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Perception and description of New World non-human primates in the travel literature of the fifteenth and sixteenth centuries: a critical review

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SUMMARY

The current work presents the results of a review of most of the European diaries and travel chronicles containing reports of New World non-human primates dating from the discovery of America in 1492 until the end of the sixteenth century. We report the integral texts translated into English of these literary sources, giving a critical interpretation from a historical and scientific point of view. We note the ways these primates were perceived and described, with attention to the most important characteristics that were highlighted by the first explorers. Ethnotaxonomy and vernacular names used to designate non-human primates are also provided. This new body of knowledge, based largely on empirical reports full of details and first-hand observations, emerged as the first nucleus in the natural history of Neotropical Primates.

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1. Introduction

The arrival of Columbus in America represents a turning point and triggers a historical reconfiguration of world magnitude. Together with the cultural, economic, scientific and political consequences of this event, it is crucial to understand the role that New World animals played during that initial period and in the successive phases of the conquest and cultural assimilation of the American continents. Studies on nature and the animal realm can be seen to provide a consistent base for the

expression of fundamental social, moral, religious, and cosmological ideas. Perception of the natural world is linked to human aspirations affectively, aesthetically, and intellectually.¹ The description of nature is of great value in illustrating the natural philosophy and colonial literature elaborated by the first explorers in the New World. The observation of nature - be it human nature or details of the different life forms with which the explorer came into contact - becomes an important feature of the vision of the world at the dawn of the Modern period.

The unusual American animals were a constant presence in the New World that Europeans were discovering and filled the accounts they brought home, becoming part of the newfound riches that led to a great interchange of species across the Atlantic.² In the last decade more attention has been paid to the role of American animals and to their contribution to the real and symbolical representation of the New World by Europeans. The work of de Asua and French (2005)³ reviews the attitude and approach of Europeans to the novelty of New World animals and points out the contribution they made to changing the way in which they saw their own natural world. Paula Findlen analyses the representation of 'nature' in early modern collections (1994), whereas Almudena Pérez de Tudela and Annemarie Gschwend (2007) shed light on the role exotic animals played at the Habsburg courts of Iberia and central Europe.⁴ Other authors have shown the process of rapprochement and absorption of American nature by naturalists and philosophers of nature of the sixteenth century.⁵ But, as noted by Smith and Findlen,⁶ most studies of animals in early modern literature tend to foreground the symbolic significance of the animals represented, neglecting somehow their zoological reality or their natural-historical conceptualisation. Thus studies on New World animals that follow a more naturalistic perception are indeed rare. This is the case for non-human primates whose natural history has not yet fully absorbed the knowledge acquired during the sixteenth century, though travel literature and other historical sources are filled with first-hand descriptions of these animals that are interesting, and useful, from both a morphological and an ethological point of view.

The approach taken in this paper is different from that preferred by recent cultural historians of science. Such historians may not approve of those aspects of our approach that involve critical assessment of historical observation reports in the light of subsequent scientific understandings. We acknowledge these concerns, but nevertheless maintain that, given our interest in using historical accounts in conjunction with more explicitly scientific recent ones closer to our own time, some such assessment is necessary and valid. We hope that all historians concerned with the history of human understandings of non-human primates will find material of value here, whatever their historiographical approach.

New World monkeys soon captured the European explorers' attention. They were the subject of detailed accounts, which expounded their behaviour, morphology, and interactions with native peoples. They appeared in many early maps⁷ that represented the newly discovered lands, alongside parrots, which, as Pieper observes⁸, became immediately a 'cultural mediator' between the Old and

¹Roel Sterckx, *The Animal and the Daemon in Early China*, (Albany, NY, 2002), pp. 1–4.

²See Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, 2003), p. 64.

³Miguel de Asúa and Roger French, *A New World of Animals. Early Modern Europeans on the Creatures of Iberian America* (Burlington, 2005).

⁴See the following: Paula Findlen, *Possessing Nature. Museums Collecting, and Scientific Culture in Early Modern Italy* (Berkeley, 1994); Pamela H. Smith and Paula Findlen, *Merchants and Marvels: Commerce, Science, and Art in Early Modern Europe*. (London and New York, 2013); Almudena Pérez de Tudela and Annemarie Jordan Gschwend. 'Renaissance Menageries. Exotic Animals and Pets at the Habsburg Courts in Iberia and central Europe', in *Early Modern Zoology, The Construction of Animals in Science, Literature and the Visual Arts*, ed. by Karl A.E. Enekel and Paul J. Smith (Leiden and Boston: Brill, 2007), pp. 419–49.

⁵See for instance: Giuseppe Olmi, *L'inventario del mondo. Catalogazione della natura e luoghi del sapere nella prima età moderna* (Bologna, 1992), pp. 211–52; Paul J. Smith, 'On Toucans and Hornbills: Readings in Early Modern Ornithology from Belon to Buffon', in *Early Modern Zoology* (note 4), pp. 75–115. See also some chapters of, Peter Mason, *Before Disenchantment: Images of Exotic Animals and Plants in the Early Modern World* (London, 2009), pp. 124–220.

⁶Smith and Findlen (note 4), 'Introduction'.

⁷For example, the *Piri Reis Map*, 1513 and the *Lopo Homem 'Atlas Miller'* 1519. See also Marco Masseti and Cecilia Veracini, 'The Zooromorphic Representations of the Piri Reis Map', *Anthropozoologica* 51 (1), (2016), 41–54.

⁸New world parrots became the most common animals associated with America from the early voyages of Columbus. See Martin F. de Navarrete, *Narrazione dei Quattro Viaggi intrapresi da Cristoforo Colombo per la scoperta del nuovo continente dal 1492 al*



New world. Although Western culture had already known about some African primate species since the classical period,⁹ New World monkeys appeared different and perhaps more attractive, being appreciated for their beauty, variety of colours and forms, and also for their skills and behaviour. These newly discovered species were brought back in quantity to Europe during the sixteenth century and quickly acquired the status of pets in the courts of European nobles, thus becoming among the most sought-after exotic animals in Early Modern European high society.¹⁰

The current work concerns the contact between Europeans and New World (or Neotropical) monkeys, and European perceptions and descriptions of those creatures in the Early Modern age.¹¹ We present a review of many of the European travel chronicles, diaries and letters, which contain reports of Neotropical primates dating from the discovery of America in 1492 until the end of the sixteenth century. Our aim is to point out the most important characteristics highlighted in these chronicles, taking into consideration the knowledge, lore and perception of this Order of animals at that time and the intellectual background of the person who wrote the travel account. The ensemble of these early reports already contains significant elements of Neotropical primate natural history. Some of the features described such as tool use and other cognitive skills or the great biodiversity of these animals are part of current zoological knowledge and have been studied and (re)described only in the last decades of the twentieth century. We also wish to give an overview of the main taxa mentioned, their names and etymological origin. We will follow a chronological order in the presentation of the sources, grouping in the same paragraph the accounts that treat the same argument. Our work does not pretend to cover the subject in its whole breadth, but we attempt to give an overview of what early modern naturalists (or natural philosophers) could have at their disposal on New World primates at the end of the 1500s.

Non-human primates have always been assigned a special status and a distinct place in the human imagination because of their similarities with human beings.¹² More than any other animal, they have left their mark on fundamental notions and discussions of human nature and origins.¹³ As Janson,¹⁴ observed: 'as soon as man became conscious of his own unique place in creation, man began to take account of the fact that the ape held a similarly unorthodox position, being human and bestial at the same time'. In Western culture the study of monkey nature developed in close connection with

¹⁵⁰⁴ (Prato, 1840-1841), pp. 183-84. References to parrots are abundant in all the subsequent texts of the explorers of the New World. For more details on parrots, see Renate Pieper, 'Papagayos Americanos, Mediadores Culturales entre dos Mundos', in *Naturalia, Mirabilia & Monstrosa en los Imperios Ibéricos*, ed. by Eddy Stols, Werner Thomas and Johan Verberckmoes (Louvain, 2006), pp. 123-34.

⁹For an updated review of the primate species known in Europe since classical antiquity see Colin P. Groves, *Extended Family: Long Lost Cousins. A Personal Look at the History of Primatology* (Arlington, 2008); Marco Masseti and Emiliano Bruner, 'The Primates of the Western Palearctic: A Biogeographical, Historical, and Archaeozoological Review', *Journal of Anthropological Sciences*, 87, (2009), 33-91.

¹⁰Recent evidence suggests that New World primates were introduced to Europe in greater numbers than originally assumed and made up a significant portion of the revenue obtained from the trade in natural products with America. Several works on this topic have been published in recent years: Bernardo Urbani, 'Further Information on Neotropical Monkeys Reported in the XVI century. Part 2', *Neotropical primates*, 14 (3), (2007), 144-45; Marco Masseti and Cecilia Veracini, 'The Early Importation of South American Primates in the Sixteenth Century in Italy: The Case of the Marcgrave's Capuchin Monkey, *Cebus flavius* (Schreber, 1774)', *Archives of Natural History*, 37(1), (2010), 91-101; Dante M. Teixeira and Nelson Papavero, 'O tráfico de primatas brasileiros nos séculos XVI e XVII', in *Mamíferos de restingas e manguezais do Brasil* ed. by M. L. Pessoa, W. C. Tavares and S. Siliciano (Rio de Janeiro, 2010), pp. 253-82; Cecilia Veracini, 'La Conoscenza dei Primati del Nuovo Mondo nell'Europa Rinascimentale' (Unpublished PhD Thesis, University of Pisa, 2011), pp. 47-80; Cecilia Veracini, 'Neotropical Primates at the Court of the Emperor Maximilian the First', *Folia Primatologica*, 82 (6), (2011), 394-95.

¹¹For the sake of clarity, it is necessary to give some brief relevant information on this taxon. New World primates or Neotropical primates are the five families of the Order Primates found in Central and South America and in some portions of Mexico. They are today classified in the Parvorder Platyrrhini. New World primates descend from African simians that colonised South America, a line that split off about 40 million years ago. They have very peculiar characteristics that distinguish them from Old World ones. See Colin P. Groves, *Primate Taxonomy* (Washington, DC, 2001); Russell A. Mittermeier, Anthony B. Rylands and Don E. Wilson, *Primates. Handbook of the Mammals of the World. Vol. 3* (Barcelona, 2013).

¹²Agustín Fuentes, 'Monkey and Human Interconnections: The Wild, the Captive, and the In-between', in *Where the Wild Things are Now*, ed. by Rebecca Cassidy and Molly Mullin (Oxford, 2007), pp.123-45.

¹³For a review see: Robert Corbey, *La Metafisica delle Scimmie. Negoziando il Confine tra Animali-umani*, ed. by Paola Cavaliere (Turin, 2005); Giulio Barsanti, *L'uomo dei Boschi* (Rome, 2009).

¹⁴H. Woldemar Janson, *Ape and Ape Lore in the Middle Ages and the Renaissance* (London, 1952), p. 14.

that of human beings, in a game of endless reflections. Soon there spread the belief that the main questions concerning human nature could be answered through knowledge of monkey nature, and that the extraordinary behaviour of monkeys could be understood by reference to human nature.¹⁵ Ancient authors such as Aristotle, Pliny and Galen had studied and described these animals and noted their similarity with humans. Aristotle theorised that monkeys have a nature intermediate between man and quadrupeds; Pliny described the satyrs as Asian monkeys capable of sophisticated performance and denied that human beings differed from them for having a soul. Galen stated that the internal organs of monkeys were very similar to ours although they lack the capacity to speak.¹⁶ The many attributes and symbols that were associated with monkeys in the Middle Ages did not contribute to empirical study of these animals thus knowledge about them remained static (perhaps with the exception of Albertus Magnus).¹⁷ As Jonson notes,¹⁸ the opening of the eastern routes to Europe from the thirteenth century facilitated a new influx of these animals into Europe; however, this was not accompanied by new scientific studies. The monkey was considered throughout medieval times to be a negative creature, previously associated with the devil (probably a legacy of the Greek era¹⁹) then with human sin and perdition. Ulisse Aldrovandi quoting medieval authors, reported in his major compendium on primates:²⁰ ‘Nullum est animal in rerum natura, quod melius Daemoni assimilari possit, quam simia’. The common perception saw these animals as grotesque human caricatures that embodied many of the ills of humanity, including the brutality of the senses and uncontrolled destruction and madness in general. The explanation for the existence of such creatures was that they must have descended from men who failed to heed some Divine injunction and were degraded to an infrahuman level. Additional interpretative models for primates and other intermediate forms between humans and monkeys, which were very common in medieval times were linked to ideas of monstrous races located, by writers such as Pliny the Elder and others, on the border of the known world or assigned to hungry Indian satyrs of Dionysian levels of madness, or instead to the many versions of the wild-man, or *Homo sylvestris* (Figure 1).²¹ When the first Europeans reached America, they bore in mind these interpretative models. As will emerge from the travel accounts here presented, this kind of vision characterised only a part of the first accounts from the New World and after a mere two decades it is possible to find many accounts that appear to provide more detailed and empirical observations on New World monkeys.²²

2. Europeans meet Neotropical primates: ‘gatos paules’, sea-cats and baboons

The first report of New World primates can be found in the 1498 chronicles of the third transatlantic voyage of Christopher Columbus (Genoa, 1451–Valladolid, 1506) in which he reached the South American continent. His previous journeys to the Caribbean islands sparked no mention of this

¹⁵Barsanti (note 13), p. 11.

¹⁶For a review of Western knowledge of non-human primates in Antiquity, see W.C. McDermott, *The Ape in Antiquity* (Baltimore, 1938); Frank Spencer, ‘Pithekos to Pithecanthropus: An Abbreviated Review of Changing Scientific Views on the Relationship of the Anthropoid Apes to *Homo*’, in *Ape, Man, Apeman*, ed. by Raymond H. Corbey and Bert Theunissen (University of Leiden, 1995), pp. 13–22.

¹⁷In *De animalibus*, Albertus Magnus discussed the nature of monkeys, humans and pygmies: in contrast to humans, pygmies and monkeys were considered to have imperfect *anima*, and along with the rest of animate nature to descend on a scale of continuous degree of imperfection. Human beings were unique in having both *anima* and reason. See Spencer (note 16), p. 13.

¹⁸Janson (note 14), p. 30.

¹⁹Janson (note 14), pp. 13–22.

²⁰Ulisse Aldrovandi, *De quadrupedibus digitatis viviparis. Libro III. Moralia & Mystica*, ed. by B. Ambrosino (Bologna, 1637), p. 239.

²¹See for review Timothy Husband, *The Wild Man: Medieval Myth and Symbolism* (New York, 1980), and Mason (note 5), pp. 87–123.

²²There was a clear process of mythification, following on from the first wave of explorers that gave a set of representations distorting New World realities and idealised the nature and the meaning of the conquest. Among the vast literature on this theme in English, but also in Italian, Spanish and Portuguese, we can cite here: Beatriz Pastor Bodmer, *The Armature of Conquest: Spanish Accounts of the Discovery of America, 1492 – 1589* (Stanford, 1992); Maria L. Barbosa Seixas, *A Natureza Brasileira nas fontes Portuguesas do século XVI: Para uma Tipologia das Grandezas do Brasil* (Lisbon, 2003).



Figure 1. A picture of the *Homo sylvestris*. Giovannino de Grassi (1340–1398), *Taccuino di Disegni* (Milan, 1998).

order of animals.²³ When he landed on the Paria Peninsula (in what is now Venezuela), Columbus wrote: '[...] and I sent boats ashore, and they found that people there had left, and they found the whole mountain covered with monkeys (*gatos paules*)'.²⁴ Since the report refers to the coast of Venezuela, the primates he saw could have been some of the medium-sized animals still present in those regions, such as *Alouatta arctoidea* Cabrera, 1940 or *Cebus brunneus* Allen, 1914. Columbus referred to this first encounter with local primates by calling them by the Spanish name *gato paul*. It is important to point out the meaning of this name used by Columbus and other authors during the first part of the sixteenth century. When Columbus reached the Caribbean coasts in 1492 he thought he had arrived on the east coast of Asia and all of his descriptions of animals and plants were influenced by

²³Although fossils of primates have been found on various Caribbean Islands [see John G. Fleagle and Robert Kay, 'Platyrrhines, Catarrhines, and the Fossil Record' in *New World Primates. Ecology, Evolution and Behaviour*, ed. by Warren A. Kinsey (New York, 1997), pp. 3–24], primates have been extinct in most parts of the West Indies since the late Pleistocene [see Gary S. Morgan and Charles A. Woods, 'Extinction and the Zoogeography of West Indian Land Mammals', *Biological Journal of the Linnean Society*, 28(1-2) (1986), 167–203]. Some species were introduced in pre-columbian times, and later by Europeans (see Marco Masseti, 'Anthropochorous mammals of the Old World in the West Indies', *Mammalia*, 75 (2011), 113–42).

²⁴de Navarrete (note 8), p. 399.

this idea. According to Flint,²⁵ what Columbus ‘saw’ in the New World was informed by the late medieval worldview he had absorbed from the readings which were very popular at that time such as the *Histories* of Herodotus, the Encyclopaedia of Solinus, the Encyclopaedia *Imago mundi*, Pliny’s *Naturalis historia* and the medieval journey of John de Mandeville describing the imaginary animals encountered in the lands of the East.²⁶ As de Asúa and French²⁷ relate we can be certain of some books read by Columbus during or before his travels because there are copies of several volumes still in existence which have notes in the margins made in Columbus’ own hand, such as the Latin version written by Pipino of Bologna of the journey undertaken by Marco Polo called *De Consuetudinibus et Conditionibus Orientalium Regionorum*.²⁸ In one passage Marco Polo speaks about primates: ‘in this country there are many monkeys of different kinds: some are small and face and bodies are similar to those of human beings’. Columbus wrote in the margin ‘*muchos monos*’. In other parts of Marco Polo’s travel writings referring to the King of Comari in India, Columbus writes, ‘*gatos llamados paule*'.²⁹ Thus the source of the Spanish word ‘*gato paul*’ used by Columbus for New Indies primates was Marco Polo. The presence of other primates is also reported on Columbus’s fourth voyage (1502–1504) when he was probably visiting present-day Honduras or Nicaragua. On that occasion, he described a hunting scene that involved a primate. Here Columbus might be referring to a Mantled Howler, *Alouatta palliata* (Gray, 1849), or to a Central American Spider Monkey, *Ateles geoffroyi* Kuhl, 1820:

A Spaniard had shot an animal with an arrow; the animal resembled a ‘*gato paul*’, but it was larger and had the face of human being; the arrow had transfixed the beast from the breast to the tail; thus it became furious and we chopped off one of its arms and a leg with a sword. When taken aboard and confronted with a pig although it was dying and the arrow was still inside the body, the animal twisted its tail around the pig’s snout and with its remaining hand managed to strike the head of its opponent against the floor. This story seemed to me so new and unique that I could not keep it quiet.³⁰

The comparison and identification of the New World primates with the already known species of monkeys is present in other chronicles of the first decades of the sixteenth century. Amerigo Vespucci (Florence, 1454–Seville, 1512) in 1502 in a letter about his second voyage along the coast of Brazil,³¹ while describing how pleasant and beautiful was the land he found, chronicles many wild beasts, freely using the names of Old World animals. He notes that these new lands are full of a large variety of monkeys among them ‘*babuini*’ (baboons) and ‘*gati maimoni*’ (sea-cats).³²

²⁵ Valerie I. J. Flint, *The Imaginative Landscape of Christopher Columbus* (Princeton, 1992). See also Leo Olschki, ‘What Columbus Saw on Landing in the West Indies’, *Proceedings of the American Philosophical Society*, 84 (5) (1941), 633–59.

