MARCO M.G. MASSETI

Università di Firenze, Dipartimento di Biologia, Laboratori di Antropologia ed Etnologia

Carpaccio's parrots and the early trade in exotic birds between the West Pacific islands and Europe

I pappagalli del Carpaccio e l'antico commercio di uccelli esotici fra il Pacifico occidentale e l'Europa

Summary - Among the Early Renaissance painters, Vittore Carpaccio (Venice or Capodistria, c. 1465 – 1525/1526) offers some of the finest impressions of the Most Serene Republic at the height of its power and wealth, also illustrating the rich merchandise traded with even the most remote parts of the then known world. For the same reason he portrayed in his paintings many exotic species of mammals and birds which were regarded as very rare and precious, perhaps such as the cardinal lory, *Chalcopsittacardinalis* Gray, 1849, and/ortheblacklory, *Chalcopsittaatraatra* (Scopoli, 1786), native to the most distant Indo-Pacific archipelagos. Indeed, in Europe foreign animals were often kept in the menageries of the aristocracy, representing an authentic status symbol that underscored the affluence and social position of their owners. This paper provides the opportunity for a reflection on the origins of the trade of exotic birds - or parts of them – between the West Pacific islands and Europe.

Riassunto - Fra i pittori del primo Rinascimento, Vittore Carpaccio (Venezia o Capodistria, c. 1465 – 1525/1526) ha offerto alcune delle più belle immagini della Repubblica della Serenissima all'apice del suo potere economico e temporale, dando anche conto delle ricche mercanzie che erano al tempo l'oggetto di fiorenti commerci perfino con le plaghe più remote del mondo conosciuto. Per la stessa ragione, il pittore veneziano ha evocato nelle sue opere molte specie esotiche di mammiferi ed uccelli che erano considerate molto rare e preziose; fra di esse due pappagalli identificati probabilmente come il lori cardinale, Chalcopsitta cardinalis Gray, 1849, o il lori nero, Chalcopsitta atra atra (Scopoli, 1786), originari dei più lontani arcipelaghi indo-pacifici. Effettivamente, in Europa, gli animali esotici erano spesso mantenuti nei serragli dell'aristocrazia, dove rappresentavano un autentico status symbol che faceva risaltare in modo particolare la ricchezza e la posizione sociale dei loro proprietari. Il presente lavoro offre l'opportunità di una riflessione sulle origini del commercio di specie ornitiche esotiche – o di parti di esse – fra le isole del pacifico occidentale e l'Europa.

Parole chiave: Isole del Pacifico occidentale, Chalcopsitta cardinalis, Chalcopsitta atra, Cacatua, Uccelli del paradiso

Keywords: West Pacific islands, Chalcopsitta cardinalis, Chalcopsitta atra, Cockatoos, Birds of paradise

INTRODUCTION

In the course of the 15th century, and even before the discovery of America, the zoological panorama of the central Europe and the Mediterranean area was profoundly modified by the arrival of biological elements from the Balkan peninsula, Anatolia and the Far East. Exotic zoological species were often kept in the European menageries of the aristocracy, representing an authentic status symbol that underscored the affluence and social position of their owners (Belozerskaya 2006). Collecting allochthonous animals of various kinds was a common hobby among Medieval and Renaissance princes, not least in Italy (Ringmar 2006; Gschwend 2009; Masseti, Veracini 2010). The possession and display of exotic animals was considered a sign of great prestige and power in the courts of mediaeval Europe (Ortalli 1985; Giese 2008). Thus, trade in exotic animals was commonplace amongst rulers (Masseti 2009). Many of these animals,

most of them dead, reached European scientists who started to describe them meticulously, albeit without knowing exactly where most of them came from (Urbani 1999; Fragaszy et al. 2004). However, it cannot be ruled out that the absence of any finds of osteological remains of many of these species from late Mediaeval and Renaissance chronologies may, very plausibly, be attributable to the lack of excavations and/or the absence of specific archaeozoological studies (cfr. Masseti 2009). Nevertheless, their artistic representation apparently provides us with information on the occurrence in the European courts of exotic animals that would otherwise not have been documented. In fact, as Fedele (1985) observed: "When the desire to reproduce the animal has produced representations of naturalistic quality, the figure effectively becomes, for the archaeozoologist an efficacious palaeofaunistic datum". In many cases the artistic reproduction of naturalistic elements of the past has proved so efficacious as to enable the unequivocal

recognition of the species portrayed.

