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Bird species diversity in 3rd millennium B.C. Mesopotamia: The case of the Al-Ubaid bird frieze from the Temple of Ninḫursaĝ

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Abstract: *The present paper elaborates on the morphological features of limestone birds depicted on the famous Al-Ubaid frieze, dated to c. 2400 B.C. and discovered in southern Mesopotamia in the vicinity of the ancient city of Ur. The main purpose of this paper is to identify wild bird species that could have been the original sources of inspiration for the birds depicted on the Al-Ubaid frieze. The popular belief identifying the Al-Ubaid birds with ducks has to be abandoned due to the vivid differences in the varied morphologies of the body, head, and neck of the investigated birds. The research presented suggests that some of the Al-Ubaid birds have traits characteristic of short-neck geese or coots, both waterfowl species. Some of the Al-Ubaid birds may be also be regarded as pigeons or doves. This idea was developed by analyzing some selected traits of the Columbidae encountered on the Al-Ubaid bird frieze. The findings confirm that there exists a demonstrable problem with a proper identification of geese, ducks, swans and pigeons in ancient Mesopotamian art, a challenge that likely results from the lack of ornithological approach in the historical and archaeological discourse.*

Key words: ducks; geese; pigeons and doves; Mesopotamian birds; Mesopotamian avifauna

Introduction

Among Mesopotamian works of art related to the ancient Mesopotamian avifauna, there is a unique object that deserves special attention. It is an inconspicuous frieze of birds, which originally was a part of the façade decor of the Ninḫursaĝ temple in Al-Ubaid, located nearby the ancient city of Ur (Tell el-Muqayyar), dated to the c. 2400 B.C. The frieze, according to Hall and Woolley (1927:98–99), is made of limestone birds set in a black shale background, reinforced by a copper frame. It was also noted that the birds were created roughly, show poor artistic quality and are deprived of

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internal details, which is an obstacle to their proper identification. According to Hall and Woolley (1927:98–99), "the birds are of an uncertain genus, the heads are rather those of doves; but the attitude, which makes them appear to be swimming, especially as the feet are not shown, is that of ducks". From Hall and Woolley's (1927:98,111) perspective, the complete lack of internal details for the birds depicted was purposely designed in the large scale in which they were rendered, due to their high position on the temple's façade, above eye-level (see also Woolley 1929:100). They have also suggested that Al-Ubaid's birds might have originally been painted, but the colour apparently faded away, so now it is impossible to determine the bird's alleged plumage.

The Al-Ubaid bird frieze has not drawn much interest due to the fact that the discussed animals are mostly described simply as birds (Collon 1995:63; Mitchell & Collon 1969:19), with many authors still maintaining Hall & Woolley's interpretation (see Collins 2003:87). In the 1930s the birds from the Al-Ubaid frieze were tentatively identified by Hall (1930:262) with ducks, whereas van Buren (1939:88) was prone to classify them as doves. In van Buren's opinion, the small, rounded head, the thin, slightly curved beak and the puffed breast together with the tip of the wing pointing upwards above the level of the back, are more in accordance with the features commonly seen in doves.

The identification of most Anatidae and Columbidae species in ancient Mesopotamian art and literature is dubious (Salonen 1973:116–119,207,250–258,271–272, 287; van Buren 1939:88; Veldhuis:223–224,257–258,263–264,289–295,303). Bird names are to be encountered for the first time in the lexical tradition of the archaic Uruk III (Table I) (Englund & Nissen 1993:22,98–100), however our understanding of the archaic documents still remains poor (Englund 1998:65–67,82–106). The names of birds are apparent in the Fara period, c. 2500 B.C. (i.e. tablets from Šuruppak) and onwards, but it must be emphasized that even in the famous ur$_5$-ra=*hubullu* lexical list from the Old Babylonian period, species identification is generic in nature, insecure and mostly limited to the genus (Black & Al-Rawi 1987:117–119). Moreover, it seems that some Mesopotamian bird names evolved over centuries, thus for example Early Dynastic (ED) period terms for birds may vary considerably from those used in the Ur III period (Janković 2004:7,10–11) (see **Table 1** for Mesopotamian chronology).

Knowledge about ancient Mesopotamian avifauna is scant, however, on the basis of the bird bones excavated from historical sites of modern Iraq, one may say that the ancient biological diversity of bird species was comparable to that of modern times (Eastham 2009:110). The nature of bird remains is of fundamental concern here, since, as noted by some archaeologists, both bird and fish bones are often omitted in archaeological records, due to the existence of a bias favoring larger bones, the need of flotation method (Grant et al. 2002:68), the lack of proper sieving, the poor

Table 1. Simplified chronology of ancient Mesopotamia, c. 4000–1500 B.C.

Early Uruk	c. 4000–3700 B.C.
Middle Uruk	c. 3700–3500 B.C.
Late Uruk	c. 3500–3100 B.C.
Jemdet Nasr (Uruk III)	c. 3100–2900 B.C.
Early Dynastic I (ED I)	c. 2900–2750 B.C.
Early Dynastic II (ED II)	c. 2750–2600 B.C.
Early Dynastic IIIa (ED IIIa)	c. 2600–2500 B.C.
Early Dynastic IIIb (ED IIIb)	c. 2500–2334 B.C.
Akkadian	c. 2334–2159 B.C.
3rd Dynasty of Ur (Ur III)	c. 2123–2004 B.C.
Isin–Larsa	c. 2025–1763 B.C.
Old Babylonian (OB)	c. 1894–1595 B.C.

preservation of bird bones and their fragile physical structure (Dirrigl et al. 2020:2; Studer 2010:13). Finally, the problem of element identification and differentiation between wild and domesticated species cannot be overlooked either. For example, goose bones derived from archaeological contexts often lack suitable morphological criteria to distinguish domestic individuals from their similarly sized wild forms (Honka et al. 2018:2).

The present study attempts to describe and identify the bird species depicted on the Al-Ubaid birds' frieze by means of analyzing their morphological features in comparison with those of living ducks, geese, doves and pigeons encountered in the wild and recorded in Mesopotamian archaeological contexts. The main goal is to investigate whether the Al-Ubaid birds are the result of conscious artistic activity hinged on the presence of some specific birds' morphological features or randomly carved individuals epitomizing birds *par excellence*.

In this paper Sumerian words are written in a lower case Roman letter, whereas the capital letters are used when the exact meaning of the sign is either unknown or unclear or conversely the logogram's components are spelled out. As regards determinatives they are written with superscripts, while Akkadian words are indicated in italics.

Ducks in ancient Mesopotamia

One of the bird species that appears in Mesopotamian texts is a duck – bibad^{mušen} or uz^{mušen}. According to Veldhuis (2004:223) bibad^{mušen} (*paspasu*) is a "fairly large domestic duck" whereas uz^{mušen} should be identified with a "(wild) duck", both attested in the 3rd Dynasty of Ur (Ur III) texts. But it seems that the word bibad is probably a loan from the Akkadian *paspasu* and was used originally as a qualification of uz, not as a name of a separate species. Thus, in the early periods a duck (uz) and

bibad, written as UZ.TUR, are not distinguished (Veldhuis 2004:223,303). The case is even more complicated since in the texts predating Ur III, uz may be understood as a fattened bird and therefore identified not only with a duck but also with a domestic goose (Janković 2004:7; Salonen 1973:288).

