Silvia Papini

Breeding and Depicting Chameleons between the Court of Louis XIV and the Port of Livorno

Silvia Papini
University of Pisa
silvia.papini@cfs.unipi.it

During the second half of the 17th century scientists tried to better understand the nature of chameleons, with the aim of refuting ancient tales that described the animal as fed only by air and capable of blending into the environment. Two attempts in breeding and studying chameleons are noteworthy. The first was made at the court of Louis XIV by Claude Perrault, the other, which is the topic of this contribution, was led in the Tuscan port of Livorno by the naturalist Giacinto Cestoni. Cestoni's studies on chameleons, published in 1715 by Antonio Vallisneri, were a direct response to the earlier French publication. He tried to differentiate his work by highlighting his care for the animals and the constant search for good and precise illustrations. While the relationship between text and images in the French volume has been extensively studied, Cestoni's research has never been assessed from an art historical perspective. Cestoni relied on draughtsmen whom he named in his private correspondence with Vallisneri; however, only one of them was a professional artist specialized in still-life painting, while the other two – both belonging to the Jewish community in Livorno – were respectively a goldsmith and a naval insurer. In outlining the different approaches towards naturalistic research, this contribution aims to cast further light on the collaboration between scientists and draughtsmen at the end of the 17th century focusing on the underestimated importance of Livorno in the exchange of ideas on flora and fauna across Europe.

Keywords: drawing, painting, animal, science, chameleon, Cestoni, Perrault, Nicola van Houbraken

In his *Pseudodoxia Epidemica* or *Vulgar Errors*, Sir Thomas Browne began describing the chameleon by reinforcing the common but erroneous opinion that "it liveth only upon air" (Browne, 1646, 157). The animal, widespread on the African

continent, was little known in 17th-century Europe, where the discipline of natural philosophy increasingly aimed at a systematic study of nature under the influence of the scientific method. The studies published in this period had the common aim of investigating the truth behind the popular myths that surrounded the animal, most notably that of chameleons' diet based on air, and that of the ability to change color in order to blend into the environment, two long-standing beliefs first described by Pliny in his *Naturalis Historia* (8.51.122). However, the depictions of the animal, included in these earliest studies, were often still based on Pliny's erroneous description. To the contrary, two investigations conducted in the second half of the century are interesting for the relation between natural science and art: the one led by the physician Claude Perrault (1613-1688) in 1669 at the *Académie Royal des Science* in France – which has already been extensively studied by scholars –, and the less known research conducted by the naturalist Giacinto Cestoni (1637-1718) in the port of Livorno towards the end of the century.[1] Despite dealing with the same topic, the two investigations differ in many respects due to the different environments in which they were conducted.

The French study on chameleons, together with those on other animals, was published in 1671 in a large volume entitled *Memoire pour server à l'histoire naturelle des animaux* (henceforth cited as *Histoire des animaux*). The volume was printed by the Royal Printing Office, and it was intended not only as a scientific work but also as an artistic one, with full-page illustrations that cost over 4000 livres. The *Histoire des Animaux* represented a powerful propaganda tool for Louis XIV's patronage of the sciences and arts. The exclusivity and rarity of the book that had a print run of only 200 copies also clarified why its influence on other centers of research came later during the century (Guerrini, 2010, 383-404).

After more than 40 years since the printing of the *Histoire des Animaux*, Cestoni and his illustrious collaborator Antonio Vallisneri (1661-1730) published in Venice the *Istoria del Camaleonte Affricano* (1715), a book that devotes its first 160 pages to chameleons, before moving on to other topics.[2] This long essay consists of a first part that outlines the new investigations conducted on the animal, and of a second part that integrates the diary of first-hand observations made by Cestoni while breeding his chameleons. Cestoni's and Vallisneri's attempts to breed and

study the animal were a clear response to the earlier French treatise, which is in fact often negatively quoted in the Italian printed volume. More than the actual published research, above all, is the private epistolary correspondence between the two authors that casts further light on Cestoni's work, revealing how by 1697 he had already been studying chameleons for almost thirty years, making the beginning of his interest almost coincide with that of Perrault (Cestoni, 1940, 51).[3] Nevertheless, Cestoni's one was based on a completely different approach towards the animal that characterized every aspect of his research, including the visual one.

