THE BEGINNING
OF THE PORTUGUESE MAMMALOGY

by

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INTRODUCTION

In the Middle Ages, culture in Portugal was concentrated in church schools close to cathedrals (Braga, Coimbra, Lisboa) and monasteries (Santa Cruz de Coimbra and Alcobaça). Libraries were owned by monasteries and kings. Some of them, like the libraries of the monastery of Alcobaça and of the kings Diniz and John I, were famous. It seems that natural history manuscripts were highly valued in these libraries (Carvalho, 1919).

The university was founded in Lisboa in 1290. It moved between Lisboa and Coimbra more than once until it was definitely fixed at Coimbra in 1537. As with other medieval universities, it was mainly devoted to theological studies. Aristotle’s Natural Philosophy was taught there after the reform of 1431.

Pure research was not encouraged by the Church. Therefore, the scarce existing literary production that could be classified as scientific was carried
out under the kings’ authority and even so restricted to applied subjects like falconry and game animals (Almaça, 1985).

A few remarkable books on these subjects were written in the Portuguese Middle Ages. One of them, «Livro da Montaria», by King John I, was written between 1415 and 1433 and is essentially devoted to the wild boar \((Sus\ scrofa)\) and its hunting. The brown bear \((Ursus\ arctos)\) and the red deer \((Cervus\ elaphus)\) are also, though superficially, referred to (Pereira, 1918).

By that time, hunting was a royal privilege and this explains why several game mammals were protected by law from the foundation of Portuguese nationality. In fact, royal decrees concerning the hunting of brown bear, wolf, red deer, roe deer, wild boar, hare, and rabbit, as well as hunting with ferret, were published from 1290 on (História florestal, aquícola e cinegética, 1980).

The Discoveries led to the development of Natural History. In the fifteenth and sixteenth centuries the Portuguese settled in the newly-discovered overseas territories and came in contact with unknown tropical faunas. Although the training in Natural History of the few men of culture accompanying the colonizers was not adequate, a number of interesting observations and drawings were made and inserted into their letters and manuscripts. Some of the data they gathered on tropical mammals will be referred to in the following.

**The Portuguese in Africa and Brazil**

Men of culture coming to Africa and Brazil in the sixteenth century were mainly missionaries. There were also humanists and conquerors who wrote some valuable books on tropical Natural History. These men were naturally impressed by the most common and conspicuous species and by their usefulness as food or any other resource. It is interesting and significant that nearly all the species they described or mentioned, probably the most abundant at that time, are now endangered, vulnerable or rare species. This gives us a rough impression of the extinction rate of those species after colonization by western civilization.
The African civet, *Civettictis c. vetta*, was first brought to Europe by Portuguese navigators in the fifteenth century. Civet was considered so valuable a product that the Portuguese king Afonso V, in 1470, included it in the royal monopoly on the products of Guinea (Dannenfeldt, 1985). Garcia de Orta (1563) also referred to the civet employed in Indian medicine and to the cats (*?Viverra megaspila*), very common in India, that produced it.

In South Brazil, José de Anchieta (1533-1597), a Jesuit, in a letter of May 1560 described a number of mammalian species, giving his appreciation of the food value or ferocity of each. Many of them are named after their Tupi names: iguararuá, the West Indian manatee (*Trichechus manatus*), capiyuára, the capybara (*Hydrochaeris hydrochaeris*), tapiira, the Brazilian tapir (*Tapirus terrestris*), aig, a three-toed sloth (*Bradypus sp.*), sariguêa, an American opossum (*Didelphis sp.*), tatu, an armadillo, etc. (The common English names and the Latin names are those that are supposed to correspond with the Tupi names). Other species bear Portuguese names: lontras, panteras, leões, ouriços, macacos, veados, etc.

The humanist Pero Magalhães Gandavo also supplied good descriptions of Brazilian mammals, with indigenous or Portuguese names. Gandavo (1576) described veados, antas, cotias, pacas, tatus, coelhos, onças, ceriçoas, perguiças, tamendoás, bogios, sagois, baleas, and even a monster, the hipúpiara, the devil of water, which was probably a manatee, an animal unfamiliar to the Portuguese.

