Bats in the Florentine Renaissance: from darkness to enlightenment (Chiroptera)

Netopýři ve florentinské renesanci: z temnot ku osvícenosti (Chiroptera)

Marco RICCUCCI1 & Jens RYDELL2

- ¹ Museum of Natural History of the University of Florence, Zoological Section «La Specola», I–51025 Firenze, Italy; marco.riccucci@gmail.com
- ² Centre for Animal Movement Research, Department of Biology, Lund University, SE–223 62 Lund, Sweden; jens.rydell@telia.com

received on 16 November 2017

Abstract. We highlight the use of the bat (Chiroptera) in the Florentine Renaissance art. Michelangelo Buonarroti, Bernardo Buonarroti, Albrecht Dürer and several others used images of bats in their sketches, sculptures and decorations and many bat images are still to be seen on the palaces and monuments in the Historic Centre of Florence, a UNESCO World Heritage Site. The bats can usually be identified as such by the large ears or the characteristic wing membranes, although they constitute highly stylized artwork, often grotesque and certainly not intended to be morphologically correct. Furthermore, during the Renaissance it was not yet realized that bats are mammals, and some of the images could actually be interpreted as either birds or bats. The bat image was somehow tied to the Medici Noble Family, the undisputed rulers of Florence throughout the Renaissance, where it may have symbolized cultural darkness or ignorance. We speculate that the bat images could also have meant happiness and prosperity, with connections to China, and protected the buildings on which they appeared. In any case, the Renaissance bat had evolved far, artistically as well as conceptually, from the bat images that personified demons or the Devil in the European medieval literature and contemporary religious artwork.

Key words. Animals, art, cultural heritage, sculpture, symbolism, World Heritage.

INTRODUCTION

The Renaissance originated in Italy as a cultural movement in the medieval times. It subsequently spread over the rest of Europe, marking the transition into the Baroque, the first part of the Modern Age, and lasted until the early seventeenth century. Florence was culturally, economically and politically one of the world's most important cities at that time. It is regarded as the birthplace of the Renaissance (Burke 1998, 2013) and also universally recognized as the cradle of European Art and Architecture, with contributions by Leonardo da Vinci (1452–1519) and, more relevant for our case, Michelangelo Buonarroti (1475–1564) and Bernardo Buontalenti (1531–1608), the latter towards the end of the period. The Renaissance in Florence was closely tied to the powerful Medici Noble Family, the undisputed rulers of the city throughout the entire period, including Lorenzo de' Medici (1449–1492) or Lorenzo the Magnificent (Young 1930, Strathen 2003).

The bat received special attention from Florentine artists and the Medici family. For example, it participated in the celebration of the wedding between Prince Francesco I de' Medici and Joanna of Austria in 1565. The celebrations were concluded with the Carnival "Le dieci Mascherate delle Bufole" (the Ten Masquerades of the Female Buffalos), which included ten masked groups in a parade, each group led by a female buffalo. There was also a figurant masked as an owl riding a female buffalo and surrounded by six bats "vipistrelli" on horseback (Mellini 1566).

Some renowned Renaissance artists such as Bernardo Buontalenti, Gherardo Silvani (1579–1675), a disciple of Buontalenti, and Michelangelo Buonarroti used images of bats in their works. Buontalenti in particular seemed to be fond of these animals, as he depicted them frequently. He and his followers created fanciful decorations typical of the late Italian Renaissance, known as Mannerism, in the form of grotesque masks with or without wings, and such figures characterize the different architectural elements with particular symbolic meanings, most of which are hard to understand or interpret today (Kamela Guza, pers. comm. 2016). Buontalenti was perhaps the most important architect in the late Renaissance in Florence, where he owned a vegetable garden bordering the famous Boboli Garden (Fara 1995). This is also where he built the *Grotta di Buontalenti*, also known as Grotta Grande (Big Grotto),



Fig. 1. View over La Specola and Florence (photo by P. AGNELLI, 2017). Obr. 1. Pohled na palác La Specola a střechy Florencie (foto P. AGNELLI, 2017).

which is a major tourist attraction even today. BUONTALENTI was a man of many talents and he is traditionally considered as the inventor of modern "gelato" (ice-cream)!

