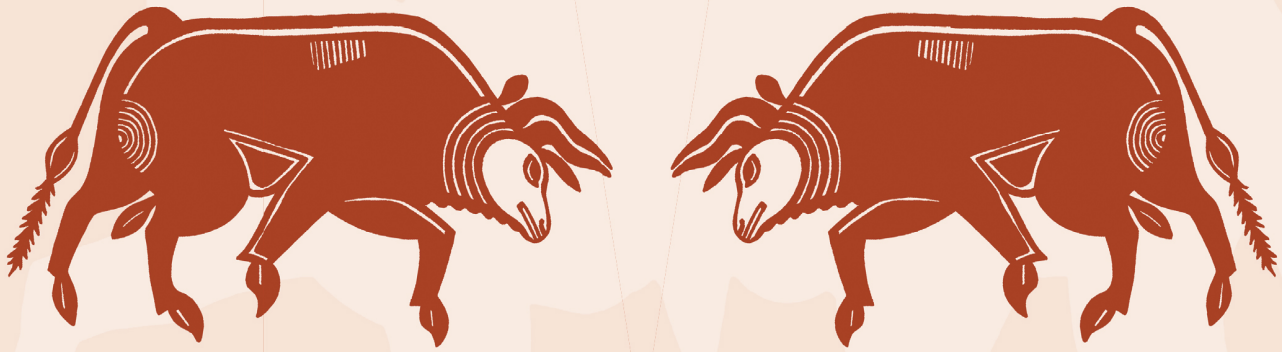
Archaeobiology 3

ARCHAEOZOOLOGY OF SOUTHWEST ASIA AND ADJACENT AREAS XIII



Proceedings of the Thirteenth International Symposium, University of Cyprus, Nicosia, Cyprus, June 7–10, 2017

edited by

Julie Daujat, Angelos Hadjikoumis, Rémi Berthon, Jwana Chahoud, Vasiliki Kassianidou, and Jean-Denis Vigne

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Group photo of the 13th ASWA[AA] meeting June 8th 2017
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Part 2: Subsistence Economies of Early and Late Complex Societies in Southwest Asia and Adjacent Areas

Part 3: Beyond Subsistence: Animals in the Symbolic World of Southwest Asia and Adjacent Areas

FOREWORD

The 13th ASWA conference was hosted by the University of Cyprus, one of the youngest of Europe's universities. In 2019, it was only thirty years since its foundation. Nevertheless, this is a thriving academic institution, which currently consists of eight faculties, twenty-two departments, and eleven research units.

In 1991, and just two years after the university's foundation, the Archaeological Research Unit (ARU) was founded by decree from the Government of the Republic of Cyprus, following the issuance of the dependent legislation by the House of Representatives. The decision to establish the ARU was based on the recommendation of the Interim Steering Committee of the University of Cyprus, which stated the following:

1. Cyprus is offered for primary research in the field of archaeology thanks to its distinctive cultural signature and history, as well as due to the fact that Cypriot archaeology and archaeological research on the island already has a distinguished tradition and international reputation;

2. The subsequent international recognition of the importance of archaeological research in Cyprus should comprise one of the first incentives for choosing the University of Cyprus as a center for postgraduate studies, and will pave the way for the exchange of students and academics between the University of Cyprus and academic institutions overseas.

The faculty members of the ARU, who are also part of the Department of History and Archaeology academic staff, have contributed immensely over the past 28 years to the achievement of the aforementioned objectives for the study and promotion of Cypriot cultural heritage through their research, their teaching, and the practical training they have been providing to students at undergraduate and postgraduate levels. The active study of other regions of the Mediterranean world have not been overlooked either, as members of the ARU academic staff have been carrying out excavations and research projects in Greece, Turkey, and France.

The members of the ARU are actively carrying out research in Pre- and Protohistoric Archaeology, Classical and Byzantine Archaeology but also Archaeometry and Environmental Archaeology, Maritime Archaeology, and Western Art. In the course of the past 28 years, the ARU has laid very stable foundations in all aforementioned specialisations of the archaeological discipline, none of which existed at academic level in Cyprus before the unit's establishment. Through their teaching at undergraduate and postgraduate levels, all members of the ARU academic staff have been contributing to the formation of a new generation of Cypriot archaeologists, equipped with all the necessary knowledge and practical experience needed to excel in this scientific field.

Over the years, the ARU has been very active in organizing international conferences and workshops. The ARU has organized over 50 international conferences, while members of the academic staff have published the proceedings of over 20 scientific meetings held at the ARU.

Thus, when Jean-Denis Vigne came to my office several years ago with the suggestion to co-organize the 13th Archaeozoology of Southwest Asia and Adjacent Areas conference I gladly accepted. The meeting in Nicosia brought together colleagues from all over the world and offered a venue where new results from the field or the laboratory could be presented and discussed. The publication of the conference proceedings enables colleagues who were unable to attend the conference to read about the latest developments in the archaeozoology of this culturally important region.

I would like to close by thanking all the members of the 13th ASWA organizing committee for all the work they have put into bringing so many scholars to Cyprus, many of them for the first time. I would also like to thank the co-editors of this volume for all the work they have put into the publication of the proceedings.

Professor Vasiliki Kassianidou
Director of the Archaeological Research Unit,
University of Cyprus
Nicosia, August 2019

EDITORS' PREFACE

Due to their location at the meeting point of the three Old World's continents—Africa, Asia, and Europe—Southwest Asia and its adjacent areas played a pivotal role in the history of humanity. They received successive waves of our species—*Homo sapiens*—out of Africa. Different processes in several areas of this large region brought about the transition to the Neolithic, and later on the urban revolution, the emergence of empires bringing with them important subsequent religious, cultural, social, and political consequences. Southwest Asia also played a major role in the interactions between East (Asia) and West (Europe) during the last two millennia. The unique importance of Southwest Asia in the history of humanity is strengthened by the, also related to its location, fact that this area is a hotspot of biodiversity, especially in mammals, which were—as everywhere in the world—tightly associated to the history of civilizations in a diversity of roles: game, providers of meat and milk, traded raw material, symbol of prestige and wealth, pets, etc.