Other Jesuits of that time like Fernão Cardim (1540-1625) and Gaspar Afonso (c. 1548-1618), and the «capitão-mor» Gabriel Soares de Sousa (c. 1540-1591) wrote on the Brazilian fauna. However, the most complete study of the Brazilian mammals was accomplished by a Franciscan, Frei Cristóvão de Lisboa (1583-1652). Frei Cristóvão went to Brazil in 1624 and had finished his book, «História dos Animais e Árvores do Maranhão», by 1627. He described and/or figured eighteen species of mammals from north Brazil (Maranhão), whose identification, according to Frade (1966), is as follows: tambu, a large American opossum (*Didelphis marsupialis*), bugio or machacho (*?Aotus trivirgatus*), guanbo (*Saquinus sp.*), amduara, the common vampire bat (*Desmodus rotundus*), tamandua, the giant anteater (*Myrmecophaga tridactyla*), tamandua-i a lesser anteater (*Tamandua tetradactyla*), prigrissa, a three-toed sloth (*Bradypus torquatus*), tatu, a long-
Dr. Domingos Vandelli, an Italian naturalist, was invited to be professor of Natural History and director of the Museum of the University. In the same year (1772) the Real Museu e Jardim Botânico da Ajuda was founded in Lisboa, also under the direction of Vandelli. The Real Museu was initially created by the Prime Minister for the education of King José I’s grandchildren. However, with the encouragement of enlightened members of the government and the scientific patronage of Vandelli, it was soon ready to send naturalists to the Portuguese colonies.

The Academy of Sciences, founded in 1778, started the publication of scientific papers. Furthermore, the Academy itself intended to organize its own Museum of Natural History, publishing in 1781 instructions for preparing and sending specimens to the Museum.

The preparation of naturalists for philosophical expeditions in overseas territories included some research in Portugal, under Vandelli’s direct supervision. In 1783, one of his students, Manoel Dias Baptista, prepared the Faunae Conimbricencis Rudimentum (1789), where nineteen species of domestic and wild mammals are referred to. This is the first paper on the Portuguese fauna using the Linnean nomenclature. It is significant that species such as the wolf (Canis lupus) and the otter (Lutra lutra), now very rare and localized, were living, at that time, not more than three miles from Coimbra.

Vandelli (1797) himself published a list of Portuguese fauna and flora where exotic species are also included. In this paper, many mammal species from Portugal, Brazil, and Africa are referred to. Some of the Portuguese species are misidentified as can be verified by the correspondence between the Latin and the common names: Mustela Gulo, the furão, for Mustela (Putorius) putorius, Mustela putorius, the doninha, for Mustela (Mustela) nivalis, and Capra rupicapra, a species that does not live in Portugal, probably for Capreolus capreolus.

The philosophical expeditions to overseas colonies started in 1783. In that year four naturalists left Lisboa each to explore one Portuguese territory: Alexandre Rodrigues Ferreira to Brazil, João da Silva Feijó to the Cape Verde Islands, Joaquim José da Silva to Angola, and Manuel Galvão da Silva to Mozambique. Some months later shipments of specimens to Lisboa started and the collections of the Real Museu da Ajuda became more and
more diverse, particularly the Brazilian ones. The expeditions also provided specimens for the Museum of the Academy of Sciences and the Museum of the University of Coimbra. By the end of the eighteenth century the Real Museu da Ajuda was described as not very large but with remarkable collections, especially those of birds and shells (Simon, 1983).

Several sources of data can give us a rough idea of what the mammal collection of the Real Museu da Ajuda might be. Firstly, some watercolours preserved in the historical archives of Museu Bocage («Riscos de alguns Mammaes, Aves e Vermes do Real Museo de Nossa Senhora d’Ajuda» and «Riscos de varios animaes raros de Moçambique, com alguns prospectos, e retratos») representing mammals of that collection. The species figured in the watercolours are as follows: an opossum (Didelphis), the pale throated sloth (Bradypus tridactylus), a Guinea pig (Cavia porcellus), a mongoose (Herpestes), the spotted hyaena (Crocuta crocuta), the warthog (Phacochoerus aethiopicus), the suni (Neotragus moschatus), the Barbary sheep (Ammotragus lervia), and a notomelic cow.