²⁶ The idea of an earthly paradise located in the West was part of Western literary tradition. The Garden of Eden from Genesis is the most well known version, but other lost lands of plenty appear as far back as Plato’s description of the sunken island Atlantis. Throughout European history, adventurers have returned from the Atlantic high seas with reports of rich, fertile islands that many thought might be Atlantis, or Eden, or both. Christopher Columbus was keenly interested in finding the lost Garden of Eden. One of his prized possessions was a copy of cardinal Pierre d’Ailly’s *Imago Mundi* (1410), a geographical treatise that suggested: ‘The terrestrial paradise perhaps is the place which the authors call the Fortunate Islands [the Canary Islands, off the Northwest coast of Africa]’. Columbus’ copious marginal notes demonstrate his abiding interest in mapping the location of the lost Garden and when he stumbled onto the island of Hispaniola, Columbus believed he was close to rediscovering Eden.

²⁷ See de Asúa and French (note 3), p. 5.

²⁸ See Juan Gil (ed.), *El Libro de Marco Polo anotado por Cristóbal Colón* (Madrid, 1987).

²⁹ The reference to the primates encountered by Marco Polo in the kingdom of Comari in India is: ‘*Sunt ibi symee multe habentes effigiem hominum. Ibi sunt catti qui dicuntur pauli, valde diversi ab aliis.*’ In his notes in the margins, Columbus writes ‘*simée multe, gatti pauli*’. See de Asúa and French (note 3), p. 6. The term *gato paul* was also used later on by Antonio de Herrera y Tordesillas in his work of 4 volumes, published in the 1601–15. *Historia de los Hechos de los Castellanos en las Mas y Tierra Firme del Mar Oceano que llaman Indias Occidentales* (Madrid, 1601–1615). See Herrera Decade 1, Book 3 Cap. 11 and Decade 1, Book 4, Cap. 5.

³⁰ From de Navarrete (note 8), vol. 1, pp. 133–34.

³¹ Amerigo Vespucci, ‘Lettera a Lorenzo di Pierfrancesco de Medici da Lisbona 1502’ in *Vespucci Autentico e Apocrifo*, ed. by Mario Pozzi (Milan, 1984), p. 79.

³² It is a term borrowed from the Arabic ‘*maimun*’ to likely indicate the African grivet or vervet monkeys (*Chlorocebus* spp.), which later became the Italian *mammone* and/or *gattomammone* (or *gatto mammone*, *gato maimone*), an imaginary creature of traditional fairy tales, but also the oldest Italian *monna* and *monina* (= monkey). From the same term is derived also the Spanish (Castilian) *mono* (= monkey). In other European languages, the name given to monkeys coming from overseas (with long tail) was *guenon* and the Latin *cercopithecus*, which are translated into German by the word *meerkatze* [see T. Haltenorth and H. Diller, *Säugetiere Afrikas und Madagaskars* (München, 1977), 292–94] which means literally ‘cat (*Katze*) of the sea (*Meer*)’ or ‘sea-cat’. [See Aldrovandi (note 20) Chap. *De*

This could be one of the reasons why some early naval charts depicted baboons or *cynocephalus* (dog-headed mythical creatures) in America (e.g. see the Piri Reis map).³³

In 1518 Martin Fernández de Enciso (Sevilla, 1470–Sevilla, 1528), founder of Santa María La Antigua in the region of Darien (Colombia), wrote the *Summa de Geografia* that was conceived as a vehicle of imperial expansion.³⁴ He was sent to New Spain by Charles I to describe the new territories and did not add any detailed descriptions of the animals he found; like Vespucci, he used a hasty comparative method to describe them. He reports of the Darien region about lions, tigers and apes with long tail ‘gatos rabudos’. Enciso compares New World primates with the animals already known to him, as in an excerpt from the English translation of his work from the edition published in 1578: ‘And there is fue leagues within the Gulfe, the Darien, whych is inhabited with Christians, and there they gather fyne golde in a Riuers that descendeth from certaine high Mountaynes. In these Mountaynes be many Tigres & Lyons, and diuers other beastes, and Cattes with long tayles (*gatos rabudos*), and be like to Apes, but that they haue great tayles’.

The first circumnavigation of the globe by the Spanish fleet for King Charles V under Magellan was described in three letters written by Maximiliano Transilvano, Antonio Brito and Juan Sebastián de El Cano and in five reports, the most famous of which was that of the Italian Antonio Pigafetta (Vicenza, 1492–Vicenza, ca. 1534), who kept a daily journal of the trip and on his return to Spain in 1522 presented his manuscript to Emperor Charles V.³⁵ When the Spanish fleet arrived at Rio de Janeiro in the Brazilian territories, the sailors met local people who kept animals as pets. On one such occasion Pigafetta said, ‘They have infinite parrots and give 8 or 10 of them for a mirror, and small sea-cats (*gati maimoni*) similar to lions but yellow, what a wonderful thing!'³⁶ As observed by Billé (2003),³⁷ the primate mentioned in the text is the Golden Lion Tamarin, *Leontopithecus rosalia* (Linnaeus, 1766); this is probably the first report of this primate endemic to the state of Rio de Janeiro. As we shall see in many other accounts, this small primate will be mentioned in almost all the subsequent chronicles regarding Brazil and considered as one of the most beautiful animals found in the Rio de Janeiro area.

The presence in the West Indies of many and various animals was testified to by Pietro Martire d’Anghiera (Peter Martyr in English) (Arona, 1457 – Granada, 1526), a Spanish historian of Italian origin. Moving in Spanish court circles first as a soldier, then as a clergyman, diplomat and member of the Council of the Indies, he had the opportunity to become familiar with many accounts about the recently discovered lands which he reported in a series of letters written between 1488 and 1525. His work *De Orbe Nouo Decades* (eds. 1511, 1516, 1530)³⁸ is the almost literal transposition of the letters into narrative form; it is considered the first broad historical narrative about the discovery and conquest of the New World. In one of the first sections of *Decades*, which mentions the monkeys of

cercopitheco; see also Marco Masseti, ‘I “boschetti con animali” e le raffigurazioni zoomorfiche’, in *Palazzo Datini a Prato. Una casa fatta per durare mille anni. Tomo I*, ed. by J. Hayez and D. Toccafondi (Florence, 2012), pp. 145–53].

³³Baboons and *cynocephali* or even *acephali* (head-less) and other mythical animals found on early maps of America might be related to mythical animals associated with the remote districts of western Libya or other remote areas. Herodotus in *The Histories* (IV: 191–92) wrote: ‘In that country are [...] the horned asses, the dog-headed men and the headless that have their eyes in their breasts, as the Libyans say, and the wild men and wild women, besides many other creatures not fabulous’. These were then reported by other classical and medieval authors (e.g. Pliny). Other African monkeys such as the Barbary macaque (*Macaca sylvanus*) are often encountered on the earliest maps of the New World (e.g. the Brazilian map of Giacomo Gastaldi or in that of Lopo Homem ‘Atlas Miller’, *Terra Brasilis*, 1519).

³⁴Martin Fernández de Enciso, *Summa de Geografia* (Bogotá, 1974); Martin Fernández de Enciso, *A briefe description of the portes, creekes, bayes, and haunes, of the Weast India: translated out of the Castlin tongue by I.F. The original was directed to the Prince Don Charles, King of Castile* (London, 1578).

³⁵Today there are four versions of the manuscript and all are kept at the Ambrosiana Library in Milan. We have used the translation of the facsimile of the manuscript ‘Ambrosiano - L103 Sup’. See Antonio Pigafetta, *Antonio Pigafetta il primo viaggio intorno al mondo. Ms. Ambrosiano L103 Sup*, edited by Mario Pozzi (Milan, 1994).

³⁶Pigafetta (note 35), p. 88.

³⁷Philippe Billé, *La Faune bresilienne dans les écrits documentaires du XVI siècle* (Paris, 2009), p. 20.

³⁸We used the Spanish edition that assembles all the editions of the *De Orbe Nouo Decades*: Pedro Mártil de Anglería, *Décadas del Nuevo Mundo* (Madrid, 1989).

Northern Venezuela where some friars settled, he gives the first description of human - monkey interactions and mentions the local habit of keeping primates as pets:

In that land live many wild cats (*gatos*); the mother bring her offspring tightly embraced when meanders through the trees. The only way to remove the offspring from her is to hurt her with an arrow. According to the Friars young differ a lot from adults. When the mother falls dead, people take and breed them like we do with *cercopitecos* or monkeys (*monas*).³⁹

In Peter Martyr's *Decades*, we also find the first mention of howler monkeys description and behaviour. The author tells the story of the friars in the Cumaná regions in North-western Venezuela and describes the appearance and behaviour of probably *A. arctoidea*:

There is an animal called *aranata*. It is smaller than a greyhound and has a human appearance, a bear and a somewhat venerable look. Its hands, feet and face are similar to those of humans; it feeds on fruit trees, and meander between them as cats (*gatos*) or monkeys (*monas*) do; these roam in groups, roaring at each other, so that the Friars, just after their arrival, thought these were the devil's soldiers, furious about their presence. This animal is very clever and can avoid arrows. It can take the arrow and throw it back at the person who shot it. I think that despite the Friars have different opinions, it is a sort of monkey (*monas*) or *cercopiteco*.⁴⁰

Peter Martyr was the first author to include in his writings an indigenous name (*aranata*) to describe a primate. Although the friars claimed the opposite, in his opinion this animal was a species of monkey or a 'sea-cat'. The name *aranata* (the similar term *araguato* is still used in Venezuela today to name howler monkeys) was employed later by other travellers that explored the same region.⁴¹ Later on it was also reported (probably quoting Peter Martyr as the texts are similar) by the Spanish historian Francisco Lopez de Gómara (Gómara, Soria, 1512–Sevilla *ca.* 1572) when, in his major work *Historia general de las Indias* (1552), he describes the animals hunted by the natives of Cumaná:

They are used to hunting another animal called *aranata* which by its gestures and cunning must be of the genus of monkeys (*monos*): it is as big as a greyhound, has a mouth, feet and hands, similar to a human's, and has gentle gestures and a goat's beard. They walk in groups, howling loudly, do not eat meat, climb trees like cats; they avoid those who want to shoot them; they take the arrow and gently throw them back at the person who shot them.⁴²

The terms 'wild cat', 'sea-cat', or sometimes simply 'cat', and their corresponding translations into various European languages (see Appendix and Note 32), continued to be used in later periods always to name monkeys with tails (not baboons) from the West Indies (Figure 2) and Africa. New World primates were also named *cercopithei*. The word *cercopithecus* had been used since Classical times for tailed monkeys and is equivalent in sixteenth literary sources of sea - cats. The terms *mona/mono* in Spanish, *simia* in Latin, ape in English indicated monkeys in general, but since the Middle Ages have often been used when referring to the African tailless Barbary macaque which entered Europe since antiquity.⁴³

3. Gonzalo Fernández de Oviedo y Valdés: *De los Gatos Monillos*

Gonzalo Fernández de Oviedo y Valdés (Madrid, 1476–Valladolid, 1557) was sent to the 'Castilla de Oro' as an observer by the Emperor Charles V in response to the pleas of the Spanish Cortes who wished to obtain an accurate picture of the process of conquest. Oviedo fulfilled his mandate and made an extraordinary contribution with his accurate report on the great mysteries of the West

³⁹See Peter Martyr (note 38), Decade VIII, Book VII, 513.

⁴⁰Peter Martyr, (note 38), Decade VIII, Book VII, 513.

⁴¹See J. I. Armas de y Céspedes, *La Zoológica de Colón y de los primeros exploradores de América*, (La Habana, 1888), p. 15.

⁴²Francisco López de Gómara, *Historia General de las Indias* (Madrid, 1941), p. 131.

⁴³See Groves (note 9), p. 45. On the Barbary macaque see the review by Masseti and Bruner (note 9), p. 40.



Figure 2. A tailed primate and a parrot depicted in the Amazon part of the *Pierre Desceliers' planisphere* (1550), (detail).

Indies. He often compared himself to Pliny, and was known as the 'Pliny of the Indies'.⁴⁴ His books were widely distributed throughout Europe,⁴⁵ having been translated into many languages and printed in many editions. Although Oviedo's work was marked by the ideas of his time,⁴⁶ when describing nature his personal experience seems to prevail over the oral and written European tradition. He is very careful to tell exactly what he sees directly. His works include extremely detailed first hand descriptions of animals and plants, providing a rich assortment of information that allows modern-day scientists to identify the species mentioned with some confidence. He also conducted experiments on animals (for example, he opened a termite mound to observe it more attentively) and always tried to prove the accuracy of what he wrote. He used in many cases the native terms for plants and animals, thought he did not do so for primates. The reports of Fernández de Oviedo stand out for their richness of detail about many different New World monkeys. Their literary structure enabled him to take great pleasure in the description of facts never told nor seen by his fellow Europeans before, leaving them to speculate about the many things they had never seen.

The Chapter on monkeys (still called by Oviedo with one of the variations of the 'sea-cat' terminology), is extremely rich in details, as can be seen from this translation of the integral text:⁴⁷

Chapter XXVI. On 'sea-cats' (*De los Gatos Monillos*).

On many parts of the mainland there are wild 'sea-cats' (*gatos monillos*) of many kinds and varieties, which could not be described in just a few words if one had to explain their different forms and their countless playful

⁴⁴ As he wrote in the *Proemio* of his work, see: Gonzalo Fernandez de Oviedo y Valdés, *Historia General y Natural de las Indias Islas y tierra firme del Mar Oceano por el Capitan Gonzalo Fernandez de Oviedo y Valdés. Primera parte* (Madrid, 1851).

⁴⁵ After his second stay in America, he published the *Sumario de la Historia Natural de las Indias* (1526), dedicated to Carlos I. In the *Historia General y Natural de las Indias* he recounts events ranging from 1492 to 1549. The first part was printed in 1535 while the second was interrupted by the death of the author in 1557 and was published completed in four volume between 1581 and 1585 (see note 44). The Summary was translated into English, Italian (Venice, 1532) and Latin and reached a great number of editions.

⁴⁶ About the life of Oviedo y Valdés and cultural background see Alexandre Coello de la Rosa, *Historia ficción. La escritura de la Historia general y natural, de las Indias* (University of Valencia, 2012).

⁴⁷ Oviedo y Valdés (note 44), *Libro XII. Capitulo XXVI: De los Gatos Monillos*, pp. 414–16.

pranks. The females carry their offspring on their backs. The infants do not fall off their backs even when the females hang from branches by their tails or when they jump long distances from one tree to another one. Because these animals are brought to Spain all the time I will spend few words on them. Some are as small as squirrels, and others as big as mastiffs; they have many different kinds of fur, different body forms and behaviour. Many of them are very cunning and some acted which men do, they imitate and do. In particular there are some which, when they see an almond or a nut broken with a stone by a person, they imitate him and if you give them a stone they break nuts in the same way and start to break everything you give them. There are also others who can throw small stones (of the dimension they are able to lift) as a man would do. I had one of these cats (*gatos*) at home and, if there were stones (of the size of a walnut or even smaller) near him when I was about to eat, I had to put the table about twenty or thirty feet away from him, because otherwise as soon as he saw the food on the table he would start throwing stones in my direction. When eating, it was necessary to share my food with him and to give him something to eat to occupy his hands, because otherwise when he finished what I had given him he would immediately start to throw all the available stones at me, and if he ran out of stones, he would throw sand from the ground. There are others who, when they see someone eating, clap their hands together loudly because they want to attract people's attention in order to obtain a share of the food they are eating.

When our Spanish soldiers go inland in the 'provinces' of *Castilla del Oro*, and go through forests where some of these big, black cats (*gatos*) live (they are numerous, bad-natured and belligerent), if these cats (*gatos*) see Christians [them], they seem to call each other. They quickly appear at the top of trees jumping from branch to branch. They break dry or even green branches and throw them down onto the people in order to crack their heads. It is convenient to cover one's head with a shield to avoid injury. Some of our comrades have already been wounded. What frequently happens is that Spaniards throw stones at them, but sometimes the stones remain up in the trees; thus the cats (*gatos*) take them and throw them back at the people. It was in such a way that one of them threw a stone at Francisco de Villacastin, servant of Governor Pedrarias Dávila: he had four or five broken teeth. I know this man and I saw him before and after this event; now he is toothless. That happened not because the cat (*gato*) was wicked, but because of that man's careless; he hurled stones at the cats (*gatos*), and one remained in the tree; thus when he looked up, trying to see the cat (*gato*), he received the stone in his mouth. Today he is still alive. When somebody shoots arrows and wounds these cats (*gatos*), they pull the arrows out and sometimes throw them back at the person who shot them. At other times, after pulling the arrows out of their bodies, they put the arrows on the branches, so that they can use them again. Moreover others cats (*gatos*), break the arrows into many pieces. Once an archer wounded one of them, hitting its ear with an arrow; the arrow went through its ear and half of it came out on the other side. The monkey did not fall, because, as I have said, they are quite large. It wanted to take out the arrow immediately, screaming a lot and attracting the attention of a large number of other cats (*gatos*); so each of them tried to take hold of the arrow while the poor wounded cat (*gato*) tried to remove the hands of the others from it. After many of them had tried to take hold of the arrow, without any possibility of helping him, the wounded animal put both hands on the arrow and did not let any other cat (*gato*), take hold of it. The soldiers, who were watching the scene, after having laughed a lot, shot another arrow but the cat (*gato*), did not fall.

