys without tail since ancient time, but in general it was always associated to this species. In this case Aldrovandi associated the word *pithekos* to the category *Simia*, probably for a better definition. The word *pithekos* might originate from the Proto-Berber language (see Groves, 2008) thus the binomial *Simia pithecos* seems very appropriate for this Northern African species. The vervet monkey *Cercopithecus aethiops* is described as *Cercopithecus*, monkey with long tail or "sea cat" from their overseas provenience. Also *Cercopithecus diana* vel *roloway*, is fairly classified as *Cercopithecus*; Aldrovandi also cited its German name which remembers its long beard. Moreover the author uses the popular Portuguese name *buxio* (or *bugio*) used by Lusitan people to design monkeys in 16th century. This monkey had been probably known in Europe since the Portuguese discovery of Western Africa in 15th century. All Aldrovandi's Neotropical primates are included in the category *Cercopitheci*, as shown by the *Tavole* and after in the *De quadrupedibus* in which the author reports detailed morphological and behavioral descriptions taken by the travel chronicles of the New World and Africa. Aldrovandi's

citations include among others Pedro Martire de Anghiera, Henry Levy and Hans Staden. In the Aldrovandi's work two species of Platyrrhines are depicted for the first time in Europe, they are: *Callithrix geoffroyi* and *Cebus capuchinus*. It should also be mentioned one of the first scientific description of *Sapajus xanthosternus*, a rare Brazilian primate threatened with extinction.

Two of the three capuchin monkeys were called *Simia barbata* though one of them has the adjective *caudata* (with tail); also the third capuchin called *Cercopithecus facies senis, cauda longissima nigra* is observed to have a very long tail and an old man face, perhaps due to the peculiar wrinkles of this species. Therefore two of capuchins are described as *Cercopithecus* and two as *Simia*. The fact that there is no further information and that the classification is sometimes confused leads us to believe that Aldrovandi never saw these animals alive. The marmoset's depiction is without inscription though the author will give a great description of it in the Chapter *De cercopitheco* observing that "this monkey lives in Brazil and it's called *sagoin*" (this word probably came from the tupi-guarani family language). The *Tavole* anticipated the classification used in the book *De quadrupedibus* where NHP are divided in four groups: *Simias, Cercopitheci, Cynocephali* and *Papioni* in accordance with the classical tradition, especially following Aristotele, and, in some parts, the naturalist Konrad Gesner. The *simia* identifies a wide category and the referring Chapter includes citations of Aristotele, Herodoto, Plinio, Strabone, Aeliano among the others, and Middle Age authorities such as Albertus Magnum. Aldrovandi tried to resume and include everything he knew to describe these monkeys: their names, synonyms and etymologies, places of origin, habits, biology and their magical, symbolical and moral meanings.

The Chapter on *De cercopitheco* is very interesting because the author gives information just arrived in Europe

including African and Neotropical species. The brief Chapter *De Papione* reports the case of the probably first mandrill arrived in Europe; this specimen had been already described by Gesner in the *Thierbuch* (1551). Aldrovandi discusses his characters and notes his similarity with other baboons.

Conclusions

The Author classifies monkeys on the basis of external criteria and common features, but also on their provenance when available. The poorly known Neotropical primates were included in the group of *cercopitheci* namely tailed monkeys and "sea cats". Although Aldrovandi's work was still influenced by the medieval tradition, there are not many fantastic NHP in his work. In conclusions Aldrovandi's work on NHP seems very logical and rigorous. His work is a *summa* of the knowledge about monkeys available so far. Each monkey becomes a sort of pattern around which a complex network of texts and visual associations are inter-related.

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