The heterogeneity of ancient Mesopotamian avifauna is attested by the bird bones excavated in Nippur and Abū Ṣalābīkh. The materials from Nippur dating back to the Old Babylonian period testify that at least the following Anatini species inhabited (as migrants or non-migrants) the Mesopotamian plain: the mallard (*Anas platyrhynchos*), the northern pintail (*Anas acuta*), the northern shoveler (*Anas clypeata*), and the common pochard (*Aythya ferina*) (Boessneck 1992:160–162). The bird bones from the ED contexts of Abū Ṣalābīkh not only correspond with that picture due to the presence of the mallard and the northern pintail bones (Eastham 2009:102) but also show greater taxonomic diversification (cf. mallard's bones in the Assyrian context in Becker 2008:566). Thus, we know that at least the neighborhood of ED Abū Ṣalābīkh was inhabited by the ruddy shelduck (*Tadorna ferruginea*), the shelduck (*Tadorna tadorna*), the red crested pochard (*Netta rufina*) and the marbled teal (*Marmaronetta angustirostris*). The latter, together with the goose (see discussion below) are the most frequent taxa in the Abū Ṣalābīkh bird bone assemblage (Eastham 2009:101–102,104).

Geese in ancient Mesopotamia

Mesopotamian texts dated to the 3rd millennium B.C. list two words that designate a goose—kur-gi^{mušen} (*kurkû*) (Landsberger 1964-1966:246) and u$_5$^{mušen} (Veldhuis 2004:294). However, the latter, encountered already in the archaic bird list from Uruk III period, could have originally designated a bird par excellence, since u$_5$^{mušen} may not only be interpreted as "goose" but also as "male, bird, cook", "the one who mounts" (Landsberger 1962:156) or "procreative bird" (Salonen 1973:277). Salonen (1973:216) identifies kur-gi^{mušen} (*kurkû*) with the greylag goose (*Anser anser*). As far as the kur-gi^{mušen} is concerned, Veldhuis (2004:264) noted that since there is no separate entry for this bird in the ED bird list, it may indicate that at that time there was no separate word for the domestic goose at all.

The bird bone assemblage excavated in Nippur suggests that the local inhabitants exploited either the greylag goose (*Anser anser*) or the domestic goose (*Anser anser domesticus*). Unfortunately, this assemblage does not allow us to evaluate what species we are exactly dealing with (Boessneck 1992:161). However, in ED Abū Ṣalābīkh the bones of the greylag goose (Siberian) (*Anser anser rubirostris*) represent one of the largest bone assemblages among the recovered bird species (Eastham 2009:101). The bones that belong to the *Anser anser* species have also been recorded in the Su-

siana Plain (southwest Iran) at sites dated back to the Late Uruk period (Mudar 1988:153,Tab.4:159).

Pigeons and doves in ancient Mesopotamia

Knowledge about Columbidae species in 3rd millennium B.C. Mesopotamia is limited, mainly due to the linguistic obstacles to proper species identification. According to Veldhuis (2004:289) $tum_{12}^{mušen}$ /$tu^{mušen}$ (*summatum*)—one of the most frequent bird names encountered in Sumerian literature—should be identified with the wild dove, perhaps the turtle dove. A different opinion was formulated by Salonen (1973:254) who suggested that $tu^{mušen}$ corresponds with the rock dove (*Columba livia*). In his model of interpretation, the domesticated forms of the rock dove are to be found for the first time in Ur III texts together with references to the enigmatic objects called e_2-$tu^{mušen}$ that may be understood as dovecotes (Salonen 1973:257). But the issue still seems to be unresolved, since Veldhuis (2004:290) translated those structures (transliterated as e_2-$tum_{12}^{mušen}$ in his publication) as cages, due to their large number (200 objects) having been mentioned in the quoted text. In his brief approach to $tum_{12}^{mušen}$/$tu^{mušen}$ he also quite rightly pointed out that in the Mesopotamian literary composition entitled "Nanše and the birds" there is a text passage saying that the dove $tum_{12}^{mušen}$ (pecks at) the ground on the broad field, whereas the pigeons tum_{12}-$gur_4^{mušen}$ eat (?) 2 ban (20 liters) of wheat at the threshing floor of the king (Veldhuis 2004:121,289–290,D7–D8). Therefore, from this point of view $tum_{12}^{mušen}$ could be regarded as a wild species, whereas tum_{12}-$gur_4^{mušen}$ (*sukanninu*) as a domesticated one (rock dove), frequently attested in an administrative text from Ur III period (Veldhuis 2004:292). A different approach to the problem was presented by Salonen, who argues that *sukanninu* can be identified with the turtle dove (Salonen 1973:247).

Another Columbidae species listed in Sumerian texts is called ir_7-$sag^{mušen}$/$KASKAL^{mušen}$ (*uršānu*, *girisakku*). The proper identification of this species is not possible, but it was probably bigger than the tum_{12}-$gur_4^{mušen}$. This assumption has been inferred from the comparison between the daily grain ration volume allotted to the birds, as encountered in Sumerian administrative texts (Veldhuis 2004:257). In contrast to Veldhuis, Salonen (1973:196,287,207) linked ir_7 (KASKAL)-$sag^{mušen}$ with the Akkadian *uršānu* assigning it to the wood pigeon (*Columba palumbus*) or the turtle dove (*Streptopelia turtur*) whereas $KASKAL^{mušen}$ was associated with the domesticated rock dove.

The following species of Columbidae have been recorded in modern Iraq: rock dove/rock pigeon (*Columba livia*), stock dove (*Columba oenas*), wood pigeon (*Columba palumbus*), turtle dove (*Streptopelia turtur*), collared dove (*Streptopelia decaocto*), laughing dove (*Streptopelia senegalensis*) (Allouse 1953:69–71; Landsberger 1964–1966:267; Porter & Aspinall 2010:176–181; Salonen 1973:59), rufous turtle dove/oriental tur-

tle dove (*Streptopelia* (*orientalis*) *meena*) (Porter & Aspinall 2010:178) and Namaqua dove (*Oena capensis*) (Eriksen & Porter 2017:138). Each of these species is characterized not only by different traits, but also by a diverse habitat. Moreover, some of the Columbidae seem to be migrant in modern Iraq, including *Columba palumbus*, *Streptopelia turtur*, *Streptopelia decaocto* and *Streptopelia orientalis* respectively (Allouse 1953:70; Landsberger 1964-1966:267; Porter & Aspinall 2010:178; Streck 2012:478).

The bones of Columbidae are hardly ever discussed in excavation reports concerning the archaeological sites of Mesopotamia. In ED Abū Ṣalābīkh, Eastham (2009:103) recorded the bones of the rock dove (*Columba livia*), the turtle dove (*Streptopelia turtur*) and the collared dove (*Streptopelia decaocto*). Nevertheless, the author does not examine the details thoroughly, thus it is not known if the bones of the rock dove bear any traits of domestication. A similar picture may be drawn from the work of Becker (2008:566) who has analyzed the faunal remains from Dur-Katlimmu (Northern Mesopotamia) in terms of the Assyrian diet. His investigation led to the conclusion that Assyrian cuisine offered the rock dove, the laughing dove and the turtle dove on its menu.