Finally there is so much to say about these animals, their madness and their diversity, that without seeing them it is hard to believe it all. And between the two extremes, the larger and the smaller ones I have mentioned, there are many other different kinds and a great variety among them, both in size and in colour and form. Each one is completely different from the other, and there is such infinite diversity that to describe them all is a never-ending task.⁴⁸

This is the first long description of New World primates we find in the travel accounts of the sixteenth century. There are here many interesting topics that need comment. The first characteristic noted by Oviedo, already underlined by Columbus and pinpointed in many of the early chronicles and reported in almost all subsequent ones, is the abundance and the great variety of colours, shapes and behaviours of platyrhines. The wonder and admiration in the description of these monkeys is evident throughout his text. Oviedo notes that there would be much to write about these animals and their 'madness', which '*sin verlos es dificultoso de creer*', and concludes that there are so many kinds of monkeys that it would be an endless task to describe them all. Oviedo also speaks of a household monkey (probably a capuchin monkey, *Genera Cebus* and *Sapajus*, Figure 3 and Figure 4) who had the habit of splitting nuts with stones to get food and whose gestures appeared similar to those of 'an intelligent and strong man'. He is the first author to have reported tool-use (nut-cracking in this case)

⁴⁸In the *Sumario* (see note 45, p. 25), Oviedo also noted: 'There are cats (*gatillos*) as small as the hand of a man or even smaller'.



Figure 3. A White-faced Capuchin, *Cebus capucinus* (Linnaeus, 1758) vel *Cebus imitator* Thomas, 1903, native to the forests of Central America and the extreme Northwestern portion of South America. Watercolour by Ulisse Aldrovandi: *Tavole/University of Bologna, BUB, Tav. Animali*, vol I, c. 84, 112, 2nd half of the 16th century. <http://www.filosofia.unibo.it/aldrovandi>

in Neotropical monkeys,⁴⁹ a remarkable behaviour used, until some decades ago as a demarcation-line between human beings and the rest of the animal world. Again in the twentieth century we find an interesting report on tool use: Father Breuer affirmed that he observed a monkey (probably a capuchin monkey), able to open oysters with the aid of ‘a stone or something they find around,’ and which repeatedly struck the shell to break it open.⁵⁰ It is striking that it would be another four centuries before, in the 1930s, tool use was observed and described by scientists in captive capuchin monkeys (Genus *Sapajus* spp.).⁵¹ Several decades later in 1998, the use of tools, such as hammers, for opening seeds and nuts by monkeys was observed among capuchin monkeys in the wild.⁵²

⁴⁹See B. Urbani, ‘Nuevo Mundo, Nuevos Monos: Sobre Primates Neotropicales en los Siglos XV y XVI’, *Neotropical Primates*, 7(4) (1999), 121–25; Veracini (note 10, ‘*Neotropical Primates*’), p. 35.

⁵⁰See N. Papavero, D. M. Teixeira and A. Chiquieri, ‘As “Adnotationes” do jesuíta Joahnn Breuer sobre a História Natural da Missão de Ibiapaba, Ceará (1789)’, *Aquivos de Zoológia*, 43(2) (2011), 133–59. The report of Breuer is confirmed by the recent observation of specimens of *Sapajus apella* using tools to open oysters (*Crassostrea rhizophorae*) in mangroves habitat on the coast of the state of Maranhão, Brazil. See M. E. B. Fernandes, ‘Tool Use and Predation of Oysters (*Crassostrea rhizophorae*) by the Tufted Capuchin, *Cebus apella*, in Brackish Water Mangrove Swamp’, *Primates*, 32(4) (1991), 529–31.

⁵¹H. Klüver, *Behavior Mechanisms in Monkeys* (Chicago, 1933); H. Klüver, ‘Re-examination of Implement using Behavior in a *Cebus* Monkey after an Interval of Three Years’, *Acta Psychologica*, 2 (1937), 347–97.

⁵²V.J. Rocha, N.R. dos Reis and M.L. Sekiama, ‘Uso de ferramentas por *Cebus apella* (Linnaeus) (Primates, Cebidae) para obtenção de larvas de coleóptera que parasitam sementes de *Syagrus romanzoffianum* (Cham.) Glassm. (Arecaceae)’, *Revista Brasileira de Zoológia*, 15(4) (1998), 945–50; E. Visalberghi, E. Addessi, V. Truppa, N. Spagnoletti, E. Ottoni, P. Izar and D. M. Fraga, ‘Selection of Effective Stone Tools by Wild Bearded Capuchin Monkeys’, *Current Biology*, 19(3) (2009), 213–17.



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I. *Cercopithecus Callithrix dictus, cum prunis amygdalinis.*



Figure 4. A capuchin monkey (*Sapajus* spp.). Ulisse Aldrovandi, *De quadrupedibus digitatis viviparis* (1637).

The description of the behaviour of the ‘great black cats’ encountered in the forests (probably the Colombian Black Spider Monkey, *Ateles fusciceps rufiventris* Sclater, 1872, a species which is still found throughout the region of Darien where Oviedo spent most of his time) is impressive and reveals the diligence of Oviedo in describing their complex behaviour and reactions to human persecution,⁵³ highlighting their use of many different natural objects. The reaction of primates to being wounded by arrows⁵⁴ and the other episodes of interactions with humans were always annotated with a tone of wonder, pointing out the similarities with humans. In another part of his work Oviedo gives again an impressive image of spider monkeys, comparing them to African people:

⁵³This behaviour is very frequent in spider monkeys not used to human presence (personal observation).

⁵⁴This same reaction to arrows by monkeys was reported many times: the first time by Lopez de Gómara (Section 2) and later on by Galeotto Cei (Section 4) and by Gabriel Soares de Sousa (Section 6) among others.

And there are many attractive cats (*gatos*), with fine fur, hair soft as velvet, and gentle, and with graceful gestures: their gestures seem that of black Ethiopians. And they have long tails, which they extend sometimes as a signal to ask for what they need when they are hungry; and they do so many things and wriggle around in such a strange way that is a great pleasure to see them. Because it is said that these monkeys look like black men, Christians call them *mandrugas* or *jolofos* of Guinea.⁵⁵

The similarity between primates and humans is here claimed by the comparison of primates with *Mandingas* and *Jolof* (*Wolof*), two ethnic groups native to the West Coast of Africa.⁵⁶ In another part Oviedo reports on a small monkey of Peru:

In the southern land of Peru a small long-tailed sea-cat (*gatico monillo*) has been sighted. It was covered from the head including the arms until the middle of the body with feathers of a mixture of brown and other colours; and in the other half of his body (the legs and tail) was covered with soft short fur of a reddish colour that of a lion. This animal was very tame and domestic and slightly tall than a span. [...] When he wanted he sang like a nightingale or a lark, starting by chirping, and gradually raising his voice. He sang much more than birds usually do, and he did so with many more various styles of singing.⁵⁷

Given his detailed morphological description, Oviedo was probably referring to the Cotton-top Tamarin, *Saguinus oedipus* (Linnaeus, 1758) (see Figure 5), although this species is endemic to North-western Colombia and not Peru. Interestingly he notes their complex and bird-like vocal communication, which is one of the peculiar features of this genus, currently one of the most interesting aspects of this taxon.⁵⁸

4. Galeotto Cei and other earlier explorers: the first ecological glance at New World primates

Many interesting reports on primate behaviour reach us through the descriptions of soldiers or adventurers whose point of view and vision of American nature often lacked a moralizing filter and obligation to describe a nature that must somehow be useful to institutional interests. An example is Galeotto Cei, (Florence, 1513–Florence, 1579) one of the first Italians who ventured into business in the Americas. He was a noble Florentine and merchant who, exiled from Florence, spent 14 years between Hispaniola, Venezuela and Colombia. He wrote one of the most beautiful works of literature about the conquest of the New World around the middle of the sixteenth century. His tale of adventurous travels and forced stays in the *Castilla de Oro* with local people is rich in details of traditions, customs and the lives of the peoples and animals he encountered. The point of view of Cei, similar to that of a modern anthropologist, describes animals and people with a disarming simplicity and sincerity. His descriptions are full of detailed first-hand observations, as we can see in his observation on monkeys:

On animals.

There are many sea-cats (*gatti mammoni*) and of very different kinds but no Barbary macaque (*bertuccce*) without tails. They do great damage to seeds but more to poor birds by visiting their nests and by eating eggs and chicks. There is one kind of little ones with black hair, rather large, which are very charming but they die with any little displeasure; there are also others a little greater and others are as large as sheep, ugly and hairy, with a long beard of a reddish, coppery colour and these make a shout and yell you hear even if you are a league away. All do damage to poor birds more than to other creatures, but as a consequence nature has taught the birds to make their nests in very tall trees, attached to thin, dry branches that are attached to the larger branches by a thin stem, because the cats (*gatti*) don't dare to climb out on a thin, dry branch, because if it broke they would get hurt. But cats (*gatti*) are tricksters and resolve this problem by trying to get as close as they can to the end of the fragile branch and then they shake it with their hands until it breaks, and then take the nest on the ground

⁵⁵Oviedo y Valdes (note 44), Segunda parte (1852), Lib. XXVI, Chap. 31.

⁵⁶Oviedo mentions '*mandrugas*' which seems an obvious printing error for '*mandingas*', see Nicolas de Castillo Mathieu. El Léxico Negro-africano de San Basilio de Palenque. *Thesaurus*. vol. 39 (1,2,3) (1984), 80–169. p. 125.

⁵⁷Oviedo y Valdes (note 44), Lib. VI, chap. 52.

⁵⁸See for instance, the first work about this topic: Jayne Cleveland and Charles T. Snowdon. 'The Complex Vocal Repertoire of the Adult Cotton-top Tamarin (*Saguinus oedipus oedipus*)', *Ethology*, 58(3) (2010), 231–70.



Figure 5. The Cotton-top Tamarin (*Saguinus oedipus*) native to Northwestern Colombia. (Photo: Trisha Shears).

and eat whatever there is inside. And so the poor birds do their best to build nests on branches that protrude above the water of rivers or ponds so that the cats (*gatti*), being afraid of falling into the water, do not bother the nests, and it is for this reason that along the rivers one can see many very well-woven nests. When we walk through the woods they go in front and above us peeing and defecating on us, throw down dead branches that break with their hands and shout all the time. Sometimes the Indians to our service shot arrows at them, they sniff them and then throw them down, as if they wanted to revenge themselves. In some parts of this land there are cats (*gatti*) as small as mice, very beautiful, but they die and it is difficult to bring them to Spain; the Indians keep them at home as pets and call them *damoteies*, that means companions, they also call them *miccos*.⁵⁹

Cei's account of primates feeding on birds is of great interest, comparable to an actual eco-ethological anecdote. He considers nature a 'teacher of life' and develops a sort of evolutionary concept regarding the behaviour of birds which, trying to escape monkeys, build their nests higher and higher up in the trees in branches which protrude over rivers. Cei left a rare sample of the native Caribe language of the sixteenth century reporting many local names of animals and plants. So far no other document which describes the native peoples and the dress and customs of the region visited by him exists.⁶⁰ The indigenous names *micco* and *damoteies* (from the Arawak language) were used by natives

⁵⁹See Galeotto Cei, *Viaggio e relazione delle Indie* (1539 - 1553), ed. by Francesco Sirdich (Rome, 1992), p. 112.



probably for small monkey and, these are reported here for the first time. The above-mentioned ‘small cats like mice,’ might be the Pigmy Marmosets, *Cebuella pygmaea* (Spix, 1823), the smallest living anthropoid, which can be held in one human hand, or some species of tamarins of the genus *Saguinus* spp., which are still dispersed in the territories visited by the author. The beauty of these dwarf primates made them very popular in Europe as pets at that time, as proved by many paintings and drawings.⁶¹ They were brought back to Europe in large numbers, although the majority died due to bad travel conditions and lack of proper food, as reported by many literary sources (see later).

Not so complete but of great interest are two other reports. The first is the description by Álvar Nuñez Cabeza de Vaca (Jerez de la Frontera, 1488/1490–Seville, 1557/1558) a Spanish explorer, who joined the expedition of Pánfilo de Narváez sent in 1527 sent by Spain’s King Charles I to explore the unknown territory of North America. As a survivor of the expedition he travelled eight years across what is now the Southwest of the US, reconnecting with Spanish colonial forces in Mexico in 1536. After returning to Spain in 1537, he wrote an account, first published in 1542 as *La Relación* which in later editions was retitled *Naufragios* ('Shipwrecks'). In 1540, Cabeza de Vaca was appointed as Governor of the Rio de la Plata in South America. The colony encompassed parts of Argentina, Paraguay and Uruguay. Cabeza de Vaca has been considered notable as a proto-anthropologist for his detailed accounts of the many tribes of American Indians that he encountered. After *La Relación* he wrote an extensive report on the Río de la Plata colony in South America, strongly criticising the conduct of Spaniards and joining the indigenous peoples in expressing opposition to the Spanish Crown. The report was bound with his earlier *La Relación* and published under the title *Comentarios* (Commentary) in 1555. His account reports in detail the behaviour of many animals and the role they play in native communities. He describes the behaviour of primates in the Iguaçu region (southern Brazil), which is abundant in Araucaria trees whose seeds are commonly eaten by many animals and by native people (Guaraní):

Chapter. VIII.

There are in that land very large pine tress, which are so large that four men extending together the arms could not embrace one, and they are very tall and straight, [...]. Indians gather them and with them make lots of flour for their maintenance. In that land there are many wild pigs and monkeys (*monos*) that are used to eating these pine nuts in the following way: they climb the trees and hang down by their tails and with their hands and feet throw a lot of pine cones down on the ground, and when they have thrown down a large amount, they then go down and eat them; and many times it has happened that wild pigs (*puercos monteses*) wait for monkeys to tear down pine nuts, and when they are fall down, before monkeys go down to eat them pigs [peccaries] come out against them, and take pine nuts and eat them. While the pigs eat, the cats (*gatos*) let out great shouts in the trees.⁶²

The species he referred to is the Black-horned Capuchin (*Sapajus nigritus* Goldfuss, 1809), one of the primate species occurring at this latitude, and extending into the northernmost tip of the Argentinian province of Misiones (East of the Rio Paraná). This is the first account we have of this peculiar behaviour. Because of this kind of destructive foraging behaviour the species is today considered a crop pest in some areas (in sugar cane and pine plantations). This species, though quite wide ranging, is nonetheless subject to habitat loss and degradation and to hunting across its range.

Another very brief observation on primate ecology is given by Girolamo Benzoni (Milan, 1519 - ?, c. 1570), an Italian explorer, merchant and traveller. In 1541 he went to the Americas where he remained for 14 years, taking part in many expeditions including ones to Puerto Rico, Haiti, Cuba, Panama, Guatemala and Peru. He made a report on the primates of the Paria peninsula in Venezuela, writing:

⁶⁰See José Blanco Jiménez, 'Aportes de un Manuscrito Florentino del Siglo XVI para la Etimología de Algunos Vocabulos Indo-americanos', *Pharos*, 13(2) (2006), 3–13.

⁶¹See Veracini, (note 10, *La Conoscenza dei Primati*), p. 48.

⁶²Álvar Nuñez Cabeza de Vaca, *Naufragios y Comentarios* (Madrid, 1922), pp. 172–73.

The captain went with the ship (*brigantino*) to the mainland, with the aim to look for Indians and getting some food from them, but after he had walked for eight days and had not found anything but woods and swamps and mountains, which left us astonished, he came back to the land along the coast, suffering very great hardship and having always to eat slugs and certain wild fruits eaten by monkeys (*gatti mammoni*) who are constantly jumping among those trees.⁶³

This brief passage provides us with various information including data on the types of flora and landscapes which aroused great wonder in Europeans and the presence of monkeys along the coast where mangrove forests normally grow in a habitat bridging sea and land. Modern scientific observations attest to the presence of fewer species of monkeys in this kind of habitat, which is considered not very abundant in food sources for primates. Capuchin monkeys, which live in mangrove habitats are reported to feed on molluscs, as a form of adaptation to the habitat.⁶⁴ In Benzoni's passage it is unclear whether the captain saw monkeys eating slugs or fruits or both.

5. Primates as food

Among the first reports on Neotropical mammals, there are many references to animals hunted or eaten by native peoples or by Europeans (e.g. 'wild pigs' – peccaries - iguanas, snakes, crocodiles, fish, manatees, parrots and other birds). In this regard, references to primates are very few and sometimes misunderstood. One of these first reports was that of the Friar Gaspar de Carvajal. He participated in what was the first exploration of the Amazon from the Andes to the Atlantic from 1541–42 carried out by the Spanish explorer and conqueror Francisco Orellana (Trujillo, 1511–Amazon River, 1546). De Carvajal reported the use of primates as food by native peoples. He wrote that while they were anchored near a village in the centre of the Amazon, 'he sent to bring from their [the Indians'] canoes a great amount of food, and turtles, manatees and other fish, and partridges, and roasted cats and monkeys (*monos*)'.⁶⁵ The consumption of roast monkeys and the belief in their therapeutic properties seem to be common throughout all the sixteenth century South American territories (see also the report of André Thevet in the next section). Spanish soldiers, in this passage from the epic work of Juan de Castellanos (Seville, 1522–Santiago de Tunja, 1607) where he recounts the story of the conquest of Colombia by Spaniards, seem to use monkey meat for therapeutic purposes: 'Pedro Rodrigo Pardo, desiring to be sure if he was alive or dead, brushed vigorously his teeth and mouth with roasted monkey (*mico*) meat that he had brought for food. They looked to see if he was still breathing and in fact they saw he was still alive, and they asked him if he recognized his companions'.⁶⁶

In Brazil the supposed beneficial effects of the monkey meat, were underlined later on by the Jesuit Father Ancheta in his '*Epistola quam plurimarum rerum naturalium quae S. Vicenti (nunc St. Pauli) provinciam incolunt*'. '*Simiarum infinita est multitudo, [...] imo et infirmis saluberrimus cibus est*'.⁶⁷ Francisco Hernández also recalls the therapeutic qualities of monkeys, whose powdered bone can relieve pain and the sweat provoked by the French disease (syphilis): '*Cercopithecorum ossa tusa atque deuorata, dolores à Gallica lue ortos, sudore euocato, tollere, atque sedare*'.⁶⁸

According to Juan Ignacio de Armas (1888)⁶⁹, the widespread use of monkey meat and its preservation in the form of roasted meat led the first Europeans who came to America to believe that cannibalism was a very frequent and widespread practice throughout the continent. Accounts found in other chronicles indicate the supposed presence of human corpses, when in fact it is possible that what the Europeans were observing were the bodies of monkeys. Here are some examples in Ignacio de Armas (1888):⁷⁰

⁶³Girolamo Benzoni, *La Historia del Mondo Nuovo di Girolamo Benzoni Milanese* (1565-1572), (Milan, 1965), p. 101.