THE RECORD

La Specola

This elegant Italian garden or park is adjacent to the Museum of Natural History *La Specola* (the Observatory), which is one of the first scientific museums in the world and still in use. The oldest part of the museum dates back to the time of the Medici family, who had collected many natural treasures such as fossils, animals, minerals and exotic plants, some of which are still on display in the museum. The park and the museum garden must have been used by many real bats over the centuries and it seems very likely that the garden offered opportunities for Buontalenti and his pupils to see flying bats, observe the wings and the big ears of the grey long-eared bats, *Plecotus austriacus* (Fischer, 1829), which are recurring motifs in the decorations of their palaces.

Today the park hosts Kuhl's pipistrelles *Pipistrellus kuhlii* and Savi's pipistrelles *Hypsugo savii* together with grey long-eared bats. These species have colonized the bat boxes placed on the *Torrino* (astronomical observatory) on the top of the museum (Fig. 1). Whether the same species were present in Medici's time, it is hard to say, however. No bats that old are preserved in the museum

Central European influence

As we have seen, the Florentine artists had many opportunities to learn about bats. The Swiss zoologist Conrad Gessner (1516–1565), called the "German Pliny", was probably the most influential naturalist during the Renaissance (Pyle 2010). His *Historia animalium* (History of the Animals; Gessner 1555) is an encyclopedic "inventory of Renaissance zoology" (Gmelig-Nijboer 1977), and the most widely read of all natural history books in this period (Olmi & Tongiorgi Tomasi 2011). The bats "de Vespertilione" are described in the third part together with the birds. This means, of course, that it was not yed realized that bats are mammals, a fact that only became clear a century later (Ray 1693). In *Historia animalium*, Gessner used a copy of the famous woodcut of an Indian rhinoceros made by Albrecht Dürer (1471–1528) in 1515. Dürer was the founder of the German Renaissance, but he visited Italy, notably Venice, to study the Italian masters, and there he also produced many important paintings. His work was already well known by the artists of his time.

Albrecht Dürer is also famous for "Melencolia I", a 1514 engraving which has been the subject of many different interpretations (Fig. 2). In the background of the picture there is a flying bat carrying a banner with the inscription "Melencolia I". The bat not only announces the subject of the print, but also its cure "boiled bats were prescribed in antiquity for ailments of the spleen, where excessive black bile, the melancholy fluid, was secreted" (EISLER 1991). Hence, not surprisingly, there is good evidence that bats were used in traditional medicine in the Renaissance period, just as in many other cultures past and present, and in Europe at least since the Roman times (RICCUCCI 2012).

Another famous drawing, made by DÜRER in 1515 and now housed at the British Museum in London, shows a marble pillar incorporating a sculpture of an old woman carrying a Chinese vase and with a bat with outstretched wings on top (BERGER 2004, BALTRUŠAITIS 2009: 175–204).

Buontalenti and his followers

Francesco I de' Medici (1541–1587), who was passionately interested in alchemy, and his brother Ferdinando I de' Medici (1549–1609), both kept very close relations with Ulisse Aldrovandi (1522–1605), another famous contemporary naturalist (Olmi & Tongiorgi Tomasi 2011). Ferdinando I de' Medici also employed Bernardo Buontalenti to built *Forte Belvedere*, the second biggest fort in Florence, which was constructed in 1590–1595. Such connections testify that in Renaissance Florence there were strong bonds between naturalists and artists and Buontalenti surely had many stimuli that led him to use bat images in his various works.

At this point we start on a route that will take us to the discovery of the "images of the bat". We begin at the *Palazzo di Bianca Cappello*, a Renaissance palace on via Maggio in the quarter of Oltrarno, in the middle of Florence and on the left bank of the Arno River. This was the house of Bianca Cappello, the mistress and then wife of the Grand Duke Francesco I de' Medici. The building was acquired in 1566 and refurbished by Bernardo Buontalenti. Bianca died in 1587 almost simultaneously with her husband Francesco, both of them because of malaria (Fornaciari



Fig. 2. The engraving Melencolia I, illustrating one of the four humours, melancholy. Albrecht DÜRER, 1514. Wikimedia Commons.