Secondly, the watercolours of the Brazilian scientific expedition of Alexandre Rodrigues Ferreira, which are also preserved in the historical archives of Museu Bocage («Expedição Philosofica do Pará, Rio Negro, Mato Grosso e Cuyabã»). These watercolours represent the following species: a mouse opossum (Marmosa sp.), monkeys (Chiropotes albinasus and ch. satanas), the woolly monkey (Lagothrix lagotricha), the pale three-toed sloth (Bradypus tridactylus), the tamandua (Tamandua tetradactyla), the long-nosed armadillo (Dasypus novemcinctus), agoutis (Dasyprocta sp.), an acouchi (?Myoprocta exilis), the paca (Agouti paca), the maned wolf (Chrysocyon brachyurus), the bush dog (Speothos venaticus), the coati (Nasua nasua), the kinkajou (Potos flavus), the tayra (Eira barbara), the puma (Felis concolor), a cat (?Felis Geoffroyi), the jaguar (Panthera onca), and the white-lipped peccary (Tayassu pecari).

Thirdly, the inventory of the species removed Geoffroy Saint-Hilaire from the Museu da Ajuda to the Muséum de Paris during the Napoleonic invasions. Seventy six specimens representing 65 mammal species, almost all from Brazil, were requisitioned by Saint-Hilaire.
Finally, Bocage’s (1862) statement on the transfer of the remnants of the Ajuda collection from the Museum of the Academy of Sciences to the Museu de Lisboa (1858): only forty mammal specimens have been integrated into the collections of the Museu de Lisboa.

Following the removal of the collections directed by Geoffroy Saint-Hilaire the Real Museu da Ajuda was completely disorganized. In 1836, Queen Maria II decreed the transfer of its remnants to the Museum of the Academy of Sciences. This Museum was soon claimed by the Escola Politécnica, founded in 1837, as a support of the chairs of Natural History.

The organization of mammalian research

The Museum of the Academy of Sciences was indeed incorporated in the Escola Politécnica in 1858. The professor of the chair of Comparative Anatomy and Physiology, and Zoology, Barbosa du Bocage (1823-1907), was the director of the Zoological Section of the Museum of Natural History which, from 1862 to 1905, would be named Museu Nacional de Lisboa. With unusual energy, Prof. Bocage dedicated himself for nearly fifty years to a most valuable work as a taxonomist, a professor, and a curator. He assembled important zoological collections obtained through purchase and royal donations, and also through compensation with the Muséum de Paris for those that had been requisitioned by Geoffroy Saint-Hilaire. The largest contributions for those collections, however, came from a number of collectors living or exploring the Portuguese Africa and India. At the request of his correspondents, Bocage (1862) published instructions for collecting, preparing, and shipping zoological specimens to the Museu de Lisboa.

Bocage’s (1857) detailed description of the goat from Serra do Gerês (Capra pyrenaica lusitanica), now extinct, marks his début as a mammalogist. In a list of Portuguese mammals, Bocage (1863) gave valuable indications of their distribution in Portugal by the middle nineteenth century.

The lynx (Felis pardina) was already a rare species, inhabiting forested mountains. The wild cat (Felis silvestris) was much more common than the lynx. The otter (Lutra lutra) was common everywhere near rivers. The wolf
(Canis lupus) was also a common species. The red deer (Cervus elaphus) lived only in part of the province of Alentejo and the roe deer (Capreolus capreolus) and the goat (Capra pyrenaica lusitanica) in the mountains of Gerês. All these species are endangered now, living in very restricted areas of Portugal, except the goat which was extinct by the end of the nineteenth century.

Later, Bocage (1864) published a revision of Portuguese Microtinae, describing a new species, Arvicola Rozianus (=Microtus agrestis bailloni). From the on, Bocage became interested in African fauna, publishing about twenty papers on African mammals. The organization of mammalian taxonomy in Portugal was achieved and this field of biological research has continued, with smaller of larger interruptions, until now.

ACKNOWLEDGEMENTS

The author is greatly indebted to Dr. J. Crawford-Cabral for helping in the identification of mammal species represented in the watercolours of historical archives of Museu Bocage and to Dr. T. Mitchell-Jones for revising the manuscript.
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