Among the Early Renaissance painters, Vittore Carpaccio (Venice or Capodistria, c. 1465 – 1525/1526) offers some of the finest impressions of the Most Serene Republic at the height of its power and wealth, also illustrating the rich merchandise traded with even the most remote parts of the then known world. With particular inclination towards the depiction of zoological species, he appears to have been greatly attracted by the portraval of living exotic mammals and birds. We can, for example, find in his production several North African species, such as the Cuvier's gazelle, Gazella cuvieri (Ogilby, 1841), or the slender-horned gazelle, Gazella leptoceros (F. Cuvier 1842) (Cycle of the Scuola Dalmata of San Giorgio degli Schiavoni, Venice), and the Guinea fowl, Numida meleagris L., 1766 (Disputation of Saint Stephen from the cycle Scenes from the Life of Saint Stephen, Brera, Milan); Near Eastern mammals such as the common fallow deer, Dama dama dama (L., 1758) (Cycle of the Scuola Dalmata), and domestic goats of Syrian breed ("The Sermon of Saint Stephen" from the cycle Scenes from the Life of Saint Stephen, Louvre, Paris; "Saint Jerome and the Lion" from the cycle of the Scuola Dalmata); Middle Eastern or Indian animals, such as the small Indian civet, Viverricula indica (Desmarest, 1804) (Cycle of the Scuola Dalmata) and the peacock, Pavo cristatus (L., 1758) (Two Venetian Ladies, Museo Correr, Venice). Instead, apparently from even more distant geographical parts are the models that inspired two of the exotic birds represented respectively in the aforementioned "Two venetian Ladies", and in a detail of "The Baptism of the Selenites", at the Scuola Dalmata. The latter representation concerns the image of an orange-red parakeet of medium size portrayed in the foreground (Fig.1). The same image, but shown in smaller dimensions, also



Figure 1. Detail of The Baptism of the Selenites, at the Scuola Dalmata of San Giorgio degli Schiavoni, in Venice.

appears in other works by Carpaccio, such as "The Funeral of Saint Jerome", at the Scuola Dalmata, the "Meditation on the Passion" (1505-1510), Metropolitan Museum, New York, and Saint Stephen is consecrated Deacon, from the cycle Scenes from the Life of "Saint Stephen", Staatliche Museen, Berlin. In the painting "Saint Jerome and the Lion" (1502-1507) from the cycle in the Scuola Dalmata, this same image has been repeated twice.

Very few parrots were known in the ancient world, and they can be essentially referred to two species, the African grey parrot, Psittacus erithacus L., 1758, and the ring-necked parakeet or rose-ringed parakeet, Psittacula krameri Scopoli, 1769, the latter being native to most of the Afrotropical and Oriental zoogeographical regions (Kinzelbach 1986; Howard, Moore 1991). The ringnecked parakeet, in particular, is a species which has been regularly exported as a cage bird since antiquity (Spanò, Truffi 1986), and it is possible that even in Hellenistic times birds escaping from captivity became feral in the Nile delta (Paz 1987), and in other regions of the ancient world (Masseti 2002). In the Middle Ages too, rare and exotic birds too played a significant role in the definition of economic and social condition (Woolgar 1999; Albarella, Thomas, 2002). In the Muslim culture, parrots were regarded as animals that brought good luck, symbols of heavenly sweetness and they feature recurrently as decorative iconographic elements (Vanoli 2008). Several Roman sources refer to talking parrots that were frequently kept as pets (Farrar 1998). The practice of breeding talking birds and holding them in great esteem spread through the early Middle Ages and continued up to the thirteenth century and the Renaissance (Masseti 2016). The occurrence of ring-necked parakeets in medieval Europe has been exhaustively documented in the works of several authors and, inter alia, by Kitzinger (1960), Diener (1967), Ribemont (1990), Mc Munn (1999), and Masseti (2009). Parrot bones are, however, fairly rare in the European archaeozoological record. In England, for example, no medieval archaeological findings of exotic birds exist (Albarella, Thomas 2002). A few osteological fragments of parrot were discovered in a pit dated to the mid-late 17th century from the site of Castle Mall, Norwich (Albarella et al. 1997). The bones belong to a medium-large sized parrot, of about the same dimensions as an African grey parrot, but it was unfortunately not possible to identify them at a level any more specific than that of the sub-family Psittacinae.