Obr. 2. Melencolia I – rytina Albrechta Dürera z roku 1514, zpodobňující jednu ze čtyř tělesných tekutin, melancholii; v pozadí je zpodobněn netopýr nesoucí nápis. Wikimedia Commons.



Fig. 3. Palazzo di Bianca Cappello with the decorated facade, refurbished by Bernardo Buontalenti 1573–1578 and Bernardino Poccetti 1579–1580 (photo by J. Rydell, 2017).

Obr. 3. Palác Bianky Cappello s dekorovanou fasadou, obnovenou Bernardem Buontalentim v letech 1573–1578 a Bernardinem Poccettim v letech 1579–1580 (foto J. Rydell, 2017).

et al. 2010). During the renovation of the palace, Buontalenti constructed two new windows under the sills on the ground floor and inserted a carved motif of a bat with spread wings. Only the right of the two windows preserves the original decoration under the sill. The left one has been replaced by a simple wooden door, and no longer has the carved stone with the bat, which, however, is preserved in poor condition in the courtyard of the adjacent *Palazzo Pannocchieschi*. This architectural feature became common in Buontalenti's works as a symbolic figure with apotropaic function, a type of magic intended to discourage harm or evil influences and thus protect the house (Paolini 2016). Bernardino Poccetti (1548–1612) worked with Buontalenti, decorating the façade of the *Palazzo di Bianca Cappello* (grafito), and reintroduced the bat image as a tribute to Buontalenti (Fig. 3).

Incidentally, using a symbolic bat (fu) mounted over the door step to protect the house is also an old and widespread Chinese practice. In this context fu means luck and good fortune.

The nearby *Fontana dello Sprone* (Fountain at the Corner), one of the most beautiful fountaines in Florence, shows Buontalentian features, and hence is called the "Fontana del Buontalenti". However, it is actually the work of the sculptor Francesco Generini (1593–1663) and made towards the very end of the Renaissance period. A winged figure resembling a bat is visible under the marble conch basin (Fig. 4).

Now let us move on to the districts north of the Arno River. The *Casino Mediceo di San Marco*, built in 1570–1574, is a late-Renaissance style palace located on Via Cavour, one of the main streets of the northern part of the historical center of Florence. Here Buontalenti created imaginative decorations that characterize the terminal stage of the Renaissance. In particular we find the "finestre inginocchiate" (kneeling windows), where the sill rests on protruding grips that resemble two "legs" from the knee down and decorated with grotesque faces of what seem to be bats. Above the entrance portal there is a highly stylized decoration that may be a bat with outspread wings, but which actually is quite like the wings of a bird (Fig. 5). Under the window and between two grotesque faces resembling bats there is the shell of the pilgrim scallop *Pecten maximus/jacobaeus* made in the traditional Renaissance style (Fig. 5).

Palazzo Bartolommei is also located on Via Cavour. It was designed by Gherardo Silvani, one of the most important and active Florentine artists of the early seventeenth century. He was inspired by Buontalenti, so no wonder we find fanciful decorations in the portals and in the kneeling windows, in the form of animal motifs and masks resembling those made by his master. Similar decorations are present in the nearby Palazzo Capponi-Covoni, which was built in 1623–1625 and considered to be the masterpiece of Silvani. Here again we see the ornamental motif of the bat below the four ground floor windows (Fig. 6). These images may actually originate from the scallop referred to above, but reworked according to a Mannerist taste to form a stylized image of a bat.



Fig. 4. Fontana dello Sprone is called the "Fontana del Buontalenti", although it was made by Francesco Generini at the end of the Renaissance period (photo by M. Riccucci, 2017).

Obr. 4. Fontána Sprone, nazývaná také Buontalentiho fontána, přestože byla vytvořena Franceskem GENERINIM na konci éry renesance (foto M. RICCUCCI, 2017).



Fig. 5. Casino Mediceo di San Marco, with portal (top) and window sills (below) (photo by J. Rydell, 2017). Obr. 5. Casino Mediceo Svatého Marka: portal (nahoře) a okenní podprseň (dole) (photo by J. Rydell, 2017).



Fig. 6. Bats decorate the windows of Palazzo Capponi-Covoni in the style of Buontalenti, but they were actually made by Gherardo Silvani in the early seventeenth century (photo by J. Rydell, 2017). Obr. 6. Dekorace oken Paláce Capponi-Covoni netopýry ve stylu Buontalentiho, ve skutečnosti však zhotovenými Gherardem Silvanim na počátku sedmnáctého století (foto J. Rydell, 2017).