Everywhere in the world, the biological and cultural interactions between humans and animals often remain under-evaluated in their heuristic value for understanding complex social and biological interactions and trajectories. This is why, almost half a century ago, archaeologists who were carrying out research and reflecting on such themes founded a very active nonprofit world organization named the International Council for Archaeozoology (ICAZ). This is also why the ICAZ working group "Archaeozoology of Southwest Asia and Adjacent Areas" (ASWA[AA]) was one of the first ones created within ICAZ, constituting one of the largest and most active of ICAZ's working groups.

The ASWA[AA] was formed during the 1990 ICAZ International Conference in Washington, D.C. Its purpose is to promote communication between researchers working on archaeological faunal remains from sites in western Asia and adjacent areas (e.g., Northeast Africa, Eastern Europe, Central Asia, and South Asia). It carries out its mandate mainly through the sponsoring of biennial international conferences. Since 1998, these meetings have alternated in being hosted in Europe or in Southwest Asia: Paris (1998), Amman (2000), London (2002), Ankara (2004), Lyon (2006), Al Ain (2008), Brussels (2011), Haifa (2013), Groningen (2015).

Ongoing armed conflicts and political tensions in several countries of Southwest Asia made it difficult to locate a safe and convenient place that would enable the organizing the 13th ASWA[AA] meeting in within that region. Although Cyprus is currently a member of the European Union, in (pre-)history Cyprus was embedded in the eastern Mediterranean "world." Because of its location, Cyprus was indeed at the confluence of African, Levantine, Anatolian, and Greek cultural streams and, as is common for islands, recombined them in different but always original ways all along its history. Archaeozoology recently provided one of the most convincing illustrations of the tight connection between Cyprus and Southwest Asia, demonstrating that the earliest domesticated mammals, especially cats, pigs, cattle, sheep, and goats, were introduced to the island very shortly after their first incipient domestication on the near continent, that is, during the ninth millennium BC. For all these reasons, Cyprus represented an ideal place to host the 13th ASWA[AA] conference.

Despite the illegal military occupation of part of its territory by a foreign country, the option of hosting the meeting in Cyprus was enthusiastically embraced by all members of the working group, especially because it is open to all nationalities and maintains good diplomatic relationships with a large majority of countries in Southwest Asia. These facts contributed towards the 13th ASWA[AA] meeting in Cyprus (June 7–9, 2017) becoming one of the best-attended ASWA[AA] meetings. It brought together 80 scientists coming from 25 different countries: from Southwest Asia (6 countries), Europe (14 countries), North America (2 countries), and Japan.

They presented their results in 36 oral and 32 poster presentations. They debated the long-term interactions between humans and biodiversity, about the beginning of animal domestication and husbandry, the strategies of animal exploitation from the Paleolithic to modern times, and the symbolic and funeral use of animals through time. They also greatly enjoyed the numerous social events organized, in-

cluding a fantastic Cypriot mezze dinner, enhanced by a local folk-music band, and a nice excursion to the archaeological sites of Amathous, Kourion, and Khirokitia, and to the museums of Nicosia and Larnaca, which provided ample opportunities for scientific exchanges in a friendly atmosphere.

The hosting of the conference at the new campus of the University of Cyprus was another major reason to the meeting's success. This campus was a convenient and pleasant venue for such a conference, and the strong support of the University of Cyprus, as well as its valuable experience for the organization of such meetings were deeply appreciated by both the scientific organizers and the delegates. Several other partners contributed to the organization: the French archaeological mission "Neolithisation—Klimonas," which is itself strongly supported by the French School at Athens, the Cyprus Department of Antiquities, the French Institute of Cyprus, the French National Center for Scientific Research (Centre National de la Recherche Scientifique [CNRS]), and the French National Museum of Natural History (Muséum national d'Histoire naturelle [MNHN]).

The present volume brings together the texts of 18 of the 68 presentations of the meeting in Nicosia. The editorial board collected the papers and organized their review and editing. We are very grateful to Sarah Kansa (and Open Context), Justin Lev Tov, and Lockwood Press for their constant support in bringing this volume to fruition.

Julie Daujat
Angelos Hadjikoumis
Rémi Berthon, Jwana Chahoud
Vasiliki Kassianidou
Jean-Denis Vigne

3.4 | Ornithological Interpretation of the Sixth-Century AD Byzantine Mosaics from Tall Bīʿa, Syria

Gábor Kalla* and László Bartosiewicz†

Abstract

Tall Bīʿa is located on the left bank of the Euphrates River, east of present-day Raqqa in northern Syria. The ruins of an Early Byzantine monastery recovered at the site revealed mosaic floors with luxuriant avian imagery. The largest mosaic contained naturalistic depictions of 49 birds, whose ornithological identification is attempted in this paper. Mosaics in two smaller rooms also contained images of four birds each. In comparison with the diversity of species discussed in coeval codices and identified in archaeozoological assemblages in the region, it is clear that these mosaics represent only a limited range of the avifauna that surrounded people in the Byzantine Empire. While zoological information in artistic representation cannot always be taken at face value due to the discrepancies between the geographical distribution of avifauna and their free movement as decorative motifs, the large number and high quality of these images deserves attention from an archaeo-ornithological point of view. They potentially characterize relationships between people and birds in an important period through art, complementing the frequently meager osteological record.

Keywords

avifauna, iconography, bird remains, Byzantine Empire, mosaics, codices, symbolism, religious art, Syria, environment

Introduction

The settlement complex of Tall Bīʿa—Temple Mound—is located east of present-day Raqqa in northern Syria. It lies approximately 2.5 km north of the Euphrates near its confluence with the Balikh, its left-bank tributary. The site has widely been considered to represent the Babylonian city of Tuttul (Kalla 1999:131). Under Byzantine rule the city, then called Kallinikos and subsequently Niképhorion, played a key role as a designated trading post at the border between the Byzantine and Sassanid Empires.