⁶⁴See Fernandes, (note 50).

⁶⁵Rafael Diaz Madervelo Carvajal Gaspar de P. de Almesto and Alonso de Rojas, *La aventura del Amazonas* (Madrid, 1986), p. 53.

⁶⁶Juan de Castellanos, *Historia de la Gobernacion de Antioquia y del Choco*, vol. I (Bogotá, 1942), p. 113.

⁶⁷See Section 8. Father Ancheta (note 113), 123–52.

⁶⁸See Section 7. Hernández (note 102), 318–19.

⁶⁹de Armas y Céspedes (note 41), p. 24.

⁷⁰de Armas y Céspedes (note 41), p. 23.

[...] And as for hobbies, I heard they used to cook [for Moctezuma] meat of very young boys; and as he had so many diversities of stews and so many things, we checked to see if it was of human beings' (Bernal Diaz de Castillo, *Conquista de Nueva Espana*, 91); '[...] and we found on the path baskets full of corn and roasted children' (López de Gómara, *Conquista de Mejico*, 140); '[...] these Caribe Indians [of the Santa Marta region] are archers and eat human flesh, and that it is known because in some houses there were found pots with members of men and women, as well as arms and legs and a hand' (Oviedo y Valdes, *Historia General de las Indias Oci- dentales*, Lib XVII, Cap X).

Ignacio de Armas (1888) also quoted a very important statement made by Humboldt, who visited the Amazon in the nineteenth century: 'Roasted monkey - says Humboldt, - particularly those with round heads has an impressive resemblance to a child; wherefore when Europeans are forced to eat that flesh, they ask to cut off their heads, and hands, and they have only the trunk'.⁷¹ Even Oviedo who only saw arms, legs and hands along with other meat on the day he arrived in Santa Marta, formed the impression that Indians were cannibals. Similarly, Pizarro judged the Peruvians to be cannibals because he found feet and hands in a pot that was hanging over a fire. The current work is not the place for addressing the complex problem of the anthropophagy of American natives but we only wish to point out the frequent consumption of primate meat by indigenous American peoples, which was considered an ordinary aliment like that of other wild animals, though in many indigenous American cultures primates were considered gods or divine messengers.⁷²

6. Primates of the Brazilian Atlantic Forest: the earliest descriptions

Chroniclers and authors of the so-called contact period — the first decades after the discovery of America — wrote little about the natural world (with some exceptions, such as Oviedo). Early explorers and commentators mainly focused on describing the epic events of the conquest and its heroes, using nature only as background. Later on, especially after the second half of the sixteenth century not only were there more Europeans in the colonies, but sovereigns sent learned humanists and missionaries to document the process of the conquest, which entailed the subjugation and evangelisation of their native peoples.⁷³ As a consequence more detailed descriptions of flora and fauna appeared, enriched by contact with indigenous peoples and the absorption of aspects of their cultures and language. Thus around the second half of the sixteenth century, as observed by Billé⁷⁴ we find a more systematic description of the natural world of the Americas (for example, Gândavo, Soares de Sousa). Attention to the physical characteristics and behaviour of animals became greater and aboriginal names began to be used systematically (in the case of Brazil, the Tupi – guaraní branch of languages predominated, whereas in New Spain it was the Aztec linguistic family). Later on many of these names were adopted by western science as valid taxonomic categories (for example, the words *muriqui*, *cay*, *guariba*, etc.).

An example of indigenous zoonyms is found in the chronicle of Hans Staden (Homberg, ca. 1525–Wolfhagen, 1579). Staden was a mercenary who represented German bankers in the New World and during his second voyage (1549) was made prisoner in a village of native Tupinambá

⁷¹de Armas y Céspedes (note 41), p. 24.

⁷²See E. Bruner and A. Cucina, 'Alouatta, Ateles, and the Ancient Mesoamerican Cultures', *Journal of Anthropological Sciences*, 83 (2005), 111–17 (p. 113).

⁷³The accurate description of nature became important both for European rulers who needed to understand the natural and geographic features of their colonies (e.g. the Spanish rulers and their interest in systematic reports such as the *Relaciones geográficas de Indias*: see A. Barrero-Osorio, *Experiencing Nature, The Spanish American Empire and the Early scientific revolution* (University of Texas Press, 2006), pp. 81–100) and for religious groups such as Jesuits, who were sent to the colonies for evangelical purposes. These accounts describe various aspects of the land and its districts (*Capitanías* in Brazil) including reports about climate, topography, hydrography, minerals, flora, indigenous customs, the history of colonization, economics, public administration and population. Normally there are one or more chapters or sections dedicated to native fauna. These works, rather than reporting on the experience of living in distant lands of the New World, were intended as a systematic inventory of the knowledge gained during the author's stay there. In chapters devoted to wildlife Jesuit chroniclers made lists of various animals, with brief descriptions, which highlight the main characteristics of each species in greater depth than the vast majority of those found in other travel narratives.

⁷⁴Philippe Billé, *La Faune Brésilienne dans les Ecrits Documentaires du XVI siècle* (Paris, 2009).



Figure 6. A village of Tupinambá with a monkey and a parrot. Theodor de Bry, (1557). <http://digi.ub.uni-heidelberg.de/diglit/bry1593bd3/0042>

people in the present-day state of São Paulo (Figure 6) where he stayed nine months.⁷⁵ His book, which describes his stay in Brazil, was corrected by Dr. Dryander, a Professor in Marburg, and on publication was an immediate success, being subsequently translated into several languages. In his work, there is a section with six short chapters about animals. In the part dedicated to primates he describes three taxa:

There are also three kinds of ‘see-cats’ (*meerkatzen*). One of these is called *Key*. They are the type of sea-cats which are brought back to our country. Another species is called *Ackakey*. These animals usually jump around in the forest and make a lot of noise. And there is still another species called *Pricki*. They have red beards like goats and are as big as a medium-sized dog.⁷⁶

The *key* (or *cay* in other authors) is easily identified as *S. nigritus*, still found in that region. This popular name *cai* is used in central Brazil and Paraguay and today designates a full taxonomical species: *Sapajus cay* (Illiger, 1815). *Ackakey* is the Brown Howler *Alouatta guariba* Humboldt, 1812, still distributed in the Atlantic Forest and the same terminology can be found in other authors (see below), while the term *pricki* (or *buriqui*) refers to the Southern Muriqui, *Brachyteles arachnoides* (E. Geoffroy, 1806), although the author made a mistake in the description because muriquis are beardless. Muriqui, clearly derived from *buriqui*, is the name still used in Luso-Brazilian and in scientific language to designate the Genus *Brachyteles* (Figure 7). In various parts of his book

⁷⁵Hans Staden, *Warhaftige Historia vnd beschreibung eyner Landschafft der Wilden, Nacketen, Grimmigen Menschfresser Leuthen, in der Newenwelt America gelegen*, (Andress Kolben, Marpurg, 1557). This book became an international bestseller and was translated into Latin and many European languages, reaching a total of 76 editions.

⁷⁶Hans Staden, *Duas Viagens ao Brasil* (São Paulo, 2011), p. 172. The names of the monkeys are from the German version: http://www.deutschestextarchiv.de/book/view/staden_landschafft_1557?p=169 [accessed 3 December 2014].

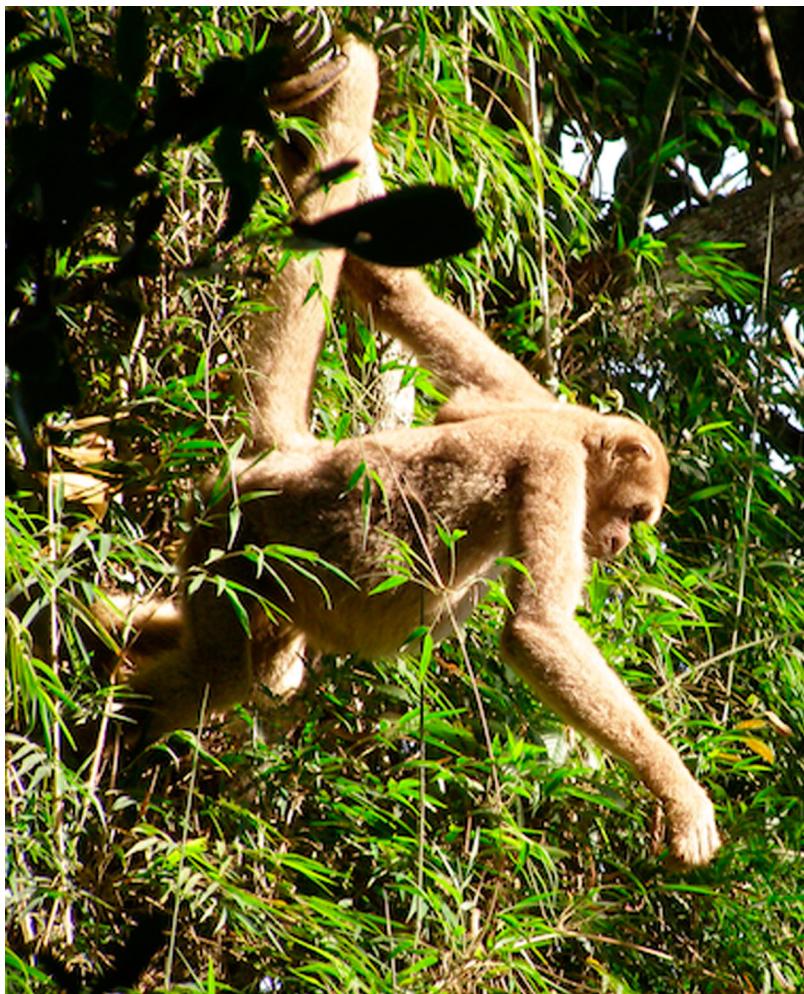


Figure 7. The Northern Muriqui, *Brachyteles hypoxanthus* (Kuhl, 1820), endemic to the Atlantic Forest. (Photo: Sandro Orlandoni).

Hans Staden recounts that the French used to go to the villages to buy monkeys from Tupinambá people: 'They went with a boat to the village where I lived and they bought pepper, 'see-cats' (*meer-katzen*) and parrots from *tupinamba*'.⁷⁷

Another short description of primates is that of André Thevet (Angoulême, 1502–Paris, 1590), a French Franciscan friar, cosmographer and writer, who published his work on Brazil in the same year as Hans Staden. On 14th August 1555, Thevet joined the expedition to Brazil of the French vice-admiral Nicolas Durand de Villegaignon in order to found a new settlement (the so called *France Antarctique*) on a small island in Guanabara Bay in front of the present Rio de Janeiro. Villegaignon secured his position by making an alliance with the Tamoio and Tupinambá native tribes of the region, who were fighting the Portuguese. Thevet came back to France on 14th February 1556, for health reasons and later became the main cosmographer to King Charles IX. One year after his return to France (1557) he published a chronicle of his journey to Brazil. Although his work has been judged a little overloaded in the descriptions and fanciful in some parts, it is the first major account of Brazilian nature and the Tupinambá people. The following is the part dealing with primates:

⁷⁷Staden (note 75), p. 97.

There is a kind of monkey (*monnes*) called by the savages *Cacuycu*, of the same size as the common ones with no difference, except that they have beards on their chins like goats. This animal is very lustful. Besides these monkeys some yellow beasts, called *Sagouins*, are found; they are found not only in this place but also in other parts. The savages hunt monkeys (*monnes*) for food. When monkeys see that they cannot escape, they take their offspring on their shoulders and try to find some way to escape from the hunters. These monkeys are black in Barbaria⁷⁸ and in Peru they are the same colour as foxes. There are no monkeys (*monnes*) that look like the African or Ethiopian ones but in compensation there are many armadillos (*tattou*) [...].⁷⁹

In his other work entitled *Historie*,⁸⁰ which is the expanded version of the *Singularitez* and other previous travels, he reports that: 'The savages, mainly women, teach the many birds which are found in those lands to speak their language. For instance they teach them to ask for the flour which natives get from roots or to say they must make war on their enemies and slaughter and eat them. They have different types of parrots, large and small, and they often eat them, as monkeys (*guenon*) and *sagoüyins* do'.⁸¹

Thevet's first description refers to howler monkeys (the same species described by Staden with the addition of the comment on their lustful behaviour). From the account given by Thevet we can infer his background as a learned humanist, influenced by the traditional view, which considered monkeys negative animals. He also compared the monkeys he saw in Brazil with those he probably knew through classical texts ('monkeys of Barbaria'). Nevertheless he left some vivid descriptions such as that of the typical brilliant red colour of howler monkeys in Peru. The yellow beast (*sagouin*) described by Thevet is the lion tamarin, cited, as we have seen, for the first time by Pigafetta, while visiting Rio de Janeiro. Thevet's chronicle together with that of Jean de Léry are the only two sixteenth century French literary sources on Brazil.⁸²

Jean de Léry (La Margelle, 1536–L'Isle (Vaud), 1613) was a religious man who participated, as did Thevet, in the adventure of the *France Antarctique*. He was trained in Geneva as a Calvinist missionary and in 1555 joined fourteen Calvinists who travelled to the French colony of Rio de Janeiro through the initiative of Admiral Gaspar Coligny. They were eventually forced to abandon the island where the other Europeans lived and spent some time with native peoples of the mainland region of Rio de Janeiro. Léry a decade after returning to Europe, decided to write his chronicle to clarify the action of the Protestant ministers in the Bahia de Guanabara of Rio de Janeiro, which André Thevet had (in Léry's opinion) wrongly described in his '*Les singularitez de la France Anatarcique ...*'. Indeed Léry called Thevet a liar and slanderer. Their polemical disagreements might have been due to the different perceptions and viewpoints of the two authors resulting from the diversity of the experiences they had during their stay in Brazilian territory and the extent of their contact with indigenous people.⁸³ Léry narrates these events in his book *Histoire d'un voyage fait en la terre dv Brésil avtrement dite Amerique* (1578). We cite here the part concerning primates:⁸⁴

Chapter X. On animals, game, big lizards, snakes and other monstrous beasts of America.

Above all there is a great abundance of these small black monkeys (*guenons*) called *cay* by the savages. But because they can be seen in great number in our country I shall not describe them here. Therefore I shall say that they move through the woods, their natural place; they do not descend from certain trees which

⁷⁸It is difficult to understand this sentence. The author is probably making a comparison with some African monkeys, though later he says that 'there are no monkeys that look like the African ones'.

⁷⁹André Thevet, *Les singularitez de la France Antarctique, avtrement nommée Amerique: & de plusieurs Terres & Isles decouvertes de nostre temps*. 1557. Chez les heritiers de Maurice de la Porte, Paris, p. 109.

⁸⁰André Thevet, *Historie, d'André Thevet Angoumoisin, Cosmographe du Roy, de Deux Voyages Par Luy Faits Aux Indes Australes et Occidentales*. Edition critique par: Jaen Claude Laborie and Frank L'Estrigant (Geneva, 2006). After the *Cosmographie Universelle*, (Paris, 1575) the *Historie* (1578), is the most complete text on the Thevet's travel in Brazil.

⁸¹Thevet (note 79), p. 236.

⁸²See Billé (note 74), p. 86.

⁸³Unlike Léry, Thevet never had direct contact with these peoples.

⁸⁴We have used the first edition of the book: Jean de Léry, *Histoire d'un voyage fait en la terre dv Bresil, avtrement dite Amerique* (à la Rochelle, 1578), 144–45. During the sixteenth century the text was printed in various editions and was translated into Latin (*Historia navigationis in Brasiliam ...*, Geneva, 1586), German and Dutch.



have seedpods similar to our large beans that they eat.⁸⁵ They come together in troops, and especially in the rainy season (as cats sometimes do here on the roof), it is a pleasure to hear them cry and make their Sabbath in trees. And these animals carry just one infant, they carry it on their bellies, and this infant, as nature has taught it, holds the neck of the mother or the father and in this way they can run and jump from branch to branch if they are persecuted by hunters. These savages have no other way to catch them if they do not use arrows to shoot them. They can also catch them with a sort of net. The monkeys (*guenons*) fall down stunned and sometimes seriously wounded; after they are cured, they keep them at home for a while, and then they exchange them for any goods that foreigner travellers can give, and I should say they are tamed, because at the beginning when they are caught, they are so fierce that they bite our fingers and may bite the hands of those who hold them right through, and the pain is such that we have to beat them in order to free ourselves. In this land of Brazil there is also, a '*marmot*', which the savages call *sagouin*, which is the size of a squirrel, and even has the same red fur; it has a neck and chest like that of a lion. It is as fierce as a lion and is the most beautiful small animal I saw there and in fact if we could succeed in bringing it across the sea [N.d.r to Europe] it would be the most popular animal, but it is so delicate that when it feels the rolling of the ship or is in any other way inconvenienced, it lets itself die. However we have already seen some of these animals in our country and I think it is this beast which Marot mentions, when his servant Fripelipes speaks about a Sagon who had accused him, using these words:

'Combien que Sagon soit un mot (Considering that Sagon is a word)

Et le nom d'un petit marmot ...' (And the name of a small monkey).⁸⁶

Léry's description of primates is complex, since he deals with several aspects of these animals, passing from their feeding behaviour to a more detailed description of primate hunting and their use by native people. The small black monkey he mentioned (*cay*) is *S. nigritus*, the same species cited by Hans Staden and Cabeza de Vaca; like the latter he claimed that these animals were already known in Europe at that time and could easily be seen there. He also explained in detail how Europeans got these animals from indigenous people 'by exchanging any kind of goods'. Monkeys were one of the many goods shipped to Europe. The ships which left Brazil were full of the most various natural resources, as described by Léry: 'Cap. XXI. After loading the ship with red wood, peppers, cotton, monkeys (*guenon*), small monkeys (*sagouin*), parrots and other things of that land which each passenger carried, we departed the 4th of January, 1558'.⁸⁷ Many of these animals may eventually have died or been eaten during the journey. Léry tells that during the return journey they were caught by a storm which delayed their return and, as they had nothing to eat, he was obliged to eat monkeys and parrots, though he did so reluctantly: 'Cap XXII. Despite hunger, during which were eaten all the monkeys and parrots that we brought, I had kept a large talking bird, but such was my need that he met the same fate as the others'.⁸⁸

The Brazilian fauna of the Atlantic Forest was also widely described by Portuguese writers. Pero de Magalhães de Gândavo (Braga, c. 1540–Braga, c. 1580), historian and chronicler, formerly professor of Latin and Portuguese in Northern Portugal, wrote the first printed history of Brazil: *História da Província Santa Cruz a que vulgarmente chamamos Brasil* (Lisbon, 1576). The book is known as

⁸⁵ Primates of the Brazilian Atlantic Forest and the Amazon habitually feed on nectar, and seedpod gum of trees of the Genus *Parkia* spp. (Fabaceae - Mimosoideae) which produce huge seedpods. These trees are today considered to be keystone resources for the mammalian fauna. See for instance: Daniel Piechowski and Gerhard Gottsberger, 'Flower and fruit development of *Parkia pendula* (Fabaceae, Mimosoideae)', *Acta Botanica Brasiliensis*, 23(4) (2009), 1162–66. As noted by Léry, it is easy to observe many monkeys together in one tree, especially during the rainy season when fruit is more abundant (pers. observation).