Palazzo Nonfinito (the Unfinished Palace) is another historical building in Florence. The ground floor was built in 1593 for Alessandro Strozzi by Bernardo Buontalenti in his typical imaginative style. We can appraise his artistic quality in the grotesque masks leaning out of the timpani of the kneeling windows with a figure of a bat. According to a legend reported by Charles Godfrey Leland (1895), the devil was involved in the construction, but later was tricked. Therefore, he cursed the building, preventing its completion forever, hence the name.

The Cappella Antinori is an outdoor chapel of San Gaetano, a Baroque church located in the Piazza Antinori, designed by Matteo Nigetti (ca. 1560–1648). The door between the chapel and the church has the tympanum decorated with bat wings, a tribute to Buontalenti by Nigetti, who was his pupil and assistant. Santo Stefano al Ponte is a deconsecrated church located near the Ponte Vecchio, the famous old bridge across the river Arno. The internal staircase with a marble balustrade, made by Bernardo Buontalenti and originally located in the church of Santa Trinita, has steps imitating the membranous wings of a bat in a very stylistic and elegant fashion (Fig. 7).

Finally, BUONTALENTI or possibly Gherardo SILVANI could also have been responsible for the bat motif of the window of *Palazzo di Perna* in Pistoia, a city not far from Florence. It is a beautiful kneeling window, possibly coeval of Palazzo di Bianca Cappello (1570–1574). Here the bat is not located under the sill but above it, inside the pediment (Daniele 2004).



Fig. 7. The staircase of Santo Stefano al Ponte with the pattern of bat wings (photo by J. RYDELL, 2017). Obr. 7. Schodiště kostela Svatého Štěpána U mostu s tvary netopýřích křídel (foto J. RYDELL, 2017).

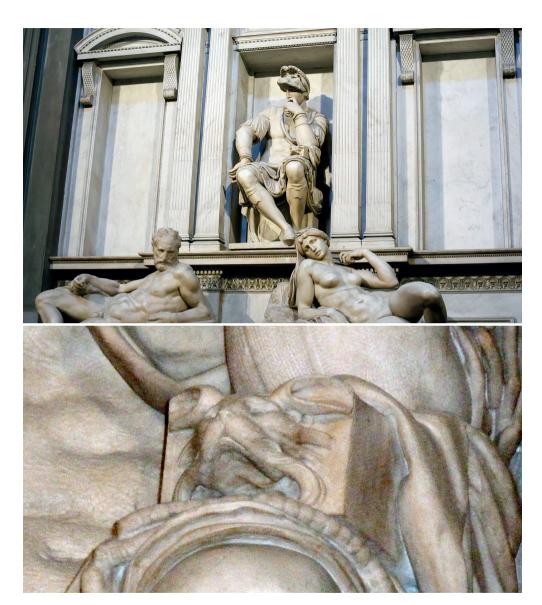


Fig. 8. The central statue of the tomb of Lorenzo de' Medici duca di Urbino (1492–1519) in the Sacrestia Nuova of San Lorenzo or Cappelle Medicee (top). The lord has a box on his left knee (below), with the front showing the face of a bat (photo by J. Rydell (top) & M. Riccucci (below), with permission from Museo Na-zionale del Bargello, Florence, 2017; a reproduction of these pictures is strictly forbidden). Obr. 8. Ústřední socha hrobky Vavřince Medicejského, vévody urbinského (1492–1519) v sakristii kostela Svatého Vavřince neboli Medicejské kapli (nahoře). Bůh má krabičku na levém koleni (dole), s hlavou netopýra zpodobněnou na přední stěně (foto J. Rydell (nahoře) & M. Riccucci (dole), se svolením Národního musea del Bargello, Florencie, 2017; další reprodukce těchto fotografií je přísně zapovězena).