The possible remains of the Early Byzantine Saint Zacchaeus monastery were identified on the highest, so-called E mound of the site, covering an area of ca. 650 × 750 m (Krebernik 1991). The AD 509–595 time span marked by two dated mosaics in the monastery encompasses a tumultuous period in ecclesiastic history when the Syriac Orthodox Church was established, resulting from the efforts of Jacob Baradaeus (Gregory 1991). He served as bishop of Edessa—present-day Şanlıurfa (Turkey) 160 km north of Raqqa—between AD 543/544–578.

The mosaics under discussion here show birds depicted with different levels of realism, for most allowing identifications at various degrees of precision—species, families or orders—along the principles of classical and modern avian taxonomies. The resulting list cannot only be compared to contemporaneous Byzantine mosaic representations but also with bird remains from archaeozoological assemblages in the region. This would help to gain a better understanding on how people associated individual taxa with earthly well-being and Christian symbolism.

Comparisons between mosaic art, osteological evidence, and Byzantine codices were based on

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the comprehensive work by Kádár (1978). He provided his own identifications for birds encountered in these richly illustrated documentary sources. The combined species lists found in the Byzantine written sources were considered to systematically summarize birds of common knowledge at the time. They were not affected by artistic selection dictated by the semiotics of highly symbolic mosaics. They were also free from the filter of utilitarian considerations that shaped the species composition of archaeozoological assemblages.

Characteristics of Tall Bīʿa's Mosaics

The mosaic images of birds decorated three rooms of the monastery. The largest set (Mosaic 1 in the foreroom of the church, measuring 10.5 × 4 m) is dated to August AD 509 by a Syriac inscription. This mosaic contained an admixture of highly abstracted aesthetic and somewhat naturalistic depictions of 49 birds. Some are poorly identifiable, partly because they seem to combine features of various species. Another set of images dates to AD 595 (Mosaic 2 in the sanctuary, 3.7 × 3.5 m), and the last set, tentatively dated in-between the two aforementioned dates (Mosaic 3 in a funerary shrine; 4.0 × 3.1 m), also showed images of four birds each. The detailed description of related architectural features as well as the structure and dimensions of decorative patterns in the mosaics have already been presented by the first author (Kalla 1999:132–141). In the current study, birds were identified and classified using visual disjunction supported by the ornithological literature (Cottridge and Porter 2007; Porter and Aspinall 2010).

Arrangement of Images

Prior to ornithological interpretation, structural characteristics of the composition at Tall Bīʿa are worth reviewing. The curious spatial syntagma represented by the birds in the older, large Mosaic 1, has already been discussed (Kalla 1991). The mid-section across the main entrance of this long room is decorated with a pair of peafowls facing each other, accompanied by a similar pair of doves (Figure 3.4.1, center).

These birds are shown sideways in a static manner, as if representing in such a way aimed at documenting their morphological features rather than their behavior (Kádár 1978:87). This motif depicting peafowls and doves may be considered a *topos* in the context of Early Byzantine religious architecture. At Tall Bīʿa, however, the composition also includes two ducks and two partridges in different, vivid positions, and not facing each other. The scenes to the right and left of the main entrance also show this contrast, between strictly organized symmetry and real-life dynamism. The southern section (Figure 3.4.1, bottom), right of the main door shows two columns of five pairs of birds symmetrically facing each other. With the exception of a rooster and hen, these birds are almost mirror images of one another. The northern left side of the room (Figure 3.4.1, top), on the other hand, is populated by a lively array of birds in various positions, which seems almost chaotic in comparison with the catalogue-like and rigid representations in the south. A pomegranate tree flanked by two symbolically important cypress trees defines this subtle system, in what looks like a very active scene. They are oriented the same way as the pair of peafowl at the main entrance, the three of them dividing the north section into four fields. Of these, the section near the northern wall is decorated by rather abstract images of three pairs of fish. Loosely arranged birds form rows in the remaining three fields around the trees. Some of these birds are in pairs: two facing roosters and two Guinea fowls, but they are mostly positioned in random and active postures. With the exception of the central entrance section, dominated by the images of peafowl, all birds are oriented head north, regardless of their arrangement. This means that their position is perpendicular to the three trees depicted in the room's northern section.

This complex arrangement is worth comparing to that documented at Caesarea, Israel (Reich 1985). Images there form what can be described as an "inhabited scroll" (Hachlili 2009:111–147): the 11.5 × 13.4 m central panel of that mosaic is divided into ten rows of twelve medallions, with a single bird shown in each, uniformly facing left. These 120 birds, however, represent relatively few species and are iterated in a strict mathematical order (Reich 1985:207 and pers. comm. 2017). As a result, the same species fall into diagonal directions across the design. Similar medallions encircling pairs of individual partridges and peafowls—in both cases facing each other—are shown in Mosaic 2 at Tall Bīʿa. Aside from the artistic value of this tight arrangement,

Figure 3.4.1. Overview picture of the most complex, large Mosaic 1 (AD 509). Note the different layouts of images in the north, center, and south sections. (Photograph by G. Kalla.)

Table 3.4.1. Sources used in the evaluation of bird imagery from Tall Bīʿa.

Source type	**Mosaic floors**			**Osteological evidence**			**Codices**
Site	Tall Bīʿa	Caesarea	Petra	Troy	Jerf el Ahmar	Tell Hesban	
Reference		*Reich 1985*	*Studer 2001*	*Krönneck 1995*	*Gourichon 2002*	*Boessneck 1995*	*Kádár 1978*
Code in Figure 3.4.1 legend	1	2	3	4	5	6	-
Number of images	57	120	109	-	-	-	-
Number of bird bones	-	-	-	663	1,554	3,019	-
Number of bird species	15	10	14	28+1	50	45	64
Number of bird orders	5	5	7	11	10	8	16
Habitat type				Sea shore	Alluvial	Semi-arid	
Approximate distance, km	0	700 SW	850 SW	2000 NW	140 NW	650 SW	

Nissen (1953:19) points out that, in addition to the in-text illustrations, half of the 48 pictures in *Codex Vindobonensis* med. gr. 1. are arranged in a six-by-four table, reflecting a merger between ornithological scholarship and the visual language of mosaics and wall paintings. At Petra, Jordan (Studer 2001), the structural relationships between the images in the comparable Mosaic I (northern aisle; 22.23 × 3.34 m; ca. AD 525–550) fall in between the strict, almost heraldic, discipline seen at Caesarea and the complex pattern observed at Tall Bīʿa. Medallions at Petra are arranged into three columns and twenty-eight rows and are slightly flattened on the top and bottom of each row while the central medallion is somewhat compressed, therefore being smaller than the lateral ones (Waliszewski 2001:219). Animals, mammals, birds, and fish alike usually occur in the lateral column of medallions facing inward, that is, facing each other. Oftentimes, their feet or tails reach beyond the frame of the medallions, offering a somewhat more playful presentation than the tight and monotonous order seen at Caesarea. In Mosaic 1 at Tall Bīʿa, no medallions or individual frames were employed, but a symmetry-based tight order was retained in the southern section.