⁸⁶ Here Léry is referring to the famous 'querelle' between Marot and Sagon (see Abel Grenier, *Oeuvres complètes de Clément Marot revues sur les meilleures éditions avec une notice et un glossaire*. Tome premier. Paris, 1920). As noted by Papavero and Teixeira (see Nelson Papavero and Teixeira Dante, *Zoonomia Tupi nos escritos quinhentistas Europeus* (Arquivos do NEHILP, Universidade de São Paulo, 2014), vol. 3, pp. 20–25) Bonaventura des Périers in his work of 1537 on Marot, *Pour Marot absent contre Sagon*, was the first to use in print the name *sagouin* instead of *sagon*. This publication is followed by other pamphlets where the name *Tupi* was used, and where the two lines of verse cited by Léry are present: 'Or des bestes que iay susdictes, *Sagon*, tu nes des plus petites: Combien que *Sagon* soynt vng mot Et le nom d'un petit marmot'. (see Teixeira and Papavero, 2014, op. cit.). The name '*marmot*' was used in old French to indicate small monkeys, see Jean Nicot, *Thresor de la langue française* (Paris, 1606), p. 396. These pamphlets represented Sagon as a monkey. This shows that, at that time, marmosets and tamarins brought from Brazil were relatively common in Europe.

⁸⁷ Léry (note 84), p. 230.

⁸⁸ Léry (note 84), p. 241.

an exaltation of the abundance of the Brazilian flora and fauna, and is considered to be a piece of propaganda to encourage poor people to immigrate to Brazil. The part of Brazil described by Gândavo corresponds to the coastal region from Pernambuco State to the town of São Vicente in what is now the state of São Paulo, extending also into some interior regions. Primate description is included in chapter 6:

Chapter 6. On the animals and venomous beasts of this province.

In the land there are many monkeys (*bogios*) and of many varieties, as is known, and because they are so well known here [i.e. in Portugal] and everywhere, I won't explain their features in full. I will deal only briefly with some of those which are most interesting and peculiar. Some of them are red, not very large, and they emit a very sweet fragrance aimed at every person who approaches them, and if you caress them they become much more odorous and give off a scent perceptible to all the persons around them. These are rare in the land and are found only far in the hinterland. There are others larger and black; they have beards like men, and are so daring that often, when the natives shoot one of them, they pluck the arrows from their bodies with their own hands, and throw them back at the people who shot them. These have a very brave nature and are the most elusive in these lands. There are also two types of smaller monkeys (*bogios*) on the coast, just larger than weasels; they are commonly called *sagois*. Some of them are blonde, and others brown; the blonde ones have very fine hair, and the shape and features of the body are similar to those of a lion; they are very beautiful and are found only in the *Capitanias*⁸⁹ of Rio de Janeiro. The brown ones are found from there to the North in all the other *Capitanias*. These are also very valuable but not as lively as the blonde ones. Both are very delicate and naturally dainty, and because of this when they are taken from their homeland and shipped to this Kingdom [Portugal], as soon as they reach colder air almost all of them die during the voyage and we are very surprised when one of them survives.⁹⁰

Like other narrators, Gândavo justified saying little about primates by stating that they are well known both in their homelands and in Portugal (a result of the systematic importation of these animals to Europe about which we have already commented). In his narrative he first recalls the characteristics of a 'not very big red monkey' which is found only in the more remote areas far from the Brazilian coast. We can infer that he is referring to a titi monkey (Genus *Callicebus*), a genus of primates that matches his description. In the areas visited by Gândavo various species of this genus of animals still occur. Due to their shy nature and the difficulty of observing them, they are mentioned only once more, by Soares de Sousa (see below), throughout sixteenth century travel literature. Interestingly, Gândavo gives importance to the smell emanating from these animals, a feature that today would only be mentioned in scientific treatises. We may put this observation down to Renaissance demands, and the popularity of animals such as civet cats (Family Viverridae) from whose scent glands it is possible to extract perfume.⁹¹ The author goes on to refer to howler monkeys and quotes the anecdote, already mentioned by others, of the extraction of the arrow: 'they pluck the arrows from their bodies with their own hands, and throw them back at the people who shot them'. He mentions the two genera of callitrichids that can be found in the Brazilian Atlantic Forest: lion tamarins and marmosets. The author is very exact in distinguishing these two groups of primates, giving detailed information on their geographical distribution which fits with current data: the former is met now only in the territory of Rio de Janeiro whereas the latter occurs along the entire Atlantic coast of Brazil. This last taxon (Genus *Callithrix*, Figure 8), with six allopatric different species, is endemic to the Brazilian Atlantic forest and to other Brazilian regions further inland, and it inhabits a large portion of the Brazilian coast. Finally Gândavo, as Léry did before him, mentions the difficulty of bringing these small animals to Europe because of their delicate nature.

The author who has given us perhaps the most systematic description of Brazilian primates of the sixteenth century is the Portuguese Gabriel Soares de Sousa (Portugal c. 1540–Bahia, 1591), now remembered as one of the first Brazilian naturalists. He settled in Salvador, Bahia, in 1565 as an

⁸⁹Capitanias were a form of territorial administration of the Portuguese empire.

⁹⁰Pero de Magalhães de Gândavo, *Tratado da Província do Brasil*, ca. 1570. National Library of Lisbon, 1984. 'Capítulos 6. Dos animais e bichos venenosos que há nesta província', pp. 23–24.

⁹¹See Karl H. Dannenfeldt 'Europe Discovers Civet Cats and Civet', *Journal of the History of Biology*, 18(3) (1985), 403–31.



Figure 8. A marmoset from the Atlantic coast of Brazil (*Callithrix* spp.). Conrad Gessner, *Thierbuch*, (1541).

agriculturalist. He then married and prospered there for many years reaching the position of Counsellor in the Administrative Council of Salvador. His vast work⁹² describes in detail the North Eastern Brazilian coast, its indigenous peoples and their customs, and includes various chapters devoted to the flora and fauna of the state of Bahia. The following is what he wrote about primates:

Chapter II. Which deals with varieties of monkeys (*bogios*), and their conditions.

In the forests of Bahia live many monkeys (*bogios*) of different kinds: some are called *Guigós*, and these walk in groups through the trees, and when they perceive there are people nearby, they whistle to warn each other, so

⁹²The *Tratado descriptivo do Brasil* published in 1587 is divided into two parts: the first, *Roteiro geral con largas informações de toda a costa do Brasil*, is a guide to the Brazilian coast and the Amazon; The second, *Memorial e declaração das grandezas da Bahia*, is longer and has 196 chapters. The 78th to the 186th are dedicated to the fauna of the regions and are divided following a logical scheme: from flying to terrestrial animals, ending with aquatic ones.

that in a moment they can run very far away to save themselves. And if you shoot arrows at some of them, they start to laugh; they live in the dense upper parts of trees, eating the fruit and the animals they hunt. The *Guariba* is another kind of monkey (*bogios*): it is big and has a beard like a man and its tail is very long; often when Indians shoot arrows at them, they take them and throw them back at the person who shot at them, and may even hurt the person. At other times they carry the arrows in their hands and drop them onto the Indian who hit them. These monkeys (*bogios*) also live in the trunks of trees, whose fruit they fed on, and they also feed on birds they catch, and the females have just one offspring. *Saguins* are small monkeys (*bogios*) with very luxuriant, soft hair streaked brown and black and white, and have a long tail and a lot of fluff on the neck; they can be reared at home if they are captured young, and they become very tame. They live in holes in the trees, eating fruit, and the spiders they catch. From Rio de Janeiro come other *Saguins* with the same features as those which live here but with yellow hair that is very soft. They smell good, and are very dainty, and die in captivity when exposed to any amount of cold, and when they eat the spiders they find in houses that are more poisonous than those that live in the trees, where they [monkeys] are always jumping from branch to branch. In the forests of Bahia there is another monkey (*bogio*), which the Indians call *Saianhangá*, which means “evil monkey” (*bogio diabo*). These are very large, and walk around only at night. They have the same features as the others, and live in tree holes, feed on fruit, and people fear them, and when people hear them scream they say that someone is going to die.⁹³

Gabriel Soares de Sousa described the titi monkeys (Genus *Callicebus*)⁹⁴ of Bahia and for the first time, used the native name *guigós*, which is still used in Brazil for this taxon of monkey. The part in which the author observes that if ‘these are hit by arrows they laugh at men’ is remarkable, since titi monkeys are primates which are known for their highly specialised vocalisation and the vocal duets they perform for territorial defence in the treetops. These duets are vocalisations in syncopated form that in some ways are reminiscent of human laughter. They often also emit a very loud anti-predator vocalisation, as Soares de Sousa seemed to mention, when he said that: ‘they emit long whistles when they see people’. These animals are very shy and difficult to observe in nature because they live in small family groups, and only a person who has lived for a long time in these areas and is a keen observer could provide such a description. The Tupi word *guariba*, used for the first time by Soares de Sousa is still popularly used along the Northern Brazilian coast (and in the Brazilian Amazon basin) to refer to howler monkeys and here it may refer to the already cited *A. guariba*, still dispersed in the Bahia State. Soares de Sousa introduced the term *saianhangá*, which is here used to name what appears to be a nocturnal monkey. The only current nocturnal primates of the Neotropics are owl monkeys - Genus *Aotus* - although howler monkeys also have a sort of catemeral activity⁹⁵. The author also described the habits of these animals, noting that they sleep in the holes of trees, another peculiar characteristic of owl monkeys. Doubt regarding this account arises when we examine the owl monkey’s present geographical range, which is very far from the territories visited by Soares de Souza, extending as it does at present throughout the Amazon, as far as Paraguay and Argentina. Although the current species distribution might be very different from that of the sixteenth century, it seems highly unlikely (considering the actual biogeography and ecology of New World primates) that owl monkeys could occur at that time in the state of Bahia. It is very likely that the *saianhangá* was a kinkajou, *Potos flavius* (Schreber, 1774), an arboreal mammal with strict nocturnal habits. This animal resembles a primate in many aspects and sleeps in tree hollows (or in shaded tangles of leaves) but actually is of the Family Procyonidae. The nocturnal extended vocalizations of kinkajou could have been a source of inspiration for folkloric tales about the creatures of the forest.

The author completes his list of primates describing callithrichid (*saguins*) food habits and the common practise of rearing them at home. In this last case he is probably referring to the species

⁹³Gabriel Soares de Sousa, *Tratado Descriptivo do Brasil em 1587*, (São Paulo, 1938), pp. 297–99. Chapter CIV. ‘Que trata das castas dos bogios e suas condições’.

⁹⁴He’s probably referring to *Callicebus melanochir* Wied-Neuwied, 1820 or *Callicebus coimbrai* (Kobayashi & Langguth, 1999), still distributed in the state of Bahia.

⁹⁵Howler monkeys (*Alouatta* spp.) sometimes indulge in nocturnal activity, moving from one nocturnal site to another, or feeding. They also start to vocalise before sunset (personal observation). For a review of catemeral activity in primates, see I. Tattersall, ‘The Concept of Catemerality: History and Definition’, *Folia Primatologica*, 77(1/2) (2006), 7–14.



Callithrix kuhlii Coimbra-Filho, 1985 or *Callithrix jacchus* (Linnaeus, 1758), both occurring in Bahia State. Like others authors, he noted the beauty and good smell of the golden lion tamarin which, already at that time, was traded not only abroad but even within Brazil.

By the end of the sixteenth century all the primate genera of the Atlantic Brazilian Forest currently recognised by science had been described. They were classified in several categories with distinct names provided, and with simple but effective descriptions. There is similarity and congruency among the different descriptions, demonstrating the veracity of most of the information given by narrators, who mostly reported what they were able to observe or to hear from indigenous sources. More descriptions of Brazilian primates can be found in the reports of missionary Jesuits (see Section 8).

7. Primates of New Spain

Although less detailed than those regarding Brazil, reports on primates also came from the Central and South American overseas Spanish territories. In general, apart from the contribution of Oviedo and that of the Jesuit, José de Acosta (see next section), the descriptions of primates relating to these regions appear more fragmented and less systematic than those from Brazil. Noteworthy is the contribution of Pedro Cieza de Léon (Llerena, c. 1520 - Seville, 1554), a conqueror, chronicler and historian, who participated in many expeditions to the American territories, and who followed all the stages of the conquest of Peru. He travelled throughout Peru, eager to list all the features of this country in geographic, botanical and zoological terms. From these observations arose the work he entitled *Parte primera de la Crónica del Perú*, published in Seville in 1553, in which all the places of the new colony with their archaeological sites, monuments, myth and legends were examined. He wrote other works of great value on Inca history, which earned him the nickname of *Príncipe de los cronistas*, originated by the Spanish scholar and zoologist Jimenez de la Espada (Cartagena, 1831 - Madrid, 1898). Pedro Cieza de Léon showed a high level of education, since his chronicles are full of references to (and sometimes criticisms of) the theories of Virgil, Ovid and Ptolemy. In the *Crónica del Perú*, there is a section referring to the primates he met in the valley of Cacua, a place between San Sebastian and Antioquia. In this chapter, besides primates we find the descriptions of 'lions', 'tigers', 'wild pigs', 'bears' as well as of many birds:

Cap. IX. On the road between the city of San Sebastian and Antiocha city and the hills, mountains and rivers, and other things that there are, and how and at what time you can go.

In the trees walk the most beautiful and colourful cats (*gatos*) that there are in the world, and others monkeys (*monos*) which are so large, and which make such a noise, that from afar, those who don't know that land might think they are pigs. When the Spaniards pass under the trees where the monkeys (*monos*) walk, they break branches and throw them at the Spaniards, [...] there are very large monkeys (*monas*) walking in the trees. [...] People say further that they don't speak and they emit a cry and a fearful howl.⁹⁶

In another section he reported an Inca legend about monkeys:

In that region there are some very large monkeys (*monos*) in the trees whose females men, prompted by the temptation of the devil (who always tries to lead men into temptation), use as women, and sometimes these give birth to monsters. They have heads and members like those of men and hands and feet like those of monkeys. [...] They do not speak, but groan and cry. [...] A Spaniard is said to have seen such a one dead in the mountains [...].⁹⁷

Cieza de Léon himself was sceptical about this fact. Like many other commentators on the New World in the sixteenth century, he frequently affirmed that: 'many of the things I have written I have seen with my own eyes and I have walked and travelled to many countries to learn and understand more.' To be more persuasive, he reported later on that in the region of Charcas he had met a Spanish man, Ynigo Lopez, who told him about a Spaniard who had seen one of these dead monsters in the

⁹⁶Pedro de Cieza de Léon, *La Crónica del Perú* (Buenos Aires, 1945), p. 55.

⁹⁷See de Asúa and French (note 3), p. 37.

mountains. And he added that ‘also Juan de Vargas, a neighbour in La Paz, reports that Indians in Guanaco believe that at night you can hear the cries of these creatures’.

As already mentioned, after the contact period Spanish rulers needed an inventory of the nature of their conquered territories and sent learned scholars as official observers to tell of the richness of New Spain. Tomáz López Medel (Tendilla, 1509–Tendilla, 1582), an erudite Spanish doctor in law and canon law who studied at the universities of Paris and Bologna was appointed as an official observer for Guatemala, where he went in 1549. In 1557, he moved to Santa Fé de Bogotá as judge in charge of the *Real Audiencia*. He wrote the book *Tratado de los tres elementos, aire, agua y tierra*, about his New World experiences, which deals with social, economic and religious history as well as with the nature of the West Indies. The following is the account of primates:

Chapter 11. Regarding animals that are found in the Western Indies.

Typical animals native to the Indies abound. And the first thing we note is the infinite diversity of species of cats (*gatillos*), so many that you cannot count them. They are of the form and type of monkeys (*monos*), of which people bring back many here [to Europe] and in Seville you can see them in large quantities because they are frequent there, and because in that warmer land they can live better. They differ greatly both in type and in colour: some of them are completely black, others brown or white, others almost green and others still are a mixture of these and other colours. Some are very big and others not so big, while others are small and still others much smaller. Some of them are courageous and terrifying whereas others are very tame. And there is so much diversity among these kinds of animal that they are only comparable to parrots - as I have already said in another Chapter -. Here, more than elsewhere, nature wishes to reach the extremes of diversity. And among them there are some, a genre of little cats (*gatillos*), which are brown and white, and whose fur is very good for lining clothes. It is their nature to sleep during the day and stay awake in the night searching for food. They are so striking that it seems they are created for our comfort and distraction.⁹⁸

López Medel describes here the large number of primates brought to Europe and how easy it was to see them, especially in Seville, one of the major trade centres for American goods in the sixteenth century, a place where, he says, the milder climate was more adapted to their nature. Iconographic sources for primates from the territories of New Spain are rare in Renaissance Europe (in fact the majority we have found are from Brazil, e.g. see Figure 9),⁹⁹ but Medel’s testimony confirms the extent of primate trade also in the Spanish world. The white and brown monkey, an animal that sleeps during the day and is active during the night, is an owl monkey (*Aotus spp.*). López Medel visited the area of Popayan and Santa Fé de Bogota in Colombia, and it is probable that on that occasion he directly observed these animals, which are absent from Guatemala. Medel’s protracted experience of Central and South America is evident when he observes that ‘the variety in size and colour, but also in temperament and behaviour, of primates is only comparable with the variety that exists among parrots’. He then concludes with a eulogy to Nature, which, in his opinion, attained its highest point in creating this kind of animal.