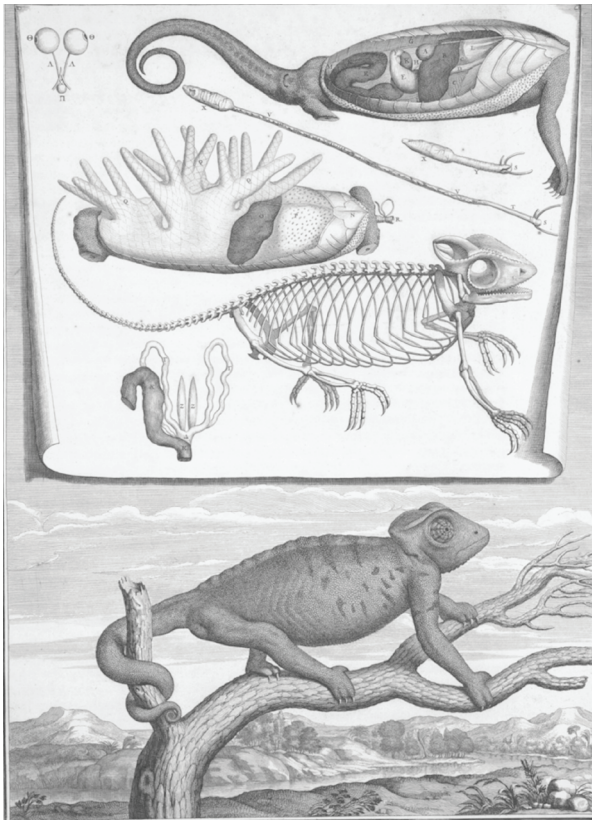
The time spent in observing the life and behavior of the specimen is thus the first difference between the two case studies. Perrault made his observation and drawings after having seen just one chameleon, presented to Louis XIV by a Capuchin father who had returned from Egypt in 1668. The "French" chameleon died almost immediately, and Perrault worked mostly on the dissected body of the animal (Sahlins, 2015, 15-30). Cestoni's approach was totally different, probably because he was not part of an academy or of a royal scientific institution, implying that he did not have external pressure on deadlines. He examined chameleon specimens for over forty years, surely inspired by the admonition of his teacher, the Tuscan court physician Francesco Redi, who used to say: "do not trust one nor two or three or ten experiences. Let them be twelve and all of them must coincide, otherwise do not trust them, as they will deceive you" (Cestoni, 1940, 688).[4]

Given the small distance and the established commercial networks between Livorno and the African continent, every few months Cestoni received new chameleons from Tunis, where he could count on the friendship with several people, including some Italian artists (the painter Bartolomeo Bianchini and the goldsmith Sebastiano Fucini). Yet, his main contact in Tunis was a local powerful figure, who had been previously detained as a slave in Livorno, Husayn bin Ali (named in the letters as "Ussein Coggia"). Husayin was an administrator at the Muradid court between 1694 and 1699 and then, from 1705, he became the ruler of the country. Because of this material exchange between Tunis and Livorno, Cestoni's small apothecary shop, filled with chameleons and with other curiosities sent by Husayn, soon became an attraction for both local visitors and illustrious tourists, such as Grand Prince Ferdinando de' Medici and Frederick IV, King of Denmark.

Taking into consideration the second main difference, which is the care and the attachment towards the animal, Perrault's description of chameleons stresses a negative view rooted in the moral symbology attached to the animal for centuries. He reports it all along the first page, then reflecting on the contrast between the beautiful name and the "vile and ugly beast" (Perrault, 1671, 13). In comparison, Cestoni's affection for these animals is perceptible in a long letter where he recounts the loss of one, probably caught by a cat, stating in conclusion: "I have this misfortune: having to grieve for chameleons since I have no children of mine" (Cestoni, 1940, 213).[5] This stark difference ended up being reflected also in the approach to the visual representations that were created during the scientific investigations, which is the next subject of my discussion.

In the French volume a full illustrated plate is devoted to each animal, with the anatomical depictions in the upper half of the page and the representation of the live animal in the lower half (fig. 1). Despite the efforts and the expensiveness of this artistic program, the engraving of the live chameleon drew upon examples published more than a century before, with general differences in the more realistic appearance. The idealized natural background is one of the main features linking the image to the tradition of emblem books (fig. 2) rather than to scientific illustrations. The choice of including a landscape in the background could have been useful for comparing the animal's proportions with the surrounding elements; however, the perspective from below makes it difficult to understand the distance between foreground and background, making the actual size of the chameleon unclear.