Colors Applied

The mosaic images were composed of tesserae measuring 0.8–0.9 mm on each side. Their colors—in the decreasing order of relative frequency—are gray, black, white, red, pink, yellow, ochre, dark blue, green, and burgundy (Kalla 1999:135–136). While the largest numbers contributed to the background of birds, red and pink are of critical importance in the tentative identifications of several species, including purple heron and flamingo. Some of these identifications, however, remain zoologically uncertain. It is possible that the use of red was in certain cases based on purely artistic considerations. The use of red and pink tiles for the turtledove may be a sign of artistic freedom, increasing visual contrast against the white background. Moreover, there is also the possibility that some of the colors somewhat changed during the taphonomic process.

Multidisciplinary parallels to Tall Bīʿa's iconography are summarized in Table 3.4.1 and Figure 3.4.2.

Complementary Evidence

In addition to the mosaics, two additional types of sources were consulted: bioarchaeological and textual.

Most of the excavated animal-bone assemblages included in the authoritative monograph on Byzantine archaeozoology by Kroll (2010) date to the Early Byzantine period (AD 395–642), when the Empire attained its maximum expansion. The difficulty in using these materials is that in many bird bones occur only sporadically. This is in part due to small sample sizes as well as the lack of systematic sieving at many excavations, indispensable in the retrieval of small bird-bone fragments.

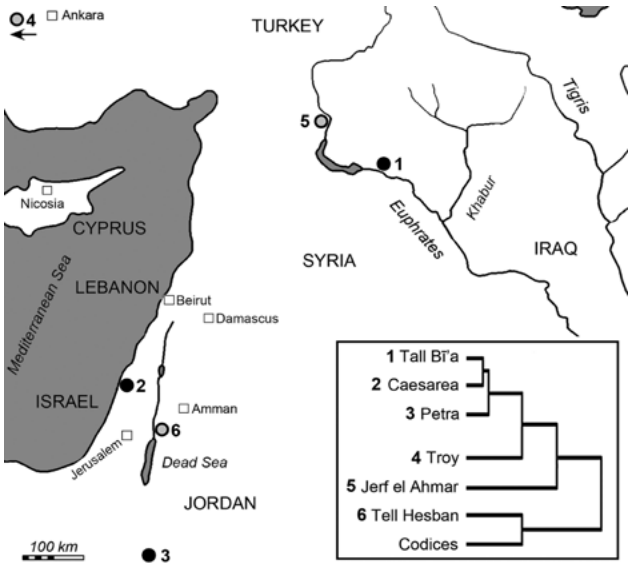

Figure 3.4.2. The location of sites detailed in Table 3.4.1. Black dots indicate mosaics, circles in gray stand for archaeozoological assemblages. Major present-day cities are indicated by empty squares. The insert serves as a legend to the map but also shows the Euclidian distances calculated between sites on the basis of ornithological diversity.

The repertoire of identifiable birds on the mosaics was thus compared to three large bone assemblages. These assemblages are representative of the bird species exploited by the inhabitants in each region, presuming that the latter—and their native avifaunas—did not substantially change in antiquity. For the purposes of this study, assemblages from different strata had to be conflated in order to obtain sufficiently large samples of representative sizes.

Of the three archaeological sites, the PPNA settlement of Jerf el Ahmar (Gourichon 2002) in the Euphrates River Valley was the closest to Tall Bīʿa. The even larger bird-bone assemblage from the Iron Age through Mamluk-period settlement of Tell Hesban (Boessneck 1995), located further south on the edge of the Transjordanian highland plateau, was chosen as a possible match to the mosaic images from Petra. Lastly, the Early Bronze Age to Roman-period bird-bone material from Troy in western Turkey (Krönneck 1995) represents a coastal avifauna against which the mosaic from Caesarea could be assessed.

More importantly, the geographical proximity of Troy to Constantinople made it relevant in the study of species listed in documentary sources chosen on the basis of archival research by Kádár (1978). One of the scholarly works considered is an anonymous paraphrase of the *Ornithiaca* by Dionysius of Philadelphia (first century AD) in the *Codex Vindobonensis* med. gr. 1. (a.k.a. "The Vienna Dioscurides") from Constantinople, dated to around AD 512. This work is the oldest surviving illustrated treatise on birds in Europe and includes 48 images. A complementary source analyzed by Kádár (1978:77) was the *Codex Vaticanus* Chis. F. VII 159 containing 70 bird illustrations. These birds represented the same species as those in the *Codex Vindobonensis* med. gr. 1. The only exception was the griffon vulture (*Gyps fulvus*), found only in the latter, the Vatican codex (Kádár 1978:84). Both works reflect the influence of Aristotelian classification in Byzantine zoological systems.

Quantitative comparisons between the three very different types of sources were limited to the analysis of taxonomic diversity based on the presence/absence of species in the mosaics, archaeozoological assemblages, and codices. The large size of the chronologically pooled archaeozoological find materials was particularly important from this point of view: taxonomic diversity in bird-bone samples tends to rapidly increase as the function of the number of identifiable bone specimens (Bartosiewicz and Gál 2007:40, Figure 4). Finally, all sources were compared on the basis of Euclidean distances between mosaics, archaeological assemblages, and pooled data in written sources. The basis of the comparison was the number of species present in those bird orders having over four species (as listed in boldface in Table 3.4.3).