A great diversity of monkeys (*monos*) and cats (*gatillos*) was also reported in Venezuela by Juan López de Velasco,¹⁰⁰ a Spanish cosmographer and the ‘Chronicler of the Indies’ (1572) of King Philip II.

Philip II’s keen interest in medical botany resulted in a botanical expedition to the New World led by the physician Francisco Hernández, described as the first real ‘scientific’ author of the New World, by de Asúa and French.¹⁰¹ He set off on his journey to New Spain in 1570 and remained in America for the following seven years, carrying out a series of expeditions which covered a great part of present-day Mexico. As a result he wrote 38 manuscript volumes that he sent to the King in 1576. Hernández’ work had a chequered history and today there remains of his great work only a digest written by the Italian Augusto Recchi and parts or fragments used as sources in various seventeenth-century

⁹⁸ Tomás López Medel, *De los Tre Elementos. Tratado sobre la Naturaleza y el Hombre del Nuevo Mundo* (1570) (Madrid, 1990), pp. 176–7.

⁹⁹ See Veracini (note 10), *La Conoscenza dei Primati*, chapter 4.

¹⁰⁰ Juan López de Velasco, *Geografía y descripción universal de las Indias* (Madrid, 1894), p. 20.

¹⁰¹ See de Asúa and French (note 3), p. 93.



Figure 9. Margaret of Austria, Duchess of Parma, daughter of Carlo V, with a Common Marmoset (*Callithrix jacchus*). Anonymous, (ca. 1538–1540).

treatises on nature.¹⁰² The *Rerum medicarum Novae Hispaniae Thesaurus* includes the book *History of the animals of New Spain* which deals with quadrupeds, birds, reptiles, insects and aquatic animals. The section on primates is on *Cercopitheci*, called in the Mexican language *Ocumatlí*:

Offendvntvr iuxta calidiora novae Hispaniae loca Cercopitheci, quos Mexicenses Ocumatli vocant, varia magnitudine, atque colore. Reperies nanque nigros, pallentes, fuscosque, magnos, mira paruitate, ac mediocres, alias capitibus canini, ac omnes penè filiorum amplexu graues. Mirabile est, arborum ramos, quas concenderunt, in viatores torquere, & iaculari; transilire flumina caudis inuicem apprehensos, & ab arboribus fluuijs vicinis vibratos, ac super omnia, sagitta aliouè telo vulneratis, quantam possunt ne dicam quantam solent homines hominibus, opem ferre, admotisque solijs, aut arborum musco vulneri, sanguinem fluentem sistere, atque ita vitam, si sieri possit, tueri. Educant filios singulos, pariuntque, & circumferunt, amplexu tenaci adhaerescentes mira pietate, & amore erga prolem. atque id iuxta montium verrucas, & summa cacumina, vbi venatores pyram construunt Maizio circundatam, adiecto lapide Cacaoteli, seu coruino, cuius est natura, igne calefactum, tonitruum edere, atque desilire. Cuncurrunt Cercopitheci ac iuxta incumbunt, edentes sparsum Cacaoteli. sed

¹⁰²Francisci Hernández, *Rerum medicarum Novae Hispaniae Thesaurus*, Nardi Antonio Recchi. Copia anastatica edizione 1628 (pp. 1–811) (Rome, 1992). Philip II commissioned the Neapolitan physician, Nardi Antonio Recchi, to publish an abridged version. Successive delays (the publisher died prematurely) caused Recchi's shortened work not to be published until the mid-seventeenth century. The originals kept in the Library of El Escorial disappeared, probably destroyed during the fire of 1671. Therefore, only fragments of Hernández's immense work are known, although, as suggested by de Asúa and French (note 3), p. 96, Hernández's own copies survived and somehow found their way into the library of the Colegio Imperial in Madrid, run by Jesuits. Other later works such as the *Historia Naturae maxima peregrinae* (Antwerp, 1635) of Juan Eusebio Nierember used Hernández's manuscript as a source.

*perterrefaciens eam gentem subito lapide, oblieti filiorum, ac veluti expertes luminis aufugiunt, deserentes sobolem carissimam, relinquentesque in praedam venatorum. Caeteraque ad eorum naturam spectantia, adeò nota sunt cunctis, vt à me rursus hac in parte referri fuerit superuacaneum. Illud non est praetermittendum, Cercopithecorum ossa tusa atque deuorata, dolores à Gallica lue ortos, sudore euocato, tollere, atque sedare.*¹⁰³

In the first section of his report Hernández, focuses primarily on the variety of primates (*cercopithecus*) ‘of various sizes and colours’ and of many dimensions; he then mentions their behaviour: the way they throw branches at people who are passing under the trees. He remarks, as other authors do, on their ability to cross rivers by attaching themselves to each other in order to form a bridge and notes the fact that when injured they put moss on the wounds to stop the bleeding. He also notes that they raise only one child at a time, which stays attached to its parent by clinging on tightly. His story of how Mexican natives hunt monkeys is peculiar. The monkeys are attracted by corncobs scattered around a bonfire, into which the hunters throw some particular stones,¹⁰⁴ which when heated burst with a loud noise, so that the animals flee, leaving their young behind and these are easily captured by the Indians. This same story was reported by Bernardino de Sahagún (Sahagún, ca. 1499–México, 1590), a Franciscan missionary, author of several works in *náhuatl* (the Uto-Aztec language) and Spanish, considered today among the most valuable documents for the reconstruction of the history of ancient Mexico. Among his writings, the *Historia general de las cosas de la Nueva España* stands out; this is an ethnographic monument, composed of twelve volumes. Other information about the native Mexican names of monkeys is found in the Fray Molina’s Dictionary (see Appendix). As already noticed (see Section 5) Francisco Hernández underlines the therapeutic qualities of monkeys whose powdered bones can relieve pain provoked by syphilis.

We have not been able to find other detailed descriptions of Neotropical primates in sixteenth century New Spain, but only sporadic reports such as that of Felipe Guaman Poma de Ayala (San Cristóbal de Suntuntu, 1550–San Cristóbal de Suntuntu, c. 1615), a native chronicler of Peru active during the period of the conquest. He was the son of Guaman Mallqui and Juana Cori Ocllo Coya (youngest daughter of the ruler Tupac Yupanqui) and grew up among the Spaniards, speaking Spanish and the native language. In his work, *Nueva Coronica y Buen Gobierno* (1584),¹⁰⁵ which mixes indigenous customs with those just introduced by the Spaniards, he lists the first Queens who ruled pre-Columbian Peru. Reporting facts about the seventh queen, he recalls how even at that time, there was the custom of bringing home and raising parrots and monkeys as pets: ‘The seventh Coya [queen], Mama Huaco Ypa Machi: [...] used to breed birds, parrots and macaws, and monkeys and singing birds and small doves of the region’.

8. The contribution of Jesuit missionaries in South America

Detailed descriptions of the fauna of South America in the sixteenth century are given in the work of Jesuits. These friars were among the most educated persons to travel to the New World. The first Jesuits to reach the Americas were sent there by the Portuguese King, João III, to convert the indigenous peoples to Christianity.¹⁰⁶ The first nucleus of the followers of Ignacio de Loyola reached Salvador, Bahia, on 29th March 1549.¹⁰⁷ The main interest of the Jesuits was to focus on the collection of elements useful for the evangelisation of the newly conquered populations, and consequently the

¹⁰³Hernández (note 102), pp. 318–19.

¹⁰⁴The *Cacaotetl* (in latin: *lapis corvinus Indiæ*) is a kind of stone which when heated produces a loud noise such as an explosion.

¹⁰⁵Felipe Guaman Poma de Ayala, *Nueva Coronica y Buen Gobierno* (1615).

¹⁰⁶In 1539, King João III sent a card to the Portuguese Ambassador to Rome (*Letter of King João III to Pedro de Mascarenhas*. Lisbon, August 4th) to ask about the Jesuits (see Serafim Leite, *Cartas dos primeiros jesuitas do Brasil*. Comissão do IV Centenário da cidade de São Paulo (São Paulo, 1956), vol. I, p. 101). Then he followed the advice of Dr. Diogo de Gouveia (1471–1557), requesting the presence of the Jesuits in the new territories, ‘polla grandissima terra e necessidade que as tales tem de letados’, considering that these brothers were ‘os mais adequados a pera converter toda a India’ (*Carta do Doutor Diogo de Gouveia a D. João III*, in S. Leite, this note, vol. 1, p. 95). See Paulo de Assunção, *A Terra dos Brasis: a natureza da América portuguesa vista pelo primeiros jesuitas (1549–1596)*, (São Paulo, 2001), pp. 63–64.

¹⁰⁷de Assunção (note 106), p. 77.



study of natural objects became essential to the effectiveness of their apostolic ministry. The first writings of these Jesuits concentrated on a utilitarian vision of nature, due both to the need to survive in a hostile new world and to the fact that they were required by their king to describe it.¹⁰⁸ They describe the natural world using elements of the symbolism of the sixteenth century and taking as reference the Aristotelian-Thomistic natural system.¹⁰⁹ Starting from this concept of nature, Jesuits described and interpreted freely the diversity of the American natural world they were witnessing as missionaries.¹¹⁰ This approach was largely based on the education they received in Italy where, during the sixteenth century, the Aristotelian heritage was reassessed from a more Platonic viewpoint.¹¹¹ With a notion of nature that allowed for a flexible conceptual framework, and was thus open to their new observations, their descriptions of fauna and flora became more empirical. The extraordinary animals of the New World were described as normal phenomena arising from the infinity of possibilities and variety created by the hand of God.

Among the first Jesuits to reach Brazil was Father José de Anchieta (San Cristobal de la Laguna, 1534 - Anchieta, 1597), who arrived there when he was just under 20 years of age. Father Anchieta, one of the founders of the city of São Paulo, was sent to Brazil on an expedition with the Jesuit Fathers in 1553 (Figure 10). His work as a missionary was broad: he taught Latin to settlers, the indigenous language to missionaries and the Gospel to native people. While fighting indigenous cannibalism and polygamy, he tried to protect the native peoples from the slavery imposed by Portuguese colonists. His body of written work is extensive and was written in Latin, Portuguese, Castilian and Tupi.¹¹² In his '*Epistola quam plurimarum rerum naturalium quae S. vicent (nunc St. Pauli) provinciam incolunt*' he describes the infinite multitude of monkeys he encountered, and lays great emphasis on the similarity between non-human primates and humans:

*Simiarum infinita est multitudo, quarum quatuor sunt genera, unumquodque esui aptissimum, quod saepe experimur, imo et infirmis saluberrimus cibus est. In sylvis semper vivunt, catervatim fere per arborum cacumina salientes; ubi si quae propter corporis parvitatem ab hac arbore in illam nauquent se saltu proicere, quae maxima est, et veluti dux agminis curvato hinc ramo, quem cauda tenet ac pedibus, alteroque inde manibus apprehenso se reliquis viam et velut pontem facit, et sic facile omnes transiliunt; faeminae mammas habent ad pectus sicut mulieres, faetus parvi matrum costi et armis semper valeant. Mira de his referuntur, sed incredibilia, et ideo omitto.*¹¹³

In addition to the face and other physical characteristics similar to human beings (e.g. he emphasises that: '*faeminae mammas habent ad pectus sicut mulieres*'), the social life of primates also claims Anchieta's attention. Father Anchieta observes the way they give each other help when they have to cross over a gap in the trees and how they use their prehensile tails to form bridges between the discontinuities. This behaviour, especially observed in adult females with babies, is fairly common among some genera of the Family Atelidae, which are characterised by a long, prehensile

¹⁰⁸ Steven J. Harris has observed that as great travellers and field observers as well as authors and educators, Jesuits of the old Society hold a special place in the history of the exploration and description of non-European lands and peoples. As early as 1547, we find Ignatius urging missionaries in India to send information about 'such things as the climate, diet, customs and character of the natives and of the people of India. Some leading figures in this city (Rome) read with much edification for themselves the letters from India, and they request me repeatedly for these. There are things that may seem extraordinary; let there be noted for instance details about animals and plants'. See Steven J. Harris, 'Mapping Jesuit Science: The Role of Travel in the Geography of Knowledge', in *The Jesuits. Cultures, Sciences and the Arts (1540-1773)*, ed. by J. W. O'Malley, Gauvin A. Bailey, Steven J. Harris and T. Frank Kennedy (Toronto and London, 1999), pp. 212-40.

¹⁰⁹ Giuseppe Tanzella-Nitti, 'The Aristotelian-Thomistic Concept of Nature and the Contemporary Debate on the Meaning of Natural Laws', *Acta Philosophica*, 6 (1997), pp. 237-64.

¹¹⁰ See de Assunção (note 106), p. 96. On the conception, vision and perception of Nature of Jesuits in the sixteenth century other interesting works exist. See for instance: Pedro Lage Correia, 'The Concept of Evangelisation in Valignano's *Apologia*', in Alessandro Valignano, S.I., *Uomo del Rinascimento: Ponte tra Oriente e Occidente*, ed. by Adolfo Tamburello, M. Antoni, J. Üçerler and Marisa di Russo, (Rome, 2008), pp. 247-59; Leandro Garcia Pinho, 'Jesuit Imagery in the Contact Zone: Jesuit Texts on the Indigenous Flora and Fauna of Sixteenth century Brazil', *Locus-Revista de História*, 17(1) (2011), 189-216.

¹¹¹ See Pedro R. Lage Correia, *A concepção de Missão na Apologia de Valignano* (Lisbon, 2008), pp. 103-04.

¹¹² The full work of Father Anchieta was published in several volumes by the Edições Loyola, São Paulo.

¹¹³ See the '*Epistola quam plurimarum rerum naturalium quae S. Vicenti (nunc St. Pauli) provinciam incolunt*, (1560)' in José de Anchieta, *Cartas, correspondência ativa e passiva* (São Paulo, 1984), pp. 123-52.

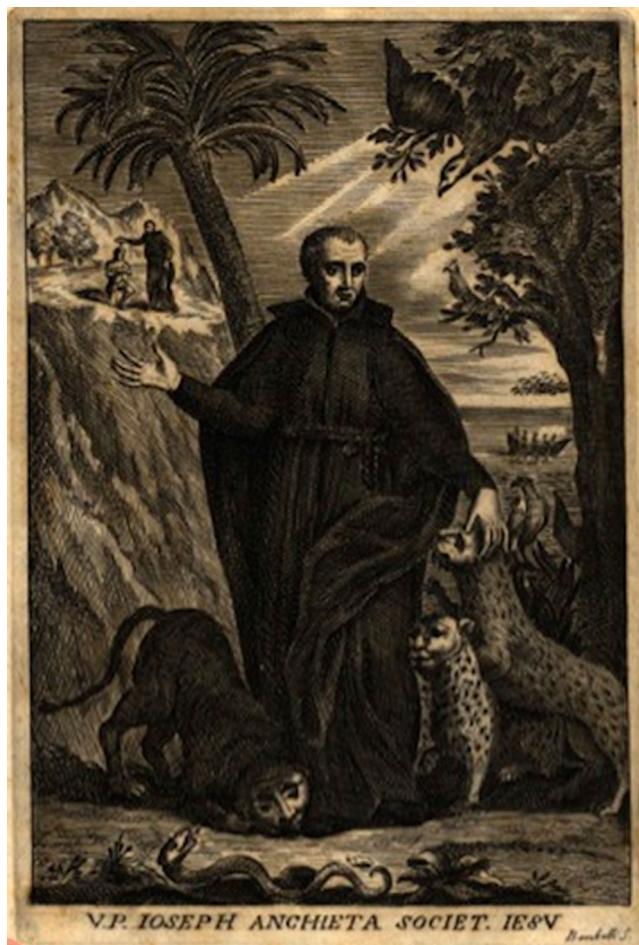


Figure 10. Father Anchieta in an engraving by Pietro Leone Bombelli, 1737–1809. V. P. Joseph Anchieta Societ. Iesv (1770; 1790). National Library of Lisbon.

tail, a feature unique in the Order of Primates. As regards the places where Father Anchieta lived (the Brazilian states of Espírito Santo, Rio de Janeiro and São Paulo), this report is one of the first about the Southern muriqui, a species endemic to the Brazilian Atlantic Forest. Southern muriquis, now in danger of extinction, were probably very common at that time and easy to see and hunt. With their very complex social behaviour,¹¹⁴ they seemed to arouse feelings of admiration in the soul of Father Anchieta. He writes in a state of astonishment that the facts regarding monkeys seem to exceed the limits of the possible: '*Mira de his referuntur, sed incredibilia, et ideo omitto*'.

The missionary Fernão Cardim (Viana do Alentejo, c. 1549–Salvador, 1625), who arrived in Brazil in 1580, travelled extensively along the eastern coast of Brazil.¹¹⁵ Like most of the work on the

¹¹⁴See for instance the long-term study of muriquis by the researcher Karen Strier, whose most famous work is *Faces in the Forest: The Endangered Muriqui Monkeys of Brazil* (Cambridge, MA, 1999).