Michelangelo

A marble sculpture made by Michelangelo Buonarrott, dating from about 1531–1534, is the central statue of the tomb of Lorenzo De' Medici duca di Urbino (1492–1519) in the Sacrestia Nuova (New Sacristy) of the church of San Lorenzo or Cappelle Medicee in Florence (Fig. 8). Here Lorenzo De' Medici is in deep thought, according to a precise typology of the Renaissance, "melancholy", one of the four humours (temperaments) with alchemical implications. His elbow rests on a box, the front of which shows the head of a bat, the emblematic animal of Dürer's "Melencolia I" (Panofsky 2009, Barbagallo 2010: 225).

This image of the bat in the box held on the knee of Lorenzo DE' MEDICI is slightly reminiscent of *He-He Er Xian*, translated as the "Immortals of Harmony and Union", the harmonious couple (Hanshan the poet and Shide the monk) in Taoist tradition. The two are usually shown holding a lotus flower and a box (or a basket), respectively, and from the latter emerge one or several (usually five) bats. The bat (fú) is an ancient symbol of happiness and prosperity in China. There are many images of the harmonious couple in Chinese artwork. For example, an antique bronze statue in which the basket contains an animal, probably a bat, looking out from inside, was sold on an auction in 2017. Was there a connection between the Medici family and China that brought the bat, the ancient Chinese symbol of luck and wealth, to Europe (LORENZI 2006, BALTRUŠAITIS 2009)? This idea is speculative but not entirely impossible. At the time when



Fig. 9. "Michelangelo's Vestibule" in the Biblioteca Medicea Laurenziana, with columns from which faces of bats overlook the entrance to the library (photo by J. RYDELL with permission from Biblioteca Medicea Laurenziana, Florence, 2017; a reproduction of this picture is strictly forbidden).

Obr. 9. "Michelangelovo předsálí" v Medicejské vavřinecké knihovně se sloupy, ze kterých shlížejí hlavy netopýrů na vchod do knihovny (foto J. Rydell se svolením Medicejské vavřinecké knihovny, Florencie, 2017; další reprodukce této fotografie je přísně zapovězena).

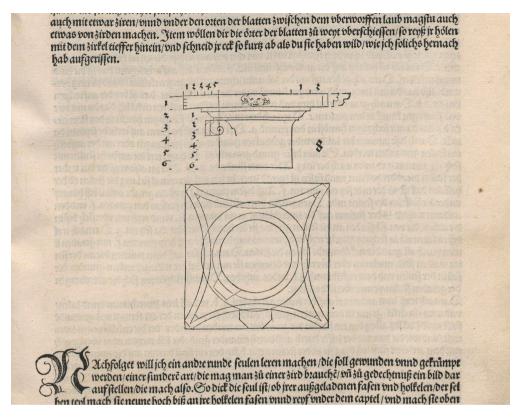


Fig. 10. Sketch of columns with bat images, closely reminiscent of those shown in Fig. 9. The picture is from Albrecht Dürer's treatise *Underweysung der Messung*, *mit dem Zirckel und Richtscheyt*, *in Linien Ebenen und gantzen corporen* published in 1525. Wikimedia Commons.

Obr. 10. Skica hlavice sloupu s motivem hlavy netopýra, připomínající blízce motiv zpodobněný na obr. 9. Obrázek pochází z učeného pojednání *Underweysung der Messung, mit dem Zirckel und Richtscheyt, in Linien Ebenen und gantzen corporen* od Albrechta Dürera, vydaného roku 1525. Wikimedia Commons.

the statue of Lorenzo DE' MEDICI was made, Florence (together with Genoa and Venice) had obtained monopoly on the European trade with China and Eastern Asia over the Indian Ocean, through negotiations with the Arab powers.

Michelangelo had already in 1503–1504 designed a motif similar to the wings of a bat in the drawing *Testa crestata* (Crested head), which is preserved in *Casa Buonarroti*, the family house and now museum in Florence. This motif, here adorning the helmet of a warrior seen in profile, was typical of the late fifteenth century in Florence (RAGIONIERI 2008). In the monumental complex of the church of San Lorenzo we found the *Biblioteca Medicea Laurenziana* (Medicean Laurentian Library), of which the "ricetto" (vestibule), the entrance to the reading room, was designed by Michelangelo. He wanted the vestibule of the Library to receive a dim light from the windows above to create a prelude to the much brighter light in the reading