Results

All identifiable birds depicted at Tall Bīʿa were well known in the Byzantine world and—with a few exotic exceptions—were also physically present in archaeozoological assemblages originating from nearby excavations; the same is true for the contemporaneous mosaics of Caesarea and Petra toward the south. The special feature of Tall Bīʿa's mosaics is that, except for the sketchy representations of six fish in the north of Mosaic 1, their repertoire is emphatically limited to birds, with the exception of one fallow deer dominating Mosaic 3, while other vertebrate classes are well represented on the mosaics at both Caesarea and Petra. Avian species identified in Tall Bīʿa's mosaics are summarized according to present-day avian taxonomy in Table 3.4.2.

Table 3.4.2. Bird species shown in the Tall Bīʿa mosaics. The percentage of orders represented is based on the number of species occurrences (N). Parenthesized numbers indicate alternative identifications for the same image. Question marks stands for uncertain identifications.

Species		Room/Inventory number
Great egret (*Ardea alba* Linné, 1758)		1/17, 1/18
Gray heron (*Ardea cinerea* Linné, 1758)		1/31, 1/32
Purple heron (*Ardea purpurea* Linné, 1766)	?	1/9, 1/10
Glossy ibis (*Plegadis falcinellus* Linné, 1766)	?	1/1, 1/2
Order: Pelecaniformes N = 8 (13.1%)		
Greater flamingo (*Phoenicopterus roseus* Pallas, 1811)	?	(1/1, 1/2)
Order: Phoenicopteriformes N = 2 (3.3%)		
Mallard (*Anas platyrhynchos* Linné, 1758)		1/3, 1/4, 1/13, 1/14, 1/23, 1/39, 1/40, 1/44, 1/45
Domestic duck (*Anas domesticus* Linné, 1758)	?	1/15, 1/16
Duck family (Anatidae Vigors, 1825)		1/22, 1/24, 1/29, 1/30, 1/36, 1/37, 1/38
Order: Anseriformes N = 18 (29.5%)		
Chukar (*Alectoris chukar* Gray, JE, 1830)		2/3, 2/4
Rock partridge (*Alectoris graeca* Meisner, 1804)	?	(2/3, 2/4)
Partridge genus (*Alectoris* Kaup, 1829)		1/21, 1/33, 1/34, 1/35
Domestic hen (*Gallus domesticus* Linné, 1758)		1/11, 1/12, 1/19, 1/20, 1/41, 1/42, 1/43, 1/46, 1/47
Indian peafowl (*Pavo cristatus* Linné, 1758)		1/26, 1/27, 2/1, 2/2
Guinea fowl (*Numida meleagris* Linné, 1764)		1/5, 1/6, 1/48, 1/49
Order: Galliformes N = 23 (37.7%)		
Domestic pigeon (*Columba domestica* Linné, 1758)	?	3/3, 3/4
Collared dove (*Streptopelia decaocto* Linné, 1758)		1/7, 1/8
Red turtledove (*Streptopelia tranquebarica* Hermann, 1804)	?	1/25, 1/28, 3/1, 3/2
Order: Columbiformes N = 8 (13.1%)		
Rose-ringed parakeet (*Psittacula krameri* Scopoli, 1769)	?	(1/7, 1/8)
Order: Psittaciformes N = 2 (3.3%)		

Bird Orders Represented

Pelecaniformes. Among the wading birds, ardeids, great egret, and gray heron could be identified with relative certainty, although the great egret lacks a qualitative characteristic: the decorative feathers on the head. Purple heron, a species distinguished only by color, may be suspected on the basis of the wings' color in the pair facing each other (Nos. 1/9, 1/10; Figure 3.4.3, right).

Considering, however, that in purple herons the reddish feathers occur on the neck rather than the wings, chances are that the use of red tesserae on the latter reflects an aesthetic choice.

The identification of a wading bird with strongly curved beak (Nos 1/1, 1/2; Figure 3.4.3, left) is an

Figure 3.4.3. Flamingo (?; 1/1) and red heron (1/10) at Tall Bīʿa. (Photograph by G. Kalla.)

Figure 3.4.4. Possible domestic (1/15) and wild duck (1/22) at Tall Bīʿa in passive and active postures respectively. (Photograph by G. Kalla.)

even more complex task. The possibilities include glossy or bald ibis (Jos Welbedacht, Francis Koolstra, and Joris Peters, personal communication 2017) or greater flamingo, but the bird is also reminiscent of the pelican depicted in the Vienna Dioscourides, f. 479 v. A sacred ibis sporting an even stouter beak was identified at Petra while a rather heron-looking wader with a more slender beak was identified as a flamingo at Caesarea.

Among the excavated bones, flamingos were identified at Tell Hesban and Troy, whereas ibis bones were missing. Flamingos prefer shallow, saline or alkaline waters like those in lagoons or river deltas. Since this bird also had a touch of reddish color on Tall Bīʿa's mosaic, it was considered a flamingo with greater likelihood. Although both ibises and flamingos have been known from mosaics of Alexandrian influence as well as in Syria and Palestine, they are conspicuously absent from the two codices available for study (Kádár 1978:87).

Anseriformes. Depictions of a variety of geese and ducks are among the favorite themes of antique monumental iconography, a possible influence by Alexandrian Hellenism, also manifesting itself in Byzantine mosaic art (Kitzinger 1965). At Tall Bīʿa, this order is represented by diverse ducks. Most of them display a rich variety of patterns that have little resemblance to known species—a similar difficulty is encountered on the high-quality fifth- to sixth-century AD floor mosaic in the "Villa of the Amazons" at Şanlıurfa/Edessa. Mallard could be tentatively identified on the basis of its ringed neck in ten cases at Tall Bīʿa, although some of these animals have green necks and spotted patterns that contradict this opinion (Amos Belmaker, personal communication 2017). A pair of white ducks (Nos. 1/15, 1/16; Figure 3.4.4) were considered domestic.