¹¹⁵The work of Fernão Cardim consists of two treatises and letters, which were composed during the 1580s, when he held the position of secretary to a visiting priest in Brazil. His work was first published in the famous collection of Samuel Purchas under the title 'A Treatise of Brasil written by a Portugal which had long lived there'. See Samuel Purchas, *Hakluytus posthumus, or Purchas his Pilgrimes containing a history of the world, in sea voyages and lande travels* (London, 1625), vol. 6, pp. 1289–320. His best-known work is Fernão S.J. Cardim, *Tratados da terra e gente do Brasil* (Lisbon, 1997).



nature of Brazil written by sixteenth century Jesuits, Cardim's treatment of animals is systematic. Primates are observed very closely, with explanations of their behaviour:

These monkeys (*aquigquig*) are very large, as big as a good-sized dog, black, and ugly. Males and females have full beards but only on the lower chin. Among them, there sometimes appears a red male, and the native people say it is their king. Those males have white faces and scissor-shaped beards from ear to ear. One important thing should be noted: the monkeys (*aquigquig*) climb up into the trees and make such a loud noise that they can be heard from far away, and they continue calling out for a long time. They use a particular structure they have in their throats to do this. It is a structure of concave form and its texture is similar to very rigid parchment; this is so smooth that it can be used to polish objects and its size is similar to that of a duck's egg; the sound starts in the main part of the throat and reaches the "bell" [this organ], between the two cheeks; this body part is so light that if you touch it, it moves like the keys of a piano. There are many other varieties of monkey (*bugio*), a great multitude of black, brown, and yellow ones; native people say that some of these, when you shoot an arrow at them, take it in their hands and return it to the person, and when they have a bad injury, they chew a leaf and put it on their wound to heal it. They always walk in trees, and are very light. When there is a gap between branches which is too wide for a small one to cross, another one makes a bridge in order for the other to cross; their tails also serve as hands, and when one of them is hit it remains suspended by its tail and can die hanging without falling. They have many other skills that can be observed every day, such as taking a stick to hit someone who hurts them. A monkey (*bugio*), after finding a basket of eggs hanging from a rope, put it around its neck, went up to a roof and from there teased the man who wanted to catch hold of it, and then after breaking open the eggs and sucking them, threw the shells at the man.¹¹⁶

Cardim's account corroborates the reports of tool use by Neotropical primates already given by previous authors (for example, Oviedo). He describes the use of the muriquis's prehensile tails: 'their tails also serve as hands', and gives information about the relationship between primates and people. The Indians to whom he frequently refers are in fact of permanent interest to Cardim. The Jesuit quoted indigenous people's testimony on self-medication in New World primates (see also F. Hernández, Section 7, on this topic), behaviour now confirmed in some primates and other animals by recent scientific studies.¹¹⁷ Cardim's description of Brown Howler (*A. guariba*) males matches with the features of this species, as, in some regions where it is found, sexually dichromatic features exist wherein males might be redder (almost orange) than females.¹¹⁸ He also mentions the roaring of these monkeys, describing their vocal organs and how these are adapted for loud vocalization (Figure 11).¹¹⁹ Cardim is evidently familiar with the world he is describing and has first-hand knowledge of the animals he is talking about. Often he reveals an extraordinary capacity for observation, as in this case. It is to be noted that the naturalist George Marcgrave, who described the fauna of Brazil in the seventeenth century (1648), did not mention this anatomical peculiarity of howler monkeys.¹²⁰

Another Jesuit who visited the Brazilian Atlantic coast, travelling in the present states of São Paulo, Espírito Santo, Bahia and Pernambuco, was Father Francisco Soares (1560–1597). According to the historian Serafim Leite, he entered the Society of Jesus in 1575 and in the same year reached Brazil, returning to Portugal in 1589.¹²¹ Like other Jesuits, he knew the language and customs of the natives and probably lived in close contact with them. Many of his descriptions seem to originate from his direct knowledge, as he insisted at every opportunity. The author repeated constantly, 'I saw, I saw there, etc.'. The extract on primates presented here is taken from a manuscript whose author remained unknown for a long time before it was attributed to Father Soares.¹²²

¹¹⁶Cardim (note 115), pp. 88–89.

¹¹⁷M. A. Huhhaman, 'Current Evidence for Self-medication in Primates: A Multidisciplinary Perspective', *American Journal of Physical Anthropology*, 104(suppl. 25) (1997), 171–200.

¹¹⁸See Mittermeier, et al. (note 11), p. 531.

¹¹⁹On the vocal adaptation of howler monkeys see: G. Kelemen and J. Sade, 'The Vocal Organ of the Howling Monkey (*Alouatta palliata*)', *Journal of Morphology*, 107(2) (1960), 123–40.

¹²⁰George Marcgrave, *História Natural do Brasil* (São Paulo, 1942), pp. 226–28.

¹²¹See Father Francisco Soares, *Coisas notáveis do Brasil*, vol 1 (ca. 1590–96) (Lisbon, 1966), Introduction, XIX.

¹²²There are two manuscripts attributed to Father Francisco Soares: the first is a Manuscript in Madrid, n: 254 volume 119, of the Jesuit collection of the Library of the Royal Academy of History in Madrid: *De algumas cousas mais notáveis do Brasil e de algunos*

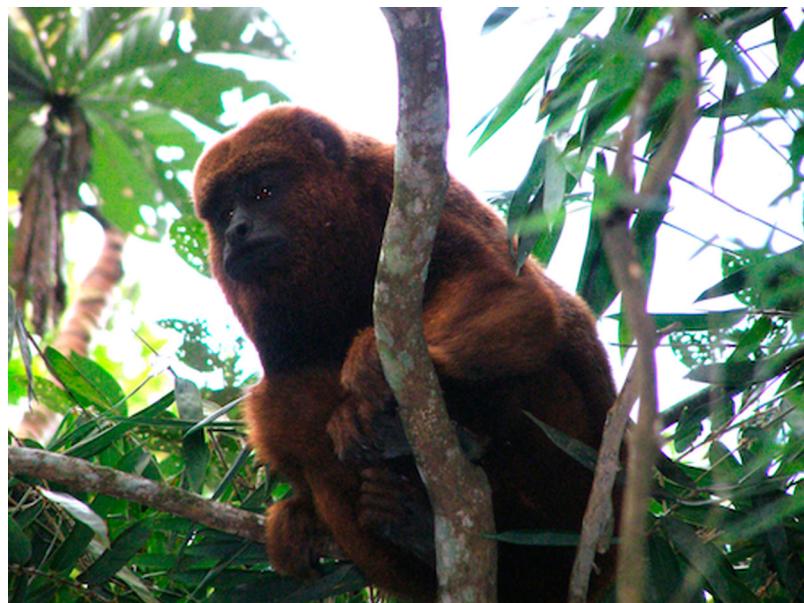


Figure 11. The Brown Howler (*Alouatta guariba*) endemic to the Atlantic Forest. (Photo: Sandro Orlandoni).

The *Aquiaqui* is the largest monkey (*bugio*) that exists in the province. It can be like a boy of 18 or 20 years.¹²³ They are very blond and if they did not have long tails, as they have, it would be better to call them people because they lack nothing but language. They have arms, feet and bodies like men's. At certain times of the day they gather together and the eldest one starts shouting so wildly that it seems to be praying, and while singing, a lot of foam issues from its mouth and it is cleaned by a baby monkey. They all stop at the same time and after some moments of pause they go to search for food. When they want to move from one tree to another, if it is very far or if they want to cross rivers that have trees on both sides, they move about and join with each other to form a dangling chain until they get across to the other side and form a bridge; thus they cross to the other side and go over the gap and when they have all gone across they leave the other side, and if one falls, as they are very light, it grabs hold of any branch by its tail.¹²⁴ Some are hunted by natives with arrows and if they do not die immediately they raise the arrow and throw it back at the native. It has happened that a monkey (*bugio*) has killed a native in this way; for this reason when natives shoot an arrow they immediately hide. The females have two breasts like women and do not give birth to more than one offspring, carrying it on their backs. The *Beriquis* are also big and beautiful and have only one offspring like the others described above and they are melancholy. The *Aquiaqui pitanga* [red howler monkey] also carries one baby at a time. There are other smaller monkeys (*bugios*) which emerge at night. The *Aquiaquis* are very beautiful and warlike. Moreover there are others of 6 or 8 kinds called *Caj cagui*. The *Saguis* of Bahia are as small as weasels and brown, but the face is that of a monkey (*bugio*). There are some of them in Rio de Janeiro whose size is about that of a ferret; they are dark and yellow and have very fine golden hair; these are very highly regarded. Monkeys (*bugios*) have very high powers of recognition for persons, this has happened in front of my eyes: a monkey made many demonstrations of joy and happiness, and lavished caresses on a black man who, three years earlier, had given it food, while it did the opposite with others and bit them.

The remarks of Father Soares and the designations he uses for primates coincide to a great extent with those of the previous authors who lived or travelled in the same regions (see Section 6). The name *aquiaqui* is used for howler monkeys, *beriquis* for muriquis, *saguis* for marmosets and lion

¹²³constumes dos Indios (1590); the second is known as Manuscript n: 54 of Coimbra (PT): *De alguéas cousas mais notaveis do Brazil* (1596). The part translated into English here is from the Manuscript of Coimbra, pp. 113–15.

¹²⁴In the Madrid manuscript, written before that of Coimbra's he says: 'there are same monkeys with beards which are the size of an 8-year-old boy', p. 19.

¹²⁴In the Madrid manuscript he says, speaking of this behaviour: 'I have never seen it but somebody has told me', p. 19.



tamarins,¹²⁵ whereas *Caj çaguis* seems to refer to capuchin monkeys (other authors use *cay*). The existence of different kinds or ‘species’ which he reports is in accordance with current studies; in fact, capuchin monkeys of the Atlantic Forest, today included in the Genus *Sapajus*, are found here with many different morphological species. Moreover he notes that among *aquiaquis* there are some red specimens, using for the first time the native expression *aquiaqui pitanga*, (see also the description of *A. guariba* by Cardim). Father Soares describes, as do other authors, the special way they have of crossing gaps in the forest or rivers, by forming chains or bridges of monkeys, and the fact that, when shot, they remove the arrow and throw it back at the natives. These two behavioural traits have been frequently reported, as we have seen previously. Mentions of them seem to have circulated at that time, and were probably transmitted orally as being among the most outstanding features of primate behaviour. Indeed the author in the manuscript prior to this (see note 122) writes that he had heard of this behaviour but had never seen it himself. Nevertheless Father Soares reports very interesting first-hand information (‘this has happened in front of my eyes’) concerning primate powers of recognition: the recognition of a person by a monkey after many years of absence; it is remarkable that, like other authors, Father Soares finds monkeys comparable to humans in many aspects, even saying that ‘they lack nothing but language’.

The comparison between primates and human beings was taken up and amplified by José de Acosta (Medina del Campo, 1539–Salamanca, 1600) another Jesuit who lived in several parts of New Spain (Peru, Panama, Mexico). His main work, *Historia natural y moral de las Indias*, was one of the very first detailed descriptions of the New World. In a form which is more concise than that employed by his predecessors (for example, Lopez de Gómara and Fernández de Oviedo), he dealt with the natural and philosophic history of the New World from a wider point of view. Although his contribution is often associated with that of Oviedo because of its similarly encyclopaedic character,¹²⁶ in Acosta it is possible to observe a philosophical and religious tension that characterises the discovery of new paradigms which are examined alongside Europeans’ anciently-held beliefs and dogmas. Many sections of his work are focused on finding alternatives and new theories which would make what he was observing concordant with the Bible. The novelty of Acosta is his search for ‘*las causas y razón de tales extrañezas y novedades de naturaleza*’ independent from the prior judgements of the Ancients. His chronicles are characterised by a different attitude to the exploration of nature, very far from the primitive astonishment of adventurers and soldiers. Chapter XXXIX, *De los monos e micos de Indias*, is very beautiful, and is an example of the intense interest that monkeys aroused at that time:

Chapter XXXIX. On monkeys (*monos*) and *micos* of Indias.

There are countless *micos* in all these mountainous islands, *tierra firme* [continental land] and Andes. They are of the kind of monkeys (*monas*) [n.d.r. probably Barbary macaque] but different in having tails and those very long, and in having among them some types with bodily dimensions three of four times bigger than those of ordinary monkeys (*monas*). Some are entirely black, others grey, some brown; others are spotted and different. The lightness and skill of these are admirable, because they seem as if they were almost able to imitate birds. In Capira, on the way from Nombre de Dios to Panama, I saw a *mico* of this type jump from one tree to another that was on the other side of the river, and I admired it. They hang by their tails from a branch and they swing to

¹²⁵Some doubts about the species that Father Soares pretends to describe here, emerge when examining this sentence: ‘There are some of them in Rio de Janeiro whose size is about that of a ferret; they are dark and yellow and have very fine golden hair; these are very highly regarded’. The size described is similar to that of a lion tamarin and the colours seem those of the Black-faced Lion Tamarin (*Leontopithecus caissara*, Lorini and Persson, 1990) occurring in the coastal region of the present state of Paraná and in some part of the state of São Paulo. It is very likely that this species had a larger geographical range in the past and this might be the first reference of this species. Nevertheless, we have to note that some populations of *L. rosalia*, from the Rio de Janeiro state, may present a colour variation having a darker (almost black) tail and face (pers. ob.).

¹²⁶As noted by de Asúa and French (note 3), p. 232, both the work of Oviedo and of Acosta represent a turning point in the literature of the Americas of the sixteenth century. Oviedo and Acosta founded a new literary genre which discussed the ‘natural and moral’ and the ‘natural and general’. Their works addressed the world of necessity (the natural world) and the world of freedom (the human world) and the idea of uniting these two things in one genre was initiated only with the European discovery of the Americas.

where they want to go, and when the space is very large, more than they can reach with their own tails, they make a chain of many individuals; they swing, and the first one, helped by the strength of the others, jumps and reaches the branch, and grabs it, and supports the others until they grab it, as I said, one holding onto the tail of another.¹²⁷

In Acosta the terms *monos* and *micos* are used to define two generic categories of monkeys: *mico* seems to be used for the smaller ones (callitrichids or may be titi or squirrel monkeys), whereas *monas/monos* for the bigger ones (the other species without distinction).¹²⁸ New World monkeys are comparable to ‘normal’ monkeys (probably he was referring to the known types of African monkey) except for their tails that are ‘very long’ and ‘used for hanging and making bridges between trees’.¹²⁹ What is perhaps most remarkable are his keen observations on the monkeys’ behaviour and skills:

The teasing and deception and mischief that they indulge in would take a long time to recount; the skills achieved when problems are encountered make them seem not brute animals, but animals with human understanding. I saw one in Cartagena, at the home of the Governor, that did things that when referred to seem hardly credible, such as when the Governor sent it to the tavern for wine, and put money in one of its hands and in the other put the pitcher for the wine. If young boys on the road yelled at or tried to grab it, the animal put the pitcher aside, picked up stones and threw them at the boys, freeing a safe passage, and then went over to pick up the pitcher again. [...] in fact I do not think there is another animal that could perceive and adapt itself so well to human conversation as this form of *mico* does. About them I have heard very many things, but because I do not believe in fables, and because others do not consider them fables, it is better to leave this issue and just bless the Author of all creatures, as it is solely for our recreation and entertainment that He made such a genus of animal, which is for our entertainment, or for moving one to laughter. Some have written that Solomon received these kinds of *mico* from the West Indies; I myself think that they were brought from the East Indies.¹³⁰

Acosta’s words, ‘they do not seem brute animals but seem to have human intelligence’, are of particular significance, especially when one considers that they were written at a moment when even the identity of the indigenous peoples with all of its moral and socio-political implications, was the subject of serious thought among Europeans exposed to the New World. Father Acosta admires monkeys’ physical abilities (‘their desire to imitate birds’) and cognitive skills, and finally he thanks God for having created animals that are so funny, for the amusement of human beings, and in this manner he tries to provide a justification for their astonishing resemblance to humans.

Acosta’s chapter on primates is an excellent compendium of the facts relating to the characteristics of monkeys which were gradually becoming known in Europe over the course of the sixteenth century: the variety of their forms, colours and sizes, which all commentators pointed out, their locomotive skills and their social characteristics such as their ability to cooperate and help each other, and above all their ability to show cognition similar to our own. These observations, which José Acosta makes in both an emotive and an empirical way (sometimes frankly expressing his own disbelief at what he is seeing), are without a shadow of doubt important in the philosophical landscape of the sixteenth century, especially if we take into account Acosta’s religious background. The debate concerning the attribution of soul and cognitive powers to animals came to be discussed during the sixteenth century by a number of philosophers who did not hold an orthodox view on Aristotelian thought.¹³¹ In this same way, Acosta contemplates the New World as something genuinely new and

¹²⁷José de Acosta, *Historia natural y moral de las Indias*, 1590 (Seville, 2002), 289–90.

¹²⁸The name *mono* (plural *monos*) is used in contemporary Spanish for primates in general, while *mico* is today used for little monkeys such as marmosets and tamarins, but see also Appendix. The name ‘monkey’ at that time identified above all the African Barbary macaque (*M. sylvanus*), a species known in Europe since Ancient times.

¹²⁹As we have noted, this behaviour was also observed by Father Ancheta and Father Cardim.

¹³⁰Acosta (note 127), pp. 289–90.

¹³¹Pietro Pomponazzi, Aristotelian and promoter of the rediscovery of Aristotle’s zoology at the beginning of the sixteenth century, was the first Renaissance philosopher to comment on the *De partibus animalium* of Aristotle in the lessons which he delivered in Bologna between 1521 and 1524. See Stefano Perfetti, *Aristotle’s Zoology and its Renaissance Commentators (1521–1600)* (Leuven, 2000), pp. 1–9. While retaining the traditional Aristotelian frame, Pomponazzi reduces the hierarchical gap between the human and *ferinae* soul to a mere difference of degree both at an ontological and cognitive level, in contrast to the dominant approach



does not hesitate to criticise Aristotle on the grounds of his own personal experience in this novel environment. The modernity of Father Acosta's ideas regarding primates comes as no surprise when we analyse his other profound considerations about the natural world of the Americas, about which he proposes an 'evolutionary' hypothesis on the origin of New World peoples and animals.¹³² This 'evolutionary' concept enters into Acosta's assumptions with a seeming naturalness and spontaneity in many sections of his work. For these and other reasons, he is considered one of the most important scientific writers of the Renaissance.

9. Concluding remarks

Europeans' perception and description of New World nature are central themes in many areas of cultural and historical studies, being an important tool for our understanding of the early Modern period. Reports, diaries and chronicles of the first travellers and explorers offer unique first-hand accounts of folkloric and ethnographic data of pre-colonial America, providing us with precious information about former geographical distribution, density and human use of several animals and plants. Correlating current scientific data on geographical distribution and eco-ethological features of species with those obtained from these travel sources, we can arrive at a fairly accurate idea of which animals were described and came into contact with the first European explorers. In the specific case of non-human primates, these literary sources tell us about Europeans' attitudes towards primates and perceptions of them before and after direct contact with these creatures.