room located upstairs. This part of the library, in fact, has been interpreted as a path where the darkness of the vestibule gradually evolves into the light experience of the reading room, hence illustrating the transition from ignorance to enlightenment and knowledge. On the columns that decorate the "ricetto" there are somewhat bizarre bats on the abacus of the capitals (Fig. 9). The bats watching out from the pillars closely reproduce an illustration in Dürer's treatise "Underweysung der Messung, mit dem Zirckel und Richtscheyt, in Linien Ebenen unnd gantzen corporen" (Instruction in measurement with compass and ruler, in lines, planes, and whole bodies) published in 1525 (Kamela Guza, pers. comm. 2016). Bats, creatures of darkness (= ignorance), prelude the enlightenment of cognition (Fig. 10).

It has been suggested that the bats depicted by Michelangelo and BUONTALENTI actually are grey long-eared bats (*Plecotus austriacus*), presumably one of the commonest bat species in Renaissance Florence (Fig. 11).

Before and after

By far the most familiar of the early Florentine writers was Dante ALIGHIERI (1265–1321), most famous for his poem *Comedia* (later renamed Divina Commedia), and one the most important writers of all times. He was active more than a century before the Renaissance, but we include him here because he was from Florence and used the image of bats in his work, thereby presumably influencing the employment of this motif by his successors. In the last canto (XXXIV) of the first part (Inferno = Hell) of the Comedia, the deepest part of the Inferno is described in



Fig. 11. The grey long-eared bat (*Plecotus austriacus*), the presumed model of some of MICHELANGELO'S and BUONTALENTI'S bats (photo by S. BAMBI).

Obr. 11. Ušan šedý (*Plecotus austriacus*), předpokládaný model některých Michelangelových a Buontalentiho net opýrů (foto S. Bambi).



Fig. 12. Lucifer residing at the bottom of the Inferno, devouring the condemned souls. Illustration to the Comedia by Gustave Doré (1861–1868). Wikimedia Commons.

Obr. 12. Lucifer pobývající na dně Pekel a požírající zatracené duše. Ilustrace díla Comedia od Gustava Dorého (1861–1868). Wikimedia Commons.

some detail. This is where the Devil (Lucifer) resides and where he devours the condemned souls (Fig. 12). His wings are without feathers and similar to those of a bat ... "Non avean penne, ma di vispistrello era lor modo ...". This is the first known use of the Italian word "vispistrello", which derives from the Latin "Vespertilio", and means bat. Incidentally, this was actually the first Generic name given to a bat by Linnaeus (1758) and the species name Vespertilio murinus Linnaeus, 1758, the parti-coloured bat, is still valid.

The scene from the bottom of Hell was much later illustrated in the engravings of Gustave Doré (1861–1868) together with many other scenes from the Comedia. Illustrations of demons, essentially humans with tails and bat wings, appear not only among Doré's pictures but also in fourteenth century frescos in several Florentine churches (Fig. 13). In some cases they may have been directly influenced by the description of Lucifer in the Comedia. However, these church paintings do not show real bats, unlike those of Dürer, Michelangelo and BUONTALENTI, and hence represent an entirely different use of the bat image. Indeed, the conceptual difference

between the medieval church "bats" and those made by the Renaissance artists illustrates the dramatic intellectual transition that took place in MEDICI's time.

Much more recently, the bat image was also used in Florence to decorate the tomb of Pierre Wagnière (1806–1857) in the *Cimitero degli Inglesi* (English cemetery). This graveyard is located in Piazzale Donatello, where many foreign personalities are buried. Here the ephemeral life course is symbolized by an hourglass connecting a pair of bat wings (Fig. 14).

SOUHRN

V příspěvku upozorňujeme na užití motivu netopýra (Chiroptera) ve florentinském renesančním umění. Michelangelo Buonarroti, Bernardo Buontalenti, Albrecht Dürer a někteří další použili motivu netopýra ve svých skicách, sochách a ozdobných prvcích architektury a mnohé netopýří motivy jsou dosud k vidění na palácích a památkách v Historickém centru Florencie, památce světového dědictví UNESCO. I když jsou motivy netopýrů vesměs umělecky velmi stylisované, často strašidelné, a téměř nikdy neodpovídají morfologické skutečnosti, netopýři jsou obvykle dobře rozpoznatelní podle velkých ušních boltců a typických létacích blan. Podle některých názorů mohou být určité motivy vykládány spíše jako ptačí než