Orange-red parrots are, however, not so common among the representatives of the ornithological taxonomic order of the Psittaciformes. Indeed, the ornithological texts consulted in the course of this research did not indicate the occurrence of species with orange or red coats either in Africa (Shelley, Sclater 1896-1912; Hoyo et al. 1997; Sinclair, Ryan 2011) or the Middle and Far East (Salim 1941; King *et al.* 1975; Hoyo *et al.* 1997). In Central and South America this colouration is almost entirely limited to the species of the genus *Ara Lacepede*, 1799, such as the scarlet macaw, *A. macao* (L., 1758), and the red-andgreen macaw, *A. chloroptera* G.R. Gray, 1859 (Hoyo *et al.* 1997; De La Peña, Rumboll 1998; Gwynne, Tudor 2002), with morphological characters, in any case, very different from the orange parrot painted by Carpaccio. We have to press well beyond the remote geographies of the Far East, as far as the islands of the south-western Pacific Ocean in order to find parrots with this peculiar phenotype and colouration.

PARROTS FROM THE SOUTH-WESTERN PACIFIC ISLANDS

Even in this distant region, red and/or orange parrots continue to be few, essentially related to not more than The purple-naped lory, Lorius domicella 4 species. (L., 1758), and the chattering lory, Lorius garrulus L., 1758, are both forest-dwelling parrots with a coat colour predominantly red, with orange bill. L. domicella is endemic to the islands of Seram, Ambon, and perhaps also Haruku and Saparua, South Maluku (BirdLife International 2013). It appears to have always been uncommon or rare, with a population which is suspected to have fallen below 2,500 mature individuals. L. garrulus is another endemic species, confined to the north Moluccan islands (Indonesia), where it is known only from Morotai, Rau, Halmahera, Widi, Ternate, Bacan and Obi (Collar et al. 2001). L. domicella is, however, characterised by a black cap shading to violet at rear, a variable yellow band across the upper breast and purplish-blue thighs. Its wings are largely green, and the tail is broad and rounded, tipped with brownish-red. L. garrulus, instead, has dull green thighs and wings. Regarded as an endangered species, the chattering lory is undergoing an observed very rapid population decline that is projected to continue as a direct result of habitat loss and human exploitation (Collar et al. 2001).

Even the red lory or Moluccan lory, *Eos bornea* L., 1758, which is endemic to the Moluccas and surrounding islands in Indonesia (Hoyo *et al.* 1997), is not a completely red parrot. It is, in fact, characterised by blue and black markings on the back and wings, and the tail is red-brown with blue under-tail coverts. It appears in a detail, at top right among festoons of leaves, in the "Madonna of Victory", a painting executed by the Italian Renaissance painter Andrea Mantegna in 1496 (Louvre, Paris) (Dante

Teixeira to Cecilia Veracini, in verbis). In fact, the species of parrot portrayed in this painting is not an individual of the South-American red-and-green macaw, Ara chloroptera, Gray 1859, as assumed by Veracini (2010). At present we can consider this as one of the oldest known images in the Italian context of a zoological species from the South Pacific (Veracini, 2010). In the centuries that followed the Moluccan lorry proved to be one of the favourite parrots of western painters. Other portraits of the same species appear, for example, in paintings such as "The menagerie" (Rijks Museum, Amsterdam) by Melchior D'Hondecoeter (1636-1695) (Fig. 2), and Allegorical scene with monkeys, parrots and a cat, and/or A monkey, a crow, a parrot and hen by Pietro Neri Scacciati (1684-1749) (Soprintendenza Speciale per il Patrimonio Storico, Artistico ed Etnoantropologico e per il Polo Museale della Città di Firenze) (cf. Simari 1985a). These paintings appear to reflect the extraordinary popularity of the Moluccan lory as a wondrous pet and an ostentation of exotic and rare biological elements in the Western World between the Renaissance and the 17th century. It cannot be excluded that the particular popularity enjoyed by this species may be largely due to adapt to the most difficult conditions of captivity, in addition to being able to support the transport even on very lengthy sea voyagers; even this parrot is one of the lories most commonly kept in captivity.