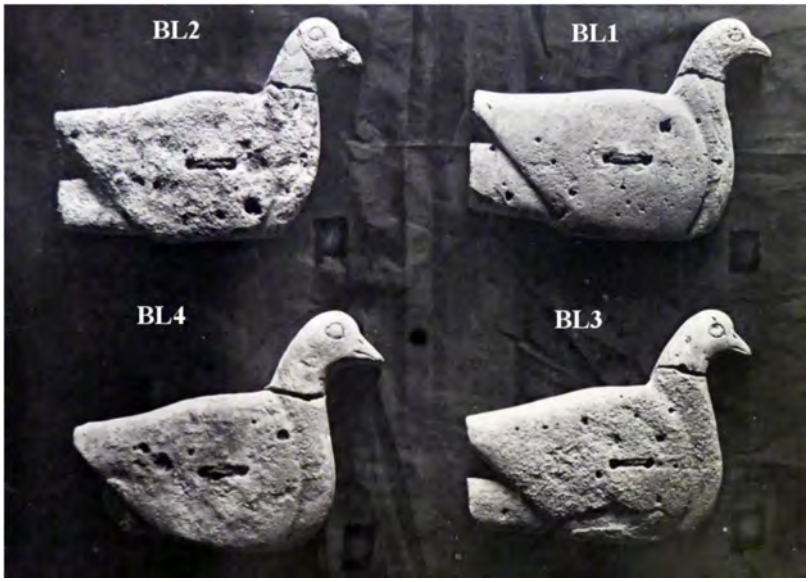

Figure 1. Bird figures at inlay found in Al-Ubaid and marked as "Philadelphia and London". Adopted and modified from Hall & Woolley 1927, Pl. XXXIII:3.

Al-Ubaid's birds – trait characteristics

According to the archaeological report, Al-Ubaid's excavation produced 6 almost complete limestone figures of birds for inlays (TO.271-276) and 4 limestone inlay bird heads "like TO.271", which were missing their bodies (TO.277) (Hall & Woolley 1927:42,98,99,111). However, Pl. XXXIII:3–4 constituting an integral part of the excavation report shows 7 complete birds (**Figures 1–2**). Looking at the caption of Pl. XXXIII:3–4 the reader is informed that Pl. XXXIII:3 is a mixture of birds from "Philadelphia and London" whereas Pl. XXXIII:4 is an assemblage kept in "Philadelphia". This would mean that at least one object in the given assemblage as depicted on Pl. XXXIII 3–4 must have been reduplicated. Since it is beyond the author's expertise to trace it back fully, it seems rational to elaborate on all the available photos published by the excavators. This approach is also justified by the fact that the birds published on Pl. XXXIII:3 and Pl. XXXIII:4 differ significantly at a glance. However, one could tentatively guess that BL5 (BL = bird layout + number) may be in reality a fuzzy equivalent of BL2 due to the shape of the body and the shape of the head, including the bill. In other words, an evident, mutual difference in the head mor-

Figure 2. Bird figures at inlay found in Al-Ubaid, displayed as a frieze and marked as "Philadelphia". Adopted and modified from Hall & Woolley 1927, Pl. XXXIII:4.

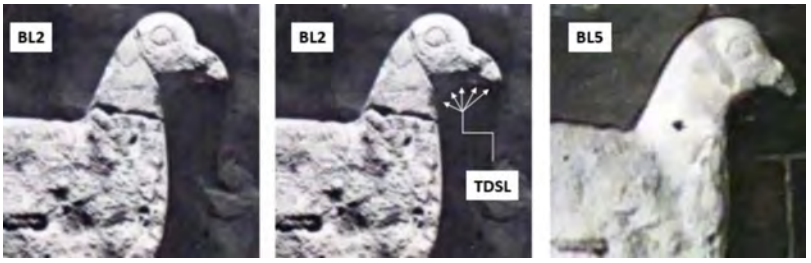

Figure 3. BL2 (left) and BL2 with supposed throat-dentary shade line (TDSL) indicated (middle) in comparison with BL5 layout. Adopted and modified from Hall & Woolley 1927, Pl. XXXIII:3–4).

phology of the discussed bird examples may be explained by a shade that covers the throat-dentary (TDSL) space in BL2 (**Figure 3**). As far as the shape of the BL5 and BL2 body is concerned, both have equal characteristic holes or cavities (C1–C7; C = cavity + number) covering the massive wing (**Figure 4**). Further comparable cavities (C8–C9) can also be found on the neck and the breast of both BL5 and BL2. But what differentiates them significantly is the presence of a band composed of two thin lines on the rear part of BL2's cranium. Though the feature is undetectable on the head of BL5, it does not necessarily mean that BL5 and BL2 are different objects. It must be emphasized that the same area occupied by the band of BL2 is tinted by

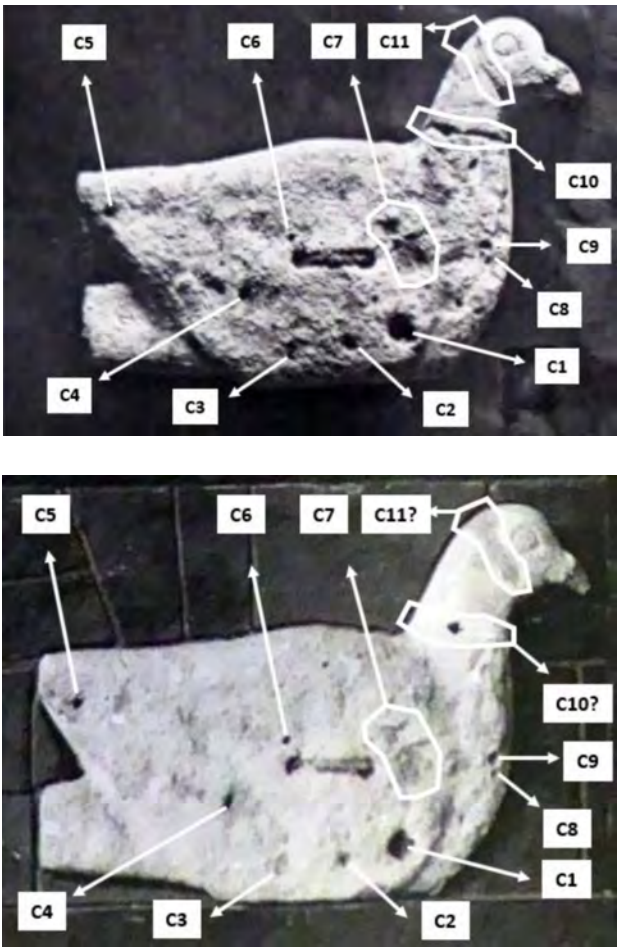

Figure 4. Suggested concordances between BL5 and BL2. Adopted and modified from Hall & Woolley 1927, Pl. XXXIII:3–4).

a grayish stain on BL5 (C11?), which may suggest that this space was the subject of unspecified conservation treatment. This notion is supported by another important feature—the BL2 neck is cracked, whereas BL5 neck is apparently restored. This feature is confirmed by the existence of a white area on BL5's neck (C10?), a possible outcome of a conservation treatment, apparently aimed at rejoining the body with the missing head. This treatment characterizes not only the neck of BL2 but also the neck of BL6 and BL7. This interpretation would prove the fact that, as noted by Hall & Woolley (1927:98), at least the heads of TO. 271, 272, 273 were broken off when found but have been rejoined and restored on a black shale tesserae background as a panel with a copper border.

As far as the assemblage of the birds' heads missing the bodies are concerned, I have been able to trace only the image of a single object (BL8) assigned by Hall and Woolley (1927:42) as "the head of a duck in the white limestone from a frieze of ducks", No. 115448 published on Pl. V:5 (**Figure 5**). The bird's dimensions are quite sizeable—according to the excavation report TO. 271–273 has 0.13m in height and 0.18m in length, whereas the head height of No. 115448 was 6.4cm (Hall & Woolley 1927:42,98).

The presented Al-Ubaid bird analysis is based on the following concordances with Hall & Woolley's excavation report: BL1 = Pl. XXXIII:3 top right; BL2 = Pl. XXXIII:3 top left; BL3 = Pl. XXXIII:3 bottom right; BL4 = Pl. XXXIII:3 bottom left, BL8 = Pl. V:5 top right corner, BL5 = Pl. XXXIII:4 right, BL6 = Pl. XXXIII:4 middle, BL7 = Pl. XXXIII:4 left. The analysis of the key body features of the Al-Ubaid birds prompted the observations listed below.