The analysis of the French illustrated plate, especially the anatomical figures, played an important role in the critical review done by Cestoni and Vallisneri. For example, the French depiction of the uterus is described by them as a "faithful image as much as the same organ of a frog resembles that of a woman" (Vallisneri, 1715, 77). This harsh judgement denotes how visual depictions, far from being only an aesthetic medium, were essential for the credibility of a study based on the Galilean empirical scientific method. Indeed, if something was wrongly or incorrectly depicted, it was not possible to prove whether the scientific analysis was based on solid grounds or if it had been misled by an incorrect visual observation.



1 Claude Perrault, Caméléon, from *Memoires pour servir à l'histoire naturelle des animaux*, 1676

2 Marcus Gheeraerts, Chameleon, from *Eduard de Dene, De warachtighe fabulen der dieren […]*, 1567

The Italian anatomical plates were commissioned by Antonio Vallisneri, however this essay seeks to look more closely at the engravings pertaining to the live animals and to their external form, all of which were based on drawings created in Livorno under the careful supervision of Cestoni.

Unlike many men of science, who could count on basic drawing training, Cestoni was incapable of making a visual record of what he was observing, hence his reliance on the help of a draughtsman, who thus was a truly important figure for him. The artist who worked with Cestoni for the longest time was Isaque Coronel, a goldsmith and a member of the Jewish community of Livorno. Before his death in 1698, Coronel had already produced drawings for over thirty investigations conducted by Cestoni, including a first one on chameleons. Unfortunately, these earliest drawings were all lost after being shipped to Germany to another scholar and Cestoni had therefore to commission again all the visual illustrations on chameleons to a new draughtsman (Cestoni, 1940, 48-49).

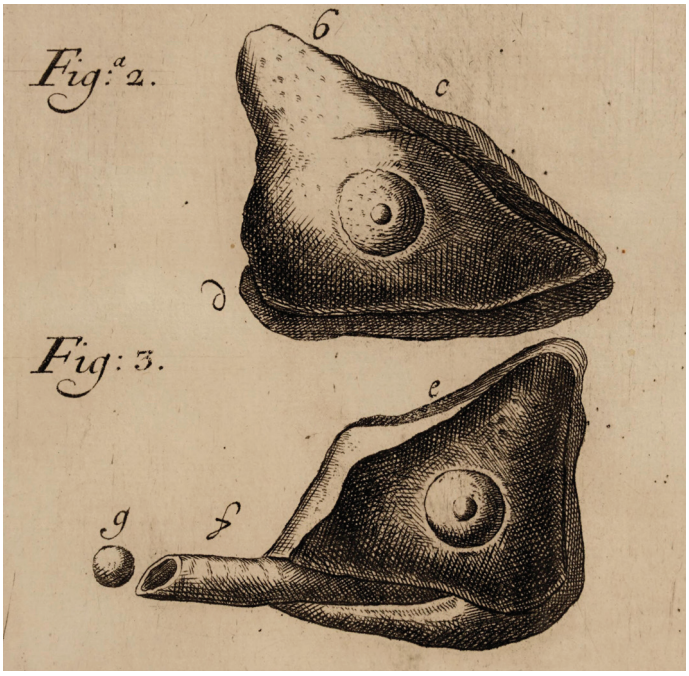
This time, he chose a prominent figure in the artistic community, Nicola van Houbraken (1668-1723), a still-life painter of Flemish descent who worked for his entire career in Livorno and was much esteemed at the Florentine court (Gori Sassoli, 2006, 78-99; Lazzarini, 1993, 89-105).[6] Despite van Houbraken's talent at drawing small things pertaining to the natural world, several letters show Cestoni's disappointment with the new collaboration, since the painter was not able to draw using the microscope (Cestoni, 1940, 207).[7] Indeed, this could be a challenging task even for an experienced artist, as the draughtsman had to simultaneously observe a very small detail through a lens and use the pen with the other hand. In observing living organisms, he had also to be extremely alert to any transformation in what he was looking at, thus acting as a true observer of nature, a nature that did not have to be embellished but only had to be true and exact. Based on that, it is not surprising that Isaque Coronel, a goldsmith probably accustomed to working with lenses, was also quite skilled in the field of scientific drawing.