Nevertheless, it would appear to be the cardinal lory, *Chalcopsitta cardinalis*, Gray 1849, that probably provided the inspiration for Carpaccio's orange parrot. This is, in fact, the only parrot characterised by a



Figure 2.: Red lory or Moluccan lory, *Eos bornea* L., 1758, in a detail of The menagerie (Rijks Museum, Amsterdam) by Melchior D'Hondecoeter (1636-1695)

completely red colouration and a long tail. It is darker on the back and wings, with a reddish orange bill. A monotypic species of parrot, this lory lives mainly in the mangrove and lowland forests on islands from the east of New Ireland (New Guinea) to the Bismarck archipelago and the Solomon islands (Hoyo et al. 1997). As far as is presently known, there are no other artistic representations of this species in Medieval and Reinassance Europe. Carpaccio evoked the image of another parrot in the previously mentioned painting "Two Ventian Ladies" (Museo Correr, Venice), dated to 1490-1495 (Fig. 3). This is a dark blue-green bird which has been depicted with an iridescent coat, shimmering from dark purple and green to dark blue and yellow, with long legs, black - or possibly grey - beak, and a long tail. The eye fringe is light coloured. This could be a black lory, Chalcopsitta atra (Scopoli 1786), a mediumsized parrot endemic to Indonesia where it is dispersed in the western part of New Guinea, and surrounding islands, including Misol island (Collar 1997; Forshaw 2006; BirdLfe International 2008). The species inhabits open habitat and lowland forests. Moveover, the fact that Carpaccio showed it moving along the ground does not necessary means that it is a ground species. In view of its phenotypic characters (mostly black with blue rump and black bill), the bird represented by Carpaccio could belong to the subspecies C. atra atra (Scopoli 1786), native to the western Bird's Head peninsula in the Indonesian province of West Papua, and nearby islands (Forshaw 2006). Essentially it has an Indo-Pacific distribution not too dissimilar from that indicated above for the cardinal lory: Moluccas, New Guinea, and surrounding areas. The black lory is today comprised among the species of Least Concern in the IUCN Red List of Threatened Species and figures in Appendix 2 of CITES. The great distance from Venice and north-eastern Italy of the homeland of



Figure 3. Parakeet identified as a black lory, *Chalcopsitta atra* (Scopoli, 1786), in a detail of the painting "Two Ventian Ladies" (Museo Correr, Venice), dated to 1490-1495.

the cardinal lory and the black lory, and their rarity in the European markets underscore the unmistakable social and economic prestige of Carpaccio's commissioners.

However, we must not overlook the possibility that certain species may have become extinct in the time that has elapsed since their first - or best known - artistic representation. Lories and lorikeets, and their entire taxonomic family, are at risk today throughout the Pacific, although only a few forms have so far been reported as actually extinct (Day 1981). This is the case of the New Caledonian lorikeet, Psitteuteles diadema Verreaux and Des Murs, 1860, and the Society parakeet, Cyanoramphus ulietanus (Gmelin 1788), both originating from more distant lands. The last specimen of the latter parrot was collected before 1860 (Berlioz 1945; Greenway 1967; Day 1981), whereas the Society parakeet appears to have unquestionably become extinct around the beginning of the 19th century, having once been endemic in the southern Pacific island of Raiatea (Greenway 1967). This species is known by only two specimens thought to have been collected during Captain Cook's second voyage, in 1773 or 1774, at Ulieta (Raiatea), in the western or leeward group of the Society Islands.

AN ENDURING TRADE

The original distribution of the black lory coincides approximately with that of the Moluccan cockatoo or salmon-crested cockatoo, Cacatua moluccensis (Gmelin 1788), endemic to Seram, Ambon, Saparua and Haruku, in the Moluccas (eastern Indonesia). One of its closest relatives is the sulphur-crested cockatoo, Cacatua galerita (Latham 1790), a large, white parrot native to the Australian region where it still occurs in the tropical and subtropical forests of New Guinea, and nearby smaller islands such as Waigeo, Misol and Aru, Australia and Tasmania. This is possibly the first species of South-Pacific parrot to have been portrayed in any European artistic productions. Indeed, its image appears under the indication psittacus in certain illuminations contained in the pages (fol. 18v EWI 66,27-67,27 / ÜWI 76-77, 20r EWI 70,7-71,10 / ÜWI 80-81, 20v EWI 71,10-72,13 / ÜWI 81-82, and 26v (EWI 84,6-85,4/ÜWI 94-95) of the Codex Ms. Pal. 1071 of the "De arte venandi cum avibus" by Frederick II of Hohenstaufen, in the Biblioteca Apostolica Vaticana (Fig. 4). This manuscript could have been written before 1258, since all the additions bear the wording Rex or Rex Manfredi and it was only on 10 August 1258 that Manfred, one of the sons of the emperor Frederick II, was crowned King of Sicily, in Palermo cathedral (Willemsen 1980). Moreover, the image of the white parrot in folio 18v