- BL1 has a short neck, a rounded crown, an eye-cere, a short and slim slightly curved bill with a cutting edge and a nostril indicated, a breast emphasized

Figure 5. The bird's head No. 115448 (Hall & Woolley 1927, Pl. V:5).

forward, a quasi-ovate wing and a short straight tail—both truncated at its ends, the latter raised slightly upward.

- BL2 (=BL5?) has a short neck, a rounded crown, an eye-cere, a short but thick downward curved bill with a nostril, a breast emphasized forward in the way that the bird's side profile stretching from the end of the dentary downward along the throat and the breast is arched unlike in the rest of the birds where it is less (BL4, BL7) or more (BL1, BL3, BL5, BL6) S-shape pronounced; the bird also has a quasi-ovate wing and a short straight tail—both slightly truncated; its most remarkable feature is a fragile band composed of two regular curved lines on the bird's head between the crown and the throat, crossing the external ear opening area.

- BL3 has a short neck, a rounded crown, an eye-cere, a short and slim slightly curved bill with a cutting edge and a nostril, a breast emphasized forward, and a quasi-ovate wing and a short straight tail—both truncated, the latter raised slightly upward, the line of the back along the base of the nape to the truncated wing flights is much steeper than in BL1, BL2, BL5, BL6, BL7.

- BL4 has a short neck, a rounded crown, an eye-cere, a short, thick and straight bill with a nostril and an accentuated cutting edge, a flat breast emphasized forward, a quasi-ovate wing and a very short straight tail (both truncated), similarly to BL3, the line of the back along the base of the nape to the truncated wing flights is much steeper than in BL1, BL2, BL5, BL6, BL7.

- BL5 (=BL2?) has a short neck, a rounded crown, an eye-cere with an iris, a short, thick down-curved bill, a breast emphasized forward, a quasi-ovate wing and a short straight tail—both truncated. When it comes to the BL5 iris, it is hardly perceptible on the monochrome image published in Hall & Woolley (1927:Tab.XXXIII:4), but now it is easy to spot on a detailed image of the discussed frieze after the laboratory treatment published by Glesson (2018) on the official website of the Penn Museum.

- BL6 has a short-arched neck, a rounded crown, an eye-cere with an iris, a short, thick straight bill with traces of a nostril and a cutting edge, an emphasized breast, a quasi-ovate wing and a short straight tail—both truncated, the latter going slightly upward. Regarding the BL6 iris, it is hardly discernible in Hall and Woolley (1927:Tab.XXXIII:4) but is clearly apparent on the image published by Glesson (2018) on the Penn Museum website as object B15883 (reconstructed frieze of three ducks in limestone from Al-Ubaid, field numbers: TO. 271–273).

- BL7 has a short slim neck, a rounded crown, an eye-cere with a pupil, a short, straight bill with traces of a nostril and a cutting edge, the crop is flat, the breast emphasized forward, there is a quasi-ovate wing and a short straight tail—both truncated at their ends. BL7's pupil is undetectable on the original image published in Hall & Woolley (1927:Tab.XXXIII:4) but apparent on a frieze image after a laboratory treatment in the Penn Museum (Glesson 2018).

- BL8 has a fragmentarily preserved neck (its length unknown), a rounded crown, an eye-cere and a short slightly curved bill; the rest of the body is missing.

The above characteristics prompt us to a conclusion that the discussed birds' assemblage is not homogenous. It can be also divided into two groups according to the shape of the birds' body (group 1A and 1B below) and the shape of the birds' bill (group 2A, 2B and 2C below). Thus, all the discussed objects are assigned to both the first (1A and 1B) and the second (2A, 2B and 2C) group.

The structure of the 1st group is as follows:

- 1A. BL3, BL4: the line of the back along the base of the nape to the truncated wing flights is much steeper than in BL1, BL2, BL5, BL6, BL7 resulting in a much slimmer build of the wing and consequently of the body.

- 1B. BL1, BL2, BL5, BL6, BL7: the line of the back is horizontally organized, the angle between the back and the neck is much smaller than in BL3, BL4 resulting in a massively built wing.

The structure of the 2nd group involves the following characteristics:

- 2A. BL1, BL3: the head is provided with a slim slightly curved bill.

- 2B. BL2, BL5, BL8(?): the head is characterized by a short but thick downwardly curved bill.

- 2C. BL4, BL6, BL7: the head has a thick, straight bill.

However, in the 2nd group some disfigurements from the presented scheme occur. For example, the bill of BL7 is straight and thick but small in comparison to BL4 and BL6, moreover BL7's neck is narrow; BL2 has a flimsy band between the crown and the throat, whereas it is absent in BL5 (over BL5=BL2?, see discussion above). Apart from the same structure of the wing BL3 (2A) and BL4 (1A) have nothing in common. Thus, I would speculate that the discussed similarities may be explained if we consider that the artisan responsible for the design of the Al-Ubaid birds used a template to speed up the work over the frieze components.

Searching for ducks

The identification of Al-Ubaid's birds as ducks postulated by Hall and Woolley is impossible to sustain, since the silhouette of a duck in a swimming display fails to match those from the frieze. The duck, in contrast to the pigeon and the dove, has a much more elongated head and a flatter crown. The duck's head is characterized by a much more curved nape and a hindneck in both the swimming and the standing display. Moreover, the duck's bill is much longer, than that of a pigeon or a dove, as well as flattened, upcurved, and spatulate in shape, terminating with a thicker tip called a nail (see duck characteristics in Hayman & Hume 2007:34–68; Heinzel et al. 1972:50–69; Porter & Aspinall 2010:22–34). The neck of a duck, when encountered in a swimming or a standing display is short or heavily merged with the back whereas the breast is bulging, which does not match the birds depicted on the Al-Ubaid frieze. It does also concern a wigeon (*Marcea penelope*) which is a short-neck Anatidae species found in modern Iraq (see Allouse 1953:18; Peterson et al. 1993:56; Porter & Aspinall 2010:26–27). The Al-Ubaid birds' body structure is portrayed as an outline of a massive wing completely covering not only the belly but the ventral region as well. Its rear part reveals a short tail and there is no sign of any shanks of feet. The body shape of the Al-Ubaid birds is not that of the Anatidae since it should be flatter and much more elongated in both the swimming and the standing display (see duck characteristics in Hayman & Hume 2007:34–68; Porter & Aspinall 2010:22–34; Heinzel et al. 1972:50–69). Therefore, Hall and Woolley's interpretation regarding them as ducks solely on the basis of their swimming attitude seems to be unconvincing and goes against the Anatidae morphology.

The Al-Ubaid birds are comparable with the representations of ducks in Mesopotamian art dated to the 2nd half of the 3rd millennium B.C. The best examples come from the finds of stone weights taking the shape of a stylized duck. The duck weights, made of hematite or other hard rock (e.g. diorite, basalt, granite), constitute one of the most recognizable weight designs in ancient Mesopotamia (type no. VI according to Woolley) (Hafford 2005:370–373,Tab.3, 2012:28,cf.26,Tab.1&Fig.1; Moorey 1999:73). The ducks can be identified as standard weights since there are many examples bearing the inscriptions of a unit of measure and the name of the guaranteeing authority. The form of the duck weights is stylized and deprived of any feet. Their most characteristic feature is the position of the duck's head which is turned and rests on the body (Cancik-Kirschbaum 2012:17; Carter et al. 1992:105).