With the exception of arid Tell Hesban, a plethora of wild-duck species were also identified in the archaeozoological materials. The difficulty with the remains of mallard and domestic duck is that their bones cannot be distinguished from one another. In Roman times duck husbandry was still restricted to keeping mallards in captivity. It is believed that real domestication did not take place until the Middle Ages (Benecke 1994:381). The white color of ducks at Tall Bīʿa, a sure sign of domestication, may indicate an earlier post-Roman date, although the possibility that the pictures show geese, which were

Figure 3.4.5. Two forms of domestic hens (1/16 and 1/12) at Tall Bīʿa. (Photograph by G. Kalla.)

already domesticated during the Iron Age, cannot be entirely ruled out (Amos Belmaker, personal communication 2017). While the beak and posture are quite duck-like, this rotund bird looks much like the white—that is, domestic—anseriform birds depicted on a fifth-century AD mosaic in the Great Palace of Constantinople, which throws doubt on precise identification at a genus level (anonymous reviewer, personal communication 2018). Meanwhile, the relatively stout neck of these birds on Tall Bīʿa's mosaic makes them more similar to ducks.

Galliformes. Fowl-like birds include a number of economically important and popular birds also depicted at Tall Bīʿa. Of the wild fowl, chukar partridge is the most likely identification for a pair of birds (Nos. 2/3, 2/4). Less evidently identifiable partridges are also present (Nos. 1/21, 1/33, 1/34, 1/35). Chukar bears a striking resemblance to rock partridge to the extent that Aristotle distinguished them on the basis of their voices alone (*Hist. Anim.* IV 9, 536 b 14). Although rock partridge today inhabits only southeastern Europe, its present distribution falls well within the former area of the Byzantine Empire in southeastern Europe (Randi 2006:370), where it may have entered the repertoire of avian motifs in art during antiquity. On the other hand, mosaics showing partridges of the genus *Alectoris* are ubiquitous in Southwest Asia. It may thus be hypothesized that many of these birds were depicted by local artists familiar with chukar partridges from everyday life (anonymous reviewer, personal communication 2018). Unless [rock] partridge had become a particularly conservative iconographic element in Byzantine Europe, its presence is less likely on Tall Bīʿa's mosaic. With the exception of Caesarea's mosaic, chukar partridge has been identified in all three types of sources consulted in this study. It also occurs in the aforementioned fifth–sixth century floor mosaic from Şanlıurfa/Edessa. Sand partridge (*Ammoperdix heyi* Temminck, 1825), found among the bird bones at Tell Hesban, may be ruled out as an alternative model for these images as it has a markedly different stripe pattern on the side (Amos Belmaker, personal communication 2017).

Domestic hen occurs in nine images on the mosaic at Tall Bīʿa, rivaled in numbers only by the previously discussed ducks. In Christianity, the rooster symbolizes vigilance and is also associated with Saint Peter. While in this mosaic it appears together with a hen (Nos. 1/19, 1/20), single roosters are depicted at Petra and none at Caesarea. On the other hand, a pair of hens apparently of markedly different types are also represented at Tall Bīʿa (Nos. 1/11, 1/12; Figure 3.4.5).

One of them (1/12) possibly combines the plumage of a pheasant with the comb of a domestic hen. The moderate spurs depicted may raise the question whether the distinctly different "hens," 1/11 and 1/12, actually show leggy capons. The castration of roosters seems to have already been practiced in classical antiquity (Gál 2013:225). Unfortunately, spurs are shown by the artist on this mosaic rather indiscriminately, even on wading birds. Therefore, no spurious speculations concerning caponization should be based on this unreliable morphological feature as shown in the mosaic. Generally, over 80% of bird bones recovered from Byzantine sites orig-

Figure 3.4.6. Turtledove (1/28) and parakeet (?; 1/8) at Tall Bīʿa. (Photograph by G. Kalla.)

inate from domestic hen (Kroll 2010) and are also well-represented at Tell Hesban and Troy; however, the large Jerf el Ahmar material is far too early to contain bones of domestic birds.

Two imported fowl species are of particular significance here. The aforementioned pair of Indian peafowls takes center stage in the design of Mosaic 1, but also occurs on the smaller Mosaic 2 (Nos. 1/26, 1/27, 2/1, 2/2). These magnificent birds are depicted on all the mosaics and codices studied here. The peafowl symbolized resurrection in Byzantine art as its flesh was thought not to be susceptible to decay (Saint Augustine, *City of God* xxi, c, iv). In a more secular setting, the peafowl was assigned to the empress in the Byzantine court, just as the eagle was the emperor's bird (Bartosiewicz 2012:180, Table 1; Ronnberg and Martin 2010:260). The absence of the latter bird in Tall Bīʿa's iconography indirectly confirms the religious meaning of peafowl, taking center stage in the design of Mosaic 1 in combination with the inscription. The posture of these birds further supports this hypothesis: the fan-tailed peafowl in antiquity symbolized Hera/Juno—the eagle stood for Jupiter—while that with a folded tail is more characteristic of early Christian/Byzantine mosaics in Italy and the Eastern provinces (Kádár 1978:77, 85). In addition to the three mosaics discussed here, those from Et Tabgha (Israel) serve as good examples of this religious aspect. The overwhelmingly symbolic rather than dietary value of peafowl is shown by the absence of its bones from the sizeable archaeozoological assemblages selected for study. According to Kroll (2010:181, 249), current osteological evidence is limited to only three sites in the Byzantine Empire: Nicopolis ad Istrum (Bulgaria), Naples (Italy), and Carthage (Tunisia).

Easily identifiable, splendid pairs of Guinea fowl, a species originating from Africa, are also shown on Mosaic 1 (Nos. 1/5, 1/6, 1/48, 1/49). They are a popular motif in all the pictorial sources consulted. However, similarly to peafowl, the bones of exotic Guinea fowls are missing from the bone assemblages studied.

Columbiformes. Doves and pigeons form the last order indubitably represented at Tall Bīʿa (Nos. 1/7, 1/8, 3/3, 3/4). With the exception of Caesarea's mosaic, they occur in all studied sources. It is, however, difficult to distinguish between doves and pigeons in the mosaic representations. The wild ancestor—rock pigeon (*Columba livia* Linné 1758)—not recognized on the pictures, is native to the area. The red wings and red shade on the chest may even suggest red turtledove (*Streptopelia tranquebarica* Hermann, 1804; Nos. 1/25, 1/28, 3/1, 3/2; Figure 3.4.6), even though the depictions lack the black collar characteristic of this species, which is nowadays distributed east of the Saharo-Arabic faunal region.