(EWI 66,27-67,27 / ÜWI 76-77) of the same manuscript of the Biblioteca Apostolica Vaticana shows what, in view of the pink colouration of its large, retractable and recumbent crest, appears to be an individual of Moluccan cockatoo. This cockatoo was subsequently the subject of several artistic productions in the Western World. In the early 18th century, for example, it appeared in the painting by Bartolomeo Bimbi Pappagallo delle Indie "bianco lattato" (Parrot of the Indies "milky white"), dated ante 1716 (Florence, Soprintendenza Speciale per il Patrimonio Storico, Artistico ed Etnoantropologico e per il Polo Museale) (Simari 1985b) (Figure 5). Nowadays, it is classified as a "species threatened with extinction", present in the IUCN Red List, and its natural Indonesian populations are protected though the Species Survival Programs (SSP), whilst the CITES forbids its trade for commercial purposes.

The transfer of parrots, such as cockatoos, from one island to another must have begun relatively early. The wondrous colouration of their plumage must have been at the origin of this flourishing trade since the prehistory of the West Pacific islands. The sulphur-crested cockatoo, for example, may have been translocated by man in early times to Ambon from some of the other Moluccas (Lever 1987). Other rare bird species and specimens characterised by the most multi-coloured plumages must also have been involved in precious trade, aimed at satisfying the vanity of the sultans of the most remote islands of the south-western Pacific. It is no coincidence that the history of the appreciation of parrots and of their exportation from the most distant of these archipelagos appears to be closely intertwined with that of another taxonomic category of exotic birds characterised by particularly sumptuous plumages: the birds-of-paradise. These are members of the Paradisaeidae family of the order Passeriformes. The majority of species in this family are found on the island of New Guinea and its satellites, with a few species occurring in the Moluccas and eastern Australia. The family has 42 species in 174 genera (Frith, Beehler 1998), and its members are perhaps best known for the plumage of the males of most species, especially the extremely elongated and elaborate feathers extending from the beak, wings or head. They are largely confined to dense rainforest. This bird family is of cultural importance to the human inhabitants of New Guinea. It is believed that dried 'trade skins' of adult males of the more elaborately-plumaged birds- of-paradise (particularly Cicinnurus and Paradisaea spp.) may well have been the subject of commerce between New Guinea and the eastern Indonesian archipelago, the Philippines and the south-eastern Asian mainland for as long as 5,000 years

(Frith, Beehler 1998). They were certainly valued items of decoration in Asia more than 2,000 years ago. Small wonder, then, that the first seafaring visitors to reach New Guinea from the West were offered bird-of-paradise skins as gifts and as trade goods (Swadling 1996). These birds appear, however, not to have been imported into Europe prior to the first half of the fifteenth century,



Figure 4. Sulphur-crested cockatoo, *Cacatua galerita* (Latham, 1790), in an illumination of the "De arte venandi cum avibus" by Frederick II of Hohenstaufen, in the Biblioteca Apostolica Vaticana .



Figure 5. Moluccan cockatoo or salmon-crested cockatoo, *Cacatua moluccensis* (Gmelin, 1788), in the painting by Bartolomeo Bimbi Pappagallo delle Indie "bianco lattato" (Parrot of the Indies "milky white"), dated ante 1716 (Florence, Soprintendenza Speciale per il Patrimonio Storico, Artistico ed Etnoantropologico e per il Polo Museale).

when in September 1522, the wrecked craft Vittoria straggled into the harbour of Seville, just as the remnant of the five splendid sailing vessels that had proudly set sail more than three years earlier under the leadership of Ferdinand Magellano (Fuller 1995). Among the wonders carried from the ship's hold were several fantastically coloured bird skins decorated with long, delicate, lace-like plumes, a gift to the captain of the Vittoria from the sultan of Batjan, in the Moluccas, who had received them from a far-off land to the south of his own island. The birds of paradise came from very far afield and, perhaps, for trade purposes their dried skins were deprived of the legs. This led to the long-standing belief that the birds of paradise were indeed footless and that they never alighted but fed upon dew or the fresh air on which they perpetually floated (Frith, Beehler 1998). According to A.R. Wallace (1869), all these birds were still known in the Malay archipelago of his time as burong mati, or dead birds, indicating that the Malay traders never saw them alive.