There are some selected examples of duck weights from the reign of Narām-Sîn, Šū-Durul (Westenholz 1998:49), as well as Šulgi and Ur-Ningirsu (Ratnager 2003:80) but most of the weights are barely published, including the oldest known examples dated to the ED II/III period (Delougaz & Lloyd 1942:150, Nintu Temple VII, Kh III 907; Rahmstorf 2014:430).

The most famous Sumerian duck weight comes from the reign of king Šulgi (c. 2097–2047 B.C.) (**Figure 6**) (see Neumann 1989:14,Fig.2). It has a smooth, elongated, and flattened body lacking any morphological details. The rear part of the bird is clearly abridged, obtuse-angled in shape with two indentations on the sides. Šulgi's duck has a long neck that rests on its back, together with the head. The head morphology is typical for ducks (see above) with a flat crown, and a long spatulate bill. It is also features a nasofrontal hinge, eye ring and iris which are firmly emphasized.

The second duck weight example to be shortly described here comes from the time of Ur-Ningirsu (c. 2121–2118 B.C.) and is kept now in The British Museum (BM 104724). It has a large ovoid smooth body with a long backward-bent neck, an elongated head with an extremely flat crown—both resting on the back. The head

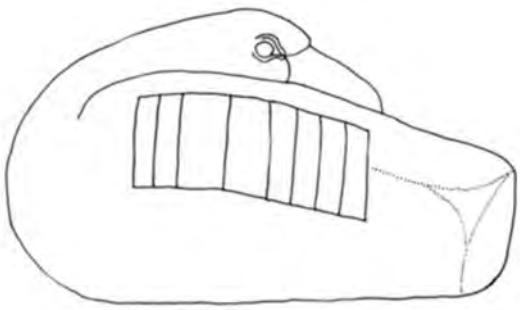

Figure 6. Stone weight in the shape of a duck with the inscription (not indicated) of the king Šulgi (after Neumann 1989:14, Abb. 2, drawn by M. Paszke).

Figure 7. Detail from the seal impression showing a bird carried by a nude male in front of the temple façade (after van Buren 1939, Pl. XXII, Fig. 96, drawn by M. Paszke).

bears a typical long, spatulate bill. Sadly, this weight example is of poor artistic value, having no other features which could be useful for further comparison studies. However, one thing seems to be already certain—both of the described duck weights are morphologically much closer to the Anatidae, in contrast to the birds found in the Al-Ubaid frieze which do not display any Anatidae features at all.

It is surprisingly hard to point out a clear image of a duck in Mesopotamian art of the 3rd millennium B.C. Van Buren (1939:Pl.XXII:96) published an interesting seal that shows a nude male carrying a bird in front of a building seeming to be a temple façade (cf. Amiet 1961:Pl.47:670). The image of the bird (**Figure** 7) is very interesting since it shows some features which could associate it with ducks, i.e., an oblong body, a flattened head and a long opened spatulate bill. Nevertheless, the shape of the bird's bill as well as its S-curved neck are too long for a duck, so it does not seem to match the Anatidae.

The presence of ducks (together with geese or swans) in the iconography of an unidentified enthroned goddess (see discussion below) to be encountered in Mesopotamian glyptic art is another difficult question (**Figure 8**). Some birds supporting, or being a part of her seat, may be identified with ducks due to the size and the shape of the body, a relatively short, flattened head and an upcurved bill in a standing display (see Asher-Greve & Westenholz 2013:405,Fig.58), especially when grouped together with other, much bigger adjacent birds characterized with a longer S-curved neck in a sitting display. There are many bird images in Mesopotamian glyptic art that could be identified as ducks but due to the extremely small size of carvings, their taxonomic identification is highly speculative. However, these "duck-like" examples, from a morphological perspective, are more similar to the discussed duck weights than the birds known from the Al-Ubaid frieze.

Figure 8. Detail from the seal impression showing the goddess enthroned by two birds (after Asher-Greve & Westenholz 2013:405, Fig. 58, drawn by M. Paszke).

There exists a tremendous contrast in the morphology of the body, the neck and the head of the birds depicted on the Al-Ubaid frieze and that of ducks generally. Therefore, Hall and Woolley's suggestion identifying birds known from the Al-Ubaid' frieze with ducks solely on the basis of analysing their alleged swimming display should be recognized as wholly erroneous.

Searching for geese

The goose is another taxon that could have been depicted on the Al-Ubaid bird frieze. This idea needs to be examined due to the fact that the bills of BL4, BL6 and BL7 are triangular, without a vivid arched curvature, in contrast to the bills of the BL1, BL2, BL3 and BL5 (**Figures 1–2**). In his detailed studies of waterfall beak shape diversification, Olsen (2017:1988) noticed that duck-like beaks have a ventrally arching culmen and tomium and are relatively longer and shorter in height, whereas more goose-like beaks have a dorsally arching culmen and tomium and are relatively shorter in length and taller and wider at the base. Also, further features constitute clear morphological differences between geese and ducks in the discussed context. The goose in contrast to the duck has a less flattened body, it is also more muscular and massive (Hayman & Hume 2007:26–33,34–69), thus it would, at least theoretically, better fit the birds known from the Al-Ubaid birds frieze.

Nevertheless, one of the goose's morphological features does not match the birds depicted on the Al-Ubaid frieze, e.g. the length of the neck, which should be much longer in a goose (see Hayman & Hume 2007:26–33; Heinzel et al. 1972:44–49). We need also to keep in mind the existence of some short-neck goose species in modern Iraq. On the basis of the length of the neck, and the shape of the head the birds labelled as BL4, BL6, and BL7 may be tentatively affiliated to the lesser white-fronted goose (*Anser erythropus*) (see Allouse 1953:15; Porter & Aspinall 2010:20–21) and the red-breasted goose (*Branta ruficollis*) (Allouse 1953:15; Ayé et al. 2018:46; Porter & Aspinall 2010:22–23). The lesser white-fronted goose is a small goose species with a proportionally shorter neck, a shorter and slighter bill, and a more rounded head with a steep forehead compared to other Anserini species (Fox 2005:286; Hayman & Hume 2007:29; Heinzel et al. 1972:46; Porter & Aspinall 2010:20). The red-breasted goose is also a small species with a more rounded forehead, a tiny short bill and a short neck (Ayé et al. 2018:46; Peterson et al. 1993:54; Porter & Aspinall 2010:22). However, the proposed species identification should be treated with caution due to the insufficient morphological features of the Al-Ubaid birds.

Besides the duck and the goose there is obviously another waterfowl species that could be linked with some of the Al-Ubaid birds. For example, BL4 and BL7 may also be tentatively regarded as the Eurasian coot (*Fulica atra*) from the Rallidae family, which is smaller than the above-mentioned short-neck geese and has a much shorter

neck. It is also characterized by a more rounded head and a short, sharp bill (Hayman & Hume 2007:191; Heinzel et al. 1972:116–117). However, the detailed coot's head morphology shows that its bill has a frontal shield, which is a fleshy protuberance extending dorsocaudally onto the forehead from the upper mandible (Gullion 1951:157). Thus, it is hard to imagine that this highly distinctive trait has been intentionally omitted in BL4 and BL7 by the Mesopotamian artisan(s). Nevertheless, the bones of the Eurasian coot, are attested in archeological records from Old Babylonian (OB) Nippur (Boessneck 1992:162), ED Abū Ṣalābīkh (Eastham 2009:102) and Assyrian (the end of 2nd millennium BC – 1st half of the 1st millennium BC) Dur-Katlimmu (Asher-Greve & Westemholz 2013:210–211).