Fig. 13. One of four adjacent frescoes in the sacristy of San Miniato del Monte in Florence, illustrating the life of San Benedict. Spinello Aretino ca. 1387 (photo by J. Rydell with permission from the Monastery of San Miniato al Monte, Florence, 2017; a reproduction of this picture is strictly forbidden). Obr. 13. Jedna ze čtyř fresek v sakristii basiliky Svatého Miniata Na hoře ve Florencii, ilustrující život Svatého Benedikta, vytvořená Spinellem Aretinem zhruba roku 1387 (foto J. Rydell se svolením kláštěra Svatého Miniata Na hoře, Florencie, 2017; další reprodukce této fotografie je přísně zapovězena).



Fig. 14. The grave of Pierre Wagnière (1806–1857) in the Cimitero degli Inglesi (the English cemetery) in Florence (photo by J. Rydell, 2017).

Obr. 14. Hrob Pierra Wagnièrea (1806–1857) na Anglickém hřbitově ve Florencii (foto J. Rydell, 2017).

netopýří. Motiv netopýra byl určitou měrou spjat se šlechtickým rodem Medicejských, nepochybných vládců Florencie v období renesance, kde mohl symbolisovat kulturní temnotu či nevzdělanost. Domníváme se však, že motivy netopýra mohly také představovat štěstí a prosperitu, v možné kulturní návaznosti na čínské pojetí tohoto symbolu, a ochraňovat budovy na nichž byly zpodobněny. V každém případě se zdá být jisté, že renesanční motiv netopýra je dalece odvozen, jak umělecky, tak i konceptuálně, z motivů netopýrů, které personifikovaly zlé duchy či Ďábla v evropské středověké literatuře a náboženském umění.

Acknowledgments

We sincerely acknowledge the staff of the churches and museums for their wonderful hospitality and helpfulness during our photographic journey in Florence, and for helping us to obtain permissions for photography and/or publication of the pictures: Paolo Agnelli (Museum of Natural History of the University of Florence, Zoological Section "La Specola", Florence), Roberto Fiorini (Crossmedia Group), Ida Giovanna Rao and Leonardo Meoni (Biblioteca Medicea Laurenziana, Florence), Paola D'Agostino and Andrea Staderini (Museo Nazionale del Bargello, Florence) and Dom Bernardo Francesco Maria Gianni (Padre Abate dell'Abbazia di San Miniato al Monte). We also would like to thank Mariella Turini for sharing her extensive knowledge about Florence, S. Bambi for providing the picture of the grey long-eared bat, Bengt Edqvist (Department of Dialectology, Onomastics and Folklore Research in Gothenburg, Sweden), Johan Eklöf, Heng-Chia Chang (The Golden Bat Home, Shulin township, Taiwan), Lea Debernardi (Scuola Normale Superiore, Pisa, and École Pratique des Hautes Études, Paris), Kamela Guza (Università degli

Studi di Firenze, Scuola di Architettura, Dipartimento di Storia dell'Architettura, Florence) for ideas and suggestions and for comments on the manuscript.