CONCLUDING REMARKS

As observed by Day (1981), parrots are exotic, but readily tamed, agile, yet content to exercise by climbing in restricted confinement; colourful, playful, mischievous and intelligent. They seem to have been kept as pets by every human society which has evolved in their habitat. But to Europeans, who did not know the birds in any numbers until the colonisations of the sixteenth century, they are pre-eminently the birds that can talk. Obviously, not all parrots are capable of human 'speech', but since classical Greek and Roman times, man has been amused by curious accounts of this talking birds. Nevertheless, as we have already seen, many species have been doomed to extinction prior to their identification by official science, especially those discovered by the Europeans in the islands of the Caribbean sea. When, for example, Christopher Columbus discovered the beautiful Bahama islands in 1492, he wrote in his journal that "the flocks of parrots obscure the sun". And in the world map drafted by the Turkish admiral Piri Reis in the year 1513, most of the West Indian islands are characterised by the occurrence of long-tailed parrots, possibly inspired by the various species of endemic macaws. In the latter islands alone, however, seven macaws and

three representatives of the parrot genus Aratinga became extinct between the so-called "year of the contact" (1492) and 1950 (see Silva do Nascimento 2011). The Cuban macaw, *Ara tricolor* Bechstein, 1811, for example, became extinct in the second half of the 19th century, the last specimen having been captured in 1864 (Garrido, Kirkconnell 2000). Jamaica too had its own yellow-headed macaw, which became extinct in the second half of the 18th century, before being scientifically described (cfr. Gosse 1848).

To return to our West Pacific archipelagos, the deep bond between the human colonisers of New Guinea and its avifaunal heritage appears to have begun 40,000 years ago, at the time of the early human occupation of these islands. Commercial exchange of living and/or dead animals, or parts of them between the Western World, the Indian Ocean, and the Middle East has been documented since prehistory. The earliest trade between the continental Far East and the West Pacific islands, can for example be dated to around 7,000 yaers ago, with the first evidence of the introduction of the pig, Sus scrofa L., 1758, from the eastern Asian mainland (cfr. Flannery 1995). However, the earliest documentation of the importation of zoological species - sometimes stuffed, less frequently alive - to Europe from the most remote islands of the western Pacific does not appear to date back beyond the second half of the thirteenth century when shortly after 1258, he first cockatoo was portrayed in the aforementioned Manfred's codex of the "De arte venandi cum avibus". In light of all this, it is not difficult to understand the enormous prestige that Vittore Carpaccio conferred upon both his own work and the standing of his commissioners, when - either drawing from life or taking inspiration from embalmed specimens - he portrayed exotic and precious species such as the cardinal lory and the black lory, originating from distant worlds that were in many respects still unknown and swathed in legend.

ACKNOWLEDGEMENTS

While preparing this paper I have been fortunate in having had the help of many friends and colleagues. I am particularly grateful to: Umberto Albarella, Department of Archaeology of the University of Sheffield (United Kingdom); Dante Texeira, Museo de Historia Natural de Rio de Janeiro; Cecilia Veracini, ISCSP – CAPP, Universidade Técnica de Lisboa; Carlo Violani, Dipartimento di Biologia Animale of the University of Pavia, and Bruno Zava, Wilderness-Studi ambientali, Palermo. Special thanks are due to Koenraad De Smet, Nature Division of the Ministry of the Flemish Community, Brussels, for his help in the taxonomic identification of the adult male of gazelle portrayed at the Scuola Dalmata of San Giorgio degli Schiavoni, in Venice.

References

U. ALBARELLA, R. THOMAS 2002, *They dined on crane: bird consumption, wild fowling and status in medieval England*, «Acta zoologica cracoviensia», 45 (special issue), pp. 23-38.

U. ALBARELLA, M. BEECH, J. MULVILLE 1997, The Saxon, Medieval and Post-medieval mammal and bird bones excavated 1989-1991 from Castle Mall, Norwich (Norfolk), English Heritage AML report 72/97, London.

J. BERLIOZ 1945, Les psittacidés de la Nouvelle Caledonieet des Establissements Français d'Oceanie, «Oiseau et Rev. Françc. Orn.», 15, pp. 1-9.

BirdLife International (2008), *Chalcopsitta atra*, in: IUCN 2008. IUCN Red List of Threatened species. Downloaded from <u>http://www.birdlife.org</u> on 14 April 2009;

BirdLife International (2013a), Species factsheet: Lorius domicella. Downloaded from <u>http://www.</u> birdlife.org on 02/04/2013.