Most detailed bird images that may be identified as the goose come from terracottas discovered in Tello (Girsu) (**Figures 9a-c**) and published by de Genouillac (1936:Pl96.1a-b,4). They show an unidentified (see discussion below) Mesopotamian goddess sitting on two birds or a seat which seems to be a bird throne (Asher-Greve & Westenholz 2013:210–211). One of the objects (**Figure 9a**) presents a partly preserved bird (the tail is missing) possessing a massive body that is divided into three sections—a wing covered with three slanting lines signifying coverts, flanks decorated with sectional structures that imitate the side feathers and finally a plain breast. The neck of the bird is quite long, the head's crown is rounded, and the bill is straight. The lack of the flatter crown (as in Anatidae) may be explained here by a threatening or a triumphant display, which in geese is manifested by the head lifted upright (see Johnsgard 2008:42,Fig.11B;46,Fig.12B,D). Other terracotta examples from Girsu (**Figures 9b-c**) reveal that the discussed birds have quite long slightly bent legs. They are much longer than those of ducks, which would explain why the tibiotarsus and tarsometatarsus bones are here so vividly emphasized. It must also be pointed out that the throne occupied by the goddess is usually composed of two birds, but since the

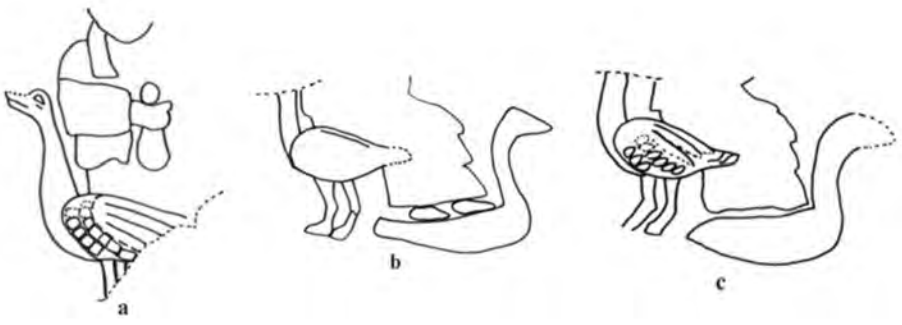

Figure 9. Details showing birds from fragmentary preserved terracottas found in Tello (after de Genouillac 1936, Pl. 96.1a-b, 4, drawn by M. Paszke).

birds playing the role of a footrest have often been deprived of any detailed decisive features it is hard to conclude if they fall into the same taxa (**Figures 9b-c**). Further bird examples noted in the Mesopotamian glyptic art (cf. Asher-Greve & Westenholz 2013:404–405,Fig.54,57–59) suggest that the theme of the goddess enthroned by two birds is apparently diversified and needs more advanced and individual research.

But the essence of the problem lies in our incomprehension of the Mesopotamian bird names (cf. discussion above over geese vocabulary). For example, in Gud. Cyl. A XIV:19–23 (Edzard 1997:78, Gudea E3/1.1.7. Cyl A; Wilson 1996:71) there is an interesting passage showing close connections between the goddess Nanše and an unidentified Sumerian bird u_5. The text refers to the standard of Nanše called šu-nir u_5-ku_3. Since the šu-nir was a kind of a cultic emblem usually made of wood and metal (i.e. copper and gold) (Sjöberg 1967:205, see also 205–207, footnote 9) used in a ritual or ceremonial context (Spaey 1993:411–413; Steinkeller 1998:88–89) the bird u_5 should be regarded here as her heraldic animal. This picture corresponds with the passage found in a Mesopotamian literary composition known as *Enki and the World Order* where the bird u_5 is sitting (?) by the feet of the goddess Nanše ("The holy (ku_3) u_5 fell to/stood by her feet") (Heimpel 1998-1999:153). But the taxonomic identification of the bird u_5 remains unclear, because as pointed out in Asher-Greve and Westenholz (2013:211) u_5-ku_3 in Gud. Cyl. A XIV:19–23 may be translated variously as "white swan", "sacred seagull", "holy goose", or even "pure cormorant".

There is another serious obstacle that prevents a proper goose identification in ancient Mesopotamian iconography. It is the lack of agreement on how to differentiate between the images of a goose and a swan, which constitutes a major dilemma, especially in the Mesopotamian glyptic art. As noted earlier, the ancient biological diversity of Mesopotamian bird species is comparable with modern species, thus it is probable that swans could have inhabited the southern marshland in the Sumerian period. This supposition is corroborated by Veldhuis' (2004:296) identification of the Sumerian u_5-$bi_2^{mušen}$ as a swan. Allouse (1953:14) noted the mute swan (*Cygnus olor*) in the Mesopotamian marshes and rivers as a winter visitor in small numbers, which corresponds with the findings of Porter and Aspinall (2010:24) who claim that it is vagrant in the Persian Gulf. *Cygnus olor* is a large swan, adult individuals are distinguished by a gracefully curved neck, downward pointing bill and a rather long pointed tail (Peterson et al. 1993:49). But there are also two other swan species recorded in Iraq—the Bewick's swan (*Cygnus* [*columbianus*] *bewickii*) and the whooper swan (*Cygnus cygnus*). The first is a smaller, more goose-like swan with a shorter neck, a bill and a rounded head, whereas the second is similar to Bewick's swan but larger (like the mute swan) with a proportionally longer neck and bill (Peterson et al. 1993:49–50; Porter & Aspinall 2010:24).

It has been proposed by some scholars (Asher-Greve & Westenholz 2013:212) that the depiction of swans in Mesopotamian glyptic art in contrast to those of the goose, has a longer S-curved neck, usually with or without lifted wings floating on water. The S-curved neck, together with the raised wings, corresponding with the swan's wing-flapping threat display while calling are apparently an important indicator here, but the image examples that come from glyptic art are deprived of many traits enabling a proper taxonomic identification. Some birds with a long S-curved neck, as encountered in Mesopotamian glyptic art have a straight (**Figure 10**), an upcurved (**Figure 8**) or even a curved bill (**Figures 11**, **12a-c**). Whereas the first and the second may corre-

Figure 10. Detail from the Post-Akkadian seal impression showing birds with a straight bill (after Collon 2005:37, Fig. 113, drawn by M. Paszke).

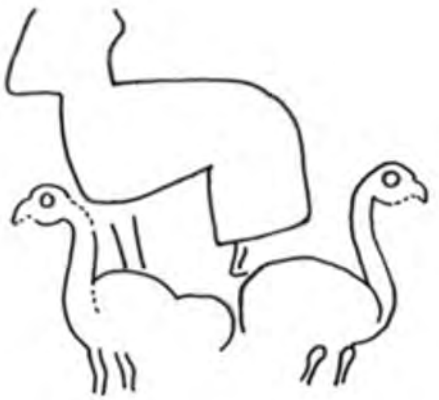

Figure 11. Detail from the Akkadian seal impression showing birds with an upcurved bill (after van der Osten 1957, No. 254, drawn by M. Paszke).

spond to swan species, the latter does not. The bill with a firmly curved premaxillary nail observed on some mentioned examples better fits the flamingo (*Phoenicopterus*