Although Byzantine trade routes connecting Constantinople with China (Walker 2010:196, Figure 8) were crossing Bagram and Peshawar, which fall within the area of the distribution of the modern red turtledove, this bird is completely unknown in present-day Raqqa (Amos Belmaker and Noushig Zarikian, personal communication 2017). Nevertheless, it seems more likely here, on Tall Bīʿa's mosaic, that the red tesserae were simply used to add visual contrast to the wings in the doves' representation.

The white dove symbolizes innocence (Matthew 10:16), yet the most widely understood meaning the dove has, in general, in Christian symbolism is its personification of the Holy Spirit, the Third Person

of the Blessed Trinity (Luke 3:22). The closely related pigeon, on the other hand, represents self-indulgence and laziness. Taking the risk of circular reasoning one may only guess that—given the general atmosphere of Tall Bīʿa's mosaics and their distinguished location in a monastery—the birds shown here are most likely doves.

Psittaciformes. The last order, that of parrots and parakeets, cannot be unambiguously identified on the pictures. A pair of green birds (Nos. 1/7–8), which are clearly distinct in shape from doves, are reminiscent of rose-ringed parakeets (*Psittacula krameri* Scopoli, 1769). A fifth-century mosaic, at the Baltimore Museum of Art, shows 20 parakeets arranged in five rows of four, wearing ribbons around the neck. This mosaic was part of the floor recovered from the "House of Psyche's Boat" in the Daphne suburb of Antioch/Antakya (Turkey), located only 60 km west of Tall Bīʿa. The knotted ribbons that appear on this mosaic have been explained as the mosaicist working from a model and misinterpreting the dark collar in the plumage around the neck as a ribbon (Arnott 2007:202). However, the birds have nothing around the neck at Tall Bīʿa.

The Greek historian Diodorus Siculus (first century BC) mentioned parrots found in the furthest parts of Syria. This may imply that ringed-necked parakeets—wild or feral—already existed in the lower Euphrates region in antiquity (Arnott 2007:202). Although different looking, the Alexandrine parakeet (*Psittacula eupatria* Linné, 1766) is known to have been imported from India to aviaries in the Mediterranean region already in the classical age (Kádár 1978:86) and is shown on a Hellenistic mosaic from ancient Pergamum (Bergama, Turkey; Bethe 1939:335, Figure 12). Another Byzantine mosaic with parakeets—and one with an abundance of birds—was found in the Apostolic Church at Madaba, Jordan, a site best known for the contemporaneous mosaic map of the Holy Land (Piccirillo et al. 1991:97). Residents of present-day Raqqa recall the presence of parakeets in the region until the 1980s (Noushig Zarikian, personal communication 2017).

Comparing Different Sources

In Table 3.4.3, the diversity of bird inventories can be compared between the three types of sources used in this study in order to determine the position of Tall Bīʿa's mosaics with respect to ornithological content. Bird orders represented by at least four species (boldface totals in Table 3.4.3) were used in constructing the small dendrogram inserted into the map in Figure 3.4.2. It shows Euclidian distances calculated from the data summarized in Table 3.4.3 (computed using the Ward method). Owls and perching birds, however—completely missing from the studied mosaics—were not included in the calculation.

In relation to the number of species in various avian orders discussed in codices and identified by archaeozoological assemblages, it becomes clear that mosaics show only a restricted range of the avifauna that surrounded people in the Byzantine Empire. The artistic repertoire of mosaics forms a tight cluster in Figure 3.4.2: bird mosaics from Tall Bīʿa and Caesarea are most closely related; Petra is next to join the two others. The smallest archaeozoological assemblage from Troy is closest to them due to low species diversity. At the other end of the scale, the great taxonomic abundance of bird remains in the archaeozoological assemblage from Tell Hesban may be considered statistically representative; as such it compares most favorably with the contents of codices, a benchmark of contemporaneous scholarly observation.

Discussion

The results indicate that the canon of avian species depicted on the three studied mosaics was largely determined by early Christian symbolism. In addition to a limited range of birds associated with concrete religious meanings (Arnott 2007), quite a few species were added to the visual repertoire in an effort to enhance the splendid decoration in this sacred area. Peafowl and Guinea fowl stand out as exotic species, although some others may also represent distant geographical regions or their early presence in the avifauna of Syria.

Comparing mosaics and bird-bone assemblages from adjacent environmental regions offered ambiguous results. The geographical proximity of archaeological sites to the mosaics' location shows no particular affinity in ornithological content. Indeed, the consistent artistic selection—for example, the omission of raptors and perching birds from the three studied mosaics—overruled the idea of "properly" representing the entire spectrum of local birds in these works of art. Faunal information can be

Table 3.4.3. Taxonomic diversity by bird orders in three types of sources.

Bird type	Order name	Mosaic floors			Osteological evidence			Codices	Total
		Tall Bīʿa	Caesarea	Petra	Troy	Jerf el Ahmar	Tell Hesban		
Ostriches	Struthioniformes			1			1	1	3
Storm birds	Procellariformes							1	1
Grebes	Podicipediformes				1				1
Wading birds	Ciconiiformes					1	1	1	3
Pelicans	Pelecaniformes	3	2	2	2	1		2	**12**
Flamingos	Phoenicopteriformes	1	1		1		1		**4**
Geese/ducks	Anseriformes	2	2	2	11	14		5	**36**
Diurnal raptors	Falconiformes			1	1	11	12	8	**33**
Fowl-like birds	Galliformes	6	4	5	3	4	3	8	**33**
Cranes	Gruiformes		1		3	3	8	6	**21**
Gulls/waders	Charadriformes			3	1	4		4	**12**
Pigeons/doves	Columbiformes	2		1	3	4	2	4	**16**
Cuckoos	Cuculiformes							1	1
Nocturnal raptors	Strigiformes				1	3	2	2	8
Roller/kingfisher	Coraciiformes					1		1	2
Woodpeckers	Piciformes							1	1
Perching birds	Passeriformes				2	4	15	18	39
Total number of birds within taxa per source		**15**	**10**	**14**	**29**	**50**	**45**	**64**	**226**

more reliably obtained from the magnificent scholarly works of the same time period as shown by the codices available through research by Kádár. While direct evidence in the form of osteological finds reflective of different natural habitats shows no correlation with the species depicted on mosaics, it does reveal a relatively strong connection with the birds listed in codices.