Even the draughtsman who later replaced van Houbraken did not have a traditional artistic training: Moisè Aghib was a sixty-year old man born in North Africa and working in Livorno as a naval insurer. In this case too we are faced with a self-taught Sephardic Jewish draughtsman, whom Cestoni introduced to the

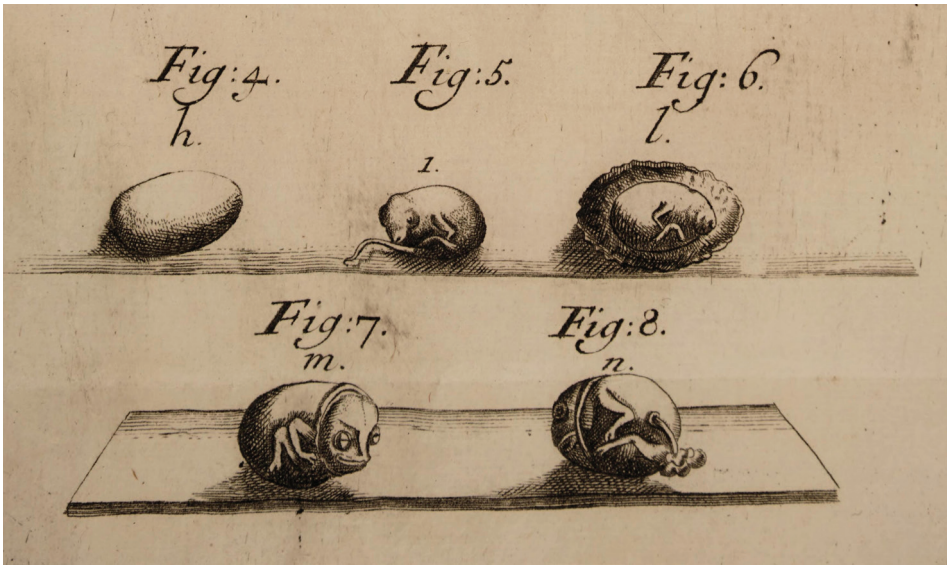
Grand Prince of Tuscany by saying, as he later wrote to Vallisneri, "[...] Serene Highness, he is a Jew that is I believe a second Galileo" (Cestoni, 1940, 394).[8] Pondering this sentence, it is probable that an actual interest in the field of natural science accompanied that of visual practices in both Isaque Coronel's and Moisè Aghib's case. The image of a mantis (fig. 3) – included in plate V as an illustration of chameleons' favorite food – was the first drawing made by this new collaborator. Taking that approved, Cestoni commissioned him to do the more crucial drawings of a chameleon's head, eggs, and embryos. Despite receiving them with a certain delay caused by some Jewish religious celebrations, he was totally satisfied with the results, describing the figures as "wonderfully made" (Cestoni, 1940, 392).[9] The depiction of the head, from two different perspectives (fig. 4), and that of the eggs and embryos (fig. 5), captured from different angles and through different stages with the help of the microscope, could show the natural development of something alive and reminds us of today's scientific images of fetuses.

The full-length representation of the animal (fig. 6) – which is, instead, just one from a single perspective – did not meet with Cestoni's approval. The engraving was based on a depiction made by an excellent artist, the court painter Bartolomeo Bimbi (1648-1729), when Cestoni was invited by Grand Prince Ferdinando to his Villa di Pratolino (Cestoni, 1940, 288; Vallisneri, 1715, 845).[10] While the Grand Prince kept the original by Bimbi for his collection, a copy by one of Bimbi's pupils (probably Benedetto Fortini) was made during the same evening for Cestoni. The engraved figures in the volume, especially the full-length representation, should have proved the authors' decades of experience on chameleons. However, the evidence of this knowledge got lost when Bimbi, or his pupil, made the depiction of a specimen after having seen it for the first time and without paying attention to small anatomical details such as the two outer toes and three inner toes that chameleons have on their feet. On that occasion, in front of the Prince, Cestoni could not have warned or reprehended an artist working after a royal commission, and the final illustration testifies to the lack of communication between naturalist and draughtsman. A long and extensive collaboration between the two thus proved indispensable to mirror empirical observations in the image.