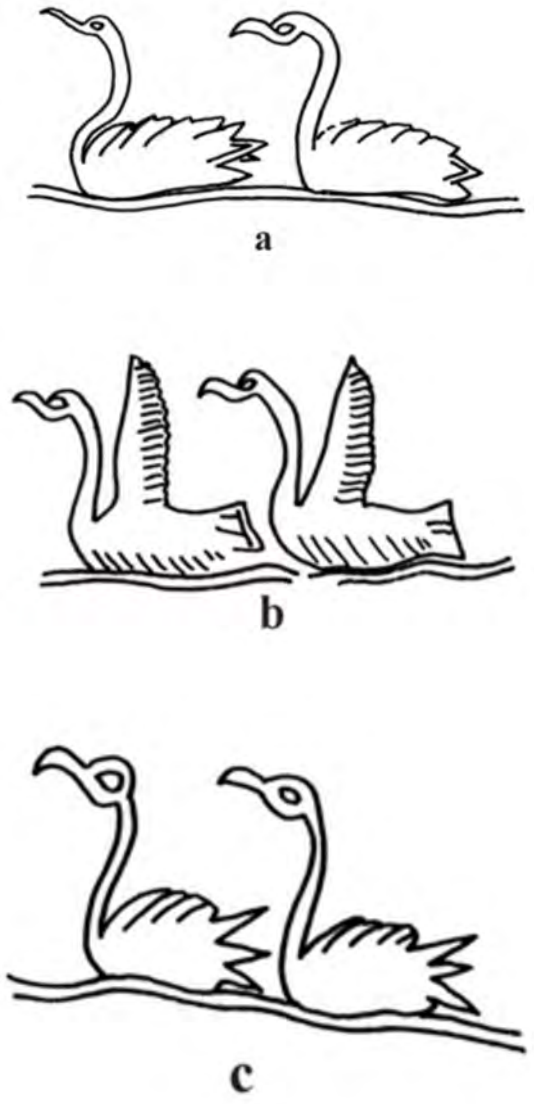

Figure 12. Details from the seal impressions found in Tello showing birds with a curved bill (after Parrot 1948, Pl. XXX:36, 1569, 69, drawn by M. Paszke).

roseus). Flamingos, as noted by Allouse (1953:13; cf. Heinzel et al. 1972:42; Porter & Aspinall 2010:54), are fairly common and resident in the marshes of southern Iraq and the head of the Persian Gulf, thus they might have also been a part of the ancient Mesopotamian avifauna.

Searching for pigeons and doves

Hall and Woolley (1927:98–99,111) in their report point out that the Al-Ubaid's birds have some traits of doves, especially regarding the shape of the head. Furthermore, reading the report, one may get the impression that the only reason the Al-Ubaid birds cannot be identified with doves is their "attitude, which makes them appear to be swimming" (Hall & Woolley 1927:98). Thus, Hall and Woolley's observation requires further investigation.

It has been demonstrated that bird images depicted on the Al-Ubaid frieze may be divided into several groups considering the shape of the body and the shape of the bill respectively. As far as the key features of the birds' heads are concerned, it seems reasonable to acknowledge that the group labeled as 2C (BL4+BL6+BL7) does not represent pigeons or doves due to the straight bill that, together with the rest of the characteristics (see discussion above) makes them clearly distinct from the Columbidae. Due to these reasons the 2C assemblage would better fit the short neck goose (white fronted goose, red breasted goose) or the wigeon.

The best bird examples that could fit the Columbidae come from the assemblage that has been labeled as 2A and 2B. BL1 and BL3 (2A) are characterized by a slim and slightly curved bill, which together with the shape of the head corresponds with pigeons and doves (**Figure 1**). It is the same where the BL2+BL5+BL8(?) 2B group are concerned (**Figures 1–2**, **5**). The only significant difference in the 2B assemblage in comparison with 2A is the presence of a slightly thicker bill. The line delineating the throat, the crop and the breast profile both in the 2A and 2B harmonizes with pigeons and doves. However, the size of the neck and the head of the birds in both assemblages stand in a vivid contrast to the enormous size of their bodies.

The pigeon's body in standing display is characterized by an ovate shape, slender wings with wing flights going downward or holding horizontal position. It is almost the same when the retrices (tail feathers) are concerned, with only one difference—the latter are going downward at a much steeper angle. Thus, a quasi-ovate massive wing observed in the birds from the Al-Ubaid frieze does not match pigeons or doves in standing display. However, this intriguing morphological component can be explained if one would consider some of the Al-Ubaid birds as captured in a sitting display. In this unique display, pigeons and doves are characterized by a short neck, a rounded crown, a short, slightly curved bill as well as emphasized crop and breast. In this posture the body seems to be much bigger than it actually is because the crop,

the breast and the wings are puffed up to a significant extent. As a result, the body of the bird takes on a massive shape that is characterized by a quasi-ovate wing and the rectrices sticking out under the wing flights, which would match the birds observed on the Al-Ubaid frieze.

BL2 has a unique trait which could be associated with pigeons and doves. This is about the flimsy band going across the crown and the throat of the bird (**Figures 1**, **3**). In general, the neck of some Columbidae species is neatly striped (i.e. the turtle-dove *Streptopelia turtur*, with a well-defined, whitish belly patch; the oriental turtle-dove *Streptopelia orientalis*, having a large neck patch), might be pseudo-collared (the laughing-dove, *Streptopelia senegalensis*, has a black speckled rufous necklace) or even collared (the Eurasian collared-dove, *Streptopelia decaocto* exhibits a thin black white-edged collar) (Beaman & Madge 2010:478; Gibbs et al. 2010:48,52; Hayman & Hume 2007:296–297,302–305; Heinzel et al. 1972:172–173; Porter & Aspinall 2010:178,180). Among these species the latter example could match BL2 due to an outstanding black-brown edged half-collar on its nape. But what sets the Eurasian collared-dove apart from the depiction on BL2 is the position of the collar, which in wildlife species is located at a lower point in the middle of the neck, whereas in BL2 it is discernible in the squamosal region of the cranium. For this reason, the collar observed on BL2 would match the white-collared pigeon (*Columba albitorques*) better than the Eurasian collared-dove. However, it is commonly known (see Ash & Atkins 2009:184) that the white-collared pigeon is an endemic species limited to Ethiopia and Eritrea, having nothing in common with Mesopotamia.

It is really hard to assess the value of the flimsy band covering the head of BL2 as a taxonomic identification clue since there are very few comparable objects in

Figure 13. Detail from the Zimrilim's Palace painting in Mari (after Parrot 1960:281, Fig. 347, drawn by M. Paszke).

Mesopotamian art that could bring any contribution to the topic. However, there is one interesting object that is worth further investigation. It is a famous investiture painting discovered in the Palace of Mari (18th century B.C.). The central section of this remarkable work of art shows the goddess Ištar passing the royal insignia to king Zimrilim (c. 1775–1761 B.C.), accompanied by *lamassu* (Al-Khalesi 1978:58; Bradshow & Head 2012:3 and 4,Fig.1; Luciani 2010:105; Parrot 1960:278). But our focus is directed to the image of the date palm standing to the right on the side, because of the spectacular bird that rises off the date palm crown (**Figure 13**). The bird has the following features which fit the Columbidae: a slim and slightly crooked bill, the particular silhouette and short legs. But the most important trait is defined here as a flimsy collar going across the bird's neck from the throat to the nape. Since the

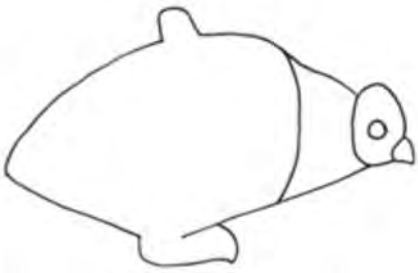

Figure 14. Stone bird from archaic Uruk (after Becker 1993, Tf. 118, No. 1266, drawn by M. Paszke).