Given the selective nature of avian iconography, ideological functions of the ornithological signs on Tall Bīʿa's mosaics need to be briefly reviewed. Although it is presumptuous to ignore merely decorative and aesthetic criteria for the depiction of animals by Byzantine mosaicists, the use of animals in the semiotic system as a whole can be interpreted as relating to religiosity in the broadest sense. Jacobite imagery tended to avoid the depiction of mammals (Mundell 1977). That statement does not take into account the large AD 509 mosaic replete with 49 birds, which predates the ascent of Jacob Baradaeus and where a magnificently depicted fallow deer dominates Mosaic 3 in the funerary shrine (Kalla 2018:865). This mosaic is possibly contemporaneous with the emergence of Syriac Christianity. Nevertheless, there is a general fascination with birds—variegated in shape and color—that crosscuts cultural boundaries. As Hyland and Wilson (2016:5) wrote: "There is a romance about bird life which is irresistibly attractive to artists, as well as otherness." For example, postdating Tall Bīʿa's mosaics by an entire millennium, a Persian book of poems titled *The language of the birds* was illustrated by Habib Allah, who depicted a similarly rich array of species (Ronnberg and Martin 2010:239).

It is also likely that, beyond aesthetics, Tall Bīʿa's artist intended to present a reduced version of the "Garden of Eden." However, complete versions of this motif are typical of comparable "catalogs" in Byzantine mosaics (Hachlili 2009:269–273). They show the beauty of a great variety of animals—herbivores and carnivores alike—sharing the same visual space.

As detailed in the Results section above, many taxa identifiable on these mosaics have special cognitive significance well known in antique as well as early Christian iconography.

The wild/domestic dichotomy does not seem to be valid in the selection of species by Tall Bīʿa's artist. It is almost as a reminder that Aristotle specifically used the example of birds in arguing for a "natural" system of classification based on minute and comprehensive observation rather than the Platonic dichotomy (Kádár 1978:81): on the mosaics presented here each bird depicted in spectacular detail is present in its own right, regardless of its wild or domestic status.

There are, however, also some striking absences well worth addressing. While well represented in the faunal assemblages of Jerf el Ahmar and Tell Hesban, pictorial representations of diurnal raptors are rare in classical Graeco-Roman iconography. Byzantine examples include an eagle fighting a snake on the fifth-century mosaic of the Great Palace in Constantinople and another in the Vienna Genesis (produced in sixth-century Syria), where the animals leave Noah's Ark (anonymous reviewer, personal communication 2018). On the other hand, raptors are discussed in great detail in the two codices due to their practical significance in falconry (Kádár 1978: 84). Although in Christian iconography the eagle is a symbol of Christ and the emblem of Saint John the Evangelist, one may only speculate that birds of prey apparently had little place in the idyllic scenario suggested by each and every image of Tall Bīʿa's mosaics.

The other group entirely missing from this magnificent array of species is the order of perching birds—Passeriformes. Over half of the ten thousand known bird species in the world are classified within this order, including numerous spectacular-looking popular songbirds. Curiously enough, none of them is shown on the studied mosaics and even several of the perching birds illustrated in the two codices seem to have been appended to the original *Ornithiaca* subsequently (Kádár 1978:87). Remains of these birds tend to be rare in excavated assemblages as well, although the three collections chosen for study offer evidence of a decent range of species. However, in the three faunal reports quoted all analysts remark on the relative paucity of bones from perching birds, in spite of sieving aimed at recovering minute animal and plant remains.

Conclusions

Iconographic sources reflecting attitudes toward animals should be considered integral components of archaeozoological work. On the other hand, cautious interpretation is required, since animals depicted in the Byzantine semiotic tradition lean towards naturalistic representation only in a schematic way. They are expressive, colorful, and repetitive, but in comparison to earlier classical Roman art the depictions tend to be less easily identifiable. The resulting iconographic information is thus not as "objective" as osteology, but nonetheless deserves analytical treatment. While the geographical distribution of birds in real life is determined by habitat preference, their occurrence in art is solely influenced by the artist's worldview, including actual knowledge of the animal and the message to be conveyed through its choice as a medium. With only few exceptions, all species on Tall Bīʿa's mosaic represent the recently defined Saharo-Arabic faunal region, wedged between the Palearctic and Afrotropical regions (Holt et al. 2013:75). The latter is home to one of the exotic species, the Guinea fowl. Indian peafowl and possibly parakeet imported from Eastern Asia—as well as red turtledove?—may represent the Oriental faunal region.

As shown in Figure 3.4.1, the layout of bird images on Mosaic 1 at Tall Bīʿa juxtaposes symmetry and geometric discipline (south) with a degree of playful disorder (north). Above all, these mosaics radiate heavenly harmony, worthy of a high-status religious architectural environment designed to impress. This aim is achieved through the artistic depiction of the following avian groups:

(1) Galliform species—including local and exotic domesticates—dominate in mosaics.
(2) Pelecaniform birds and ducks, popular in Byzantine iconography are also numerous.
(3) Doves, central to Christian symbolism, are often present.

(4) Aquatic orders are missing from the large bone assemblage from Tell Hesban but are amply represented on mosaics.

Osteological evidence is strong for raptors and even perching birds are present in excavated assemblages, but these orders are absent from Tall Bīʿa's mosaics. Meanwhile contemporaneous Byzantine documentary sources show taxonomic similarity to the composition of orders in major bone assemblages of representative sizes.

The birds at Tall Bīʿa represent a created world and serve as object-lessons for humans in morality and piety. Multidisciplinary treatment is thus necessary to identify patterns by which various taxa are represented and to relate them to past physical and cognitive environments.

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