BirdLife International (2013b), *Recommended citation for factsheets for more than one species:* IUCN Red List for birds. Downloaded from <u>http://www.birdlife.org on 02/04/2013</u>.

M. BELOZERSKAYA 2006, *The Medici giraffe*, Little, Brown and Company, New York and Boston.

N. J. COLLAR 1997, *Family Psittacidae (parrots)*, in del J. HOYO, A. ELLIOTT, J. SARGATAL (a cura di), *Handbook of the Birds of the World*. Volume 4, Sandgrouse to Cuckoos, Lynx Edicions, Barcelona, pp. 508-610.

N. J. COLLAR, A.V. ANDREEV, S. CHAN, M. J. CROSBY, S. SUBRAMANYA, J. A. TOBIAS 2001 (eds.), *Threatened birds of Asia: The BirdLife International Red Book*, BirdLife Iternational, Cambridge, UK.

D. DAY 1981, *The doomsday book of animals*, Ebury Press, London.

M. R. DE LA PEÑA, M. RUMBOLL 1998, *Birds* of Southern South America and Antartica, HarperCollinsPublishers, London.

H. DIENER 1967, *Die "camera Pappagalli"* in Palast des Papstes. Papageien ald Hausgenossen der Päpste, Könige un Fürsten des Mittelalters und Renaissance, «Archiv fur Kuturgeschichte», 49, pp. 43-97.

L. FARRAR 1998, *Ancient Roman Gardens*, Sutton Publishing, Stroud, Gloucester.

F. FEDELE 1985, *Zooarcheologia mesopotamica*, in *La terra tra i due fiumi*, Il Quadrante s.r.l., Torino, pp. 66-68.

T. FLANNERY 1995, *Mammals of he South-West Pacific & Moluccan Islands*, Australian Museum/ Reed Books, Chatswood, Australia.

J. M. FORSHAW 2006, *Parrots of the World; an Identification Guide*. Illustrated by Frank Knight, Princeton University Press, Princeton.

D. FRAGASZY, E. VISALBERGHI, L. M. FEDIGAN 2004, The complete capuchin: the biology of the genus Cebus, Cambridge University Press, Cambridge and New York.

C. B. FRITH, B. M. BEEHLER 1998, *The birds of Paradise. Paradisaeidae*, Oxford University Press, Oxford, New York - Tokyo.

E. FULLER 1995, *The lost birds of Paradise*, Swan Hill Press, Shrewsbury, UK.

O. H. GARRIDO, A. KIRKCONNELL 2000, *Birds of Cuba*, Christopher Helm/A & C Black, London.

M. GIESE 2008, *Die Tierhaltung am Hof Kaiser Friedrichs II. zwischen Tradition und Innovation*, in K. GÖRICH, J. KEUPP, T. BROEKMANN (herausgegeben von), Herrschaftsräume, Herrschaftspraxis und Kommunikation zur Zeit Kaiser Friedrichs II, Herbert Utz Verlag, München, pp. 121-172.

P. H. GOSSE 1848, *The birds of Jamaica*, John van Voorst, London.

J. C. JR. GREENWAY 1967, *Extinct and vanishing birds* of the world, Dover Publications, Inc., New York.

A. J. GSCHWEND 2009, *A procura portuguesa por animais exóticos. The Portuguese quest for exotic animals*, in J. HALLETT (ed.), Cortejo triunfal com girafas. Triumphal procession with giraffes, Lisbon, pp 32–42.

J. GWYNNE, G. TUDOR 2002, *Birds of Venezuela*. Second edition, Princeton University Press, Princeton.

R. HOWARD, A. MOORE 1991, A Complete Checklist of Birds of the World, Academic Press Limited, London.

J. HOYO, A. ELLIOT, J. SARAGATAL (eds.) 1997, *Handbook of the birds of the world*. Vol. 4. Sandgrouse to Cuckoos, Lynx Edicions, Barcelona.

R. KINZELBACH 1986, *New records of Alexander's Parrot,* Psittacula krameri, *from Egypt and the Levant countries*, «Zoology in the Middle East», 1, pp. 69-72.

B. KING, M. WOODCOCK, E. C. DICKINSON 1975, *Birds of South-East Asia*, Collins, London.

E. KITZINGER 1960, *I mosaici di Monreale*, Flaccovio Editore, Palermo.

C. LEVER 1987, Naturalized birds of the world, Longman Scientific & Technical, Harlow, England. M. MASSETI 2002, The ring-necked parakeet, Psittacula krameri Scopoli, 1769, in the Aegean region, in M. MASSETI (ed.), Island of deer. Natural history of the fallow deer of Rhodes and of the vertebrates of the Dodecanese (Greece), City of Rhodes - Environment Organization, Rhodes, pp. 85-88.