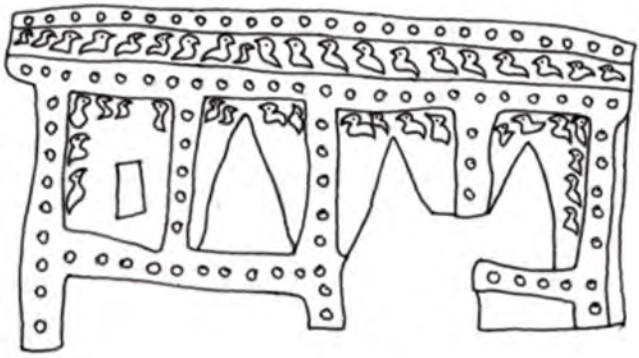

Figure 15. Detail of the upper part of a terracotta house (altar), Assur 21404 (after Andrae 1922, Tf. 13a, drawn by M. Paszke).

original color of the painting has been preserved, it is known that the bird was mainly grey-bluish, except the tail, which was apparently white. However, it must be emphasized that its plumage is relatively poor in comparison with the natural markings as observed in the Columbidae. There is also another dilemma. Because the bird was captured by the painter with lifted wings flapping up, the image may largely display the underside plumage. One may also doubt if the existing colors applied to the bird could have been considered here as a species indicator since the aforementioned flimsy collar is painted in black and brown—the same way as the birds' contours (i.e. see the outline of primaries and secondaries, the remains of crop feathers below the collar) and some of its anatomical details (i.e. the pupil, the nasofrontal hinge). Thus, the color used to mark the collar doesn't have to represent any additional trait that could help in species identification.

There is no wild Columbidae species, either living in modern Iraq or attested by archaeological records, that would fully follow the plumage of the bird depicted on Zimrilim's investiture painting. The bird from the painting has a grey-bluish head (including the bill), nape, breast, sides, belly, flanks, primaries, secondaries, as well as underwing coverts and axillaries except for the uropygium and the tail which has white rectrices. There are several Columbidae species that in general would fit the grey-bluish plumage color palette in both dorsal and ventral view, but at the same time they bear so many inequalities (cf. Hayman & Hume 2007:296–305) that any reliable comparison studies seem to be unproductive. I would only tentatively speculate that in this particular case, the Mesopotamian painter indeed intended to paint a pigeon or dove but finally mixed several characteristics of some Columbidae species (collar dove, turtle-dove and palm turtle-dove) in one. Thus, the final bird image observed on the investiture painting has three distinctive features: the collar, the grey-bluish body and the white tail. In conclusion, despite the fact that the enigmatic band covering the squamosal region of BL2's cranium may be considered as a Columbidae taxa identifier, its plumage does not meet this taxonomical identification.

The identification of pigeons and doves in Mesopotamian works of art falls short of academic expectations. The claim formulated by van Buren (1939:88) that the identification of many small findings (i.e. figurines) with pigeons in the Mesopotamian archaeological context is heavily intuitive and lacks solid research background is still up to date. The pigeons' figurines are usually deprived of traits that could allow their correct species identification. This is apparent if one looks at some stone examples from the archaic Uruk (**Figure 14**) (Becker 1993:107–108,Tf.117,no.1252:W17619 and Tf.118,no.1266:W12059) and the small golden amulet found in grave PG 544 in the Royal Cemetery of Ur (Woolley 1934:541,Pl.142,U9078). There are many enigmatic birds in archaeological records (**Figure 15**) (see especially Andrae 1922:36–38, Tf.14,17,13a-e, Tonhäushen I/Shlangenhaus Assur S 22546, Berlin VA 8143, Ton-

häushen 22081 and Tonhäushen 21404; Pinnock 2000:121–128;123,Fig.1a–1b;124, Fig.2a-b;125,Fig.3a-b;126,Fig.4) that are considered to be pigeons or doves, but their identification is determined not by their taxonomical traits but only by their archaeological and cultural context.

Conclusions

It has been demonstrated that birds from the Al-Ubaid frieze are morphologically diversified and they cannot fall into the same taxon. One of the major problems investigated in the present research was the intriguing balance between the body, the neck, and the head of Al-Ubaid birds. The presented research revealed the existence of two distinctive bird designs (defined as group 1.A/B and 2.A/B/C): The first refers to the slightly different shape of the body (1.A versus 1.B), finally the second focused on the shape of the bill (2.A/B/C). Furthermore, it turned out that the bird's body silhouettes reduplicate themselves within each group standing in vivid contrast to their side front appearance, which is diversified. This multifariousness clearly manifests itself in the morphology of the head, particularly in the shape of the bill. The striking standardization that affected the massive body of Al-Ubaid birds could have resulted from the use of a template facilitating the stonework process.

From the historiographical perspective, there was a prevailing tendency to classify the Al-Ubaid birds into one species, but the collected evidence goes against this approach. The far-fetched birds' side frontal appearance is solid evidence that Al-Ubaid birds do not fall in only one taxon. At the core of the problem there is the "swimming attitude" of the birds postulated by Hall and Woolley, since such qualification really narrows down the possibilities of identification to the waterfowl species. However, the conducted comparative morphological studies have exposed the weakness of this interpretation, which is best exemplified in the case of the duck. The hypothesis proposed by Hall and Woolley, linking Al-Ubaid birds with the duck must be rejected since there is tremendous contrast in the morphology of ducks and birds known from the Al-Ubaid bird frieze. This applies either to the morphology of the body or the neck and the head respectively.

It is fairly clear that bird species identification in ancient Mesopotamian art is an extremely difficult and risky task. The present study demonstrates that at least three of the analyzed birds (BL4/6/7), labeled as group 2C, may be regarded as examples of short-neck geese (i.e. the lesser-white fronted goose and the red-breasted goose). However, two birds (BL4/7) from this assemblage (2C) may very well be identified with the Eurasian coot. Unfortunately, as in the case of ducks either the short-neck geese or the coot has some well-defined traits of head that are not present in birds known from the Al-Ubaid frieze.

The present research supports also the generally adopted opinion that there is a demonstrable problem with the identification of geese and swans in ancient Mesopotamian glyptic art even if one would consider the S-curved neck as the taxon indicator. Furthermore, the analysis of several well-known seal impressions prompt us to the conclusion that some of the examples of birds with S-curved necks may have the characteristics of flamingo species (*Phoenicopterus roseus*).

The claim that the Al-Ubaid birds have crucial Columbidae traits formulated by Hall and Woolley and developed by van Buren should still be considered as valid with some important modifications. Firstly, only some bird examples assigned to the groups labeled as 2A (BL1/3) and 2B (BL2/5/8) meet the morphological requirements of pigeons and doves. Secondly, this role does not include the body, which is too massive, unless the birds are portrayed in a unique puffed up sitting display encountered in Columbidae. If this interpretation is correct the flimsy band detected on the bird labeled as BL2 may be considered as the collar covering some of the living Columbidae species, which could be an indicator for the taxa identification. Unfortunately, a detailed study has revealed that it does not meet all the necessary taxonomical demands which would allow for a detailed species identification as in the case of the collared bird depicted on the investiture painting from Mari.

The Al-Ubaid bird frieze is a remarkable piece of Sumerian art. Its unique features enable us to get better insight into the variegated biodiversity of birds in ancient Mesopotamia. In the light of comparative studies, the intriguing birds depicted on the frieze should be regarded as significant evidence of ancient avifauna, notably waterfowl species such as the short-neck goose or coot or alternatively, only in certain cases, as pigeon or dove in a unique display. The frieze also points out to the need for an ornithological approach in archeological and historical discourse regarding the images of birds in ancient Mesopotamian records.

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