Analysing the data found in the texts here presented from a scientific point of view, we can state that they might be regarded as the first body of Western scientific knowledge about New World primates (Parvorder Platyrrhini). They represent different perceptions of the behaviour and morphology of primates. Some of these reports are the result of personal observations (first-hand descriptions) while others are repetitions of third-party accounts, but most primate descriptions are coherent, and consistent with current scientific views. These narratives do not follow Medieval myths on primates but reflect a fairly common empirical attitude of New World narrators who made continual allusions to 'what they see' to give more value to their testimony. This kind of attitude was functional and was promoted by imperial expansion, which necessarily needed a precise inquiry into the creatures of the conquered territories. New World primates were not such strange or unexpected animals as to be considered monsters, as were other American creatures such as marsupials, armadillos, sloths, manatees, and sea lions. For that reason they were not good candidates to evoke Ancient myths. They were similar to, but not the same as, the already known African monkeys, so they were usually recorded by making comparisons with the latter, but underlining the differences and following indigenous folkloric knowledge. In the examined sources, primates appear beautiful, clever, sociable and fascinating animals, which can sometimes cause humans trouble because of their omnipresence in the forests. Nevertheless it is crucial to try to distinguish elements of myth and legend from those of genuine first-hand observation because, as we saw, American narrators were not exempt from hagiography or other literary forms of exaltation or celebration of both their rulers and the features of the newly conquered territories.¹³³ The social, religious and educational

of Renaissance philosophers (see Paolo Rubini, 'Pomponazzi e l'anima degli animali', in *The Animal Soul and the Human Mind: Renaissance Debates*, ed. by Cecilia Muratori (Pisa-Rome, 2013), pp. 75–85). During the sixteenth century, other philosophers also narrow the gap between humans and beasts. See for instance the *Apology for Raymond Sebond* by Michael Eyquem de Montaigne and the *De humana philosophia* by the Neoplatonic philosopher Francesco Patrizi. In line with Plutarch, Patrizi says that animals can talk. They are in fact able to express themselves through language and to exercise their reasoning. Patrizi is convinced that they cannot even be considered to be irrational in the sense of their lacking in intrinsic cognitive powers that enable them to take action. Thus there is no qualitative distinction, but a gradual quantitative difference between 'us' and 'them', reducible to a different 'characteristic of substance'. See Anna Laura Puliafito, 'L'uomo, gli animali, il linguaggio. Alcuni aspetti della riflessione patriziana su ragione, anima umana e anima dei bruti', in *The Animal Soul and the Human Mind: Renaissance Debates*, ed. by Cecilia Muratori (Pisa-Rome, 2013), pp. 97–116.

¹³²See also A. Franch's comments in Acosta (note 127), p. 33.

¹³³If many of the characteristics and behaviour reported by the writers can be considered authentic, some exceptions are found. Few legends involving primates are encountered, and these can be related to medieval European myths of half man and half ape

background of the author as well as the public to which travel accounts were directed should be taken into account in assessing these reports. Many first-hand observations of primates reached us through the testimony of soldiers and adventurers who, sometimes against their will, had the opportunity to spend much time among native peoples. Learned humanists compared and identified primates with the animals mentioned in the Classics. The Jesuit fathers left very detailed reports because of their ability to speak the indigenous languages and their need to have a deep understanding of American nature. In the second half of the century, moreover, we find narrators who, having stayed for a longer period in the new territories, can be considered among the first naturalists of the Americas, such as the Portuguese Soares de Sousa or the Spaniard Francisco Hernández.

One of the main characteristics pinpointed by almost all the authors was the great abundance and morphological variety of New World monkeys, a fact often reported with great emphasis throughout the sixteenth century. Monkey diversity was observed both in the Portuguese and in the Spanish and Italian authors. Writing about Brazilian monkeys, Father José de Anchieta says, '*Simiarum infinita est multitudo, quarum quatuor sunt genera*', whereas speaking of the monkeys of Colombia, Galeotto Cei reports: 'there are sea-cats in great quantity and of many kinds'. Regarding Venezuela Juan López de Velasco notes: 'the diversity of monkeys and little cats is very great', and in Peru, José de Acosta comments: 'there are innumerable monkeys throughout the mountains, islands and *tierra firme* and Andes'. The various colours and sizes of monkeys were for Tomás López Medel only comparable with the incredible variety of parrots. It is to be noted that the biodiversity of Neotropical primates is today being investigated in depth by scientists, who consider New World monkeys one of the taxa with the highest level of variation among the Order of Primates. Another feature frequently highlighted is the similarity of larger platyrhines such as howler monkeys or spider monkeys to human beings. They were compared to humans for their morphology (face, body) and behaviour (e.g. mutual communication, social bonds, empathy, infant care, etc.). Tool use, probably observed in capuchin monkeys, is also referred to as a peculiar trait of these animals, leading some authors to declare that they have 'human understanding' and 'if they didn't have tails they would be like us'. Some scholars explain the great interest demonstrated in describing the similarity to humans of primates and their prodigious feats by reference to the vision that many early explorers had of the natural world of the Americas: a place often identified as the Garden of Eden, where it was possible to encounter every kind of new and extraordinary animal and where different examples of the stunning variety of creation were displayed. Regarding the smaller marmosets and tamarins, most narrators observe that they were highly praised for their beauty and delicious smell, while others comment on their incredibly small dimensions, beautiful fur and colour, adding information on the difficulty of bringing them to Europe due to their delicate nature. To be noted in many sources is the use of indigenous names for animals. These designations appear very precise in the identification of specific primate groups, which were arranged in separate categories according to their morphology. These names still have taxonomic value today. Other remarkable observations concern ecological habits and the adaptability of non-human primates. Some of these observations are comparable with current scientific anecdotal reports.

The relationship between pre-Colombian indigenous peoples and primates is highlighted in many travel accounts. The natives, as can be observed today in native Amazonian populations, still keep primates as pets: pets are typically acquired when their mothers are killed for food and the infants are taken and raised by the people.¹³⁴ Primates played a fairly important nutritive role in indigenous communities and also began to be eaten and appreciated by Europeans, who attributed to primate meat many therapeutic properties. The great demand for primate pets among the European elite in

creatures of forests such as those reported by de Léon (note 96), p. 440. Also some reports relating to howler monkeys could be mere citations of traditional tales.

¹³⁴See Loretta A. Cormier, 'Animism, Cannibalism, and Pet-keeping among the Guajá of Eastern Amazonia', *Tipití: Journal of the Society for the Anthropology of Lowland South America*, Special Issue: 1 (2003), 81–98. <http://digitalcommons.trinity.edu/tipiti/vol1/iss1/5> [accessed 4 December 2014].

the sixteenth century meant that the natives traded a great number of these animals with Europeans. They sold or exchanged them for simple artefacts or small objects.

Through a comparison of the examined sources we can observe that Brazilian Atlantic forest primates were described more fully than those of the regions occupied by Spaniards at that time (for example Colombia, Venezuela, Peru and Central America).

In conclusion, we may wonder how much of this data was understood and acknowledged by European naturalists of the sixteenth century. Although the European scholarly tradition in studies of fauna progressively incorporated the many novelties being continually brought back to Europe by New World observers, scholars such as Olmi have remarked that European naturalists had a late response to the American world.¹³⁵ Taking Ulisse Aldrovandi, the Italian encyclopaedic naturalist, as an example and considering his chapters on monkeys in *De quadrupedibus digitatis viviparis* (1637), (in our opinion the most comprehensive synthesis of the sixteenth century on primates), we can see the Italian scholar's real interest in American fauna. In his work there are various citations regarding Neotropical primates taken from the chronicles or travel diaries of some of the most important authors such as Fernández de Oviedo, Peter Martyr, José de Anchieta, Hans Staden and Jean de Léry¹³⁶ and also the first attempt to classify these taxonomically,¹³⁷ which shows that some of these descriptions had penetrated Western scientific discourse. However, when considered against the richness of the whole body of American literature Aldrovandi's text on primates shows only few quotations, at least in the case of primates, perhaps due to the difficulty he had in obtaining American texts. We know that this information reached Europe in various ways and at different times. Many of these contributions were printed and disseminated rapidly across Europe,¹³⁸ while others remained in manuscript, and thus were, perhaps, less widely circulated. In the case of Portuguese writings it is a well-known fact that travel reports were regarded as state secrets and hence were not generally disclosed. The crown, in closely guarding access to these travel reports, sought to keep secret the wealth of the Brazilian territories.¹³⁹ French travel diaries had a greater cultural impact because French sovereigns wished to advertise (and maybe legitimise) their presence and power on Brazilian soil. Later on, some Portuguese literature also became an instrument of propaganda, used as a tool for government emigration policy as regards Brazil (e.g. Gândavo, *História da Província Santa Cruz ...*¹⁴⁰). Other texts were discovered and published many centuries later, such as that of Galeotto Cei, discovered in the British Library and published only in 1982. Manuscripts such as that of Francisco Hernández, had a chequered history. As a result, most of these travel accounts were probably difficult for scientists to obtain access to; thus most of their data on nature were neglected or forgotten for centuries, being rediscovered only in the twentieth century.

¹³⁵Olmi (note 5), pp. 211–52.

¹³⁶See C. Veracini, 'Non-Human Primates in the Work of Ulisse Aldrovandi', *Journal of Biological Research*, 1(LXXXIV) (2011), 308–09.

¹³⁷In Aldrovandi, *De quadrupedibus* (see note 20) there are reported many descriptions of Neotropical primates taken from the chronicles of Peter Martyr, Oviedo, Father Anchieta, Léry, Staden, etc.

¹³⁸See for instance Massimo Donattini, 'Orizzonti Geografici dell'editoria Italiana (1493–1560)', in *Il Nuovo Mondo nella coscienza italiana e tedesca del Cinquecento*, ed. by Adriano Proserpi and Wolfgang Reinhard (Bologna, 1992), pp. 79–154; Renate Pieper, 'O Novo Mundo nos impressos flamengos do Século XVI', in *Un mundo sobre papel. Livros gravuras e impressos Flamengos nos Impérios Português e Espanhol (Séculos XVI – XVIII)*, ed. by W. Thomas, E. Stols, I. Kantor and Junia Furtado (São Paulo, 2014), pp. 303–14.

¹³⁹See Palmira F. da Costa, 'Secrecy, Ostentation, and the Illustration of Exotic Animals in Sixteenth-century Portugal', *Annals of Science*, 66(1) (2009), 59–82.

¹⁴⁰The work of Gândavo was the first published book on Brazil. It was printed in Lisbon by Antônio Gonçalves in 1576. It circulated widely in Europe and, as reported by Cristina Brito [Cristina Brito, *New Science from Old News* (Lisbon, 2016), pp. 37–70]. Gândavo's report of a Brazilian monster (actually a sea lion) was one of the few examples of description of Brazilian fauna, which reached a wide audience, also comprising naturalists, in a short time.

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Appendix: Names used for Neotropical primates from 1492 until the end of the sixteenth century.

The following is a list of the terms used by explorers and navigators for Neotropical primates during the sixteenth century.

- 1) This group of words includes names, which had been used in Europe prior the discovery of America to indicate African monkeys (or Asiatic monkeys as in the case of the *gatos paules* of Marco Polo) with tail (a) or to generically designate monkeys (b).
 - a) 'Gatos paules' (Colombo, 1498); 'babuini' (Vespucci, 1502); 'gati maimoni' (Vespucci, 1502); 'gatti mammoni' (Benzoni, 1565); 'gatos rabudos' (Enciso, 1518); 'gatos monillos' (Oviedo, 1526); 'gatillos' (Oviedo, 1526; López Medel, 1570; López de Velasco, 1571/74); 'gatos' (Peter Martyr, 1511-1530; Cieza de León, 1553); 'meerkatzen' (Staden, 1557); 'guénon' (Thevet, 1578); 'guenon' (Thevet, 1557, 1575; Léry, 1578); 'cercopitecos' (Peter Martyr, 1511-1530); 'cercopitheci' (Hernández 1628).
 - b) 'Simia' (Anchieta, 1560); 'monos' (Peter Martyr, 1511-1530; Cabeza de Vaca, 1537; Carvajal, 1541/42; Cieza de León, 1553; Gómara, 1552; López Medel, 1570; López de Velasco, 1571/74; Poma de Ayala, 1584; Acosta, 1590); 'monas' (Cieza de León, 1553; Acosta, 1590); 'mon(n)es' (Thevet, 1557, 1575); 'bogios'¹⁴¹ (Gándavo, 1570, 1576; Soares de Souza, 1587); 'bugios' (Cardim, 1584; Francisco Soares, 1596); 'ximias' (Fray de Molina, 1555).
- 2) This group includes indigenous animal names used to generically designate monkeys: 'ocumatli' or 'oçomatli' in the Aztec language (*nāhuatl*) (Hernández, 1628; Fray de Molina, 1555; Gómara, 1552); and 'mico'¹⁴² in the Cumango-goto language (Fray de Molina, 1555; Acosta, 1590; Poma de Ayala 1584; Castellanos, de, 1589) or 'micco' in the Arawak language (Cei, 1537-1553).
- 3) This group includes indigenous animal names of folk taxonomy used by European chroniclers and travellers. We report the names as they appear in the original sources without considering the plural or singular forms, which are not always clear. The Brazilian ones belong to the Tupi-Guarani language family.¹⁴³

¹⁴¹'Bugio' or 'bogio' is an old Portuguese name used for primates; its origin is probably Barbarian or Arabian. Today is not common outside of Brazil being the name given in some parts of this country to howler monkeys.

¹⁴²According to Esther Hernández (*Vocabulario em lengua castellana y mexicana de Fray Alonso de Molina*, Biblioteca de Filología Hispanica. Consejo Superior de Investigaciones Científicas. CSIS - Madrid 1996, p. 76) 'the origin of the word *mico* from the Cumango-goto, a continental Caribbean dialect, seems confirmed from the first witnesses of P. Aguado 1565, and from a literary Venezuelan text of 1569'. Fray Pedro de Aguado was a Spanish Franciscan who left many chronicles on the conquest of Colombia and Venezuela. The word *mico* also appears in the text of Pedro Ponce de León (1566-1569) the Governor of Venezuela: "there is a great quantity of *micos*, small, big and some have beard", see Urbani, (note 49), p. 123, although the first name of Ponce de León given by Urbani is incorrect. Galeotto Cei was actually the first European person to use this word. In the Caribe monkeys are called '*mecou*'; in bacairi (another Caribbean language) '*mego*', etc. It is also known by the word: '*maikù*' (or '*maiku*').

¹⁴³The translation of the word *bogio* (monkey) in the Tupi language as appears in the *Vocabulario* of Father Leonardo do Valle ("O vocabulário na Lingua Brasílica" do Padre Leonardo do Valle, S.J., 1585', in *A Fauna de São Paulo nos séculos XVI a XVIII, nos textos de viajantes, cronistas, missionários e relatos monçoeiros* ed. by Nelson Papavero and Dante Martins Teixeira (São Paulo, 2007), pp. 115-34 (p. 118)) is the following: 'Bogio has no genus: the smaller ones are *Cagui*; *Caguiuba*, others bigger *Caí* and *Caiguáça*,

- a) Capuchin monkeys (Genus *Sapajus*): 'cay' (Léry, 1578); 'key' (Staden, 1557), 'cay cagui' (Francisco Soares, 1596).
- b) Howler monkeys (Genus *Alouatta*): 'ackakey' (Staden, 1557); 'cacuycu' (Thevet, 1557, 1575); 'aquigquig' (Cardim, 1584); 'aquiaqui' (Léry, 1578; Francisco Soares, 1596); 'aquiaqui pitanga' (Francisco Soares, 1596); 'aranata' (Peter Martyr 1511-1530; Gómara, 1552); 'guariba' - from the Tupi 'wariwa' - (Soares de Sousa, 1587).
- c) Muriquis (Genus *Brachyteles*) - from the Tupi 'muriki' or 'buriqui'-: 'pricki' (Staden, 1557); 'murup' or 'mur-iphguy' (Thevet, 1575); 'beriquis' (Francisco Soares, 1596).
- d) Titi monkeys (Genus *Callicebus*): 'guigó' (Soares de Sousa, 1587).
- e) Perhaps night monkeys of the Genus *Aotus*: 'saianhangá' (Soares de Sousa, 1587). As noted this name might refer to the kinkajou, *Potos flavius*.
- f) Marmosets and lion tamarins (Genus *Callithrix*, *Leontopithecus*): 'sagoüyins', 'sagouins' (Thevet, 1557, 1575, 1578; Léry, 1578); 'sagois' (Gândavo, 1570); 'saguis' (Soares de Sousa, 1587); 'sacui' (Francisco Soares, 1596).¹⁴⁴ The lion tamarin, *L. rosalia*, is in general easily recognised. It is named 'piccolo gatto giallo' (little yellow cat) by Pigafetta (1525) or 'sagois louros' by Gândavo (1570). Léry (1578) calls it 'marmot ou poil roux', and Soares de Sousa (1587) mentions 'outros saguis com pelo amarelo' (other marmosets with yellow fur). Tamarins (Genus *Saguinus* or possible *C. pygmaea*) 'damoteies' and may be 'micco' as well (Cei, 1537-1553).

Neotropical Primate taxa mentioned in the text.

Parvorder Platyrhini

Family Callitrichidae

Callithrix Erxleben, 1777

Callithrix jacchus (Linnaeus, 1758)

Callithrix kuhlii Coimbra-Filho, 1985

Cebuella pygmaea (Spix, 1823)

Leontopithecus rosalia (Linnaeus, 1766)

Leontopithecus caissara Lorini & Persson, 1990

Saguinus Hoffmannsegg, 1807

Saguinus oedipus (Linnaeus, 1758)

Family Cebidae

Cebus Erxleben, 1777

Cebus brunneus Allen, 1914

Sapajus Karr, 1792

Sapajus cay (Illiger, 1815)

Sapajus nigritus Goldfuss, 1809

Family Atelidae

Alouatta Lacépède, 1799

Alouatta arctoidea Cabrera, 1940

Alouatta guariba (Humboldt, 1812)

Alouatta palliata (Gray, 1849)

Brachyteles Spix, 1823

Brachyteles arachnoides (É. Geoffroy, 1806)

Ateles fusciceps rufiventris Sclater, 1872

Ateles geoffroyi Kuhl, 1820

Family Pitheciidae

Callicebus Thomas, 1903

Callicebus melanochir Wied-Neuwied, 1820

Callicebus coimbrai Kobayashi & Langguth, 1999

Family Aotidae

Aotus Illiger, 1811.

those with long face and long legs *Birigui*. Those ones with bear both red or black *Aquigquig*, *Çaguacu*. Clearly there is close correspondence between this Jesuit vocabulary and the terms used by the other authors.

¹⁴⁴In other literature sources referring to Brazil, we also found 'saguí' with the variants: 'saguim', 'sagoin', 'saium' 'çagoyns' (from the Tupi 'sawi').