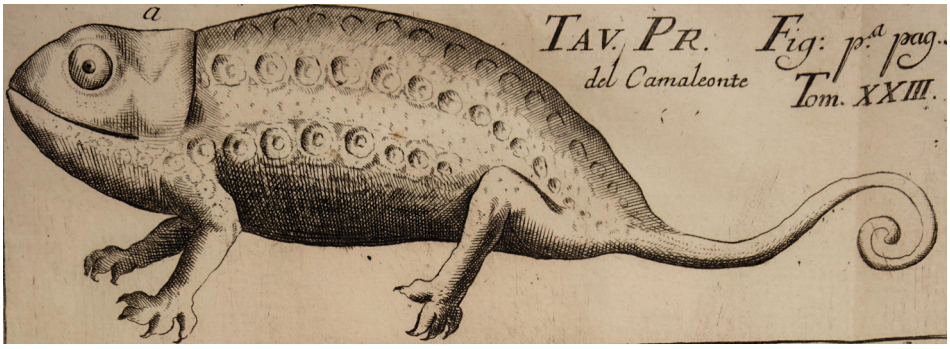
3 Moisè Aghib, Mantis, from Antonio Vallisneri, *Istoria del camaleonte Affricano*, 1715



4 Moisè Aghib, Head of a chameleon, from Antonio Vallisneri, *Istoria del camaleonte Affricano*, 1715



5 Moisè Aghib, Eggs of a chameleon, from Antonio Vallisneri, *Istoria del camaleonte Affricano*, 1715



6 Benedetto Fortini (?), Chameleon, from Antonio Vallisneri, *Istoria del camaleonte Affricano*, 1715

In his letters to Vallisneri, Cestoni repeatedly stressed the importance of copper engraved figures, good pictures being the "soul of the work" (Cestoni, 1940, 407).[11] Although the plates were eventually made using the copper technique instead of the less precise wooden one, it must be acknowledged that the result, from a graphic and visual point of view, was surely of less impact than that of the previous French volume. Nevertheless, neither in the French nor in the Italian case did the engravings fulfill their functions and purpose. In both cases, the depiction of the legs is incorrect but the more evident limitation they had was the absence of colors, which was the main point of interest regarding the animal. However, this new scientific enthusiasm ended up being reflected also in the artistic sphere, especially in the pictorial one.

Older pictorial depictions of chameleons were usually based on the *Emblemata model* (fig. 7), which – carrying over Pliny's ancient description – was quite misleading from the real appearance of the animal. In the *Earthly Paradise* of Jan Brueghel the Younger in the Museo de Bellas Artes, Seville, while most animals are perfectly recognizable, the chameleon – depicted near the boar, almost blended with the surrounding environment – demonstrates how vague the common knowledge about the animal was in Europe at the beginning of the century.[12] After Perrault's work, chameleons started to be depicted in a much more detailed way by artists working under royal patronage, as it is possible to see in the sculpture of *Air* by Etienne Le Hongre in Versailles or in the portrait from life made by Peter Beol, the painter of animals of Louis XIV, in 1668 (Sahlins, 2015, 19).

The translation of a subject from the field of natural science (and scientific illustration) to art took place in Livorno too. After having failed as a scientific draughtsman for Cestoni, Nicola van Houbraken began to paint chameleons in many of his canvases, which were shipped to various places in Italy and in Europe through the network of merchants active in the port (Gori Sassoli, 2006, 78-99). Heretofore no clear connection was made between the visible subjects in van Houbraken's paintings and the surrounding mercantile and scientific environment of the port. The presence of chameleons in his artworks, together with other exotic animals and plants, such as aloe vera, *pittosforo* and *amaranthus*, exhibits the importance that the Mediterranean harbor had for a still-life painter, with a continuous stream of *naturalia*.

7 Chameleon, from Andrea Alciati, *Omnia Andreae Alciati V.C. Emblemata*, […], 1589

Furthermore, as several letters testify, Nicola van Houbraken kept attending Cestoni's workshop. The naturalist had understood the limited nature of engravings in depicting the real behavior and appearance of animals and commissioned to the painter a canvas where he wanted to have portrayed from life twenty-five or thirty chameleons (Cestoni, 1940, 209).[13] Probably dreaming of an illustration program as richly elaborated as the French one, Cestoni was planning to add a reproduction of the painting in the final printed volume. The main point,

as he wrote to Vallisneri, was to depict the wide range of positions, colors, and habits, since "no one was able to keep these animals alive for as long as to be able to see and observe all the different movements, effects, etc." (Cestoni, 1940, 224).[14] Cestoni's description of the final artwork – which had only eight chameleons – resembles the painting *Chameleons in a rocky landscape* (fig. 8) which, after being auctioned in 1981 by Christie's and in 1990 by Sotheby's, has recently appeared on the Italian art market and in an exhibition curated by the gallery Caretto&Occhinegro (Milano, Spazio Big Santa Marta, 15th May 2015-23rd June 2015): "One has a lizard in his mouth, one that shows his tongue, another with a mantis in his mouth. One again with his tongue out cathing a butterfly, another drinking, one in anger, two doing nothing, and all in different colors." (Cestoni, 1940, 296) [15]