REFERENCES

- AGNELLI P., MALTAGLIATI G., DUCCI L. & CANNICCI S., 2011: Artificial roosts for bats: education and research. The "Be a bat's friend" project of the Natural History Museum of the University of Florence. *Hystrix*, n. s., 22: 215–223.
- Baltrušaitis J., 2009: *Il Medioevo fantastico. Antichità ed esotismo nell'arte gotica.* Adelphi Edizioni, Milano, 376 pp.
- BARBAGALLO S., 2010: Gli animali nell'arte religiosa. Libreria Editrice Vaticana, Città del Vaticano, 238 pp.
- BERGER J., 2004: Albrecht Dürer. Watercolours and drawings. Tachen GmbH, Köln, 96 pp.
- Burke P., 1998: The European Renaissance: Centre and Peripheries. Blackwell Publ., Oxford, 284 pp.
- Burke P., 2013: The Italian Renaissance: Culture and Society in Italy. Third Edition. John Wiley & Sons, New York, 312 pp.
- Daniele E. (ed.), 2004: Le dimore di Pistoia e della Valdinievole. L'arte dell'abitare tra ville e residenze urbane. Alinea Editrice, Firenze, 368 pp.
- DORÉ G., 1861–1868: La divina Commedia di Dante Alighieri, illustrata da Gustavo Doré dichiarata con note tratte dai migliori commenti per cura di Eugenio Camerini. Stabilimento dell'Editore Edoardo Sonzogno, Milano, 136 illustrations.
- Gessner C., 1555: Conradi Gesneri Tigurini medici & philosophiae professoris in Schola Tigurina. Historiae animalium liber III., qui est de avium natura. Triguri apud Christoph. Froschoverum, 779 pp.
- EISLER C., 1991: Dürer's Animals. Smithsonian Institution Press, Washington DC, 448 pp.
- FARA A., 1995: Bernardo Buontalenti. Electa, Milano, 330 pp.
- FORNACIARI G., GIUFFRA V., FERROGLIO E., SARAH G. & BIANUCCI R. 2010: *Plasmodium falciparum* immunodetection in bone remains of members of the Renaissance Medici family (Florence, Italy, sixteenth century). *Transactions of the Royal Society of Tropical Medicine & Hygiene*, **104**: 583–587.
- GMELIG-NIJBOER C. A., 1977: Conrad Gessner's 'Historia animalium'. An Inventory of Renaissance Zoology. Krips Repro B.V., Meppel, 185 pp.
- MELLINI D., 1566: Le Dieci Mascherate delle Byfole mandate in Firenze il giorno di carnouale l'anno 1565. Fiorenza appresso i Giunti, 56 pp.
- Leland C. G., 1895: Legends of Florence Collected from the People. First Series. Macmillan and Co., New York, 271 pp.
- Linnaeus C., 1758: Caroli Linnæi Systema naturæ per regna tria naturæ, Secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Tomus I. Editio decima, reformata. Salvius, Holmiæ, 824 pp.
- LORENZI L., 2006: Devils in Art. Florence, from the Middle Ages to the Renaissance. Second Edition. Centro Di Edizione, Florence, 141 pp.
- OLMI G. & TONGIORGI TOMASI L., 2011: Raffigurazione della natura e collezionismo enciclopedico nel secondo Cinquecento tra Milano e l'Europa. Pp.: 113–151. In: Ferino-Pagden S. (ed.): *Arcimboldo. Artista milanese tra Leonardo e Caravaggio*. Skira, Milano, 392 pp.
- Panofsky E., 2009: Studi di iconologia. I temi umanistici nell'arte del Rinascimento. Einaudi, Milano, xxxiv+388 pp.
- PAOLINI C., 2016: Repertorio delle Architetture Civili di Firenze. URL: www.palazzospinelli.org.
- Pyle M. C., 2010: Conrad Gessner on the spelling of his name. *Archives of Natural History*, **27**: 175–186. Ragionieri P., 2008: *Michelangelo*: *The Man and the Myth*. University of Pennsylvania Press, Philadelphia, 120 pp.
- RAY J., 1693: Synopsis methodica animalium quadrupedum et serpentini generis. London, viii+336 pp. Riccucci M., 2012: Bats as materia medica: an ethnomedical review and implications for conservation. *Vespertilio*, **16**: 249–270.

STRATHERN P., 2003: *The Medici: Godfathers of the Renaissance*. Jonathan Cape, London, 430 pp. Young G. F., 1930: *The Medici*. Modern Library, New York, 824 pp.

APPENDIX

The project *BAT BOX*: *Un pipistrello per amico* (Be a bat's friend) of the Museum of Natural History of the University of Florence was launched in 2006 with the aim of informing people about (1) the life of bats, the importance of their ecological role and their usefulness for the control of insect populations, (2) the underlying biological reasons and potential benefits for human welfare of a conservation program, and (3) the importance of peoples' involvement for the success of the program itself (*citizen science*). Over 60,000 bat boxes have been installed throughout Italy. The great success is a major achievement, especially for a more thoughtful approach to the knowledge of bats, making these animals a flagship species for the sustainable control of harmful insects (AGNELLI et al. 2011). About 100 bat boxes have been placed within the boundaries of the city of Florence during 2013.