M. MASSETI 2009, *In the gardens of Norman Palermo, Sicily (twelfth century A.D.)*, «Anthropozoologica», 44, 2, pp. 7-34.

M. MASSETI 2016, Zoologia della Sicilia araba e normanna, L'Epos editrice, Palermo.

M. MASSETI, C. VERACINI 2010, The first record of Marcgrave's capuchin in Europe: South American monkeys in Italy during the early sixteenth century, «Archives of natural history», 37, 1, pp. 91–101.

M. T. MC MUNN 1999, *Parrots and poets in late medieval literature*, «Anthrozoös», 12, 2, pp. 68-75.

G. ORTALLI 1985, *Gli animali nella vita quotidiana dell'Alto Medioevo: termini di un rapporto*, Atti del Convegno "*L'uomo di fronte al mondo animale nell'Alto Medioevo*", Spoleto, 7-13 aprile 1983, S.p.A. Arti Grafiche Panetto & Petrelli, Spoleto, pp. 1389-1443. U. PAZ 1987, The birds of Israel, The Stephen Greene Press, Lexington.

B. RIBEMONT 1990, *Histoires des perroquets: petit itinéraire zoologique et poétique*, «Reinardus», 3, pp. 155-172.

E. RINGMAR 2006, Audience for a giraffe: European expansionism and the quest for the exotic, «Journal of world history», 17, 4, pp. 375–397.

A. SALIM 1941, *The Book of Indian Birds*, The Bombay Natural History Society, Bombay.

G. E. SHELLEY, W. L. SCLATER 1896-1912, The birds

of Africa comprising all the species which occur in the Ethiopian region, R.H. Porter, London.

R. SILVA DO NASCIMENTO 2011, *The macaw of Dominica*, «Earthling Nature», 2, pp. 43.

M. M. SIMARI 1985a, Pietro Neri Scacciati. Allegorical scene with monkeys, parrots and a cat, and/or A monkey, a crow, a parrot and hen, in M. Mosco (ed.), Natura viva. Animal paintings in the Medici Collections, Centro Di, Firenze, pp. 74-75.

M. M. SIMARI 1985b, Bartolomeo Bimbi. White parrot, in M. Mosco (ed.), Natura viva. Animal paintings in the Medici Collections, Centro Di, Firenze, pp. 36-37. I. SINCLAIR, P. RYAN 2011, Birds of Africa: south of the Sahara, Random House Struik (Pty.), Cape Town.

S. SPANÒ, G. TRUFFI 1986, Il Parrocchetto dal collare Psittacula krameri allo stato libero in Europa, con particolare riferimento alle presenze in Italia, e primi dati sul pappagallo Monaco, Myospitta monachus, «Rivista italiana di Ornitologia», 56, pp. 231-239.

P. SWADLING 1996, Plumes from paradise. Trade cycles in outer Southeast Asia and their impact on New Guinea and nearby islands until 1920, Papua New Guinea National Museum and Robert Brown & Associates, Boroko and Coorparoo (Qld).

B. URBANI 1999, Nuevo mundo, nuevos monos: sobre primates neotropicales en los siglos XV y XVI, «Neotropical primates», 7, 4, pp. 121–125.

A. VANOLI 2008, *La Sicilia musulmana*, in G. M. CANTARELLA, A. VANOLI, A. CILENTO (a cura di), *Arabi e Normanni in Sicilia e nel sud d'Italia*, Magnus Edizioni, Udine.

C. VERACINI 2010, *La conoscenza dei primati del Nuovo Mondo nell'Europa Rinascimentale*, Unpublised PhD theses, University of Pisa, Pisa.

R. A. WALLACE 1869, *The Malay archipelago*, Harper & Brothers publisher, New York:.

C. A. WILLEMSEN 1980, *Postfazione*, in De arte venandi cum avibus. Codex Ms. Pal. Lat. 1071 della Biblioteca Apostolica Vaticana, Die bibliophilen Taschenbücher, 152. Harenberg Kommunikation, Dortmund, pp. 229-244.

C. M. WOOLGAR 1999, *The great household in late medieval England*, Yale University Press, New Haven and London.