8 Nicola van Houbraken, *Chameleons on a rocky landscape*, oil on canvas, 1699, private collection

The painting has been previously attributed to different painters – Otto Marseus, Isaac Vroomans, and Karel Wilhelm de Hamilton –, but I believe there should be no doubt in identifying Nicola van Houbraken as the creator of the chameleons' piece (agreeing in this with Caretto&Occhinegro) considering the subject matter, the description given by Cestoni, and the striking similarities with other paintings by the same artist.[16] From other letters, it seems that Nicola van Houbraken depicted the same high number of chameleons in another painting that was sent to Antonio Vallisneri in Bologna (Cestoni, 1940, 510-511). His example therefore reveals how attending the world of scientific and naturalistic research could be an excellent way for painters specialized in still-life paintings to expand their repertoire of subjects and to acquire new commissions, counting not only on the free market but also on a small circle of connoisseurs. Even from a contemporary perspective, the connection between the development of scientific knowledge and the making of van Houbraken's "chameleons' pieces" could probably increase their value or arouse more interest around them.

As this essay has shown, Cestoni's letters to Vallisneri not only describe the lively natural science environment in Europe between the seventeenth and the eighteenth century; the letters also reveal names of draughtsmen and descriptions of visual artworks that would otherwise be unknown to us. The study of chameleons, for the long span of time it covered, represents a perfect episode for investigating these elements and, especially when compared to the French one, it raises some interesting closing thoughts. The choice to rely on non-professional draughtsmen instead of skilled artists may seem odd, considering the process of specialization in the arts that took place during the seventeenth century, with painters who dedicated almost their entire careers to the illustration of *flora* and *fauna* volumes. However, still in 1781, the Spanish naturalist José Celestino Mutis described how he preferred to work with "amateur" draughtsmen rather than with academically trained painters: in his view, both categories were quite unprepared to work in the scientific field, but those with a professional training tended more not to follow his instructions (Bruquetas, 2015, 367-387). Isaque Coronel and Moisè Aghib were thus probably more inclined to actively collaborate with Cestoni, following his directives without imposing previous artistic knowledge. Nevertheless, the example of cha-

meleons also expresses the limits of this type of approach for the representation of live animals. For Cestoni the precise and true image was not enough: he sought to have translated into a visual representation also the habits, the different shades of color and the temper of each specimen, a liveliness that only a painting could probably capture. The points of connection and the differences between a scientific type and an artistic type of representation of natural data emerge strongly from Giacinto Cestoni's correspondence with Antonio Vallisneri. At the beginning of the eighteenth century, a new balance between the two types of images was needed and the two Italian scientists tried, but eventually were not able to reach it.

Endnotes

1 On Claude Perrault and the French Royal Academy see: Guerrini (2010, pp. 383-404), Rabinovitch (2013, pp. 33-62) and Sahlins (2015, pp. 15-30).

2 For biographical remarks on Antonio Vallinseri cfr. Generali (2007).

3 When quoted in the text, the letters are translated into English. The original text is supplied in the footnotes.

4 "Diceva questo Grand'uomo non vi fidate ne d'una, ne di 2, ne di 3, ne di X esperienze; fate, che siano 12, e che tutte tornino a capello; altrimenti non ve ne fidate, poiché v'inganneranno" (without date).

5 "Io ho questa disgrazia d'avere a tribolare per i Camaleonti, giacche sono esente da figlioli" (26th December 1698).

6 The collaboration between Nicola van Houbraken and Giacinto Cestoni, together with newly discovered documents, will be discussed more extensively in my forthcoming PhD dissertation.

7 "Veda qui in questo foglio come me li ha fatti un disegnatore, che per altro disegna a meraviglia le cose, che non bisogna veder con microscopio" (5th December 1698).

8 "*Serenissimo: è un Ebreo, che io lo stimo un secondo Galileo*, e tanto dico a V.S. Ill.ma con questa distinzione, che il Galileo diventò grande con li studij, e questo con il suo cervello naturale" (15th October 1700).

9 "Il nostro M. Aghib ha disegnato il Camaleontino, ma non l'ha finite perché sono state le feste degli Ebrei, e così è restate addietro, lo finirà e nella prossima settimana spero doverglielo trasmettere; perché è necessario all'istoria" (8th October 1700).

10 The small description by Cestoni is a wonderful evidence of Bartolomeo Bimbi's work under the Medici Prince that has not been taken into consideration by scholars so far. It clarifies how Bimbi used to be call on special occasions in order to make depictions from life and that he was accompanied by one or more pupils that worked for the other guests.

11 "V.S. abbia premura alle figure in rame, perché sono l'anima dell'opera, mentre in oggi così si costuma" (27th January 1701).

12 Jan Brueghel The Younger, *The Earthly Paradise*, 1615/1625. Museo de Bellas Artes, Seville. Online access: https://artsandculture.google.com/asset/the-earthly-paradise/zQHK2w_x-XKtmg (accessed 10 May 2022).

13 "Io ho fatto accomodare una tela dove voglio farmi dipingere 25, o 30 camaleonti […]. Qui vi è un Pittore messinese, che fa bene d'erbe di fiori e di piccoli animaletti, ma non con microscopi" (12th December 1698).

14 "Si son principate le pitture de Camaleonti, e questo Giovane Messinese, che li dipinge fa bene, che mi contento. Se però non gli anderà a noia, perche doveranno esser tutti in differenti positure, e di differenti colori, quali saranno di molti. E questo servirà per aggiungere all'Istoria, quale molto mi preme, perche in effetti nessuno ha mai saputo tener essi Animali tanto tempo vivi da poter vedere, et osservare tutti i loro movimenti, effetti, ecc." (2nd January 1699).

15 "Uno con una lucertolina in bocca, uno con una mantes in bocca, uno con la medesima lingua fuora, che piglia una farfalla, uno che beve, uno in collera, due che non fanno nulla, e tutti di colori diversi" (9th October 1699).

16 I would like to thank Caretto and Occhinegro for the information about the painting that they kindly shared with me.

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Illustrations

Fig. 1 Claude Perrault, Caméléon, from *Memoires pour servir à l'histoire naturelle des animaux*, Paris, 1676, Bibliothèque Nationale de France, Paris, Département Réserve des livres rares, Rés.S.1.

Fig. 2 Marcus Gheeraerts, Chameleon, from *Eduard de Dene, De warachtighe fabulen der dieren […]*, Bruges, 1567, p. 72, De Digitale Bibliotheek voor de Nederlandse Letteren (KB, Nationale bibliothek), open access, https//www.dbnl.org/tekst/dene001wara01_01/dene001wara01_01_0038. php (accessed 10 July 2022).

Fig. 3 Moisè Aghib, Mantis, from Antonio Vallisneri, *Istoria del camaleonte Affricano*, Venice, 1715, p. 37, Wellcome Collection, open access, https://wellcomecollection.org/works/avu929n7/items?canvas=37 (accessed 10 July 2022).

Fig. 4 Moisè Aghib, Head of a chameleon, from Antonio Vallisneri, *Istoria del camaleonte Affricano*, Venice, 1715, p. 31, Wellcome Collection, open access, https://wellcomecollection.org/works/avu929n7/items?canvas=31 (accessed 10 July 2022).

Fig. 5 Moisè Aghib, Eggs of a chameleon, from Antonio Vallisneri, *Istoria del camaleonte Affricano*, Venice, 1715, p. 31, Wellcome Collection, open access, https://wellcomecollection.org/works/avu929n7/items?canvas=31 (accessed 10 July 2022).

Fig. 6 Benedetto Fortini (?), Chameleon, from Antonio Vallisneri, *Istoria del camaleonte Affricano*, Venice, 1715, p. 31, Wellcome Collection, open access, https://wellcomecollection.org/works/avu929n7/items?canvas=31 (accessed 10 July 2022).

Fig. 7 Chameleon, from Andrea Alciati, *Omnia Andreae Alciati V.C. Emblemata*, […], Paris, 1589, p. 217, Internet Archive Digital Library, open access, https//archive.org/details/omniaandreaeand00alci/page/217/mode/1up (accessed 10 July 2022).

Fig. 8 Nicola van Houbraken, *Chameleons on a rocky landscape*, oil on canvas, 1699, private collection, photograph courtesy of Caretto&Occhinegro.